

Higher education in India: Vision 2040

February 2021





Contents

Foreword - FICCI	4
Foreword - EY	5
Executive summary	6
Education 4.0 and resulting trends	8
“Is the glass half empty or half full”: Where do we stand today?	14
Education system in 2040: Outcome of rapid evolution and rollout of the NEP	44
Recommendations for future	80
Bibliography	86
About FICCI Higher Education	88
About EY’s Education Sector practice	89
Acknowledgements	90
Glossary	91

Foreword - FICCI

The technological disruption that the world is currently undergoing is massive and unprecedented. This has led to a radical transformation in the education ecosystem—something that humankind has never experienced before. According to the Organisation for Economic Co-operation and Development (OECD) 2030 Future of Education and Skills Project: “We need to replace old education standards with an educational framework that combines knowledge with the 21st century skills of creativity, critical thinking, communication and collaboration.” This won’t be achieved by simply moving classes from the chalkboard to a Zoom call, but radically transforming the way we teach and learn science and technology skills, from one-way content dissemination and memorization to personalized, self-directed learning. We all just don’t need knowledge, but also skills, attitudes and values to thrive in and shape the future for a more empowered global citizenship. This has never been more evident than in the current pandemic.

The pressures that individuals, institutions and societies face in this crisis are accelerating the Fourth Industrial Revolution, and blurring the boundaries between the physical and digital world. These changes are today impacting the jobs in the industry, many of which have either become redundant or getting replaced by automation, artificial intelligence, robotics and new business architecture. The new era requires individuals to be at ease with technology, uncertainty and unforeseen risks.

The job market is undergoing massive change and there is a need for a fresh thinking to address current and emerging challenges. The world is being transformed by scientific and technological advances and these changes are also impacting education systems and processes. They are altering the learning infrastructure. It is extremely critical today to ensure that faculty’s comfort with technologies is as important as it is for the student community.

Against the backdrop of Education 4.0, the FICCI-EY report 2021 has attempted to look at some of the pressing challenges of higher education (HE) and has accordingly suggested recommendations and a roadmap. While defining Education 4.0 in the current context, the report has highlighted the significant emerging trends within the higher education sector that has resulted and has only accelerated with the onset of the pandemic. The report has drawn learnings and documented cases and best practices from global higher education ecosystem.

The FICCI-EY report, further, has looked at the National Education Policy (NEP) 2020 that offers a number of well-reasoned and bold reformative steps in the right direction. The NEP conveys a clear bias for a disruptive change by taking into cognizance the issues of equitability, inclusivity, accessibility, exploratory and experimental- all ingredients required for transforming into Education 4.0 and beyond. This year’s report, has also looked at the higher education architecture framework that was suggested in Vision 2030 report released in 2013, and has made appropriate modifications and suggested requisite recommendations in lieu of the ongoing and envisioned radical disruption in the sector.

We would like to extend our gratitude to all higher education and industry leaders who have shared their thoughts for developing the report. We hope that the deliberations at the 16th FICCI Higher Education Summit 2021 will provide the government, industry, university and other stakeholders the right perspective to adapt to the rapidly changing world and enable them to develop appropriate strategies to manage the change effectively.



Dr. Vidya Yeravdekar
Chairperson
FICCI Higher Education
Committee



Dr. Rupamanjari Ghosh
Co-Chairperson
FICCI Higher Education
Committee



Dr. Sekar Viswanathan
Co-Chairperson
FICCI Higher Education
Committee



Dr. Rajan Saxena
Co-Chairperson
FICCI Higher Education
Committee

Foreword - EY

In 2020, the higher education ecosystem has undergone a dramatic and undeniable makeover. All institutes, from the progressive to the highly resistant have had to accept the proliferation of digital tools and technology platforms that have restructured not only the academic aspects, but also the experiential and administrative functions of Higher Education Institutes (HEIs) .

The education sector was among the initial impact bearers of SARS CoV2 Virus (COVID-19) lockdowns. Even now, as we have moved towards staggered unlocking, it remains among the last to open.

HEIs have moved into an online mode of delivery to attenuate this challenge - creating and establishing a “new normal” and evolving the face of education for future generations.

This pandemic triggered transformation of the higher education sector and has accelerated the move towards Education 4.0, a technologically fueled, student centric model that promotes flexible learning paths and focuses on knowledge and skill requirements of the industry. Education 4.0 focuses on HEIs’ movement from the process driven, technology supported mass teaching systems to a personalized form of learning that appreciates flexibility and customization, while being supported by technology interventions.



Amitabh Jhingan
Leader and Partner,
Education sector
Ernst & Young LLP

The visionary and progressive NEP 2020 would further support the more sustainable and long lasting initiatives introduced as a reflex during the pandemic. Adaptive implementation of the policy has the potential to not only propel the education ecosystem of India in the right direction but also radically transform it. A few components of this transformation are already being adapted as mitigation measures.

This report takes an initial step toward identifying the changes that have taken place and their role in the movement towards the future of education in 2040. It also assesses the provisional changes and more sustainable transformations bearing in consideration NEP 2020 as an important factor of an evolving education landscape. The report delves into some cases of good practices of countries and HEIs that we consider are ahead of the curve in their vision and execution. This report helps with some recommendations on implementable actions for alignment with the new higher education landscape.

We hope you enjoy reading the report.



Executive summary

The future of education could be an amalgamation of transformations driven by Education 4.0, NEP 2020, present pandemic, emerging student needs and new technologies. The current social environment, generational differences in society, new student profiles and monumental technological changes have led HEIs to reinvent and redesign the higher education ecosystem to create a more accessible and inclusive environment.

Today, HEIs have risen as relevant and essential agents to ensure flow and exchange of knowledge and develop needed competencies and capabilities in this fourth industrial revolution. This has given rise to Education 4.0. This new paradigm of education is defined by key features such as high speed internet, mobile technology, social media platforms, etc. Facilitating personalized learning anytime, anywhere and changing the role of teachers to facilitators and mentors are some of the key characteristics.

The future of education is focused on preparing students for leadership positions in a globalized knowledge society.

Education institutions and regulatory bodies could embrace new and emerging technologies and processes at a much faster pace than they did more than three decades ago when computer education came to India.

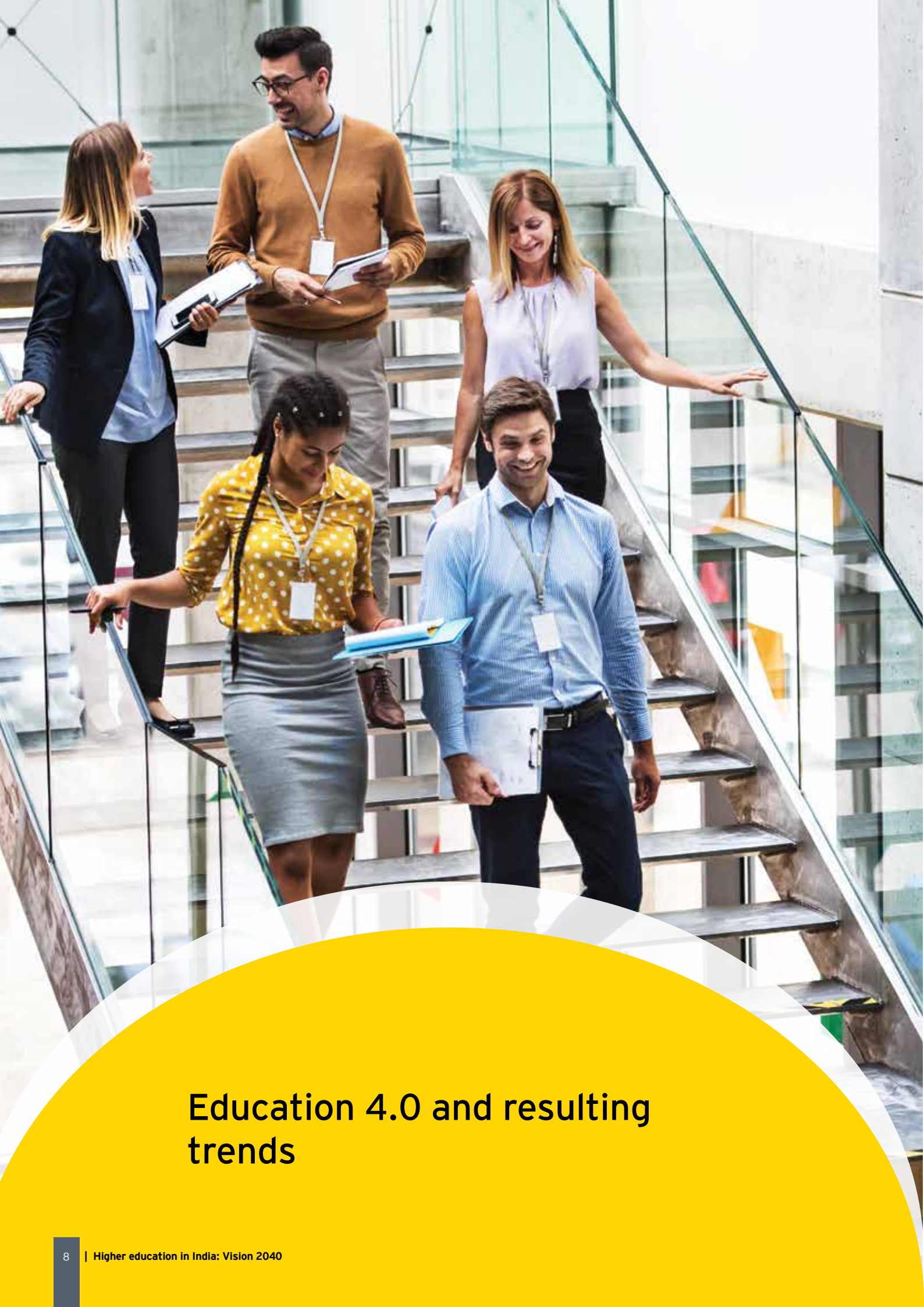
This transformation has been further impacted by the pandemic and the global lockdowns that followed. The structure of the education system, i.e., learning methodologies, teaching techniques and assessment methodologies have been significantly impacted with the shift to online education. Many HEIs have had to adopt remote learning measures without the needed time to upgrade the infrastructure and systems required for the model.

NEP 2020, a futuristic document aimed at revolutionizing the Indian education landscape, focuses on many aspects that Education 4.0 and the face of the future of education consider important. This includes flexibility, customization, student experience and technology integration. This policy could help formally regulate and propel the future of education in the right, sustainable direction.



The future of education in 2040 will be focused on enhancing the student experience and ensuring that learners are supported by the HEIs across their journey. The HEIs could focus on the entire higher education ecosystem to ensure that all the pieces align and the institute functions smoothly to deliver a quality experience.

- ▶ Curriculum and pedagogy could be revised to incorporate formal, informal, physical and virtual elements to enhance learning. New models of education focused on blended learning, micro credentials and interdisciplinary entablments could help attract and retain new student segments, whereas integration of technology across teaching and assessment could delivery a quality education.
- ▶ Relevant and transparent working policies and processes for faculty could enable them to contribute effectively to not only teaching but also research and student development. Development models could help faculty up-skill across different disciplines and areas, further enhancing their role and position in society.
- ▶ Collaborative and cooperative research efforts could help create a network of knowledge exchange, resources and common goals to work towards. Moreover, development of sustainable funding models would be needed to continue research efforts in the future.
- ▶ Cross-border, differentiated partnerships, could help enhance the quality of education being offered by HEIs, improve student experience delivered as well as help build the required skills in both faculty and students.
- ▶ Building and institutionalizing a strong technology infrastructure could help boost internal operations and processes, student experience and teaching and learning.
- ▶ Optimal utilization of existing assets could propel HEIs towards better resource efficiency. Differentiated delivery models and analysed cost structures could enable an improved financial position for HEIs.
- ▶ Transnational governance models and emerging technology related leadership roles could contribute greatly towards knowledge creation and research efforts.



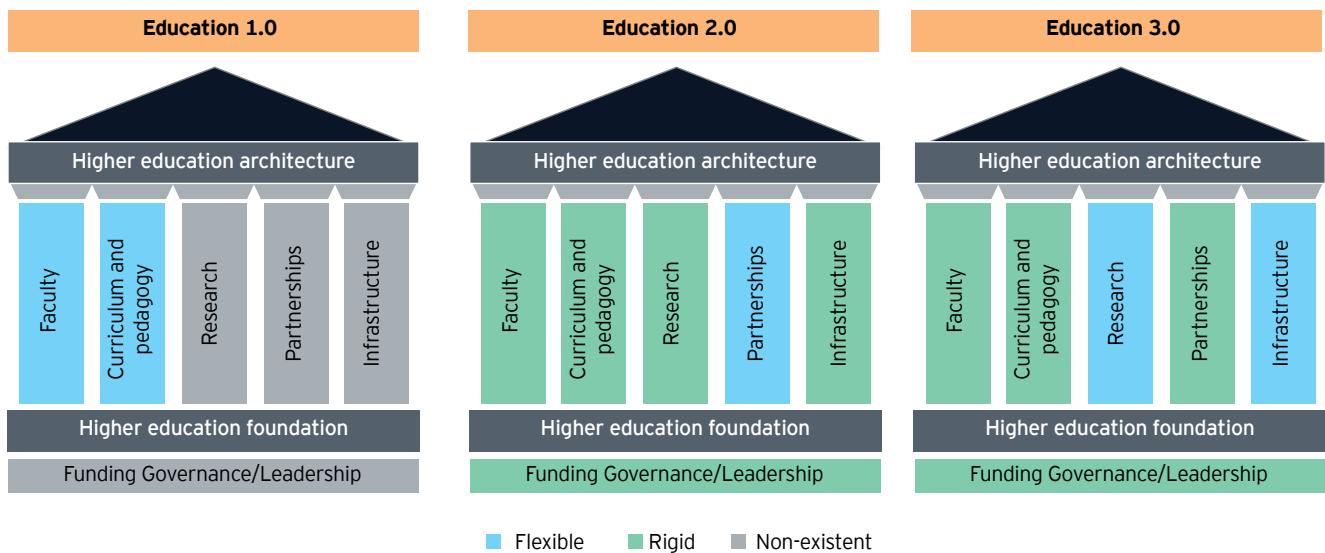
Education 4.0 and resulting trends

The higher education system that we know of today has evolved over these waves of transformation; with change being the only constant

Education systems have evolved over the centuries in response to social, economic and technology innovations, which in turn are impacted by the evolution in education system.

A paradigm shift from Education 1.0 to Education 3.0 has taken place and although flexibility has increased and

education delivery has evolved, the core process of teaching has remained almost constant. A teacher-instructed classroom has been the way knowledge is disseminated. Content is prepared in a fixed curriculum structure, delivered at a specific point of time to the learner cohort and standardized in terms of the content and its delivery.



Education 3.0 was benefitted with rising internet usage and technological advancement.

Recently, there has been a transformation from the traditional setting of the lecture hall. New tools and technologies have been integrated in teaching. There has been considerable growth in online learning and simulated learning opportunities. The higher education sector is moving toward democratization of content with broad access to useful qualifications and more opportunities for self-study programs.

The strong influence of technology has provided various broad learning opportunities that are changing the face of higher education today.

However, to keep pace with the growing needs for students and rising cost of education, there was a need for HEIs to offer cost-effective learning and better employability solutions to learners.

The demand drivers along with the rapidly changing student needs ushered in in the next wave of transformation in the higher education system - **the emergence of Education 4.0.**

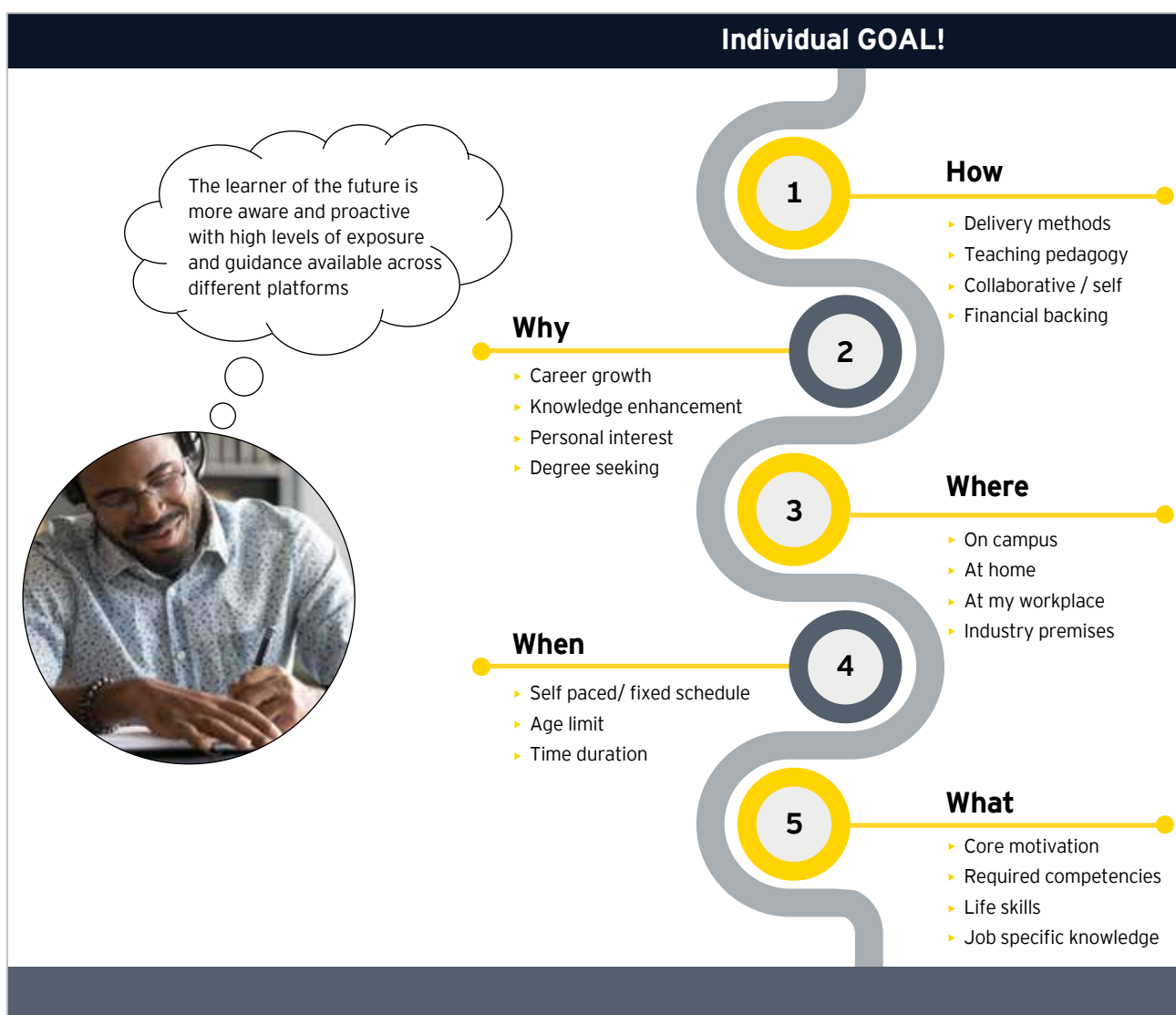
Education 4.0 puts the learners at the center of the ecosystem and empowers them to structure their learning paths in alignment with the final outcome

Evolution today is taking place at an accelerated pace as change is now measured in years and not centuries. Today, we are again at the cusp of a change where the learner will be at the center of the future ecosystem in Education 4.0.

In Education 4.0, learning is connected to the learner, focused on the learner, demonstrated by the learner and led by the learner. It is the learner who is responsible for defining the

various dimensions of his education path – the what, where, when, how and why while moving up the learning ladder.

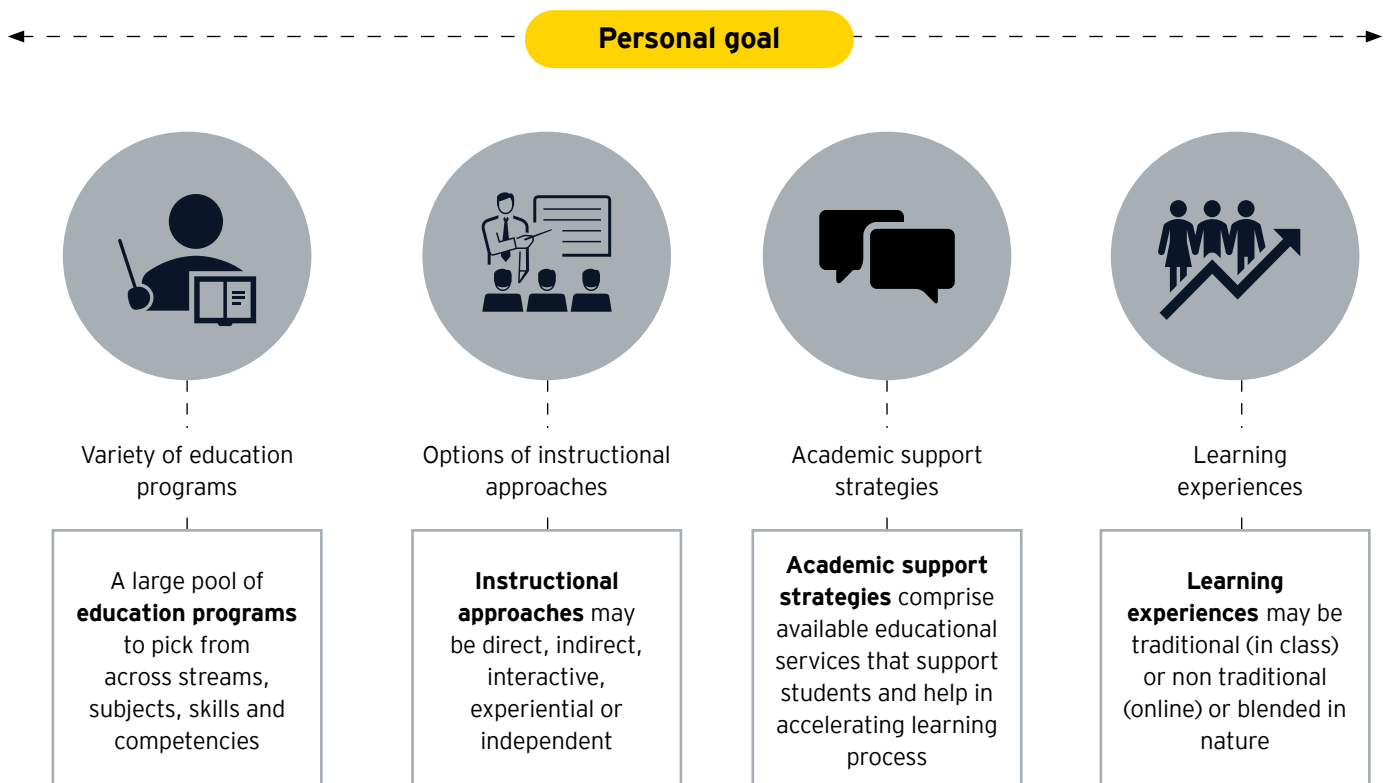
Increased innovation in teaching methods, demand for an improved higher education experience and availability of better learning opportunities supported by technology have been the major impetus for this shift toward personalization.



Education 4.0 is the **personalization** of the learning process, where the learner has complete flexibility to become the architect of his or her own learning path and has the freedom to **aspire for, approach and achieve** personal goals by choice.

Driven by the learner's need, Education 4.0 emphasizes the need for personalization, making it the only constant through the journey of education

Personalized learning focuses on addressing an individual's goal by choosing from a variety of educational programs, instructional approaches, learning experiences and academic support strategies that are aligned to the learner's distinct needs, aspirations and interests.



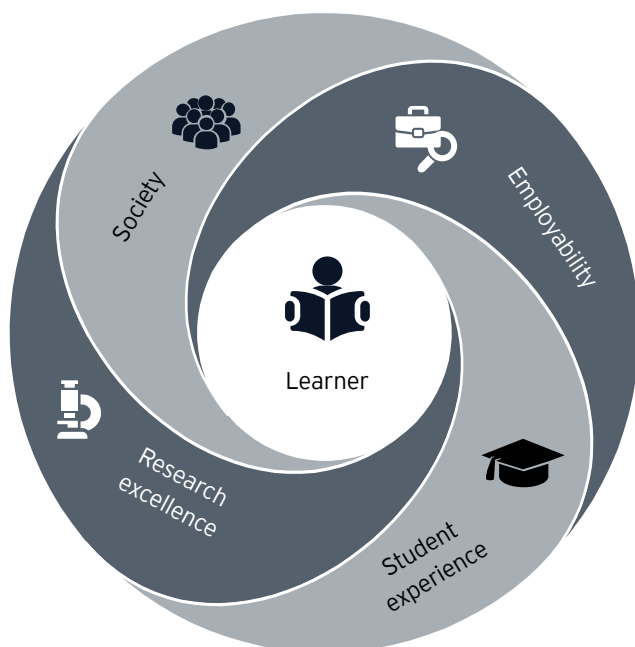
In Education 4.0, **the learner will always be at the center of the education ecosystem**, learning at the university as also from peers, industry and society at large.

In this paradigm, it is imperative for HEIs to redefine the education ecosystem by enriching the student learning experience, focusing on employability and providing opportunities for research excellence

Responding to the evolving student needs coupled with rapidly changing industry demands, HEIs now have a greater onus to develop an ecosystem that will provide a high quality educational experience.

It is imperative for HEIs to redefine the education system in a way that it caters to different needs of students and equips them with the credentials needed to remain relevant in the industry and add value over time.

While technology remains the key catalyst that enables innovations in the education arena, Education 4.0 will be driven by four key levers uplifting this ecosystem.



Student experience

With “student at the center”, HEIs are focusing on enriching the student experience.

This encompasses creating customized and flexible learning environment, providing students with opportunities of self paced and experiential learning, and supporting life-long learning via multiple entry and exit options.



Research excellence

In order to keep up with rapid advances in the field of science and technology, HEIs need to integrate research with industry needs and create an ecosystem of collaboration to maximize the utilization of research output.



Employability

With industry demands rapidly changing, it is crucial for HEIs to address employability challenges by matching students’ learning outcomes with evolving labor market needs.

This calls for a strong connect between university and industry to expose students to the business environment in real time. Employability in education is further bolstered by imparting students with the required employability skills and credentials to remain relevant in the industry and fungible across sectors.



Society

With Education 4.0 introducing a revamped model for university education to eliminate the constraints of location and rigid program structure, it is crucial for the broader society to fully accept this new wave and acknowledge the validity of remote and flexible university degrees.





“Is the glass half empty or half full”: Where do we stand today?

Changing student needs, acceptance of online learning, impact of the pandemic and the release of new education policy emerge as the key drivers for the ongoing evolution of the education system

The progress made by HEIs has been remarkable across the different education paradigms, but it is not the end of the journey. The education sector around the world and more so in India has seen and is still undergoing the biggest shift ever.

The year 2020 has been like no other in history. Although the education system has been gradually evolving and responding to triggers such as the changing learner needs and emerging technologies the pace of change has accelerated with the unforeseen situation created by the pandemic and the approval of the NEP.

Changing student needs

Student needs are continuously evolving, this can be attributed to the new student majority of non-traditional students, who juggle their studies with work or caregiving responsibilities. The new learner yearns for personal and adaptive learning paths based on competency levels.

Acceptance of online learning

The online learning environment has undergone a change both in India and globally. In India, regulators have started accepting online degrees as a substitute to classroom learning and have provided more flexibility to HEIs to increase component on online learning in regular programs as well. Many online learning companies and global universities are now innovating to develop online learning programs, associated pedagogies and content that deliver on unique student experience.

The Covid-19 pandemic

The current situation of higher education across the world is similar. The pandemic has brought about unprecedented changes and transformed the face of education in 2020.

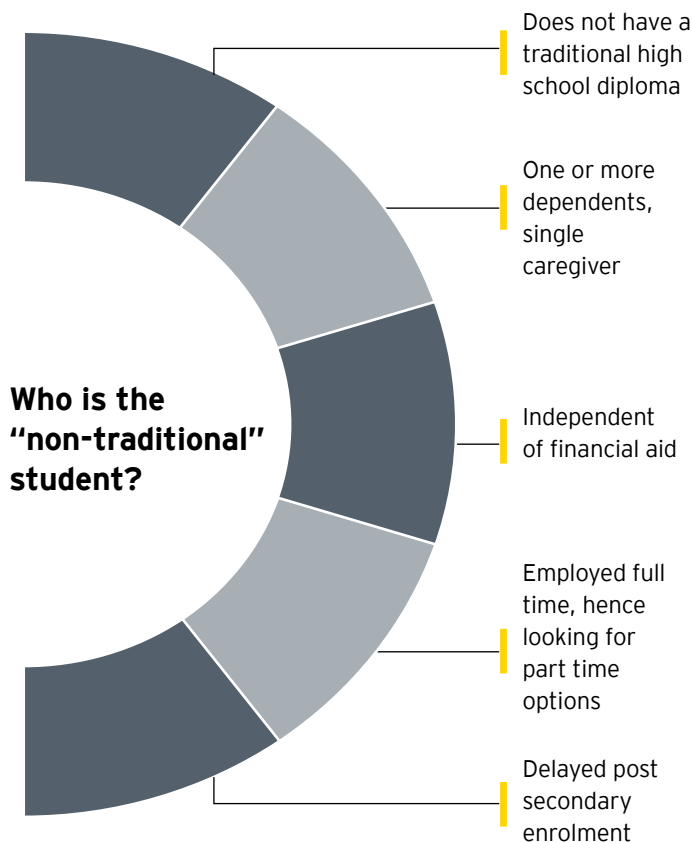
It has accelerated the trends, notably the transition to a digital economy. It has acted as a test bed for Education 4.0 by transforming concepts of personalized learning and integration of technology to reality.

NEP 2020

NEP 2020 proposes the revision and revamping of all aspects of the education structure, including its regulation and governance, to create a new system that is aligned with the aspirational goals of 21st century education, while remaining consistent with India's traditions and value systems.

Learner profile and needs are evolving and today age and experience are no longer determinants of who can be a student

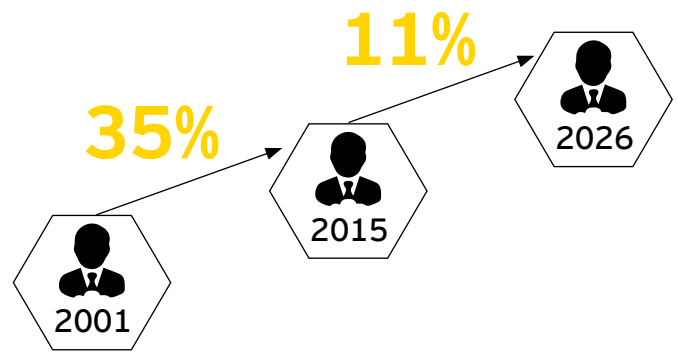
A student ready for college right after high school and enrolled in full time classes to complete a degree is no longer the norm. Over the years, this “traditional” profile of the learner has been changing. The learner of today does not necessarily fall within a defined age bracket. The changing employment scenario where the nature of future jobs is ever evolving has further led to the growth of the “non-traditional” student.



Prevalence of non-traditional learners⁽¹⁾

Between 2001 and 2015, there was a **35% rise in the college students aged 24-35, globally.**

It is expected that by **2026, this will grow further by 11%.**



Majority of these non-traditional learners have a family or current profession, but are driven to education due to tough financial realities, changing economy or need for upskilling.

What does a new age student demand?

- ▶ Courses offering flexibility and multidisciplinary options
- ▶ Career counselling support to meet their objective of getting a better job
- ▶ Affordable learning solutions with a quick return on investment
- ▶ Clear proactive communication/information about services offered

A paradigm shift is inevitable to cater to the needs to this growing target segment of new age learners. This new majority demands a greater deal of flexibility and customization, making personalized learning the preferred learning path.

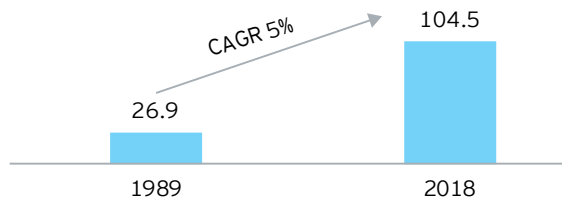
However, despite it being a learner centric ecosystem, cost of education in this new paradigm is rising steadily, making higher education an unaffordable luxury for many

Over time, the surge in demand for quality education, decrease in provision for scholarships and financial aid, need for top faculty, increasing student services and a portfolio of offerings and operations had led to the cost of higher education to rise drastically.

With a higher education degree often being a basic requirement for professional jobs, not getting one can put workers at a major disadvantage in the job market. But, many students are unable to afford the luxury that higher education has become over time. This rising cost is also making higher education more exclusive and preventing access rather than enabling it to the masses.

Rising cost and unaffordability of higher education

Cost of 4-year under graduate degree in USA (US\$' 000)⁽²⁾



This means that between the academic years ending in 1989 and 2018, the cost for a 4 year degree (at a USA HEI) grew at a rate of 5%, even after inflation.⁽²⁾

Has the rate of rise in income made it possible afford this costly education in today's age?

The average annual growth in wages was only 0.3% between January 1989 and January 2018.⁽²⁾

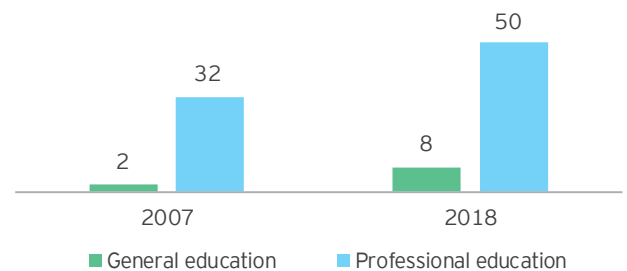
Thus, the cost to attend a university increased nearly eight times faster than wages did, leading to higher student debts and a decline in international students due to high costs.

Even in India, the situation is similar

Being one of the world's largest economies, which is also home to the youngest population, a large number of Indians are pursuing higher studies and spending more on education.

The cost of general and professional education in India has increased significantly over a span of 10 years.

Annual cost of higher education in India (INR '000)⁽³⁾



However, India's monthly per capita income is only INR 11,254⁽⁴⁾.

This monthly income is insufficient for many households to be able to afford the rising cost of higher education in India.

Once again, making quality higher education an elusive dream for many that is not accessible to the masses.

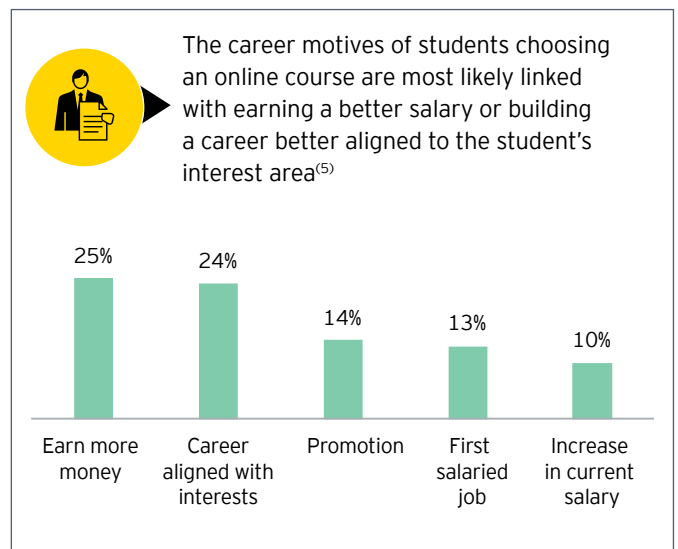
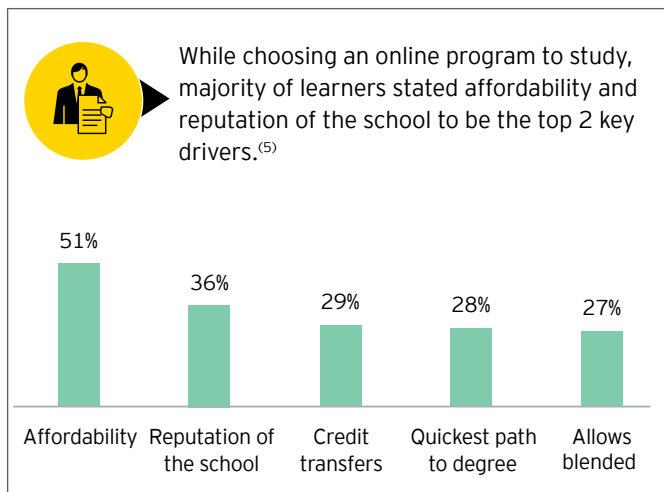
The preference for online learning is emerging across learners of all ages as it enables them to create their own learning paths as well provides a more cost effective option than classroom learning

Education 4.0 technologies have propelled online or distance education to the forefront. Students are considering this new-age medium of education, and society is learning to accept it as well.

While its the first preference for many non-traditional learners, online education is slowly becoming a strong contender of choice amongst traditional students as well.

Reasons behind choosing an online or distance education

- 1 **Flexibility** to design your schedule and study anywhere, anytime
- 2 **Customized learning experience** with study at own pace and learn through different mediums
- 3 **More cost effective** than in person classes



The rise and acceptance of online or distance learning has been further accelerated by the ongoing pandemic. Online teaching and learning is being adopted at a rapid rate across the world.

Moreover, in India, the new NEP, launched in 2020, has reflected the acceptance of online education through several suggestions.

The emergence of new learners has enabled a shift in the higher education sector in India recently, from more physical in-person teaching and learning to online mediums and pedagogy

In an era where information and technology is in surplus, higher education across the world has aligned itself with quality standards and forces of change. Trends such as the rise of AI, the fourth industrial revolution and the future of work are transforming the ways in which we work and learn. Other factors, such as the growing higher education cost, low funding, and the rise of non-traditional ways of learning, are disrupting the education landscape at a global level.

Even in India, student needs are changing. Preference for flexibility and new and innovative methods of learning are showing a rising trend. Influence of global trends, evolving industry needs and student preferences have led to a number of changes in the Indian education landscape across metro, urban and rural areas.

Acceptance of Online and Distance Learning (ODL) programs

According to University Grants Commission (UGC) regulations in 2020, the top 100 universities in the country will be permitted to start distance learning and online programs without prior permission.

These regulations are student-centric in nature and numerous quality provisions have been made to ensure mobility, equivalence among different modes of education and improvements in complaint handling mechanisms at HEIs.

Technical courses to permit online learning

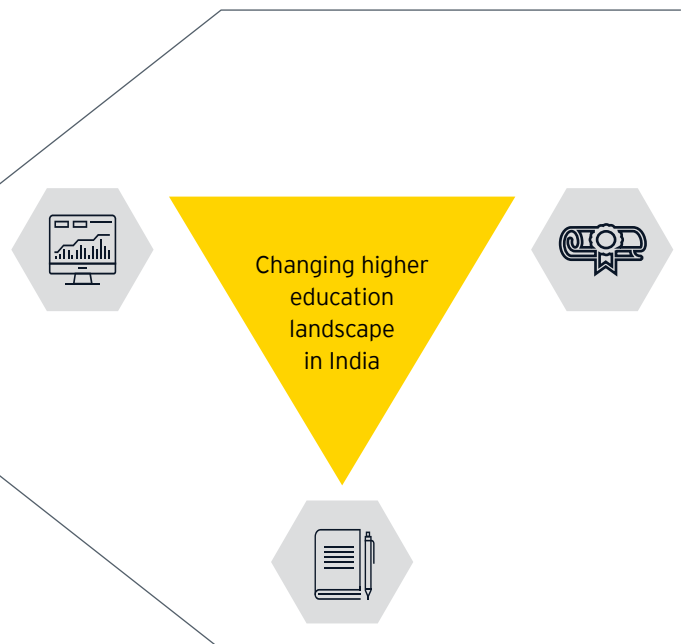
The technical education regulator, All India Council for Technical Education (AICTE) has permitted HEIs to facilitate credit transfer of up to 20% in every semester from online courses offered by Study Webs of Active-Learning for Young Aspiring Minds (SWAYAM) platform to encourage and increase focus on online education.

Emergence of online players

Indian E-learning platforms are on the rise. Majority of courses provided are free, with certifications available at a minimal cost.

The courses range across programs and some are even in collaboration with top global universities.

Within five years, these Indian platforms have reached millions of students across the world due to their flexible model of anytime, anywhere learning.



Higher education setups are leveraging learning technologies to establish online universities that can offer experiential learning opportunities at a low cost

Online education providers are becoming increasingly popular with the advent of technology and digital mediums. This was further accelerated by the impact of the pandemic.

The opportunity to access high quality education at anytime, anywhere is becoming the norm, with over 20 million students globally opting for both short term and long term courses.

Online universities and other learning organizations are transforming traditional education, removing the barriers of cost, location and access.

Fulfilling the demand for people to learn on their own terms, these setups reimagine the possibilities of education, providing the highest-quality, stackable learning experiences including new-age and innovative programs.

Supporting learners at every stage, whether entering the job market, changing fields, seeking a promotion or exploring new interests, these online universities deliver courses for curious minds on topics ranging from data and computer science to leadership and communications.

Minerva School at Keck Graduate Institute (KGI)⁽⁶⁾

Project Minerva started as a completely informal education program in 2012, but now has evolved into the most selective program in the USA within 5 years of operations.

Project Minerva is a school with no classrooms. Online seminars cover theoretical concepts, while the rest of the life skills are imparted through international stints across the globe, industry internships and internship projects.

Project Minerva partnered with KGI in 2013 for the award of degrees - underlining the importance of a formal standardized credential at end of the program. It is now an accredited university with a completely online and experiential learning paradigm.

In 2017, the school had a 2% acceptance rate for its undergraduate program which is lower than most of the Ivy League institutions in the USA.

edX⁽⁷⁾

edX is an online platform for education and learning. Founded by top global universities, edX is home to more than 20 million learners, the majority of top-ranked universities in the world and industry-leading companies.

edX provides students with Massive Open Online Courses (MOOCs) across programs such as computer science, languages, engineering, psychology, writing, electronics, biology, or business studies etc.

Through edX, students have the opportunity to opt for a certificate, bachelors, masters or executive education program.

Courses leverage active learning, peer learning, instant feedback, discussion forums and videos to make learning more engaging and improve student retention.

The pandemic accelerated a shift in higher education and acted as a test bed for Education 4.0, transforming concepts of personalized learning and integration of technology to reality

The current situation of education across the world is similar. The pandemic has brought about unprecedented changes and transformed the face of education in 2020.

With governments across the world implementing lockdowns to contain the spread of the pandemic, schools and HEIs were forced to shut down. With no end in sight, alternative methods of teaching and learning were introduced and at times very quickly.

Stakeholders in their bid to ensure the continuity of teaching and learning rushed to online education using available platforms, e-learning content and communication technologies. This set off an unplanned and rapid shift in the education sector.

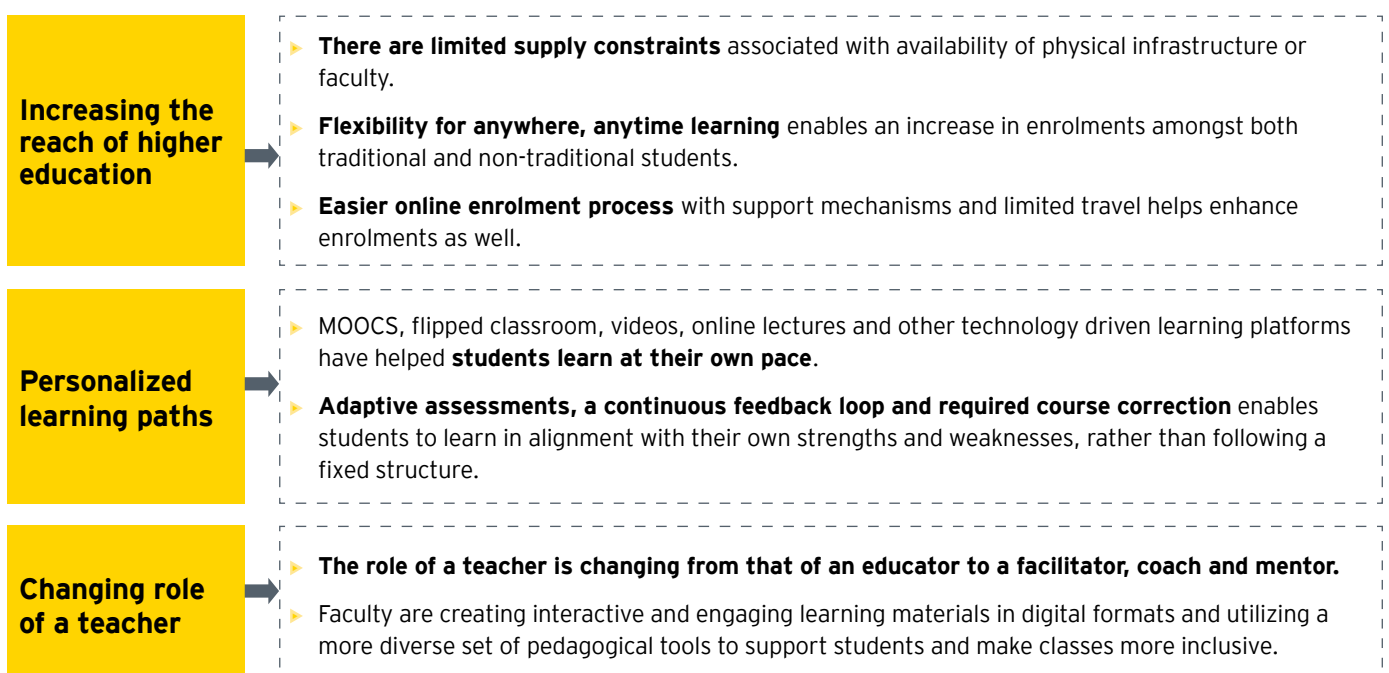
To support ongoing teaching and learning, education technology companies from across the world stepped up to offer their services, many for free during the lockdown period.

Numerous HEIs started taking courses online. This resulted in a significant growth both in terms of revenues as well as in number of users in the EdTech sector over the last few months. The pandemic has been a watershed moment for EdTech sector everywhere.

The revision and remodelling of education during the pandemic has allowed for the realization of many pedagogic tools and methods of teaching which were earlier being underestimated. Courses in the form of MOOCs are also enabling a more liberal approach to education. The arena of open learning for students across ages is finally being made truly accessible and encouraging learners to invest in their curiosities.

It has also made education less exclusive and more open and accessible. The global education community is united and is becoming increasingly conducive to an international hub that can revolutionize education in the near future. This can cause a rippling effect for the masses, especially in India.

The pandemic has acted as a catalyst, transforming the concepts of Education 4.0 to reality and bringing them to the forefront of higher education today.



The rapid shift to digital has been felt across functions in higher education, and this has been challenging for Indian HEIs and their stakeholders who are more used to in person communications

Higher education campuses are places where students live and study in close proximity to each other. They are also buzzing cultural hubs where students build new experiences together, explore opportunities basis their interests, participate in research and international exchanges, and develop as their own individual person.

Faculty, management and staff working at a HEI make it their home, and are accountable for imparting knowledge to a large number of learners. The HEI, their workplace, can help these stakeholders discover their interests, further their career and help them build their network as well.

Recently, the foundations of this unique ecosystem have been impacted significantly by the pandemic, creating uncertainty regarding the implications for higher education.

Challenging impact of pandemic on HEIs and its stakeholders

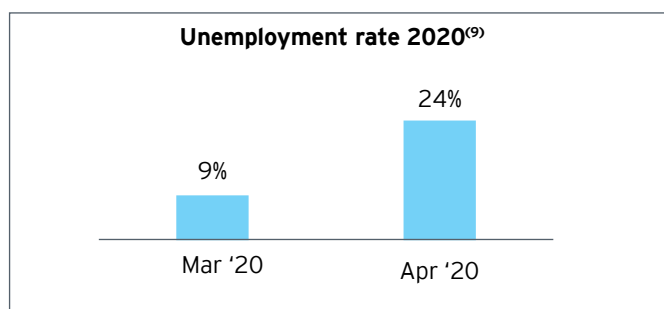
Everything has gone digital!

From teaching and learning to administrative functions, everything is expected to be done remotely over virtual communication solutions.

Faculty and students were both unprepared for such a drastic and unexpected change

Fear of unemployment

Most HEIs reported that companies did not withdraw their employment offers from students. But the high unemployment rate during the peak of the pandemic in India may have a significant impact in the future.



Research opportunities and facilities were inaccessible

Limited access to the field and laboratories for conducting research, severed access to databases, and non conducive environments for focused work have had a negative impact on research.

Huge impact on classroom format of education

10.62%

of India's higher education population was enrolled in distance education⁽⁸⁾

Majority of the students were enrolled in classroom format of education and were therefore impacted by the disruption caused by the closing of physical campuses during the ongoing pandemic.

Limited international mobility⁽⁶⁰⁾

48% of Indian students who were interested in going abroad for their higher education have changed their mind and showed a preference for India during the pandemic.

Indian HEIs have seen a massive dip in inflow of international student enrolments in 2020.

Student experiences and time on campus

Social interaction between peers, faculty members and others has been cut short.

Peer learning and face to face discussions have been severely reduced. Students are frustrated with not being able to get the "campus experience" they signed up for.

India's new NEP, launched in 2020, could further build and strengthen India's shift into the new paradigm

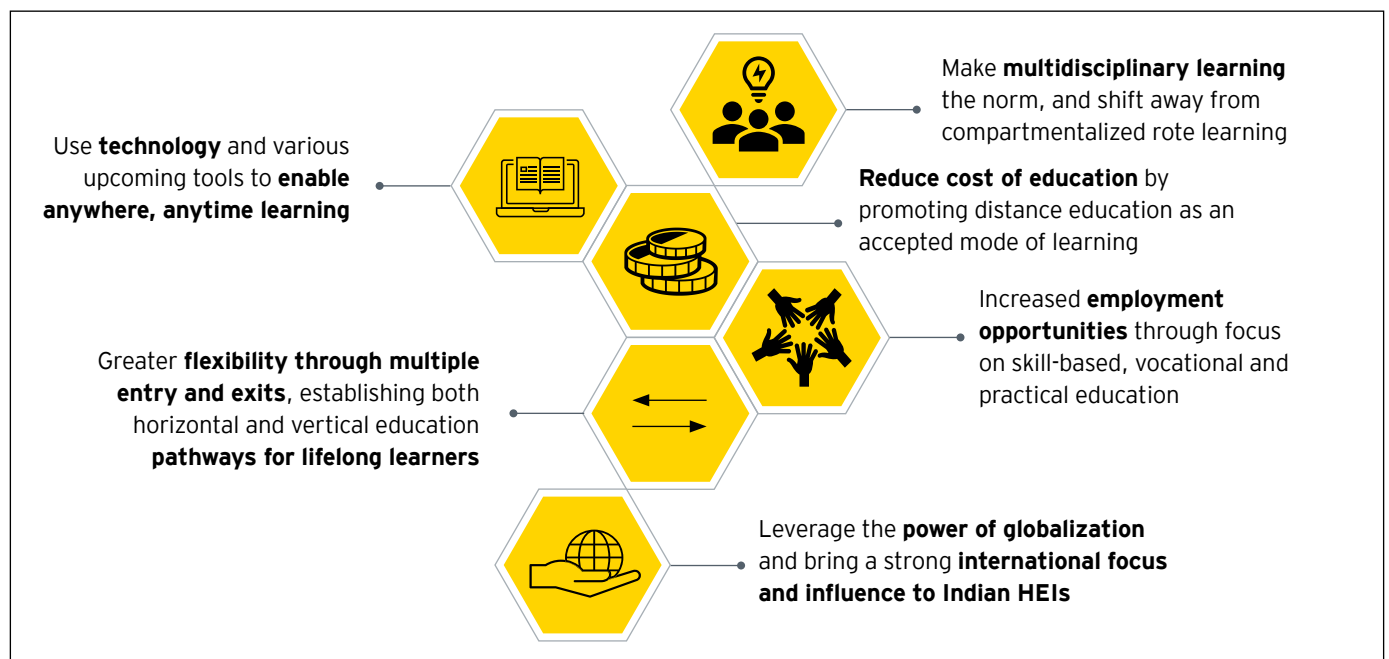
With the advancement of Education 4.0, came India's third NEP, in a bid to further the country's educational transformation as well as provide quality education to the masses.

The policy identifies gaps in the current state and suggests reforms that can be undertaken to bring the highest quality, equity and integrity from early learning years through higher education.

With the rapidly changing global ecosystem and industry requirements, this policy focuses on changing mindsets from content and rote learning to critical thinking and problem solving concepts with emphasis on innovation, creativity and multidisciplinary knowledge.

The policy also acknowledges the influence of technology and digital mediums on education, especially higher education, and how this can be further leveraged to reach underrepresented and disadvantaged areas.

The new NEP recognizes the trends that drive Education 4.0, and through its interventions aims to accelerate its adoption in India



“This is a bold policy with landmark ideas; the new NEP has surely sought attention, especially due to it being in line with the changing trends of higher education today and helping accelerate the transformation with its new and suggestive interventions”

Faculty Member, Private HEI in Delhi

Students and other key stakeholders feel that they would be impacted if the NEP is implemented

The NEP has highlighted a couple of ambitious tasks such as almost doubling the Gross Enrolment Rate (GER) in higher education from 26.3% (2018) to 50% by 2035, improving quality of HEIs and ensuring that India is recognized as a global education hub.

All three goals have students at the center, making them one of the most important stakeholders in ensuring the acceptance of this visionary document, especially where it impacts their future and how their learning paths are designed. Understanding student mindsets and how they interpret and accept the NEP is essential for its successful implementation across the country.

Awareness of NEP 2020

87.7%

of students expect the NEP to bring a positive change and reduce the pressure for academic excellence⁽¹⁰⁾

66.8%

of students were aware of the NEP 2020⁽¹⁰⁾

Impact of digital and technology on teaching and learning

65.6%

of students said these mediums help them understand subjects better⁽¹⁰⁾

Learners today are willing to adopt a learning culture that is more progressive and are willing to take risks that will help with overall holistic development.

The NEP and its focus areas can help transform the education landscape of India, and help students design learning paths that can help achieve their goals and aims.



Opinions of important stakeholders such as faculty, students and the industry is reflected below to show how they feel the NEP would impact the higher education system in India.

“Although the NEP seems promising, what concerns me the most is how this policy would be implemented. There is a lack of clear direction in the policy on implementation, making the NEP merely a recommendatory document.”

Professional at leading EdTech company in India

“The most stand-out aspects of the NEP are that we can undertake courses across disciplines, and the opportunity to take gaps while pursuing a degree. This allows for more flexibility than what is there in the current system.”

Class 12 student, Pune

“As the education system will be completely revolutionized, a lot of planning and design will be needed. Thus, the workload will increase but it will be a welcome increase.”

Faculty, Leading private HEI in India

“The way of doing research will change. There will be access to more funding as well as opportunities”

Faculty, Leading public HEI in India

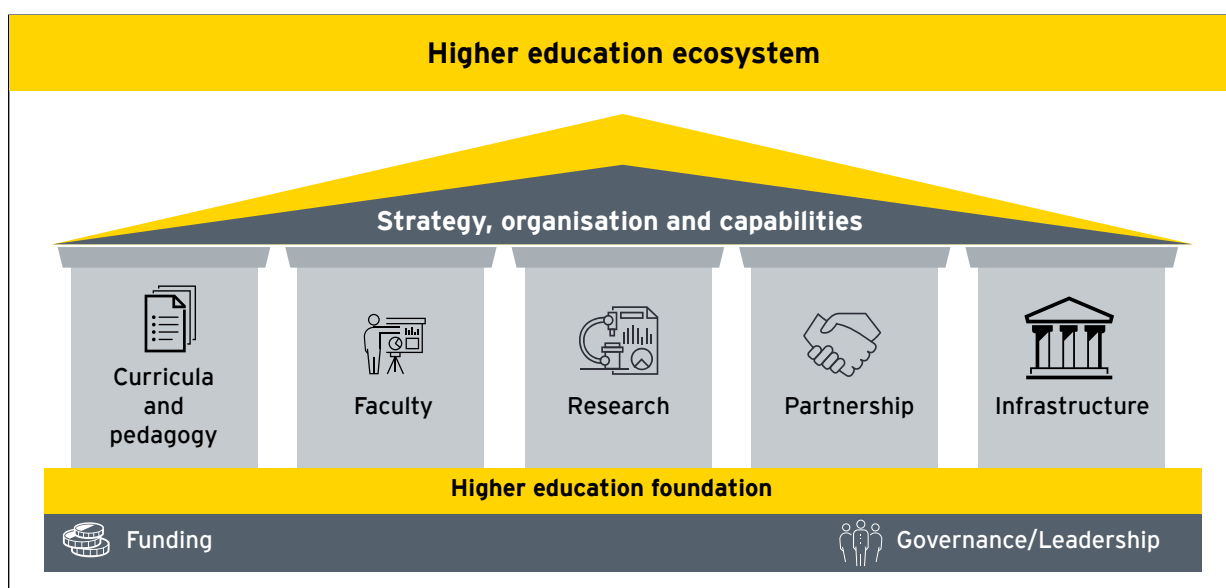


The entire higher education ecosystem has felt the impact of the transformative change caused by the onset of Education 4.0 which was further accelerated by the pandemic

Education 4.0 has led to an increase in reliance on technology and digital mediums for not only teaching and learning, but also for ease of enhancing efficiency across functions. The impact of the pandemic, on the other hand, has been felt across the entire higher education structure, with a criticality unlike before. Although revisions were required

across functions, the urgency with which these changes were undertaken left stakeholders unprepared to deal with them.

This has brought to the light the question of whether going digital is the answer for the future of education, or are there aspects where human connect is key.



The following section provides a brief view of the impact of the pandemic on the higher education ecosystem, and the impact on important stakeholders such as students, faculty and industry members.

The pandemic has led to an urgent and unexpected shift from traditional face-to-face learning to online education leaving HEIs to adapt to this change at an unprecedented rate



Impact of pandemic on curricula and pedagogy

The pandemic has raised significant challenges for the higher education community worldwide. A particular challenge has been the urgent and unexpected change from previously face to face university courses to online education. Online teaching and learning implies a certain pedagogical content knowledge, mainly related to designing and organizing for better learning experiences and creating distinctive learning environments, with the help of digital technologies. Higher education courses had to be altered across curriculum, teaching methods, assessments and evaluation to help teachers teach better, and students learn better.

Loss of instructional time delivered in the HEI setting

Feb 2020

China was the first to close educational institutes, with other countries following shortly.

March 2020

By the end of March, most countries, including India, had closed off on in-person classes.

Although some of the more progressive HEIs were able to start online classes immediately, many public and private HEIs in India needed to prepare for this unexpected change.

This led to a significant delay in academic delivery and hampered the education of many students.

Delays were not only in academic delivery but also in...

- ▶ Competitive examinations and university admissions
- ▶ HEI examinations and results
- ▶ Convocation ceremonies and graduation from HEIs

94%

of the world's student population has been impacted by institutional closures⁽¹²⁾

99%

of these students belong to emerging economies⁽¹¹⁾



In India, more than **32 crores of students** have been affected by the various restrictions and the nationwide lockdown for pandemic.

Change in teaching and learning methods

Content and curriculum

- ▶ The curriculum across courses was assessed and customized to ensure that the content could be delivered over digital mediums.
- ▶ The courses were classified basis their pedagogical needs since the infrastructure and procedural requirements were different for each course.
- ▶ With limited online content repository available with HEIs, online platforms are being leveraged to provide MOOCs and online courses.

This shift gave rise to new models of teaching, learning and assessments and a huge upswing in the reputation of online learning players

Change in teaching and learning methods

Pedagogy and delivery

- ▶ Delivery methodology shifted to asynchronous and synchronous online sessions while leveraging social media platforms and Learning Management System (LMS) to share resources.
- ▶ Pedagogy made a shift from teacher-centric to student-centric methods which included use of visually engaging content, flipped classroom, role-plays, group projects, break out rooms and virtual laboratory to keep students engaged.

Assessments and evaluation

- ▶ Shift from annual or bi-annual evaluation methods to continuous assessment and feedback cycles.
- ▶ Assessments were not limited to exams, but rather focused on essays, oral exams, pop quizzes, polls, open book assignments, Artificial Intelligence (AI) proctored tests, etc.

Rise of non-formal education players

- ▶ Since non-formal education players or online players have experience with developing programs specifically designed for remote or distance learning, they recently saw a rise in enrolments and revenue, and a huge upswing in reputation and recognition.
- ▶ Although majority of them have been in the market over the last four to five years, the pandemic and its after-effects on education have brought them to light.

Example of non-formal education players

Leading online learning player is offering guaranteed job placements with their courses. They have set up joint online program with top ranking universities who provide career support also.

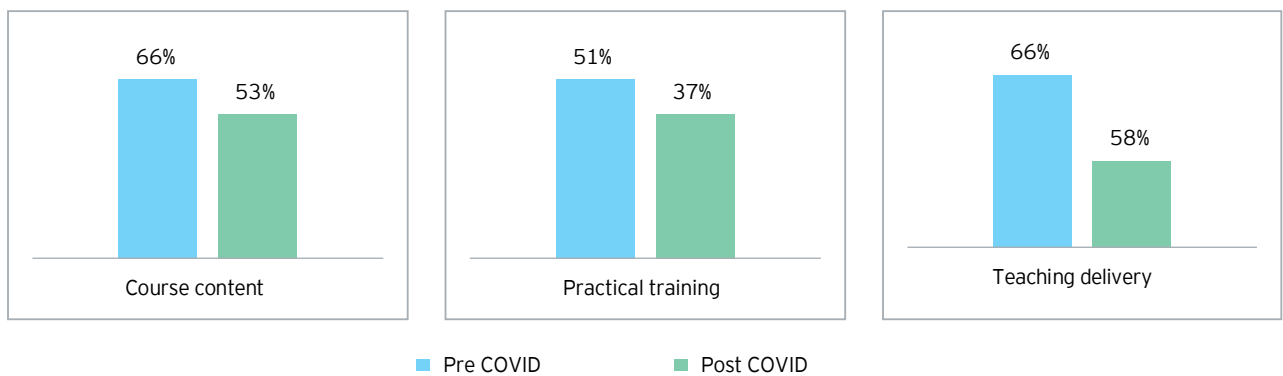
One of the leading EdTech player is offering training and upskilling to over 50,000 unemployed graduates as part of its collaboration with Telangana Academy for Skills and Knowledge.

A prominent online learning player utilized its current resources and experience in online education to offer IT and software courses.

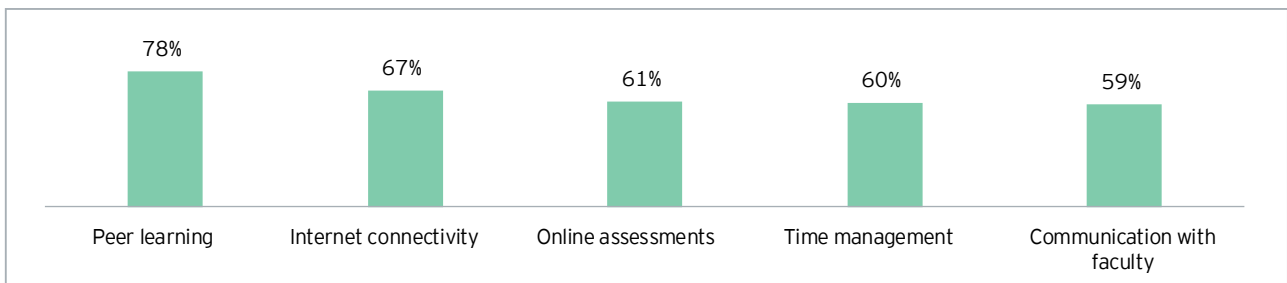
This resulted in an increase of 77% in enrolments due to its relevancy in today's time.

Students and faculty both are facing challenges due to the changes that have come about in curricula and pedagogy as a result of the pandemic

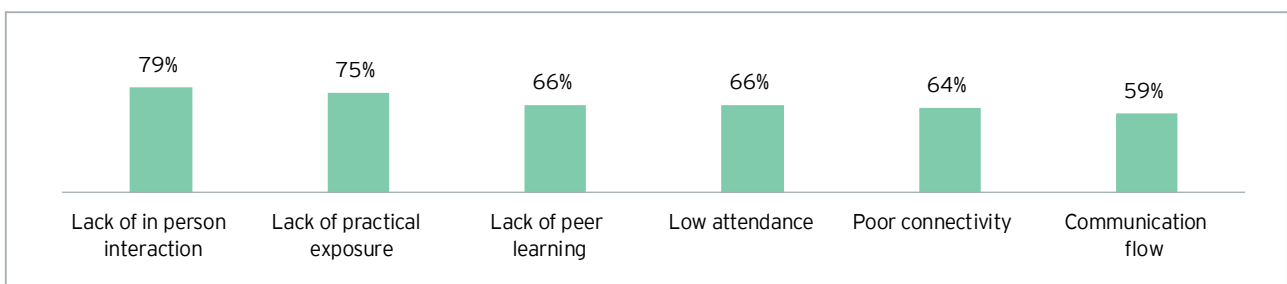
Student satisfaction levels have fallen significantly across all the aspects, indicating that students are not happy with the offerings provided by their HEI during the pandemic.⁽⁵⁸⁾



Majority of students are facing challenges while dealing with the changes associated with new teaching and learning methods related to following⁽⁵⁸⁾:



Even faculty are facing many challenges with the new teaching and learning system such as lack of in person interaction with students, limited hands-on experience and low attendance.⁽⁵⁹⁾



Faculty faced significant challenges as majority of them did not have experience in teaching online and had to quickly upskill themselves to provide a quality learning experience for students



Impact of pandemic on faculty

The pandemic has had far reaching implications on the day-to-day work of faculty, as well as on their long term career trajectories, professional aspirations, and views on the future of higher education. With HEIs shutting doors all across the world, and teaching shifted to online mode, faculty had to make drastic changes in the way they teach, interact and carry out their daily duties.

Urgent need to upskill and reinvent teaching methods

As campuses remain closed during the pandemic, students aren't the only ones experiencing a learning curve with online education. Many faculty members are just as new to online teaching as students are to online learning.

HEIs invested in technology trainings and upskilling programs. These programs focussed on online and virtual teaching methods and tools to help faculty learn the required skills to teach online, successfully.

97% Of HEIs across the USA reported **having faculty with no prior online teaching experience** for some of their courses⁽¹²⁾

43% of faculty are finding it difficult to transition to virtual teaching methods⁽⁵⁹⁾

51% of faculty were provided trainings and workshops to learn how to teach online⁽⁵⁹⁾

“Faculty members were trained on online teaching methods before pandemic since 15% of every module was already taught digitally.

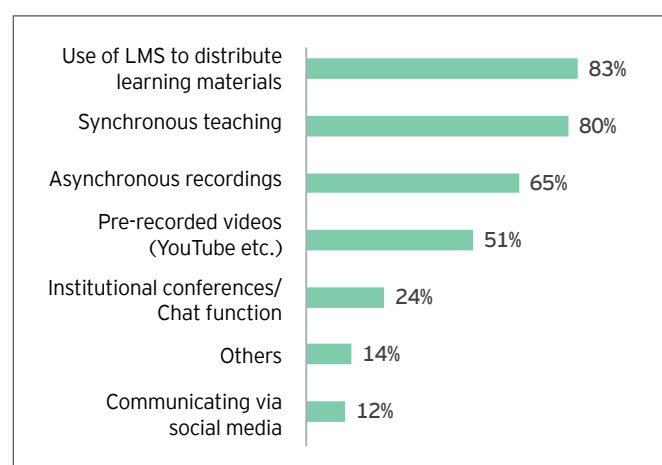
Now, we have leveraged Coursera MOOCs as well.”

Vice Chancellor, Private HEI in India

How did institutes help faculty teach online?

- ▶ Online MOOCs and courses on learning platforms
- ▶ Peer learning opportunities from faculty members who were adept at online teaching
- ▶ Emergency training on campus while maintaining social distancing and safety measures
- ▶ Resources such as laptops, better bandwidth, access to software and portals etc.

Teaching techniques being used by faculty in online classes⁽¹²⁾



Faculty members across the globe also faced the threat of layoffs and salary cuts with shortfalls in the HEIs' revenue and funding

Limited availability of resources in terms of laptops, bandwidth and other teaching infrastructure

Most of faculty did not have infrastructure at home adept for conducting online classes. This included having upgraded laptops, high speed internet bandwidth, display boards, furniture for home office, etc.

HEIs provided financial and logistics assistance to enable faculty conduct online classes from their home and also augmented their technology support teams to provide real time assistance to all employees working from home.

33% of faculty got access to resources like laptops and improved internet bandwidth⁽⁵⁹⁾

“Financial assistance was provided to faculty to help them purchase the resources they require to teach online. Moreover, faculty had the flexibility to create their own schedules as well as innovate across different pedagogies.”

Faculty, Public HEI in India

Faculty lay offs and salary cuts

As the pandemic has started to take a toll across sectors, stakeholders in the higher education field are asking for compensations that will help them deal with this experience better.

Students expect **refund in tuition fees** due to interruption in their expected higher education experience.

Faculty expect **hike in salary** due to unexpected change, new teaching methods, increase in work.

HEIs are facing financial difficulties resulting from ongoing effects of the pandemic which includes budget cuts from the government, loss of revenue from cancelled events and deferred student admissions.

HEIs in response to this have had to layoff faculty and enable salary cuts.

Ohio University, USA⁽¹³⁾

University terminated contracts for **53 faculty members, laid off 94 administrators and 140 unionized employees.**

Provost, senior administrators volunteered to take **pay cuts of 10-15%** to keep the University afloat.

Private colleges, India

Private aided and unaided colleges in Mysore **laid off 60% of their senior faculty** in preference for younger, tech-savvy faculty who can handle the transition to online teaching.

Faculty retained were asked to take a **50% salary cut.**

Top ranked public research university, Australia

University had to lay off **493 staff, cut management by 25% and reduce faculty** to deal with a revenue collapse of about USD\$ 0.75 billion.

Results from a global survey of 200 university administrators worldwide about the effects of pandemic on an HEI's finances paints an uncertain picture for faculty.

12% HEIs are planning layoffs for faculty and staff over the next 6 months⁽¹⁴⁾

19% HEIs are planning furloughs or compulsory paid leave⁽¹⁴⁾

12% HEIs are planning pay cuts⁽¹⁴⁾

There has been a noticeable decrease in research output, quantity, funding and partnerships and students have also acknowledged an negative impact on research opportunities

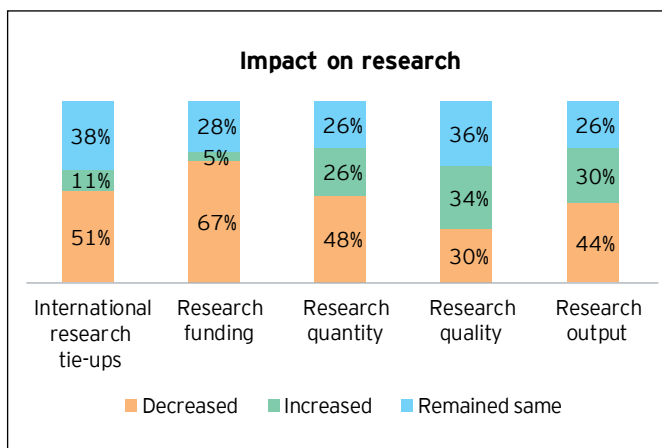


Impact of pandemic on research

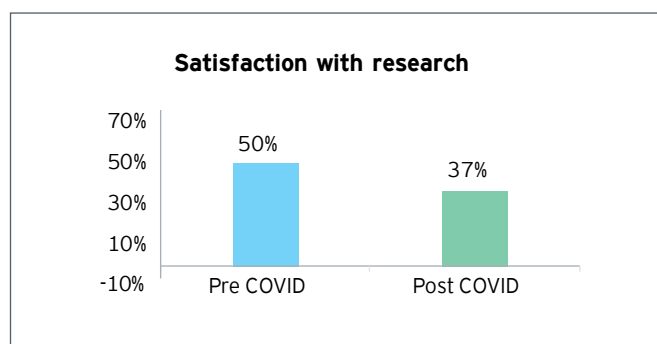
The pandemic and associated disruptions have had a major impact on the academic research enterprise with most research across sectors being curtailed, except for those directed towards the pandemic or other life-saving therapies. With laboratories being shut and fieldwork largely suspended, not only did experimentation suffer, but also large scale funding that helped execute research was not available.

Decline in research output

Majority faculty state believe there has been a decline in research output, quantity, funding and international tie-ups post pandemic.⁽⁵⁹⁾



Students also feel that pandemic has impacted research opportunities.⁽⁵⁸⁾



“No access to the labs, resources and in person meeting with peers has made doing research a severe challenge.”

Student, Public HEI in India

However, there is a silver lining...

Interstate and cross country partnerships have bloomed with meetings and catch ups that can be organized over online platforms. This has enabled collaborative research greatly which was earlier limited by the need to travel across distances to engage with each other.

“Despite the challenges of physically doing research, it has become significantly easier to conduct research virtually with partners both nationally or internationally. Also the lack of travel has made it easier to prioritize time towards research.”

Faculty, Private HEI in India

Institutional research has been hit this year with low funding for any research that does not focus on healthcare and the pandemic

Fall in research funding

Universities over the last year have seen a fall in funding from philanthropic bodies and foundations, as well as a drop in alumni donations and fundraising activities. Scientists are under extraordinary pressure to deliver answers and a lack of precedent and preparation, combined with severe political and social pressures, has made this an incredibly challenging time for them.

More notably, countries have noticed a direct correlation between international students (and the revenues they bring in) and the funds available to support research.

Case in point - Australia⁽¹⁵⁾

As a result of a decline in international student fees, Australian HEIs collectively will have a **shortfall in income available to support research till 2024**. This would vary from **US\$4.9 billion to US\$5.8 billion**.

The shortfall will result in a reduction in the research force of between **5,100 to 6,100** research student and staff researcher positions, approximating **11% of the current research workforce**.

Out of all the universities in Australia, 13 universities will be the most significantly impacted as they account for **70% of the research funding and staffing shortfalls**. This includes some of globally top ranked universities in the world

Even in the UK, the pandemic has impacted research opportunities and university researchers are concerned about their funding for the next year.

45%

of researchers anticipate a decrease in their research funding⁽¹⁶⁾

75%

of researchers who were funded by industry are expecting a reduction in funding⁽¹⁶⁾

As per a global survey conducted from over 25,000 academic researchers and scientists from 152 countries, we have found the following:

Findings revealed that the pandemic has created a sense of uncertainty in the research community around funding.

47%

Researchers believe less funding will be available in the future as a result of the pandemic⁽¹⁷⁾

Industry and students both believe corporate engagements and co-curricular activities in partnership have decreased since the pandemic

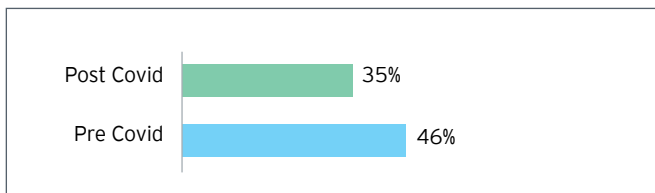


Impact of pandemic on partnerships

Over the past decade, we have seen an exponential growth in the number of higher education partnerships between universities, industries, content creators and other organizations and bodies. These partnerships are undertaken to enhance student / staff experience, improve processes or simplify current operations.

However, differences in scale, governance structures and opinions mean that aligning two separate institutions, even under normal circumstances, is a huge undertaking, and effective communication is key. The strengths of these partnerships and the depth of combined strategic vision have never been tested quite so much as in the current crisis.

Students felt that industry engagement activities had reduced and they were no longer satisfied with the current opportunities available.⁽⁵⁸⁾



New operating models

In person collaborations such as exchanges, teaching opportunities, onsite projects have taken a backseat due to the pandemic. But at the same time, ease of getting reputed faculty and industry members has increased significantly as virtual methods have become the norm and travel has reduced. Depending on nature of work, some companies enabled virtual internships and work experience.

70%

Students felt the impact of the pandemic on co-curricular activities, industry engagement opportunities and placements⁽⁵⁸⁾

Members from the industry also felt similarly...

“There has definitely been a cut in our interaction with students. Also, we have not taken anyone new for internships this year”

EdTech professional


“Although we have been called for multiple virtual engagements and activities with students, we feel the connect and interaction is not the same as it was in person”

Pharmaceutical professional


However, faculty recognized the advent of new partnerships and operating models

Faculty have their own opinion regarding partnerships and engagement with industry partners.

Virtual sessions, no travel and flexible schedules have made it easier for HEIs to organize industry activities.

 **61%** of faculty believe that industry engagement activities have either remained the same or increased⁽⁵⁹⁾

Slowing economy, loss of jobs and uncertain future have resulted in companies not hiring.

 **59%** of faculty believe that placements have been impacted due to the pandemic⁽⁵⁹⁾

However, they highlight some positives as well.

“In today’s age, partnerships have gained importance and become stronger. We have delved into opportunities such as collaborative learning, virtual internships for foreign students and research projects.”

Pro Chancellor, Private HEI in India

“Regular virtual meetings without the issues of physical barriers and focused time spent due to lesser travel commitments has led to the development of new partnerships and strengthening of old ones.”

Faculty, Public HEI in India

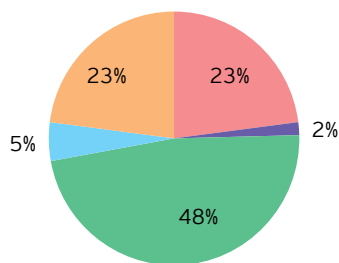
HEIs have had to forge partnerships with new players to help enhance teaching, communication, resource sharing and experiences during the pandemic

Need for new support partners

Traditionally, university partnerships were mainly focused on industry and academia. However, with the pandemic, **two new important partnerships have come to into play.**

Technology partnerships

- ▶ Enabling better WIFI and bandwidth across the HEI.
- ▶ Online virtual platforms are hosting systems for classes and meetings.
- ▶ Support software for faculty to create new teaching material, undertake administrative tasks, and help with research and practical training.



HEIs are partnering with a variety of online platforms to enhance communication and interaction. **Microsoft Teams, Zoom and Google Classrooms/ Hangout are the most popular.**

Only 2% of HEIs have their own LMS to conduct classes which makes these type of partnerships essential.⁽¹²⁾

EdTech partnerships

- ▶ Partnership with experienced and knowledgeable EdTech players have proved to be beneficial as these players possess the knowledge of creating interactive and engaging online programs.
- ▶ HEIs and EdTech players collaborated to create content, leveraging the brand of both partners and reaching a broader audience through the online platform.
- ▶ Ease of regulations due to the pandemic has resulted in HEIs innovating/experimenting in new domains.

O.P. Jindal Global University (OPJGU) partners with an EdTech company⁽¹⁸⁾

- ▶ OPJGU in collaboration with an EdTech player has launched online blended-learning MBA and LLM programs.
- ▶ These blended degree programs combine online components of learning with live lectures, contact classes, tutorial sessions as well as classroom experiences.
- ▶ Majority of the two-year degree will be digital, and the format of instruction and evaluation will include high-quality industry case studies, live sessions and 24/7 access to the curriculum online.
- ▶ The classes will be taught by OPJGU faculty, but the content is created in collaboration with the other party to ensure that the information can be understood over digital platforms.
- ▶ The EdTech player provides support through exclusive student mentorship and career guidance. This includes job fairs, resume building, career mentors, mock interviews, etc.

HEIs acknowledge the importance that physical infrastructure holds for interactions, socialization and connect, they did attempt to be prepared for the onset of the pandemic but both their medical and technology infrastructure were not up to scale



Impact of pandemic on infrastructure

The pandemic has led to a massive decline in campuses being utilized, due to classes shifting online. Moreover, when campuses opened, they became breeding grounds for the infection due to close proximity of students and staff, overcrowded hostels, etc.

The shift was towards technology infrastructure, and numerous HEIs across the globe which did not already possess the required tools to take education online, had to make significant investments to do so

82%

of faculty still believe that the **brick and mortar structure is required** in an HEI⁽⁵⁹⁾

“Despite advances of online learning, the importance of a physical infrastructure and building is not reduced. Both students and faculty members need an in person space to socialize and interact, when required.”

Pro Chancellor, Private HEI in India

“As an engineering student, we never required MOOCs or digital tools to study, but when the pandemic hit, we were completely unprepared to handle the new and unexpected situation”

Engineering student, Kolkata

Lack of proper infrastructure to deal with onset of pandemic

Health infrastructure

- ▶ HEIs, especially in emerging economies lacked the health infrastructure to deal with the pandemic.
- ▶ Proper medical center on campus was lacking and a doctor used to come in few times a week.
- ▶ HEIs did not have patient beds, pharmacies or other expected health setups.
- ▶ When HEIs opened, it was difficult to organize mass testing and screening processes due to lack of existing capabilities.

Technology infrastructure

- ▶ HEIs invested significantly in setting up smart classrooms with digital boards, projectors, modular seating, etc.
- ▶ With regulatory guidelines preventing majority of Indian HEIs to conduct online classes, their tech readiness for digital education was lacking.
- ▶ HEIs did not have the required online teaching platform, software licenses or resources like laptops, internet bandwidth to teach.
- ▶ Faculty were left unprepared to deal with completing academic, administrative tasks online.

Maharashtra State Board of Technical Education

- ▶ Majority of the polytechnics in Maharashtra did not have the required technological infrastructure.
- ▶ The institutes did not have their own LMS platform, nor did they have the capabilities to teach online which included software licenses.
- ▶ Due to their weak technology infrastructure, most of them could not hold synchronous classes, resulting in students only learning through pre-recorded videos and notes.
- ▶ They often did not have the sophisticated resources to record their own videos.

Reopening of campuses is directly linked to high transmission rates of the disease. Moreover, lack of proper technical infrastructure is making it difficult for students to access online education

The lack of proper teaching infrastructure has had an impact on the mind-set of important stakeholders...

52%

faculty reported an increase in anxiety due to online teaching and lack of proper infrastructural support⁽¹⁹⁾

Our HEI took over 6 months to properly start online classes. We did not have access to any online platforms and poor internet caused a lot of challenges. This was very stressful and has impacted my higher education experience”

Student, Public HEI in India

...As well as led to a resurgence of cases on campus

As per a national survey conducted from over 1,400 HEIs in the USA, which matched student data to university opening schedules, researchers found a correlation between universities that launched in person classes and greater disease transmission rates.⁽²¹⁾

Just reopening a university adds..

1.7

new infections per 100K people

+

Teaching in person classes leads to..

2.4

daily case rise of the disease

IIT Chennai - Hotspot for pandemic in Tamil Nadu⁽²⁰⁾

IIT Chennai reported two cases on 1 December 2020 and within next 15 days, the rate of transmission increased pushing the **positivity rate to 19%**.

Currently, approximately 200 people have tested positive for COVID-19 at IIT Chennai

What they did to reopen campus?

- ▶ Returning students were quarantined for 14 days.
- ▶ Students were allowed back into hostels once they tested negative.
- ▶ Only two students were permitted in the laboratory at a given time.
- ▶ Hostel capacity was not allowed to exceed 10%.

Where did they fail?

- ▶ Quarantine rules were relaxed after November when there was a decline in cases.
- ▶ HEI had a poor communication plan as it did not inform students of the two positive cases.
- ▶ Leadership did not listen to student's pleas for an additional mess on campus.
- ▶ Infected staff served food to students.
- ▶ Students with COVID-19 symptoms were not isolated.

The foundation of higher education architecture has been impacted with funding and revenues of HEIs reduced due to low enrolments and reduction in fees



Impact of pandemic on funding

The pandemic's impact has been felt across enrolments, revenues, funding and has made these universities vulnerable during this time.

Fall in revenues for HEIs

Revenues have dropped for HEIs across the globe during the pandemic with reduction in tuition fees coupled with drop in enrolments, no or low income from residence halls, catering, conferences, events and other activities as well as limited number of international student enrolments.

"With no in person classes and lack of campus experiences, we asked the institute for a fees reduction."

MBA Student, Private HEI in India

"We did not increase the fees by 6% like every year in normal circumstances. We also offered students a flexible instalment scheme and provided scholarships."

Vice Chancellor, Private HEI in India

"Technology budget increased for us in 2020, we had to spend on licenses/new software. With only source of income being tuition fees, we still managed to pay salaries but not sure how this will sustain."

Promoter, Private HEI in Maharashtra

Survey amongst private HEIs in the USA showed the negative effect that the pandemic has on an HEI's revenues.⁽²²⁾

85%

HEIs reported loss in tuition and fee revenue

93%

HEIs reported loss in room and board revenue

90%

HEIs lost revenue from summer programs

Fall in international mobility across HEIs in the USA is expected to significantly impact university revenues next year.

↓ 43%

drop in new international student enrolments⁽²³⁾



↓ 16%

reduction in total international enrolment⁽²³⁾

Expected loss of more than US\$ 23 Billion⁽²⁴⁾

Low revenues from national and international enrolments as well as decrease in funding has resulted in HEIs making difficult decisions to close doors permanently or scale back operations

Decline in funding leading to shut down of HEIs

The impact of funding, will be felt both in the short and long-term. Many HEIs apart from tuition fees are also dependent on government funding, endowments and international student fees for their operations. Lower endowments, drop in enrolments and fees from international students and loss of expected government, alumni and public / non-public funding would push universities to permanently close down to cut their losses or opt for a merger.

MacMurray College, USA - Permanent closure⁽²⁵⁾

After 174 years of existence, **MacMurray College decided there was no viable financial path forward** in light of declining enrolments, rising competitive costs, and an insufficient endowment enhanced by the pandemic.

Pine Manor College - Merger deal⁽²⁶⁾

Financially fragile Pine Manor College, a small, private liberal arts college just outside Boston **opted to merge with Boston College amid the pandemic.**

With a revenue structure that relies primarily on income from auxiliary services such as day care center, English language cultural exchange programs, events like weddings and corporate meetings, the college could not survive the pandemic.

Even in India, HEIs are having to make difficult choices to cope with low funding.

180

Professional colleges shut down permanently⁽²⁷⁾

134

Colleges did not seek approval for fresh batches⁽²⁷⁾

762

HEIs reduced their intake this year⁽²⁷⁾

Increased autonomy for a HEI's governance/ leadership, as well as acceptance for non-traditional teaching models could help transform educational systems and make them future ready



Impact of pandemic on governance / leadership

The pandemic has transformed the centuries old, chalk-talk teaching model to one driven by technology. To help drive this model, countries are putting in place reforms that support the success of online education. These reforms have impacted the governance and leadership structures of HEIs by helping them adopt new ways of functioning, as well as by providing them the autonomy required to help self regulate better. For example, organization structure at HEIs are changing with the introduction of roles like Chief Technical Officer and a progressive and informed IT Team.

“Although these times have been challenging but the opportunity to teach online and try out new methods has been very rewarding as well. The freedom that my colleagues and I currently have to innovate is game changing.”

Faculty, Leading private HEI in India

Country support enables HEIs to increase autonomy

The pandemic has fast tracked India's transition to online learning. But for it to actually succeed, there needs to be a reform and policy bridge for limiting the digital divide. This is in addition to creating a more robust infrastructure, new learning modules and more.

“PM eVIDYA” programme⁽²⁸⁾

Launched in May 2020, the “PM eVIDYA” programme aimed to promote digital education in India in a post pandemic era and announced that the top 100 universities in India would be permitted to start online courses, automatically, by May 2020.

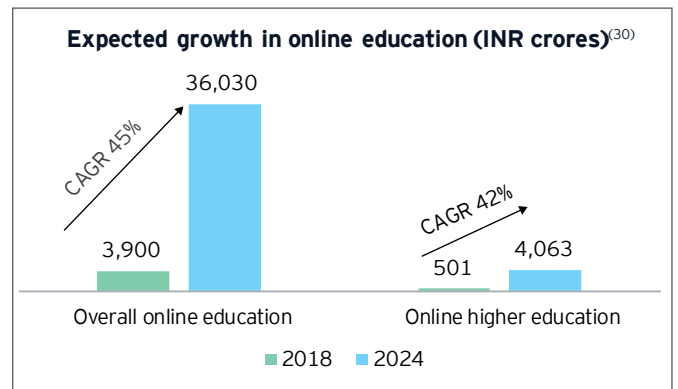
These universities don't need to seek any fresh approval from the education regulators to offer online degree courses.

NEP 2020 Reforms⁽²⁹⁾

The NEP was announced in July 2020. It aims to make India's education system future ready. It focuses on bringing the much needed transformational changes in the Indian education system.








Reforms will enable increased focus on digital education, internationalization, multidisciplinary learning, improving the country's GER and increasing the spend on higher education.

With changing education models and government support, the face of higher education is expected to change over the next few years.



The pandemic which brought Education 4.0 to the forefront, has also brought to light the question whether higher education can exist the way it is currently functioning, or is there another model in play?

Adjustment to Education 4.0

Curricula and pedagogy	<ul style="list-style-type: none"> ▶ Lack of peer and social connect impacts learning. ▶ New ways of learning and assessments are not easy for students and faculty to cope with. ▶ Online learning is still not personalized and does not match the learning pace of every student. 	
Faculty	<ul style="list-style-type: none"> ▶ Training programs to develop the skill of teaching online remotely with limited in person interactions is needed. ▶ Expectation from faculty to keep evolving and developing new methods of online teaching is challenging. ▶ With limited connect with students and no opportunity to observe their body languages, faculty are unable to understand student expectations or feedback. 	
Research	<ul style="list-style-type: none"> ▶ Researchers have limited access to labs, field sites. ▶ They are unable to collaborate with research partners. 	
Partnership	<ul style="list-style-type: none"> ▶ There are limited opportunity for in person partnerships and meetings. ▶ Exchanges, cultural trips, research projects, industry work experience were cancelled. 	
Infrastructure	<ul style="list-style-type: none"> ▶ Limited usage of physical infrastructure with the shift to online teaching. ▶ Investments are needed to develop technology infrastructure and IT support teams. 	
Funding	<ul style="list-style-type: none"> ▶ HEIs are facing closures / mergers / scaling back of operations. 	
Governance / Leadership	<ul style="list-style-type: none"> ▶ New roles to handle upcoming areas of focus, especially related to technology and digital functions are needed. 	

● Difficult ● Easy

With just over a year having passed since the pandemic took over all the sectors, including higher education, HEIs across the world have tried to overcome certain challenges.

They are doing so by either moulding the traditional models to new ones, or by creating innovative and out of the box solutions across each of the key pillars.





Education system in 2040: Outcome of rapid evolution and rollout of the NEP

The pandemic and the introduction of the NEP together have reemphasized the need to integrate technology as an additional dimension in the higher education ecosystem

The pandemic, and the lockdowns triggered by it, has resulted in a radical transformation of the education sector across the world.

Most educational institutions around the world cancelled in person sessions and adapted online learning and teaching in March 2020 in an attempt to contain the spread of pandemic. While no industry was prepared for the pandemic that hit the world, prolonged lockdowns hit the education industry in the most disruptive way. According to a report by the United Nations, the closure of universities, colleges, schools and other learning spaces impacted 94% of the world's student population.⁽¹¹⁾

Keeping the continuity of learning in mind, most education systems and governments rushed to online distance education using communication technologies, platforms and eLearning content. This has thrust the education sector into an unplanned and rapid transformation, which while opening doors to many opportunities, also highlighted many existing/new disparities. For example, one of them being the apparent digital divide in developing countries such as India.

This transformation introduced an entire new dimension of technology, as a foundation of the higher education ecosystem. Different methods of technology were tried and tested by faculty, students and HEIs in this phase to minimize the loss of learning experience. The pandemic can be best described as a test bed for many ideas and concepts which shall evolve over time and align to the needs of the higher education ecosystem.

The sudden switch to online learning has laid bare problems such as the inadequacy of technology infrastructure and the lack of digital skills in faculty members. While it has been relatively easier for some private universities and colleges to switch to digital, their public sector counterparts have struggled. Besides, the transition to online learning has showcased a glaring digital divide, with a large section of students struggling to access educational resources due to uneven internet access in rural and remote areas and lack of web enabled devices.

While these are challenging times, they also present multiple opportunities for the sector. For instance, some HEIs have either started or plan to accelerate investments in technology infrastructure to improve the remote learning experience for their students. Also, faculty upskilling in some HEIs has been pushed into overdrive. Additionally, students are deferring or cancelling their plans to study abroad, and instead, are focusing on India.

Technology has also been a focus of the NEP. The policy has given increased focus on the use and integration of technology for education. The policy around the initiative of digital India mentions working around digital infrastructure, developing tools and platforms for online teaching, creating virtual labs, and digital repositories. It also focuses on training faculty and teachers to become high quality online content creators, designing and implementing online assessments, establishing standards for content, technology and pedagogy for online teaching learning.

New circumstances and realities require new initiatives. In the "pandemic circumstances", with virtual learning replacing in person learning experiences, students and faculty have been compelled to reimagine conventional learning and teaching techniques. Introduction of the NEP at such a critical juncture is significant, as it details the vision of education for future generations and will be a quintessential tool towards building a resilience within the Indian education system. The current circumstances reemphasize the need to be ready with alternative modes of quality education whenever and wherever traditional and in person modes of education are not possible.

HEIs have implemented many short term interventions across the ecosystem to deal with the impact of the pandemic, while the NEP aims to support the evolving education ecosystem to build resilience

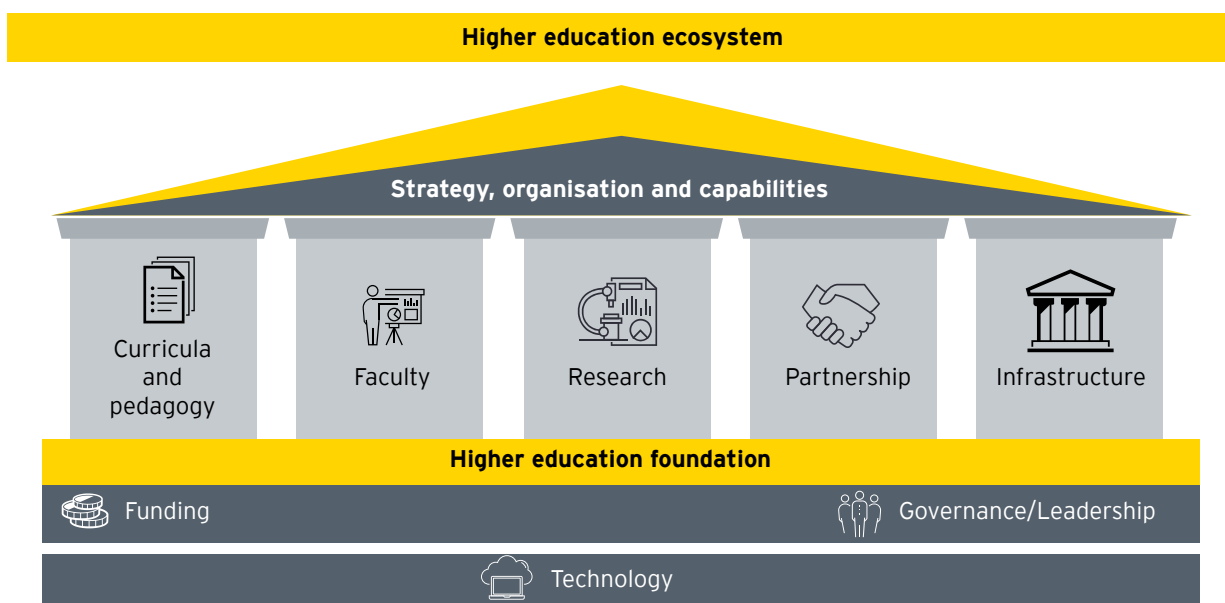
In addition to technology being the new dimension, HEI's had to redesign existing curricula and pedagogy across courses to fit the new context of higher education. They developed new teaching methods and adopted new processes in their stride towards making digital education student centric.

Faculty had to face a lion's share of the problem to impart the same or better quality of education with the lack of in person interaction. Upskilling of faculty and restructuring of courses for the new system was required to ensure quality. Even research suffered from delays and reduced funding yet had to innovate and adapt to the "new normal".

To cope with the impact of the pandemic, HEIs partnered with different types of technology players to quickly build and strengthen their digital infrastructure. They also had to update their infrastructure to help enhance stakeholder experience, while making internal operations leaner to improve efficiencies.

Additionally, HEIs had to incur the costs of discounting courses and adopting new processes. One of the biggest challenges that HEIs' faced is loss of funding and budget cuts. Many had to rely on cost optimization, salary cuts and lay offs to keep afloat, whereas others innovated with new educational models to reach differentiated students to finance university operations.

In this section, we will analyze how institutions dealt with the unexpected changes across the higher education ecosystem, interventions they implemented, their sustainability for future and the NEP's support in line with the "new normal".



Online and blended education are becoming the prominent models of higher education due to the challenging situation created by the present pandemic



Curricula and pedagogy

Various internal and external forces triggered by the pandemic and evolving digital technologies have urged institutions to take on steps to adapt to the new normal. These include acceptance and adoption of different teaching models,

development of new pedagogies to teach and new evaluation methods to assess students. HEIs across the globe have taken to different innovative methods to adapt to the changing times and overcome challenges.

A Acceptance and adoption of different teaching models

Pre-COVID

Reliance on digital



- ▶ Curriculum design and structure was available in written formats.
- ▶ Traditional, offline modes of education with face to face, in person class delivery were used.
- ▶ Blended or fully online education models had limited popularity.

Current scenario

Reliance on digital



- ▶ Many HEIs globally are using fully online models with some shifting to hybrid or blended models as the situation improves.
- ▶ There is considerable ongoing evolution across teaching models to enhance student experience.

HEIs are adopting new models of teaching and learning to help make the transition easier for students. Selected HEIs are also giving students the opportunity to personalize their learning path and choose the delivery model that suits their learning style best.

University of South Carolina - Innovative models for teaching and learning⁽³¹⁾

- ▶ University of South Carolina has begun to offer undergraduate students the opportunity to choose their suited style of teaching and learning, especially in times of the pandemic.
- ▶ These options include completely online synchronous and asynchronous learning, hybrid/blended education and face to face instruction for smaller groups.
- ▶ These options allow both students and faculty to choose their preferred style, learn according to their schedule as well as open availability of classroom time slots and space for other courses.

University of Edinburgh - Hybrid learning⁽³²⁾

- ▶ University of Edinburgh launched hybrid teaching options in 2020 which were a blend of digital and on campus elements. Small groups of students were able to come to campus for face to face instruction, while the other students could join classes online.
- ▶ Flipped classroom method along with small sections of content being delivered by short videos, exercises, written text, quizzes etc. increase the flexibility for students and improve retention.
- ▶ Students also have the opportunity to choose courses from other programs which are being delivered asynchronously, avoiding the problem of clashing schedules.

Going forward, NEP’s vision for differentiated education models, autonomy on innovation across educational aspects, and acceptance of ODL could help establish some of the initiatives being adopted today

Public university in Melbourne - Block learning model

- ▶ University has adopted the “Block learning model” where students learn one subject for four weeks before moving on to the next. This model aims to improve student retention and results.
- ▶ Even through remote learning, this model worked seamlessly as students just had one subject to focus on. This helped keep students engaged and connected and ensured that the model is structured in such a way that scaffolds learning and enables them to focus on the outcomes and learning objectives.

Key takeaways

Blended delivery model

- ▶ Blended or hybrid model enables students and faculty to interact face to face for situations such as doubt clearing or remedial classes.
- ▶ The model enables the use of digital mediums for delivery of concepts and lectures that do not require the in person attendance of either the faculty or the students.



Reduced dependency on faculty

- ▶ Development of new digital models has reduced dependency on faculty for teaching every concept.

81%

of the students surveyed stated that they would not be willing to transition to 100% online learning methods for their program⁽⁵⁸⁾

Future of education and its enablement through the NEP 2020

- ▶ Emergence of **different education models and learning pathways** could be supported by NEP’s vision for different designs and prescribed duration of Bachelors and Masters programs.
- ▶ **Acceptance of online learning and distance programs** may help propel current models of blended, hybrid, online and distance education further.
- ▶ NEP’s vision for **institutional autonomy to innovate on matters of curriculum, pedagogy, and assessment** could support the current day evolution of different pedagogies and assessment methods.
- ▶ Integration of **multidisciplinary education**, as promoted by the NEP, could help foster **greater flexibility and choice** for different profiles of students.

Reliance on digital mediums over the next 3-4 years

Low High

Reliance on digital mediums over the next 8-10 years

Low High

Technology disruption and the accelerated effect of the pandemic has led HEIs to reinvent and revise their pedagogy to make teaching more effective

B

Development of new pedagogies to teach

Pre-COVID

Reliance on digital



- ▶ Teaching delivery focussed on traditional lectures, seminars and tutorials with one to many teaching style.
- ▶ There was limited personalization of education.
- ▶ Peer learning was enabled through in person group projects, role plays and presentations.

Current scenario

Reliance on digital



- ▶ Flipped classrooms, virtual peer learning, use of open education resources, VR and augmented reality, live videos, recorded sessions, social media communications are emerging as useful tools during this tumultuous time.

HEIs are leveraging the availability of advanced technologies to enhance existing pedagogies

Georgian College - Immersive virtual reality (VR)⁽³³⁾

- ▶ Georgian College in Ontario integrates VR and simulations across courses. This was especially implemented for courses that require more practical, hands on experience such as medicine and engineering.
- ▶ Using VR Headsets, students are immersed in different situations - this enables experiential learning, where students can do things with their hands, think critically and make decisions that have measurable results.

University of Washington - Virtual peer teaching⁽³⁴⁾

- ▶ School of Medicine at University of Washington has adopted a unique method of resolving the problem of disputed medical education, and improving peer learning through a virtual peer teaching model where senior students assume the role of peer teachers.
- ▶ Initially started as a volunteer program, the success of this model soon converted it into an online credit bearing clinician educator elective.
- ▶ Videoconference technology has allowed students to continue teaching and learning. The involvement of peer teachers has helped students achieve clinical skills, basic science, and clerkship goals and objectives. First year students appreciate the mentorship and connection with senior students.
- ▶ 32 peer teachers who completed an anonymous survey agreed that the experience benefited their medical education and preparation for residency, and all would recommend the experience to a classmate.
- ▶ 29 of 32 peer teachers agreed or strongly agreed that virtual small groups are an effective learning modality.

The NEP proposes institutional autonomy to innovate on pedagogical approaches and enhance focus on new age learning methods to keep pace with the ongoing evolution

Seneca College - Leveraging social media⁽³⁵⁾

- ▶ Seneca College's marketing classes are leveraging social media for sharing content, support for assignments and communication. They have created groups and open forums for discussions and debates.
- ▶ As part of the learning practices, students are expected to use Twitter to explain absences or lateness for classes. Students use the course hashtag to share what they think about the course or the content of a specific class.
- ▶ Faculty and students also use messaging apps to create discussion groups and share resources, both formally and informally.

Key takeaways

New pedagogies adopted



- ▶ Differentiated pedagogies enable students to include a mixed bag of learning techniques in their education.
- ▶ New methods of learning help students customize and personalize their learning journey, with techniques that suit their needs and play to their strengths.

May hamper development of required skills



- ▶ Lack of in person learning exercises and collaborative group work could hamper the development of skills such as effective communication, teamwork, time management that may be required in various professions.

Future of education and its enablement through the NEP 2020

- ▶ NEP's vision for **institutional autonomy to innovate on pedagogy** could support the current day evolution of new and innovative ways to teach.
- ▶ Freedom given to faculty to **creatively design their own pedagogical approaches** could enable the development of more suited methods in the future.
- ▶ NEP's focus on **significantly reducing rote learning** and an increased emphasis on communication, discussion, debate, research, and opportunities for cross disciplinary and interdisciplinary thinking may enhance student's experience at HEIs and **provide a more holistic education experience**.

Reliance on digital mediums over the next 3-4 years



Reliance on digital mediums over the next 8-10 years



Digitally driven assessments, assignments and evaluation methods are gaining prominence

C

New assessment and evaluation methods

Pre-COVID

Reliance on digital



- ▶ Physically proctored exams or assessments were held on campus.
- ▶ Regular modes of assessment such as tests, presentations, mid semester and end of year examinations were part of program structures.
- ▶ Examinations were held once or twice a year.

Current scenario

Reliance on digital



- ▶ HEIs have set up physically or AI proctored online examinations.
- ▶ New models of assessments such as virtual pop quizzes, online polls, case study based essays, role plays, group assignments and break out room projects have emerged.
- ▶ Continuous evaluation with feedback has become necessary.

The current situation has left HEIs in a need to transform their existing assessment and evaluation processes to online and blended modes.

IIM Kashipur - AI proctored exams⁽³⁶⁾

- ▶ IIM Kashipur is one of the first Indian HEIs to use AI invigilation practices for holding at home examinations.
- ▶ This new software helps keeps an eye on candidates during the exam and can detect even the slightest change in voice, it reads the candidate's eye movement as well as notes the presence of another individual sitting next to the examinee.
- ▶ Depending on the chosen software, in some cases, proctors also ask the student for a 360 degree plan of the room before beginning the exam.
- ▶ This technology comes with a complete package ensuring privacy of the candidates and does not require any high end infrastructure to operate on. It can run on any device such as personal computers, tablets, smartphones.

University of Gothenburg - Digital assessment⁽³⁷⁾

- ▶ University of Gothenburg has setup digital examination processes from admittance to final grade. They have ensured sound digital marking and grading processes while maintaining fairness and integrity.
- ▶ In spite of challenges in setting up digital essay based examinations, they have successfully adopted authentic assessment methods that help students understand how they have been assessed, evaluated as well as what is the feedback for them.

The NEP's guidance on continuous evaluation, freedom to develop institutional assessments, and criterion based grading systems is in line with the steps HEIs are taking today to assess students

Key takeaways

Variety of assessment methods

- ▶ New assessment and evaluation methods enable students to retain knowledge in a variety of ways.
- ▶ Different types of learners are able to perform and get graded as per their strengths.



Continuous evaluation and feedback

- ▶ Getting regular feedback, in line with assessments and assignments completed help students learn better.

Online proctored exams

- ▶ Although its convenient to take exams from home, the AI invigilation system or physical proctoring is not only intrusive and disturbing for students.
- ▶ It can also easily be duped and may lead to malpractice or cheating.



Highlights from India Budget 2021

- ▶ Special funding has been earmarked to set up an Academic Board of Credit, which could enable credit based education for students, in line with the NEP 2020.⁽³⁸⁾

Future of education and its enablement through the NEP 2020

- ▶ The system of continuous evaluation that is presently emerging could be further enhanced by NEP's direction of moving away from high stakes examinations towards more **continuous and comprehensive evaluation**.
- ▶ NEP's vision of having **all assessment systems being decided and designed by the HEI**, including those that lead to final certification, will leave plenty of room for innovation and flexibility.
- ▶ The guidance given by the NEP to have HEIs move to a **criterion based grading system that assesses student achievement based on their learning goals** for each program could make the system fairer and outcomes more comparable.

Reliance on digital mediums over the next 3-4 years



Reliance on digital mediums over the next 8-10 years



To help faculty deliver to the best of their capabilities, HEIs are devising new ways to help them upskill and learn improved techniques of delivering quality education online



Faculty

Faculty are the backbone of any education institution. They are responsible for imparting knowledge, mentoring students, supporting with research practices and enabling institutional administrative and management processes.

Despite the pandemic, faculty still need to conduct the same duties, however, they now lack the in person interaction and support to do so with operations across all functions becoming digital.

A

Upskilling for online teaching and delivery

Pre-COVID

Reliance on digital



- ▶ Faculty were largely restricted to teaching offline with delivering seminars, tutorials and lectures in a classrooms that had students being present in person.
- ▶ There was limited usage of digital mediums for sharing resources and content, conducting assessments, attending webinars, etc.

Current scenario

Reliance on digital



- ▶ Majority of HEIs are continuing purely online education. Faculty are compelled to teach online. They are learning new skills and developing different pedagogies to do so.
- ▶ HEIs are investing in training and upskilling faculty to hone their online teaching and delivery methods.

Universities, are focusing on providing faculty with support, training and other resources to help them overcome and transition through this unpredictable situation.

Penn State University - Faculty development for online teaching⁽³⁹⁾

- ▶ Penn State University has acquired the services of an external institute to support its faculty develop their online teaching methods.
- ▶ The external partner made assessment tools available for faculty to check their readiness for online teaching models along with the formulation of peer review for online teaching.
- ▶ University also gave faculty a period of three weeks to modify their course structures and create material for online teaching.

University of South Florida - Online toolkit⁽⁴⁰⁾

- ▶ University of South Florida has made an online portal and toolkit for their faculty to upskill and train them for effective online teaching.
- ▶ They are training faculty to use Canvas Rich Content Editor with virtual meeting software to conduct online classes.

The NEP supports upskilling of faculty and emphasizes on how new learnings could be leveraged by them to enhance the learning experience for the student

Key takeaways

Quality education for students

- ▶ Faculty are delivering quality education to students through diverse teaching methods that are focussed on providing personalized learning to students and improving their overall retention.



Better trained faculty

- ▶ Faculty trained in both offline and online education could help the HEIs launch new programs and extend their reach to different student segments.

Slow transition

- ▶ Many faculty are resistant to change, especially those who have been in the system for a longer time. The transition to online education is slow, with many faculty eager to return to the previous method or switch to a blended learning model.



87%

of faculty surveyed stated that they would rather switch to a blended model of learning rather than continue with purely online methods⁽⁵⁹⁾

Future of education and its enablement through the NEP 2020

- ▶ Faculty can leverage their new skills and techniques learnt to enhance existing as well as develop additions to the curriculum, pedagogies and assessments in line with the NEP's vision.

Reliance on digital mediums over the next 3-4 years



Reliance on digital mediums over the next 8-10 years



Faculty are the key pillars of an institute and providing them with the right support can help them deliver and perform across all spheres

B

Institutional support for faculty

Pre-COVID

Reliance on digital



- ▶ Faculty were used to a traditional system of functioning in an HEI with set processes for teaching, feedback, administrative duties, research and other support aspects.

Current scenario

Reliance on digital



- ▶ HEIs need to support faculty's transition to the digitally aligned way of functioning during the pandemic.

HEIs are providing a number of different support mechanisms to help faculty adapt to the "new normal".

University of Massachusetts at Amherst - Support measures⁽⁴¹⁾

- ▶ University replaced student feedback for faculty with a "Holistic Teaching Assessment". This would be used to only help the faculty make improvements and would not be factored into their formal appraisals.
- ▶ Faculty have complete liberty to work from home unless they choose to come to campus.
- ▶ Faculty were given emergency funds for caregiving assistance, including childcare and eldercare.
- ▶ University organized a virtual town hall to give faculty a platform to convey their concerns about COVID-19's impact on their careers to the administration.

University of South Carolina - Remote working strategies⁽³¹⁾

- ▶ University provided tips, resources and strategies to help faculty adapt to new ways of interacting with colleagues, teaching online and maintaining ones productivity.
- ▶ Virtual trainings for digital learning platforms, online library access were organized.
- ▶ Apart from working strategies, university is also offering personal development resources such as daily meditation on a social media platform, fitness classes, and access to the suite of resources from their "Employee Assistance Program".

Support mechanisms could help faculty become more productive, deliver quality education and be open to new models of delivery in the future

Key takeaways

Increased flexibility for other options

- ▶ With remote working options supported by institutional mechanisms, faculty have extra hours to complete research and operational duties as well as upskill themselves in their areas of interest.



Improvement in quality due to frequent feedback

- ▶ Holistic and regular feedback for faculty can help improve the quality of education being imparted

Taking on additional duties

- ▶ Few of the duties such as class attendance that were performed earlier by support staff or even machines, has to be undertaken by faculty now. This takes away from the faculty's productive efforts



Reliance on digital mediums over the next 3-4 years

Low High

Reliance on digital mediums over the next 8-10 years

Low High



Research has been significantly impacted by the pandemic with emergence of new trends and technologies being observed in a few institutions



Research

For theoretical research, the adaptation theme has been to “move it online”. However, the directives on what to do with scientific research and equipment heavy lab work have been much less clear, leaving faculty, students and some staff scrambling to adapt the new environment.

Practical research has been significantly impacted due to the lockdown. HEIs are trying to ensure that they prioritize safety of their faculty and students. However, when necessary, labs and machines are made available with the necessary COVID-19 protocols in place.

A Impact on research ecosystem

Pre-COVID

Reliance on digital

Low High

- ▶ Research was primarily conducted in laboratories or on the field for experimentation purposes. Many projects required physical samples, time sensitive cultures, lab equipment, time bound experiments and specialised machines.
- ▶ Practical and theoretical research often required collaboration among researchers, continuous mentorship from guides and attending traditionally in person conferences.
- ▶ Most HEIs depended on external funds to conduct research which included tuition fees, foundation, industry contributions or government grants.

- ▶ Nearly all non-COVID related research is put on hold.
- ▶ Lockdown rules applicable in several countries have prohibited faculty and students from accessing labs or equipment required for research.
- ▶ As alternatives to practical research have not yet been identified, many research projects and faculty tenures have been postponed till it is safe to access research infrastructure in person.
- ▶ Funding for majority of non-COVID-19 related research has shrunk. HEIs are relying on existing intellectual property or COVID-19 related research to secure new funding.

Current scenario

Reliance on digital

Low High

Emerging trends in research that have been observed across few HEIs are as below:

- ▶ HEIs are permitting delays on research projects and submissions to prioritize the safety of stakeholders.
- ▶ For students in their final year and faculty on tenure, HEIs are permitting smaller groups to use lab equipment while adhering to social distancing protocols.
- ▶ Faculty are leveraging virtual platforms to build and strengthen relations with research partners, and thus, cross border research partnerships have continued successfully.
- ▶ HEIs are experimenting with VR laboratories to provide “normal” experiences to students.
- ▶ HEIs are focusing research on COVID-19 related topics to secure funding and progress research.

The NEP focuses on increasing research opportunities, enhancing funding, and building and promoting a strong research culture and this is further boosted by funding towards these initiatives in Budget 2021

Key takeaways

Supportive environment

- ▶ HEIs are offering extensions on research submissions to support faculty and students.
- ▶ The pandemic has taken a toll on the mental health of many, so providing a supportive environment can help stakeholders perform efficiently when the situation improves.



Sustainability and future impact

- ▶ New funding models developed due to the current situation, could be adopted and leveraged again in the future as sustainable models of funding for research.
- ▶ Strengthened research partnerships could help in the future for more collaborative projects, exchanges and support.

Decreased productivity and future implications



- ▶ Ramping down and delaying research projects not only takes a toll on knowledge creation and scientific progress, but also impacts the career progression of postdoctoral fellows, doctoral scholars and faculty up for tenure.

Future of education and its enablement through the NEP 2020

- ▶ NEP's aim, in order to focus on research and promote research culture in all HEIs, is to **set up the National Research Foundation (NRF)** which would bring a quantum jump in funding and support for research.
- ▶ NRF could help HEIs in challenging times, such as the present, to get **additional funding and boost research.**

Highlights from India Budget 2021

- ▶ Allocation of **INR 50,000 Crores to the NRF** for a period of five years to facilitate more directed research and boost the research ecosystem in India.⁽⁴²⁾
- ▶ Emphasise on "Innovation, Research and Development" was one of the six important pillars of the budget.

Setting up new partnerships has helped HEIs break away from traditional models and leverage a variety of new collaborators for different functions



Partnerships

The partnership activities of HEIs were predominantly offline and included cross institute and industry collaborations.

Onset of the pandemic significantly restricted offline partnerships, especially those involving cross border mobility.

As a coping reaction, we saw the emergence of new types and models of collaboration among universities, industry partners, EdTech players, and technology support platforms.

A Evolution of new types of partnership

Pre-COVID

Reliance on digital



- ▶ Partnerships were limited to institutional and industry collaborations.
- ▶ Collaboration with EdTech platforms were restricted to content creation under university brand name.

Current scenario

Reliance on digital



- ▶ New types of partnerships emerged.
- ▶ HEIs collaborated with EdTech platforms as an auxiliary or primary function in education.
- ▶ HEIs partnered with technology players such as Zoom, Teams for collaborative activities like organizing classes, meetings, conferences and events.

To help provide new experiences, tools for teaching, and improve services offered, HEIs began partnering with a new set of players.

Collaboration between universities across the world and communication platforms

- ▶ Many HEIs do not have their own online teaching platforms or LMS for sharing resources, thus they have partnered with technology delivery leaders to hold classes, meetings, conferences and share resources.
- ▶ Both platforms allow students and faculty to interact, record sessions, have breakout rooms for activities and maintain social interactivity during the pandemic.

Collaboration between a Chinese-American university and Coursera

- ▶ University located in China partnered with Coursera in February 2020 to help transfer its courses to remote delivery platforms within three weeks of the onset of the pandemic and its impact on in person classroom education.
- ▶ University is also utilizing “Coursera for Campus” platform to accelerate the development of courses and to offer co-curricular learning experiences that complement courses. This gives the 600 undergraduate students access to over 3,800 courses to help further their education.

Leveraging digital enablement and new technologies, as suggested by the NEP and promoted by the newly released Budget, could enhance current collaborations and take them to the next level

Key takeaways

Personalized tutoring and access

- ▶ Partnering with EdTech platforms has enabled student to personalize their tutoring and learning beyond the required curricula, This has helped meet the unexpected needs of different target groups.

Convenience

- ▶ Technology support platforms have made meetings, collaborations and other interactions highly convenient by removing the hassle of travel and the necessity to be present in person.
- ▶ This has also removed the challenge of time constraints and reduced the cost of partnerships.



Only an auxiliary partner

- ▶ EdTech platforms are still being considered as an auxiliary partner rather than being involved in the central system of education delivery.



Future of education and its enablement through the NEP 2020

- ▶ The NEP's focus on **HEIs being digitally aligned** in the future, and equipped with the "latest educational technology that enables a better learning experience" could propel these new partnerships to the next level.

Reliance on digital mediums over the next 3-4 years

Low High

Reliance on digital mediums over the next 8-10 years

Low High

Highlights from India Budget 2021

- ▶ India Budget 2021 encouraged collaboration with the UAE to benchmark skill qualifications, assessment, and certification, accompanied by the deployment of certified workforce.⁽⁴³⁾
- ▶ India's existing partnership with Japan facilitates transfer of Japanese industrial and vocational skills, technique, and knowledge to workforce in India. This would be taken forward with many more countries.⁽⁴³⁾

Innovative partnership models were formed between amongst HEIs, and with the industry

B

Emergence of new models of partnership

Pre-COVID

Reliance on digital



- ▶ Collaborations with national and international universities included student exchanges, immersion programs, semester abroad, research projects, etc.
- ▶ Industry integration focused on physical internships, live projects, placement support, etc.

Current scenario

Reliance on digital



- ▶ New models of collaboration amongst HEIs and with industry partners have emerged.
- ▶ Partnerships amongst HEIs are now focused on virtual immersions, online research projects, simulations, joint classes, etc.
- ▶ Collaborations with industry focus on virtual internships, talks and lectures hosted on digital platforms, online mentoring, etc.

To enable students to have similar experiences as they would have had prior to the pandemic, HEIs globally reinvented collaborations with partners and developed new models.

Purdue University - Virtual internships⁽⁴⁴⁾

- ▶ Purdue University started collaborating with different companies across industries to offer students the opportunity of virtual internships. These internships could help students engage with corporate, not-for-profit and other organizations from home during the pandemic.
- ▶ University used technology to offer students a virtual environment to learn several IT related disciplines with the entire infrastructure hosted on cloud. The students also simulated the roles of department and project managers and executive leaders using this platform.
- ▶ The Purdue Remote Global Internship Program enables students to gain international work experience and develop global professional competencies through a remote internship in Barcelona, Dublin, Florence, London, or Sydney. Students can earn three credits by completing 140 hour unpaid internship along with an online global internship course over a seven week period.

Oxford University - Collaboration with Serum Institute of India⁽⁴⁵⁾

- ▶ Oxford University and a leading global pharmaceutical company partnered with Serum Institute of India to develop 'Covishield' - a much awaited vaccine for the COVID-19 virus.
- ▶ The vaccine being developed will be for India and other emerging economies across the world.
- ▶ With production of over 50 million doses a month, the vaccine is being rolled out across India as well as other countries such as Bhutan, Maldives, Bangladesh, Nepal, Myanmar and Seychelles

The NEP's strong stance on internationalization could enable HEIs to continue building on existing and new partnerships

Teesside University - Regional partnerships to help build skill levels⁽⁴⁶⁾

- ▶ Teesside University has partnered with Darlington College, Hartlepool College and the Education Training Collective as a result of the pandemic. This partnership provides a seamless pathway of education and training in response to the changing needs of the industry.
- ▶ Regional partnerships could be imperative to understand the demographics of the area and identify regional strengths, potential skills shortages and growth sectors.
- ▶ The success of this model in upskilling workforce in the region have made it an ideal model that could be adopted to deal with after effects of the pandemic.

Key takeaways

Seamless collaborations



- ▶ Digital partnerships have eliminated challenges such as high costs of travel, booking of physical spaces, time constraints. A large audience can be involved with negligible cost impact and minimal organization and administration requirement.

Limited interaction



- ▶ Virtual events, internships, programs and projects significantly reduce social interactions, lessening the expected impact and take away.

Reduced experience

- ▶ Online collaborations, although at times realistic, reduce the overall experience that students or faculty would get from in person attendance.

Future of education and its enablement through the NEP 2020

- ▶ NEP's focus on internationalization can help HEIs in India expand their reach and include new models developed to build new and strengthen existing collaborations, both physically and digitally.

Reliance on digital mediums over the next 3-4 years



Reliance on digital mediums over the next 8-10 years



Institutions have witnessed a rapid shift from physical to digital teaching and learning infrastructure



Infrastructure

We have seen an overnight shift from physical to digitally enabled technology infrastructure as a result of the pandemic. Classrooms, buildings and student spaces have been replaced by digital platforms, online tools and remote working

conditions. Digital architecture and technology tools are being utilized for teaching, managing processes and administrative tasks as well as enhancing student experiences.

A

New teaching and learning infrastructure

Pre-COVID

Reliance on digital



- ▶ Physical classrooms in HEIs had limited digital means. Few universities were equipped with smart classrooms.
- ▶ Practical, hands on teaching was conducted at laboratories and other skill development setups.
- ▶ Access to knowledge resources was provided through physical libraries on campus.

Universities are adapting to the shift from physical to digital infrastructure by developing new ways to provide students with a customized and personalized learning experience.

Purdue University - Student centric setup⁽⁴⁷⁾

- ▶ Purdue University has developed a system called "Course Signals", which helps predict academic and behavioural issues, digitally.
- ▶ The system uses predictive modelling with data mining to gauge a student's academic preparation, learning engagement, effort levels and academic performance to create a risk profile. The risk profile would indicate if any student is at the risk of failing or dropping out.

Current scenario

Reliance on digital



- ▶ There has been a complete 360 degree shift to digital classrooms supported on different digital platforms and resource sharing applications/software.
- ▶ Laboratory access and setting virtual labs remains an open challenge for HEIs.
- ▶ Libraries were digitized and HEIs provided online access to databases and research sites to students.

University of Jordan - Adoption of "Lark" platform⁽⁴⁸⁾

- ▶ University of Jordan started using collaborative platform 'Lark' when the pandemic hit. The platform provided unlimited video conferencing time, auto translation capabilities, real time coediting of project work, and smart calendar scheduling features.
- ▶ The collaborative tool combines messenger, online document editors, cloud storage, calendar and video conferencing into one platform, making it seamless for faculty and students.

The NEP proposes adoption and utilization of new age technology tools for enhancing teaching and learning which has also been supported by Budget 2021

Asbury College - Personalized education infrastructure⁽⁴⁹⁾

- ▶ Asbury College has been using cloud based predictive engine with data analytics system to deliver personalized education to students. The system automatically launches interventions based on student profiles.
- ▶ AI Tutoring outside of the classroom offers another personalization opportunity. The system can offer a core learning path and monitor the responses to evaluation questions. It assesses the responses and develops the ideal learning path given the capabilities and working knowledge of students.

Key takeaways

Broader reach and access



- ▶ Digital infrastructure for teaching and learning has enabled HEIs to broaden their reach and gain access to new students both nationally and internationally.

Digital resources

- ▶ Online resources including textbooks, publications, research papers enable students and faculty to access them anywhere, anytime.



Limited alternatives for laboratory and experimentation

- ▶ Few HEIs have been able to successfully translate laboratory and practical studies into virtual mediums.

Future of education and its enablement through the NEP 2020

- ▶ The **NEP is encouraging the usage of advanced technologies** for improving teaching and learning in an HEI.
- ▶ New infrastructure that has come as a result of the pandemic could be further developed to enhance learning and improve retention.

Reliance on digital mediums over the next 3-4 years

Low High

Reliance on digital mediums over the next 8-10 years

Low High

Highlights from India Budget 2021

- ▶ Establishment of a **National Digital Educational Architecture**, set up within the context of a "Digital First Mindset", will not only **support teaching and learning activities** but also **educational planning, governance and administrative activities** of the government.⁽⁵⁰⁾

With everyone working from home remotely, HEIs adopted technology across internal operations to make them more efficient

B

Internal operations and management

Pre-COVID

Reliance on digital



- ▶ Administrative operations across different functions at HEIs such as board meetings, discussions on course structures, department procurements were being conducted leveraging campus infrastructure.
- ▶ Administrative duties were largely documented through paper based forms, or using traditional campus management softwares.

Current scenario

Reliance on digital



- ▶ HEIs are leveraging new features such Robotic Process Automation (RPA), cloud computing, data analytics for setting up a strong technology infrastructure to support HEI operations and management.

As internal operations and management of an HEI are shifting online, institutes are leveraging new technologies to make processes more efficient.

Leading university in Melbourne - Leveraging RPA for internal operations

- ▶ University introduced RPA into its internal operations with the aim of improving customer service for students and faculty as well as centralizing and simplifying processes.
- ▶ **Course enrolment:** Some courses required manual data entry of course results. Robotics was implemented to undertake this task and resulted in quick turn around.
- ▶ **Procurement automation:** New suppliers were registered in the system in 30 minutes by a robot, rather than the usual 5 day process.
- ▶ **IT Administration:** IT system access for new employees was reduced from 2-3 weeks to only 10 minutes.

Leading research university, USA- Cloud infrastructure for storage

- ▶ University has adopted Red Cloud, a subscription based storage service. This cloud based service provides access to virtual servers and storage on demand to faculty, staff and students.
- ▶ Red Cloud has enhanced efficiency in sharing resources and maintained safety requirements.

Though shifting repetitive tasks to digital mediums has increased efficiency, proper training for staff and a secure system would help make this transition seamless

Key takeaways



Overdue adoption of technology

- ▶ Shifting repetitive processes and operations to digital mediums increased convenience and efficiency for all stakeholders involved.



Security breach and threat

- ▶ Uploading confidential and private information on cloud storage or other online portals could lead to a security breach.

Disruptive and challenging

- ▶ Faculty and staff are unprepared and not trained to suddenly shift in person activities to digital mediums. Hence, they find digital administration very challenging.

Reliance on digital mediums over the next 3-4 years

Low High

Reliance on digital mediums over the next 8-10 years

Low High

Student experience is no longer driven by physical infrastructure and campus facilities

C

Student experience

Pre-COVID

Reliance on digital



- ▶ Student residences were utilized by students and many sports, cultural events were held on campus, leveraging the available infrastructure.
- ▶ Industry engagement activities focussed on placements such as preplacement talks and interview processes were largely conducted in person.
- ▶ Enrolment processes and procedures were largely conducted in person, on campus.

Campuses and their infrastructure contributed significantly towards student experience. Hence, universities have tried to support students through technology enabled experiences at this time where coming to the campus is not possible.

A world class university in Melbourne - Automation of enrolment processes

- ▶ University's online service enables students to progress from enquiry to enrolment in just under four minutes.
- ▶ When a prospective students browses the website, live chat is available and the user is passed on to a course advisor post registering his contact details.
- ▶ Course advisor can "warm transfer" to a phone call with the student and credit card details are captured for enrolment.

Current scenario

Reliance on digital



- ▶ Hostels and campus residences at HEIs were barely utilized with most of them functioning at minimum capacity.
- ▶ With the pandemic and subsequent travel restrictions, the enrolment assessment processes were transitioned to HEI's digital infrastructure.
- ▶ Sports and cultural activity infrastructure proved to be difficult to completely transition to digital infrastructure.
- ▶ Almost all placement related activities were transitioned to digital platforms.

Leading university in USA - Easy industry integration

- ▶ University's AstrumU helps connect employers and students easily. Employers share job descriptions while candidates share their background and resume.
- ▶ AstrumU extracts skills from coursework and experiences, and matches jobs to students with the highest alignment. This results in improved quality of applicants, increased efficiency and access to a more inclusive talent pool.
- ▶ AI driven model predicts the matches with the highest shared probability of success.

Usage of technology and digital infrastructure has increased flexibility for students, however it has impacted the revenue streams for HEIs

Key takeaways

Increased flexibility



- ▶ Shifting student experiences to digital mediums provides students the added flexibility of accessing it from anywhere, anytime.

Loss of revenue



- ▶ Empty residential buildings, lack of events on campus and limited utilization of campus buildings and infrastructure has a direct impact on the financials of an HEI.

Verification and checking

- ▶ Verification and validation of documents submitted on online portals may raise issues.

Reliance on digital mediums over the next 3-4 years



Reliance on digital mediums over the next 8-10 years



Fall in enrolments and limited usage of campus facilities have resulted in financial challenges for HEIs and urged them to develop differentiated offerings to diversify revenue



Funding

HEIs are struggling financially post the onset of the pandemic. Loss in tuition fees with low enrolments, lack of revenue from on campus events, residential hall fees, and catering services has significantly impacted the funds available with HEIs globally.

To help improve existing conditions, HEIs are developing new models as well as cutting costs.

A

Variety in online programs to reach different profiles of students

Pre-COVID

Reliance on digital



- ▶ Majority of HEIs had similar program structures and catered towards traditional students who brought in a significant chunk of the annual tuition fees that could cover operational costs.
- ▶ Limited number of HEIs diversified their portfolio into online programs to broaden their reach.

Universities are adapting to the shift from physical to digital infrastructure by developing new ways to provide students with a customized and personalized learning experience

Leading private university in USA - Micro Masters program

- ▶ University launched a Micro Masters program in collaboration with EdX which helped create a successful funding model for the institute.
- ▶ A Micro Masters program credential is a professional and academic credential for online learners from anywhere in the world. To earn the credential, learners must pass an integrated set of graduate level courses on edX, and one or more proctored exams.
- ▶ This credential is valuable in itself. Additionally, credential holders can apply for an accelerated, on campus, master's degree program at the institute or other partner universities.
- ▶ This has enabled the institute to reach students from across the world, as well as increase their reach towards non-traditional students and professionals who want to upskill themselves.

Current scenario

Reliance on digital



- ▶ There has been a considerable fall in enrolments amongst traditional students, especially across 3 and 4 year programs that are expensive with low return on investment.
- ▶ With the rise of online programs, both traditional and non traditional students are seeking new models of tuition that would have lower fees as compared to on campus programs.

New models developed as a result of shortfall in funding can help HEIs reach different segments of society, however, they need to be careful of brand dilution

University of Arizona - Micro campus network⁽⁵²⁾

- ▶ University of Arizona developed a micro campus network. This network pairs the university with an institution abroad so that students can take online classes from Arizona and have a local faculty mentor to meet with in person.
- ▶ University of Arizona aims to launch 20 micro campus locations by 2025, creating opportunities for students around the world to earn University of Arizona degrees.
- ▶ Micro campuses could create affordable and seamless study abroad options for students in Arizona, which would be accessible once the pandemic eases.

Key takeaways

Inclusion and benefit to society



- ▶ Universities rolled out new models to engage different target segments which previous models could not reach due to their rigid structure and full time commitments.
- ▶ While it brings revenue benefit for the HEIs, it also benefits the society. It helps make educational resource accessible to those who are unable to afford the current models of higher education.

Brand value dilution



- ▶ A relaxed entry criteria and mass enrolments may have a negative impact on the reputation of HEIs in the long run.

Reliance on digital mediums over the next 3-4 years

Low High

Reliance on digital mediums over the next 8-10 years

Low High

Fall in funding in the year 2020 has forced HEIs to cut costs including employee salaries to make ends meet

B

Financial adjustments to make ends meet

Pre-COVID

- ▶ Fee structures were comparable in private and public HEIs across courses.
- ▶ University budgets accounted for inflation and expansion prospects.
- ▶ Faculty and staff salary grew at constant rate which was slower compared to other industries.

Current scenario

- ▶ Fall in enrolments have forced HEIs to reduce or even cut fees in order to maintain minimum level of enrolments and keep the HEI running.
- ▶ Many HEIs have declared salary cuts and reduced costs.
- ▶ Some HEIs are developing new funding models to help sustain the impact of the pandemic.

Universities need finances to keep operations running. In a situation as unexpected as the pandemic, many HEIs have had to take drastic measures.

John Hopkins - Budget cuts⁽⁵³⁾

- ▶ John Hopkins University projected a US\$375 million shortfall for the fiscal year 2020.
- ▶ University in its bid to contain the financial situation, has put all salary increments on hold.
- ▶ The Provost and top management took 10-20% salary cuts and the university laid off approximately 200 employees in mid-2020.
- ▶ These measures helped John Hopkins save approximately US\$100 million.

Leading university in Sydney - Leaner cost structures

- ▶ Top ranked public research university in Sydney has a large international student population. But after the onset of the pandemic, it has suffered an estimated loss of US\$ 600 million for 2020 and a projected loss of US\$ 450 million in 2021.
- ▶ University has deferred capital expenditure, frozen travel costs, reduced discretionary spending and stopped all but essential recruitment. They are also utilizing cash reserves, contingency funds and existing borrowing facility.
- ▶ Senior executives have taken pay cuts and almost 1000 staff members have volunteered to reduce their working days. This effort saved the university US\$ 15 million.

An Ivy League university - Reduction in tuition fees

- ▶ University offered a 10% discount on tuition fees for all undergraduate students during 2020-21.
- ▶ Additionally, university has allowed the students the flexibility to either attend classes on campus, or remotely.

The NEP's vision and strategic funding from Rashtriya Uchchatar Shiksha Abhiyan (RUSA) could help improve the current situation

Key takeaways

Sustainability and future impact

- ▶ New models that have developed in response to the current situation could be adopted and leveraged again in the future as sustainable models of funding.



Leaner cost structures

- ▶ HEIs need to reassess their cost structures to cut out unnecessary expenditure.



Not a viable career option

- ▶ Traditionally lower salaries than other jobs coupled with further salary cuts may discourage individuals from taking up a career in higher education.

Future of education and its enablement through the NEP 2020

- ▶ The NEP envisions **adequate public funding** for both private and public HEIs. Sufficient funding mechanisms would help in the current situation where universities are struggling to stay afloat.
- ▶ Developing a thorough **Institutional Development Plan**, covering aspects from curricular improvement to quality of classroom transaction, could also help HEIs access public funding.

Highlights from India Budget 2021

- ▶ Provision of INR 3000 crores for RUSA could be utilized to improve the country's GER and provide strategic funding to HEIs.⁽⁵⁴⁾

An increased flexibility and autonomy across HEIs and its acceptance amongst regulatory bodies is a welcome side effect of the pandemic



Governance and leadership

Adoption of alternative teaching and learning models and changes in the way that HEIs operate call for changes in the long standing governance and leadership practices.

The past year has seen relaxations in regulations and rigid processes and emergence of new governance structures and policies.

A

Relaxation of regulations and rigid processes

Pre-COVID

Reliance on digital



- ▶ Regulatory bodies defined structured processes policing institutional autonomy across programs, delivery, assessments, pedagogies and other HEI related proceedings.
- ▶ Strict regulations were enforced and followed by all HEIs.

HEIs are seeing increased autonomy in the governance models to address challenges caused by the pandemic.

Not only HEIs, but also countries as a whole, are putting in place new reforms that help make the higher education experience easier for students.

Universities and Colleges Admissions Service (UCAS) clearing process⁽⁵⁵⁾

- ▶ For the first time, students looking for a place at university in the UK will be presented with a personalised list of available courses.
- ▶ UCAS' Clearing Plus will match unplaced undergraduate applicants to relevant courses with vacancies. The service introduces a new personalised clearing in 2020 and will allow students to move seamlessly between universities. UCAS will also offer individual support through emails, social media, and over the phone.
- ▶ This process was introduced to help students during this difficult time and make admissions easier.

Current scenario

Reliance on digital



- ▶ Regulatory bodies have relaxed rigid regulations. Universities are encouraged to provide online education to help students at the time of lockdown.
- ▶ There has been considerable change in processes across HEI admissions, program delivery and assessments.

Kent State University - Flexibility with admissions⁽⁵⁶⁾

- ▶ Kent State University in Ohio is helping ease the financial burden on students by waiving off its application fees.
- ▶ University has also moved the application deadline by a month to help students prepare better.

The establishment of an apex regulatory body in India, that aims to regulate 'lightly but tightly' could further support the existing situation and provide continued flexibility to HEIs

Key takeaways

Increased autonomy



- ▶ Countries and HEIs both leveraged the new flexibility and autonomy brought on by the pandemic to explore new programs, models of delivery, reach differentiated student segments and form new partnerships.

Future of education and its enablement through the NEP 2020

- ▶ NEP's vision to set up a single regulator - the **National Higher Education Regulatory Authority (NHERA)**, that aims to "lightly but tightly" regulate few aspects of an HEI's functioning, **could help enhance the current situation of institutional autonomy** as the body is more aligned to regulating and monitoring the financial and functional aspects across HEIs.
- ▶ Only the curriculum framework will be specified by the General Education Council as defined by the NEP while the **HEIs would have the freedom to set their own curricula.**

Reliance on digital mediums over the next 3-4 years

Low High

Reliance on digital mediums over the next 8-10 years

Low High

Evolution from traditional governance structures to more progressive ones could help HEIs manage unexpected challenges in the future

B

New governance structures and policies

Pre-COVID

- ▶ Traditional governance structures, leadership positions and policies had minimal revisions over the years.
- ▶ Most of the governance processes were paper based with limited focus on digital solutions.
- ▶ Most of HEIs had generic strategies and future plans.

Current scenario

- ▶ Current governance structures and university leaders found it challenging to deal with the unexpected changes brought on by the pandemic.
- ▶ Risk management plans or mitigation strategies to handle the sudden shift to online teaching and from physical to digital infrastructure were absent.

Emerging trends in new governance structures, leadership roles and defined policies that have been observed across few HEIs are as follows :

- ▶ Governance structures have changed to include new roles such as Chief Technical Officer or Digital Officer.
- ▶ Hiring and promotion policies and processes have been revised to enable flexibility due to limited mobility.
- ▶ Digital and technology focused strategies have been developed to enhance the offerings provided for all stakeholders including student, faculty, industry and society.
- ▶ Emergency management teams have been setup and risk mitigation strategies have been developed to handle the current situation as well as plan for reopening of HEIs when the situation improves.

Key takeaways

Required revision

- ▶ Technology aligned leadership roles and policies, revisions in hiring and promotion, new age strategies were needed since Education 4.0 came to light. The pandemic has given HEIs the push to make this a reality.



Preparedness for the future

- ▶ HEIs have established risk mitigation strategies and emergency teams which leaves them better prepared for an emergency in future.

Rash decisions could be harmful

- ▶ HEIs could have taken decisions to rehash their governance structures, roles, strategies in a hurry without considering the impact. This could be harmful in the future for their operations and management.



Emerging governance structures and leadership roles, along with technology aligned policies may give the required impetus to HEIs to evolve with the higher education landscape and NEP's vision

Future of education and its enablement through the NEP 2020

- ▶ NEP's aim to have all **HEIs become independent self governing institutions** pursuing innovation and excellence with leadership of the highest quality could be achieved through initiatives undertaken by HEIs during this time.
- ▶ The NEP lays out **broad frameworks for hiring and promotion**. It describes the characteristics, academic qualifications and administrative and leadership capabilities to manage complex situations. Adapting this framework could help keep workforce related processes transparent and independent.
- ▶ The "**Institutional Development Plan**", as suggested by the NEP could help HEIs frame clear strategies for moving forward in future.

Highlights from India Budget 2021

- ▶ Proposed establishment of the Higher Education Commission in 2021.
- ▶ The Higher Education Commission will be umbrella body with four verticals to oversee standard setting, accreditation, regulation, and funding of the HEIs of 9 Indian states.⁽⁵⁷⁾

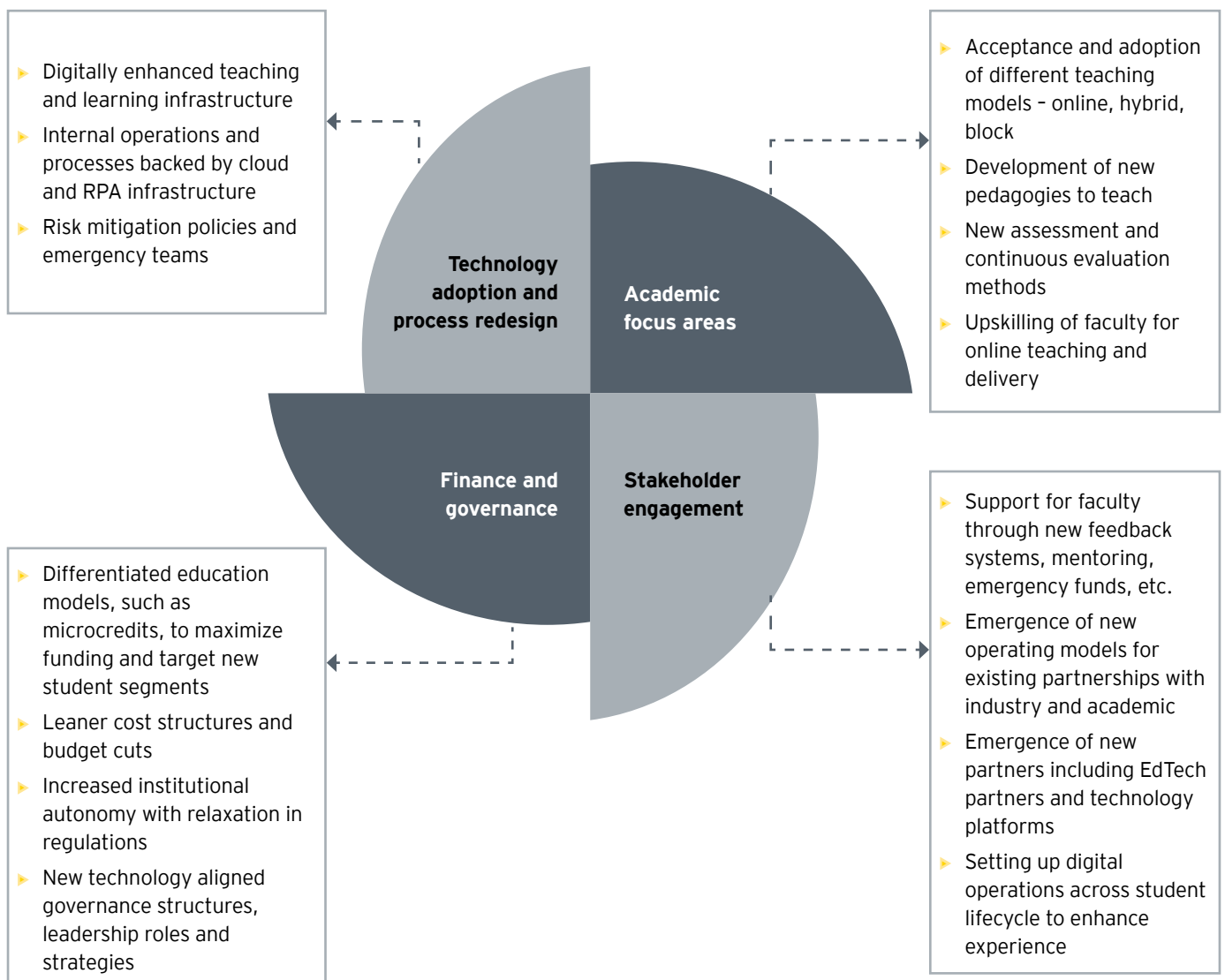


HEIs quickly adapted to the unexpected situation caused by the pandemic, putting in place interventions across the higher education ecosystem

The onset of the pandemic steered the global education system into an unexpected situation where everything had to be remote and digital. The entire education ecosystem was unprepared for this thrust which has taken it leaps and bounds ahead of the expected timelines of adoption of Education 4.0.

HEI and governments adapted and improvised their processes to add flexibility required to cope with the education timelines and adoption of technology with new types of partners. The now implemented technology systems, and flexible user centric models bolstered the transition of the education system towards the future of education which were further supported by suggestions provided by the NEP 2020.

HEIs quickly put in place interventions to support stakeholder journeys during 2020



Although HEIs have put in place innovative solutions leveraging technology to reduce the unexpected challenges brought on by pandemic, are these interventions enough?

External and internal stakeholders would need to work together to create an inspiring, inclusive and sustainable future of education.



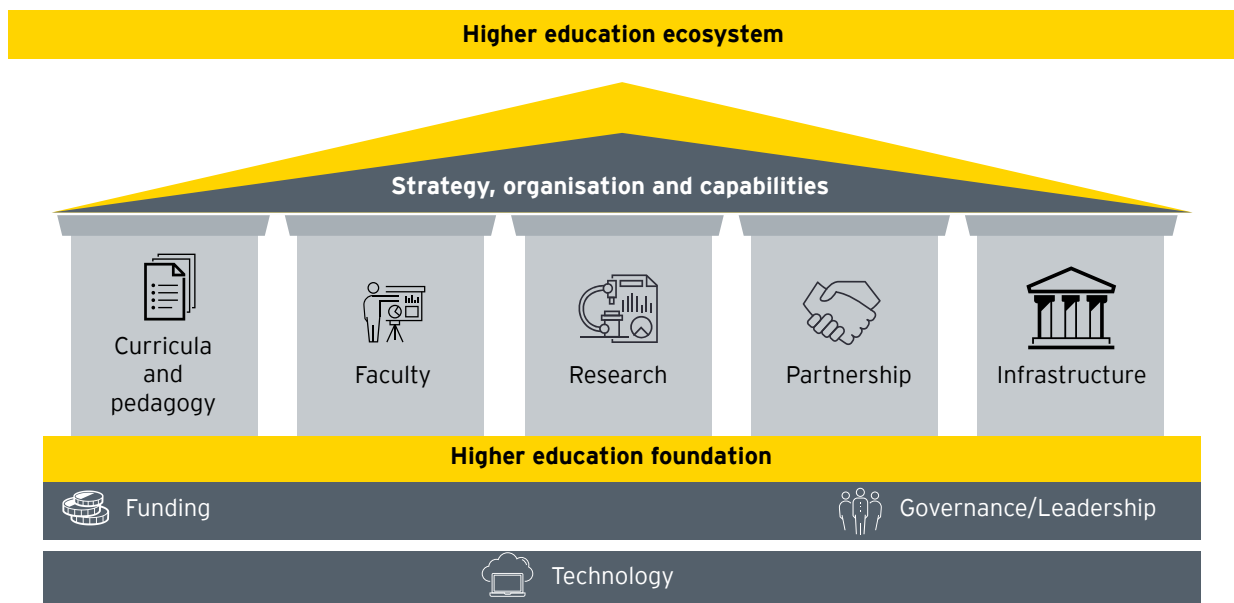




Recommendations for future

The future of education could lead to HEI's undergoing changes across the higher education ecosystem in a bid to be relevant and on track with the evolving environment

HEIs, in order to prosper in the "new normal", could revisit existing models and adopt sustainable, new age practices to deliver a student centric experience, as well as support faculty and staff with the transition to Education 4.0, successfully.



HEI's could redesign their strategies across the higher education ecosystem to remain relevant in the age of Education 4.0.

Revisions, redesigns and restructuring across the higher education ecosystem could help the institutes offer a quality student centric and holistic experience (1/4)



Curricula and pedagogy

» Curriculum redesign

- ▶ Incorporate formal, informal, physical and virtual elements within the curriculum to enhance student experience and retention
- ▶ Build a technology enabled curriculum feedback and redesign model, adaptive to real time learning and course correction
- ▶ Integrate life skills into the curriculum through integration with real world stakeholders such as industry, society and entrepreneur networks

» Education models

- ▶ Harmonise permanent and reliable infrastructures and strategies for blended learning across programs in an HEI
- ▶ Introduce and establish micro credentials as an accepted additional model of education to help students design their own learning pathway
- ▶ Offer increased opportunities for upskilling and reskilling through flexible delivery models (lifelong learning) for faculty and students
- ▶ Introduce elective credits across programs to help students pursue their interests

» Adaptive pedagogies

- ▶ Adopt asynchronized digital tools to help slow and advanced learners customize learning material according to their needs
- ▶ Leverage both online and offline assessments in accordance with regulations and proctoring needs
- ▶ Conduct evaluations regularly throughout the semester, harnessing the affordances of new digital technologies
- ▶ Place greater emphasis on collaborative projects to foster peer learning and support
- ▶ Recognize out of class learnings done through certifications, work experience and experiential learning



Faculty

» Processes and policies

- ▶ Create clearly defined and transparent processes and criteria for faculty recruitment
- ▶ Revise and create workload and promotion strategies to acknowledge research, professional development, and other contributions
- ▶ Provide faculty with the flexibility to work remotely to enhance effectiveness and productivity
- ▶ Provide faculty the flexibility of designing their own schedule, course curriculum, delivery methods and pedagogies, in line with the regulatory framework

» Development models

- ▶ Develop continuing professional development programs to support the faculty with developing differentiated skills for teaching in classroom, blended and online models
- ▶ Build technologically aligned models for 360 degree faculty and student feedback, taken regularly, to ensure continuous improvement
- ▶ Develop a layered mentorship platform for leaders, faculty and students to access support and guidance

Revisions, redesigns and restructuring across the higher education ecosystem could help the institutes offer a quality student centric and holistic experience (2/4)



Research

» Collaborative and cooperative research

- ▶ Develop collaborative virtual research platforms and networks that can host global HEIs to incentivise and promote the creation of open access knowledge
- ▶ Strengthen cooperation with national and international research partners using online tools to minimize geographical distances and support ongoing creation of knowledge
- ▶ Establish “Sustainable Development Research Goals” with other local, national and international universities, to work towards common research agendas and joint projects
- ▶ Build interdisciplinarity research frameworks to allow faculty and students from across departments with differentiated capabilities and knowledge to work together

» Adaptive funding models

- ▶ Develop sustainable funding models with research organizations, government, industry and other bodies to ensure that resources for undertaking research are divided across departments
- ▶ Engage local society and industry to establish research funding models to develop solutions that can solve local issues and challenges



Partnership

» Emerging partnerships

- ▶ Develop transnational partnerships with academia and industry leveraging technology to minimize geographical distance
- ▶ Build regional partnerships to help develop skills in the work force of adjoining areas

» Enhance quality of education

- ▶ Create mentor models with reputed international HEIs and industry, leveraging virtual technologies and platforms, to enhance the quality of education
- ▶ Enable faculty and staff to have the opportunity to collaborate and be affiliated to different institutions at the same time, without necessarily living where the institutions are based
- ▶ Develop accessible and flexible inter-HEI models to help students access educational programmes digitally at other institutions
- ▶ Develop innovative models to partner with digital and social media platforms to enrich the learning process through social learning methods

» Stakeholder experience

- ▶ Students and staff could have the freedom to participate in a physical, virtual or blended program, creating an opportunity for more number of individuals to participate
- ▶ Establish peer mentoring for students, between partner institutes, to help build a system of knowledge exchange while developing new transversal skills
- ▶ Virtual internships and digital work experiences could be offered to help a larger number of students get the required exposure as well as enable faculty to upskill
- ▶ Co-opt industry trainings that can be designed by industry and delivered by universities

Revisions, redesigns and restructuring across the higher education ecosystem could help the institutes offer a quality student centric and holistic experience (3/4)



Infrastructure

» Teaching and learning infrastructure

- ▶ Develop a digital infrastructure plan
- ▶ Build and strengthen teaching and learning infrastructure to adapt to different models of offline and online education
- ▶ Enable access to digital learning resources to support easier utilization of knowledge

» Student experience

- ▶ Establish smaller, physical personalized student spaces for peer learning and individual practice
- ▶ Setup off campus learning centers to provide global exposure to learners and partnership development for academic enrichment
- ▶ Enhance student experiences, learning pathways and higher education journey through the intervention of digital and physical experiences, events and activities



Funding

- ▶ Develop new funding models focused on low cost models of outreach, delivery, student acquisition, industry engagement and alumni connect
- ▶ Strengthen existing and build new delivery models to monetize technology assets and attract different student segments
- ▶ Explore use of freemium models for knowledge assets and programs of the university
- ▶ Assess existing cost structures to identify excessive expenditures and areas of improving the model

Revisions, redesigns and restructuring across the higher education ecosystem could help the institutes offer a quality student centric and holistic experience (4/4)



Governance and leadership

» Governance structures and leadership roles

- ▶ Establish transnational governance models which could help create high value-add structures that come together to exchange knowledge, conduct research and share infrastructure / resources
- ▶ Design an organization structure and leadership team with relevant roles and appropriate policies for hiring and promotion
- ▶ Create roles and functions of university leaders that could go beyond the delivery of the curriculum, to focus on student support, experience and well-being

» Institutional strategies

- ▶ Develop cyber-resilience strategies, IT security plans and emergency management teams to assess risks and vulnerabilities for cyberattacks
- ▶ Develop professional development structures for faculty and staff to upskill them on new and advanced technologies as well as enhance student engagement and experience
- ▶ Enhance current models of education through evolving regulations in line with the NEP released



Technology

» Strategy and planning

- ▶ Develop a digital strategy for HEI where technology drives not only the student lifecycle and experience but also university operations and processes
- ▶ Set up technology integration and support across HEI's functions aimed at improving stakeholder experience and efficiency
- ▶ Build leadership in the form of Chief Technology/Digital Officer to implement the strategic roadmap for use of technology in the university

» Internal operations and processes

- ▶ Leverage cloud infrastructure and RPA to improve internal processes
- ▶ Revisit existing policies and procedures to encourage innovative use of technology by staff, students and academicians

» Teaching and learning infrastructure

- ▶ Build and strengthen teaching and learning infrastructure to adapt to different models of offline and online education
- ▶ Customize education programs and model structures through AI and data analytics to improve student experiences with learning
- ▶ Enable access to digital learning resources to support easier utilization of knowledge

Bibliography

1. "Projections of Education Statistics to 2026", National Center for Educational Statistics, Apr 2018
2. "Price Of College Increasing Almost 8 Times Faster Than Wages", Forbes, Jul 2018
3. "Indians are spending enormously on education even with few jobs in sight", Business Insider, Nov 2019
4. "India's per-capita income rises 6.8% to Rs 11,254 a month in FY20", Business Today, Jan 2020
5. "Online College Students 2020: Comprehensive Data on Demands and Preferences", Wiley Services, Jun 2020
6. Website of Minerva Schools at KGI - www.minerva.kgi.edu
7. Website of EdX - www.edx.org
8. "All India Survey Report on Higher Education", 2018-19
9. Website of Unemployment Rate in India by CMIE - <https://unemploymentinindia.cmie.com/>
10. Brainly Survey, The Hindu Business line, Sep 2020
11. "Education during COVID-19 and beyond", United Nations, Aug 2020
12. "Digital Learning Pulse Survey: Immediate Priorities", Cengage, Apr 2020
13. "Ohio U Lays Off Over 140 Faculty, Administrators", Inside Higher ED, May 2020
14. "University redundancies, furloughs and pay cuts might loom amid the pandemic, survey finds", July 2020
15. Website of The Conversation - <https://www.theconversation.com>
16. "Sustaining University Research Expertise (SURE) package", Government Of UK Department for Business, Energy & Industrial Strategy, Nov 2020
17. "The Academic Response to COVID-19", Frontiers, Oct 2020
18. Website of OPJGU - <https://jgu.edu.in/>
19. "Mobilizing the university-industry community against Covid-19", Global University Venturing, Aug 2020
20. "Covid-19: What went wrong on IIT Madras campus" The Times of India, Dec 2020
21. "Colleges' opening fuelled 3,000 COVID Cases a Day, Researchers Say" Kaiser Health News, Sept 2020
22. "Private Colleges Report Lost Revenue, Increased Expenses This Fall", Inside Higher Ed, Dec 2020
23. "International Student Numbers Decline" Inside Higher Ed, Nov 2020
24. "The pandemic has damaged the appeal of studying in the United States for some international students", Washington Post, Jul 2020
25. "MacMurray College is closing after 174 years", American School & University, Apr 2020
26. "Pine Manor Merges Amid Pandemic", Insider Higher ED, May 2020
27. "179 professional colleges wind up amid uncertainty", Live Mint, Jul 2020
28. "Top-100 universities permitted to start online courses automatically by 30 May: Sitharaman", Live Mint, May 2020
29. "NEP 2020: Challenges that govt must address to expedite education reforms", Hindustan Times, Dec 2020
30. "Online transition", India Today, May 2020
31. Website of South Carolina - <https://sc.edu/>
32. Website of University of Edinburgh - <https://www.ed.ac.uk/>

Bibliography

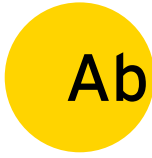
33. Website of Georgian College - <https://www.georgiancollege.ca/>
34. Website of University Of Washington School of Medicine - <http://www.washington.edu/>
35. Website of Seneca College - <https://www.senecacollege.ca/>
36. Website of IIM Kashipur - <http://www.iimkashipur.ac.in/>
37. Website of University of Gothenburg - <https://www.gu.se/en>
38. "Budget 2021: 6% cut in allocation for education sector" The Economic Times, Feb 2021
39. Website of Penn State - <https://facdev.e-education.psu.edu/>
40. Website of South Florida - <https://www.usf.edu/>
41. Website of University of Massachusetts at Amherst - <https://www.umass.edu/>
42. "Rs 50,000 crore allocation to NRF over 5 years to facilitate more directed research; boost research ecosystem", The Economic Times, Feb 2021
43. "Summary of the Budget 2021-22" Press Information Bureau, Feb 2021
44. Website of Purdue University Global - <https://www.purdueglobal.edu/>
45. Website of Serum Institute of India - <https://www.seruminstitute.com/>
46. Website of Teesside University - <https://www.tees.ac.uk/>
47. Website of Purdue University - <https://www.purdue.edu/>
48. "The COVID-19 pandemic has changed education forever. This is how", World Economic Forum, Apr 2020
49. Website of Asbury University - <https://www.asbury.edu/>
50. "Union Budget 2021: National Education Policy, Skill Development Schemes Get A Boost" Inc 42, Feb 2021
51. Website of MIT - <https://www.mit.edu/>
52. Website of University of Arizona - <https://everywhere.arizona.edu/>
53. Website of John Hopkins University - <https://www.jhu.edu/>
54. "Union Education Minister lauds the Union Budget 2021-22 and expresses his gratitude to Finance Minister Smt Nirmala Sitharaman for giving a major boost to education sector" Press Information Bureau , Feb 2021
55. Website of UCAS - <https://www.ucas.com/>
56. Website of Kent State University - <https://www.kent.edu/>
57. "Education Sector's Reaction On Union Budget 2021-22" BW Education, Feb 2021
58. EY FICCI Student Survey, 2020
59. EY FICCI Faculty Survey, 2020
60. "Coronavirus to effect 48% Indian students' 'study abroad' plans: QS report" Business Today, May 2020

About FICCI Higher Education

FICCI has been playing a proactive role in the Education sector since past two decades. It has been the leading industry association of the country, that has been advocating reforms in education sector, carrying out research, surveys and studies. FICCI's Higher Education Committee, which has a strong representation from the Industry, Academia, thought leaders, Think Tanks, NGOs and Consultants, is a platform for policy advocacy, sustainable industry-academia linkages, networking, knowledge sharing and promoting collaborative ventures in academic exchanges, industry-oriented research/consultancy and value-added services. Over the years, the Higher Education Committee has proactively been complementing Government's growth agenda for the sector.

Some of the FICCI Higher Education Committee's recent initiatives:

- ▶ NEP 2020: FICCI was actively engaged in the national thematic consultative committee meetings for developing the NEP and had been submitting its recommendations to Union Ministry of Education. Many of the key FICCI recommendations have been incorporated in the NEP 2020.
- ▶ FICCI Future X: This is a platform to bring together leading industry members and subject matter experts of 'future technologies' to collaborate, network ,develop new knowledge, share experiences and create 'future-ready' society. In 2020, FICCI has trained ~500 faculty members on the 5-day training workshop, to orient them towards online tools and pedagogy. In partnership with AICTE, FICCI also executed a workshop for 200 faculty members on AI.
- ▶ FICCI Position Paper on Autonomy in Higher Education Institutions (Jan 2017) : In line with FICCI recommendation that was submitted to Prime Minister's Office, Ministry of Education, NITI Aayog, and UGC, government enacted the UGC [Categorization of universities (only) for Grant of graded Autonomy] regulations, 2018.
- ▶ FICCI-SV University NKFH CoE: FICCI has been pro-actively engaged in the creation of the National Functional Knowledge Hub (NKFH) to facilitate sustained Industry-Academia linkages with the aim to improve the quality of graduating students. FICCI has set up a CoE in partnership with SV University Tirupati.
- ▶ An EdTech Task Force has been set up with the objective to provide policy advocacy and promote collaborations and best practices, thereby facilitating to create a robust EdTech ecosystem in the country.
- ▶ FICCI plays a critical role in promoting Internationalization of Indian Higher Education by mobilizing focussed overseas delegations, hosting foreign delegations, organizing seminars, focused one-to-one interactions with Universities, etc. Some of the recent delegations to countries such as South Korea, China, France, Germany, USA, etc have been enriching for Indian higher education leaders and led to many effective partnerships.
- ▶ FICCI Higher Education Summit and Exhibition is one of the FICCI's signature events and a sought-after platform in whole of Asia. Over the years, the Summit has evolved into a thought leadership forum and brings together global key stakeholders including policy makers, educationists, industry leaders and students to deliberate upon strategies and share best practices to develop a 21st century education system.



About EY's Education Sector practice

Education is a focus sector for EY. We provide strong capabilities as advisors in this sector through a dedicated team of sector professionals. Our team combines deep insights with strong practical operational experience to provide implementable solutions that lead to tangible and sustained value creation.

EY's education practice has successfully completed numerous assignments over the last several years, covering all aspects of the education sector in India. The firm's clients include government bodies, reputed Indian and international educational institutions, industry bodies, private equity funds as well as corporate houses interested in the education space.

EY's education-centric research and analysis is encapsulated in a range of education thought leadership reports that are widely quoted by sector professionals.

We provide end-to-end solutions to suit the requirements of clients from all segments of the industry. The following is a snapshot of our services:

Pre-entry	Establishment	Growth	Stability
<ul style="list-style-type: none"> ▶ Market landscaping ▶ Entry strategy formulation ▶ Feasibility study ▶ Location assessment ▶ Regulatory insight ▶ Structuring for fund raising ▶ Forms of presence ▶ Tax exemptions ▶ Commercial diligence ▶ Joint venture/strategic partner search 	<ul style="list-style-type: none"> ▶ Business planning ▶ Franchisee strategy ▶ Marketing strategy ▶ Project management ▶ Industry-focused program development ▶ Approval assistance ▶ Inbound investment structuring ▶ Assistance in entity structuring ▶ Valuation and business modeling 	<ul style="list-style-type: none"> ▶ Growth strategy ▶ Organization structuring ▶ Internal audit ▶ International expansion strategy ▶ Standard operating procedures ▶ Expatriate taxation ▶ Fund raising and M&A advisory ▶ Transaction support ▶ Corporate Finance Strategy 	<ul style="list-style-type: none"> ▶ Business process improvement ▶ Performance management ▶ Corporate social responsibility ▶ Compliance reviews ▶ Strategic cost management

Contact

Amitabh Jhingan
 Partner
 Amitabh.Jhingan@parthenon.ey.com

Gautam Srivastava
 Director
 Gautam.Srivastava@parthenon.ey.com

Acknowledgements

- ▶ **Dr Vidya Yeravdekar,**
Chair- FICCI Higher Education Committee
Pro Chancellor, Symbiosis International University
- ▶ **Dr Rupamanjari Ghosh,**
Co-chair- FICCI Higher Education Committee
Vice Chancellor, Shiv Nadar University
- ▶ **Dr Sekar Viswanathan,**
Co-chair- FICCI Higher Education Committee
Vice President, VIT University
- ▶ **Dr Rajan Saxena,**
Advisor- FICCI Higher Education Committee
Founder, The Open-Ed Networks
- ▶ **Dr Anil Sahasrabudhe,**
Chairman, AICTE
- ▶ **Dr Pankaj Mittal,**
Secretary General, Association of Indian Universities
- ▶ **Dr N V Varghese,**
Vice Chancellor, NIEPA
- ▶ **Dr Sandeep Sancheti,**
Vice Chancellor, SRM Institute of Science and Technology
- ▶ **Dr Ajit Chaturvedi,**
Director, IIT Roorkee
- ▶ **Ms Nandita Abraham,**
President, Pearl Academy
- ▶ **Mr Anand Sudarshan,**
Founder, Sylvant Advisors
- ▶ **Mr Ravi Panchanadan,**
MD and CEO, Manipal Global Education Limited
- ▶ **Dr Rajita Kulkarni,**
President, Sri Sri University
- ▶ **Dr Vinnie Jauhari,**
Director, Education Advocacy, Microsoft
- ▶ **Mr Lokesh Mehra,**
Head, AWS Academy, South Asia, Amazon
- ▶ **Mr. Suchindra Kumar,**
India Country Director, Wizenoze
- ▶ **Ms Diane Janknegt**
Founder, Wizenoze

We also acknowledge the inputs received from the 2700 students and 60 faculty members, who participated in the surveys conducted for the knowledge paper.

EY team

- ▶ Maneka Sharma
- ▶ Devanjali Dutt
- ▶ Vasudha Verma
- ▶ Gautam Srivastava

FICCI team

- ▶ Sumeet Gupta
- ▶ Rajesh Pankaj
- ▶ Nidhi Jain
- ▶ Priyanka Upreti

Glossary

AI	Artificial Intelligence
AICTE	All India Council for Technical Education
CAGR	Compound Annual Growth Rate
CoE	Centre of Excellence
COVID-19	SARS CoV2 Virus
EdTech	Education Technology
GER	Gross Enrolment Rate
HEI	Higher Education Institute
IT	Information Technology
IIT	Indian Institute of Technology
KGI	Keck Graduate Institute
LMS	Learning Management System
MOOC	Massive Open Online Course
NEP	National Education Policy
NHERA	National Higher Education Regulatory Authority
NRF	National Research Foundation
ODL	Online and Distance Learning
OECD	Organisation for Economic Co-operation and Development
OPJGU	O.P. Jindal Global University
RPA	Robotic Process Automation
RUSA	Rashtriya Uchchatar Shiksha Abhiyan
SWAYAM	Study Webs of Active Learning for Young Aspiring Minds
UCAS	Universities and Colleges Admissions Service
UGC	University Grants Commission
UK	United Kingdom
USA	United States of America
VR	Virtual Reality

Notes:



EY offices

Ahmedabad

2nd floor, Shivalik Ishaan
Near C.N. Vidhyalaya
Ambawadi
Ahmedabad - 380 015
Tel: + 91 79 6608 3800

Bengaluru

6th, 12th & 13th floor
"UB City", Canberra Block
No.24 Vittal Mallya Road
Bengaluru - 560 001
Tel: + 91 80 4027 5000
+ 91 80 6727 5000
+ 91 80 2224 0696

Ground Floor, 'A' wing
Divyasree Chambers
11, O'Shaughnessy Road
Langford Gardens
Bengaluru - 560 025
Tel: + 91 80 6727 5000

Chandigarh

1st Floor, SCO: 166-167
Sector 9-C, Madhya Marg
Chandigarh - 160 009
Tel: + 91 172 331 7800

Chennai

Tidel Park, 6th & 7th Floor
A Block, No.4, Rajiv Gandhi Salai
Taramani, Chennai - 600 113
Tel: + 91 44 6654 8100

Delhi NCR

Golf View Corporate Tower B
Sector 42, Sector Road
Gurgaon - 122 002
Tel: + 91 124 443 4000

3rd & 6th Floor, Worldmark-1
IGI Airport Hospitality District
Aerocity, New Delhi - 110 037
Tel: + 91 11 4731 8000

4th & 5th Floor, Plot No 2B
Tower 2, Sector 126
NOIDA - 201 304
Gautam Budh Nagar, U.P.
Tel: + 91 120 671 7000

Hyderabad

Oval Office, 18, iLabs Centre
Hitech City, Madhapur
Hyderabad - 500 081
Tel: + 91 40 6736 2000

Jamshedpur

1st Floor, Shantiniketan Building
Holding No. 1, SB Shop Area
Bistupur, Jamshedpur - 831 001
Tel: + 91 657 663 1000

Kochi

9th Floor, ABAD Nucleus
NH-49, Maradu PO
Kochi - 682 304
Tel: + 91 484 304 4000

Kolkata

22 Camac Street
3rd Floor, Block 'C'
Kolkata - 700 016
Tel: + 91 33 6615 3400

Mumbai

14th Floor, The Ruby
29 Senapati Bapat Marg
Dadar (W), Mumbai - 400 028
Tel: + 91 22 6192 0000

5th Floor, Block B-2
Nirlon Knowledge Park
Off. Western Express Highway
Goregaon (E)
Mumbai - 400 063
Tel: + 91 22 6192 0000

Pune

C-401, 4th floor
Panchshil Tech Park
Yerwada
(Near Don Bosco School)
Pune - 411 006
Tel: + 91 20 4912 6000

Ernst & Young LLP

EY | Building a better working world

EY exists to build a better working world, helping to create long-term value for clients, people and society and build trust in the capital markets.

Enabled by data and technology, diverse EY teams in over 150 countries provide trust through assurance and help clients grow, transform and operate.

Working across assurance, consulting, law, strategy, tax and transactions, EY teams ask better questions to find new answers for the complex issues facing our world today.

EY refers to the global organization, and may refer to one or more, of the member firms of Ernst & Young Global Limited, each of which is a separate legal entity. Ernst & Young Global Limited, a UK company limited by guarantee, does not provide services to clients. Information about how EY collects and uses personal data and a description of the rights individuals have under data protection legislation are available via ey.com/privacy. EYG member firms do not practice law where prohibited by local laws. For more information about our organization, please visit ey.com.

Ernst & Young LLP is one of the Indian client serving member firms of EYGM Limited. For more information about our organization, please visit www.ey.com/en_in.

Ernst & Young LLP is a Limited Liability Partnership, registered under the Limited Liability Partnership Act, 2008 in India, having its registered office at 22 Camac Street, 3rd Floor, Block C, Kolkata - 700016

© 2021 Ernst & Young LLP. Published in India.
All Rights Reserved.

EYIN2102-015
ED None

This publication contains information in summary form and is therefore intended for general guidance only. It is not intended to be a substitute for detailed research or the exercise of professional judgment. Neither EYGM Limited nor any other member of the global Ernst & Young organization can accept any responsibility for loss occasioned to any person acting or refraining from action as a result of any material in this publication. On any specific matter, reference should be made to the appropriate advisor.

JG

About FICCI

Federation of Indian Chambers of Commerce and Industry (FICCI) Established in 1927, FICCI is the largest and oldest apex business organization in India. Its history is closely interwoven with India's struggle for independence, its industrialization, and its emergence as one of the most rapidly growing global economies.

A non-government, not-for-profit organization, FICCI is the voice of India's business and industry. From influencing policy to encouraging debate, engaging with policy makers and civil society, FICCI articulates the views and concerns of industry. It serves its members from the Indian private and public corporate sectors and multinational companies, drawing its strength from diverse regional chambers of commerce and industry across states, reaching out to over 2,50,000 companies.

FICCI provides a platform for networking and consensus building within and across sectors and is the first port of call for Indian industry, policy makers and the international business community.

Address:

FICCI, Federation House, Tansen Marg,
New Delhi-110001

www.ficci.in; www.ficci-heal.com

ey.com/en_in

