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# Re-envisioning higher education through digital adoption



Confederation of Indian Industry

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# Executive summary

The COVID-19 pandemic has had a severe impact on educational institutes worldwide. The closure of schools, colleges, universities and other higher-education institutes (HEIs) has affected millions of students. Despite apprehensions about online course delivery, institutions have adopted technology and digital methods to enable students to adjust to the new learning environment. They are shifting towards not only online delivery of learning materials and courses but also looking to digitally transform the education sector. As educational institutions continue to assess and reassess their digital maturity, augmented reality (AR) and virtual reality (VR) based virtual laboratories, e-libraries and interactive e-learning platforms with multimedia-based content are becoming the new essential accessories for learning management systems (LMSs).

To understand the impact of the pandemic on HEIs and the current trends and way forward for digital adoption, PwC conducted a survey of management, staff and students from over 50 central, state and private Indian HEIs in the second half of 2020. The key findings from the survey are as follows:

- There is growing recognition of online degrees and certification courses as mainstream modes of education.
- Online degrees from university-owned or blended platforms continue to provide students and universities with an uninterrupted learning experience.
- Educational institutes have analysed the market trends in technology adoption and are using new-age technologies such as internet of things (IoT), artificial intelligence (AI) and data analytics. It is interesting to note that unconventional and technology-led courses have become popular amongst both students and faculty members who are eagerly adapting to and building on this digital trend.
- Digital learning platforms have transformed education to make it more interactive, fun, gamified, adaptive and personalised. Hence, educational institutes are focusing on delivering enriched and quality content.
- Institutes are proactively working on upskilling and reskilling faculty members to enable them to adapt to the new normal of technology in education.
- E-learning will continue to be an integral part of India's mainstream education system.
- The National Education Policy (NEP), 2020, aims to strengthen the new learning approach of digitalisation in education.



# About the survey

## Context

The COVID-19 pandemic has disrupted the functioning of the Indian education sector and led to a new paradigm of online teaching, deferred examinations and fee collection, paving the way for new guidelines and policies. It has affected admissions, entrance examinations, counselling, and placement sessions, among other aspects. Most Indian educational institutes have adopted short-term and ad-hoc measures to continue the education of students across age groups. As things stabilise, the real impact of the pandemic on the education sector will become clearer to stakeholders.

Further, in July 2020, the Government of India (GoI) approved the new National Education Policy (NEP), 2020, that envisions a futuristic framework for the sector, and it is important that HEIs prepare themselves in order to implement this policy and achieve its objectives.

## Objectives

- PwC conducted a higher-education survey with the objective of understanding, analysing and prioritising the challenges faced by Indian HEIs.
- The survey highlights the needs of Indian academia and their demands from service providers, education technology (EdTech) companies and consultants.
- Some of the key areas explored in the survey are:
  - **The impact of COVID-19 on HEIs** – assessing the effect of the pandemic on students, financial capabilities of institutes, technology use, academic challenges, etc.
  - **Current trends of digital adoption and online learning** – assessing the digital maturity of institutes from the viewpoint of various stakeholders. The survey also analyses how comfortable students, faculty members and institutes are with online learning and whether it will become the new normal in education.
  - **Current trends in student and faculty affairs** – analysing how student admissions have affected institutes, how domestic HEIs plan to take advantage of reduced international student mobility, their level of preparedness to adopt online education and tie-ups with international institutes.
  - **Way forward for digital adoption** – examining the state of readiness of existing learning platforms and observing how institutes are preparing themselves to adopt new education technologies or developing available in-house skills.
  - **Preparedness of HEIs for NEP 2020** – understanding the opportunities and challenges, and the restructuring and upskilling required to adopt the policy. The survey also looks into how dependent HEIs are on regulations and the constraints they face in fully implementing the key points of NEP.



## Methodology

- The online survey collected responses from over 50 central, state and private Indian universities, colleges and vocational institutes.
- The stakeholders surveyed can be divided into the following groups:
  - **Management** – vice chancellors (VCs), pro-VCs, registrars, promoters, trustees, heads of departments and chief experience officers (CXOs). A total of 76 responses were collected from this group.
  - **Faculty** – teachers and supporting staff (workshop/lab in-charges, librarians, etc.). A total of 276 responses were collected from this group.
  - **Students** – newly admitted, second- and third-year, and final-year students. A total of 1,541 responses were collected from this group.
- Stakeholders from across private and public colleges, universities and vocational institutes in India participated in the survey.
- The participants answered around 20 multiple-choice questions.

All data presented in this report, unless otherwise indicated, has been derived from the survey conducted by PwC.





# Impact of COVID-19 on India's higher education

The COVID-19 pandemic has severely impacted India's higher education sector which currently comprises approximately 1,000 universities and 40,000 colleges across the country.<sup>1</sup> More than 30 million students are enrolled in undergraduate programmes across India, and the sector employs more than 1.4 million teaching staff. As per a National Sample Survey Office (NSSO) report published in 2017-18 only 15% of India's rural households have access to the internet compared to 42% in urban areas.<sup>2</sup> This highlights the difficulties faced by students in attending online classes. A World Bank report estimates that the education industry in South Asia may lose up to USD 440 billion in the near future due to the closure of schools.<sup>3</sup>

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1 [https://www.education.gov.in/sites/upload\\_files/mhrd/files/NEP\\_Final\\_English\\_0.pdf](https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf)

2 [http://mospi.nic.in/sites/default/files/publication\\_reports/mospi\\_Annual\\_Report\\_2017-18.pdf](http://mospi.nic.in/sites/default/files/publication_reports/mospi_Annual_Report_2017-18.pdf)

3. <https://openknowledge.worldbank.org/bitstream/handle/10986/34517/9781464816406.pdf>

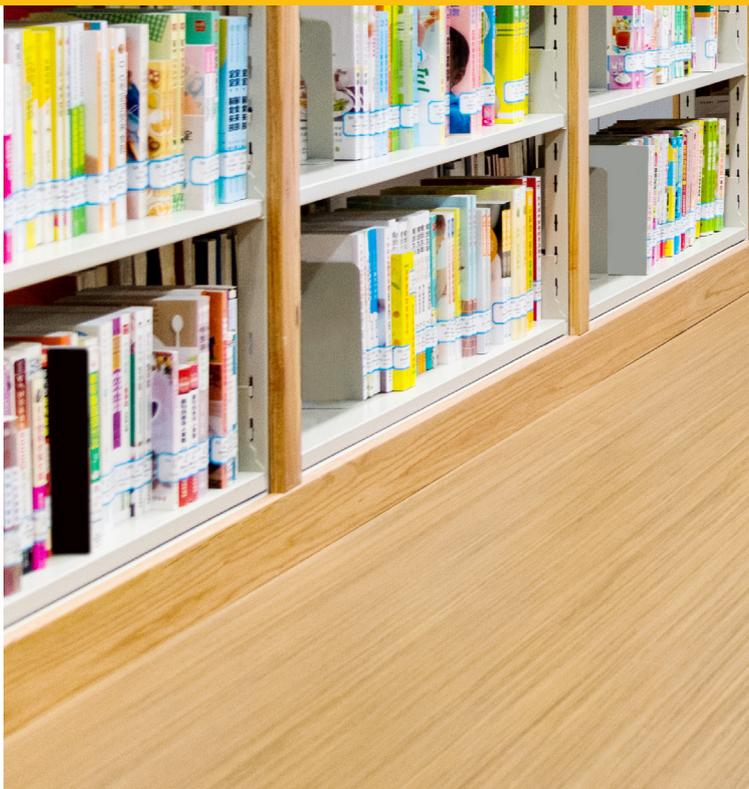


## One in four institutes delayed fee collection

Lockdowns and restrictions since March 2020 have disrupted the regular functioning of educational institutes. The revenues of some institutes decreased drastically, compelling them to respond with layoffs and salary cuts. Conducting examinations has been a challenge, affecting student placements, industry interaction and the pursuit of higher education abroad. However, most institutes have been resilient in these adverse circumstances and quickly adopted new ways of managing their daily operations. The pandemic has also pushed them towards identifying the technological areas that require further attention.

## One in three institutes reduced their capital expenditure

HEIs are increasingly focusing on digital marketing and relying on online tests. They are using tools and technologies to conduct online classes on a larger scale, though internet connectivity continues to be a major issue. The pandemic has also highlighted the much-needed improvement across human resources (HR) and payroll systems in educational institutes. It has also enabled them to identify faculty members who could play active roles in furthering the overall experience of digital learning.





# Digital transformation of HEIs

## Financial implications of COVID-19 on HEIs

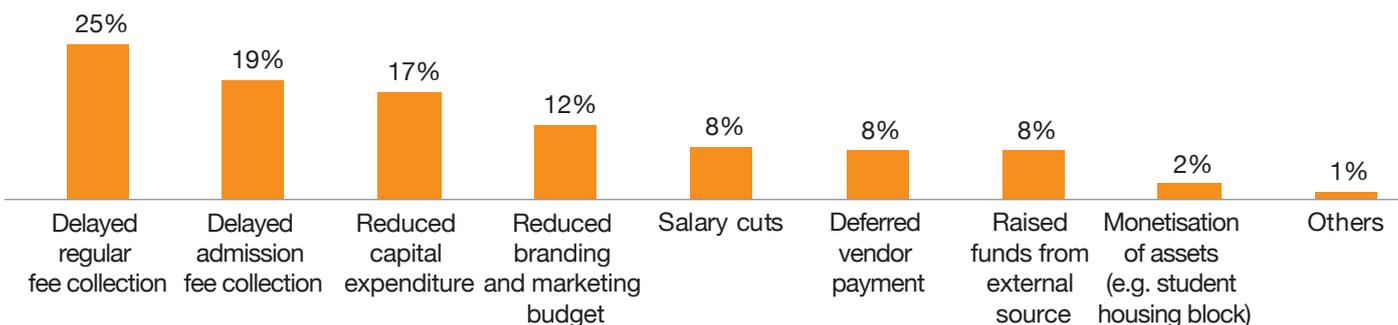
### **Cash-flow issues**

Delayed collection of regular and admission fees has affected the top-line revenues of many educational institutes. Many of them have also stopped earning from auxiliary services such as accommodation and catering.

### **Steps taken to address the financial impact**

The bottom-line revenues of educational institutes have also been impacted as they had to spend on building digital infrastructure and purchasing personal protective items for students and staff. They also had to limit their capital expenditure and reduce marketing budgets.

### How HEIs addressed the financial impact

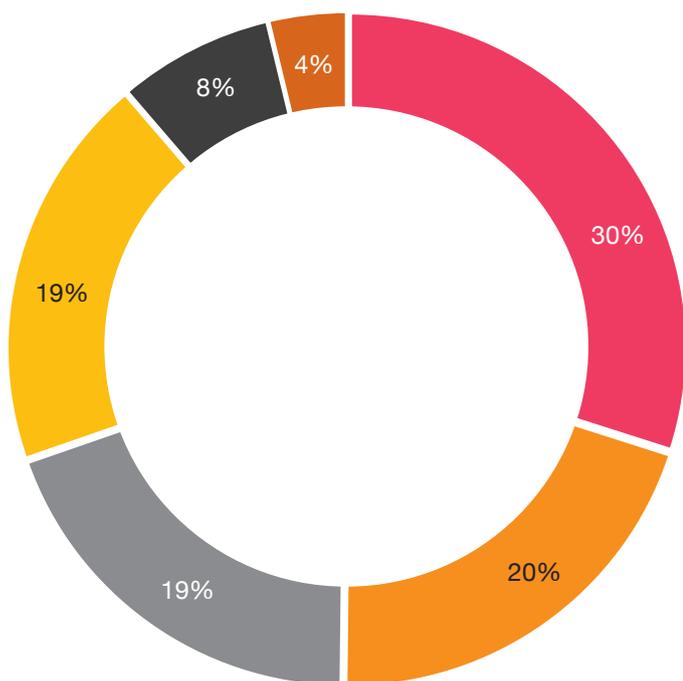


### Non-payment of salaries

A number of institutes initiated pay cuts and deferred salaries, promotions and bonuses. As the country recovers from the second wave, many economists are warning of a looming recession, compelling educational institutes to limit their spending and lay off staff.

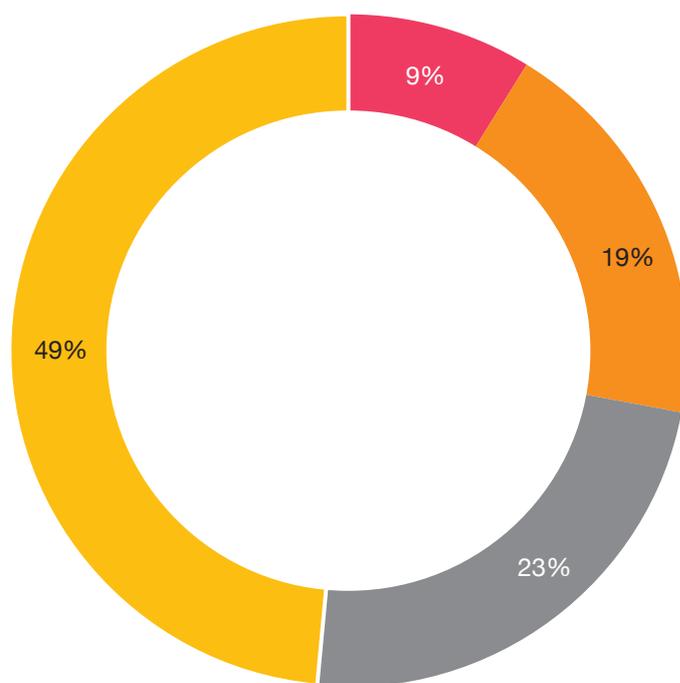
The gradual shift towards online learning has also affected the spending curve of many institutes as they are unsure of the future direction of the sector in the new normal. This is evident from the survey as most HEIs are not looking to restructure or raise funds for expansion.

### Actions on faculty remuneration during the pandemic



- Promotions and annual bonus/benefits deferred
- Undisclosed
- Pay cuts
- No financial implications
- Salary delayed
- Salary put on hold

### Managements' plans on raising funds/restructuring



- Yes, looking for funds from investors/banks/external commercial borrowings
- Yes, but plans are on hold due to the pandemic
- No, we want to continue being a non-profit business
- We do not have any such requirements

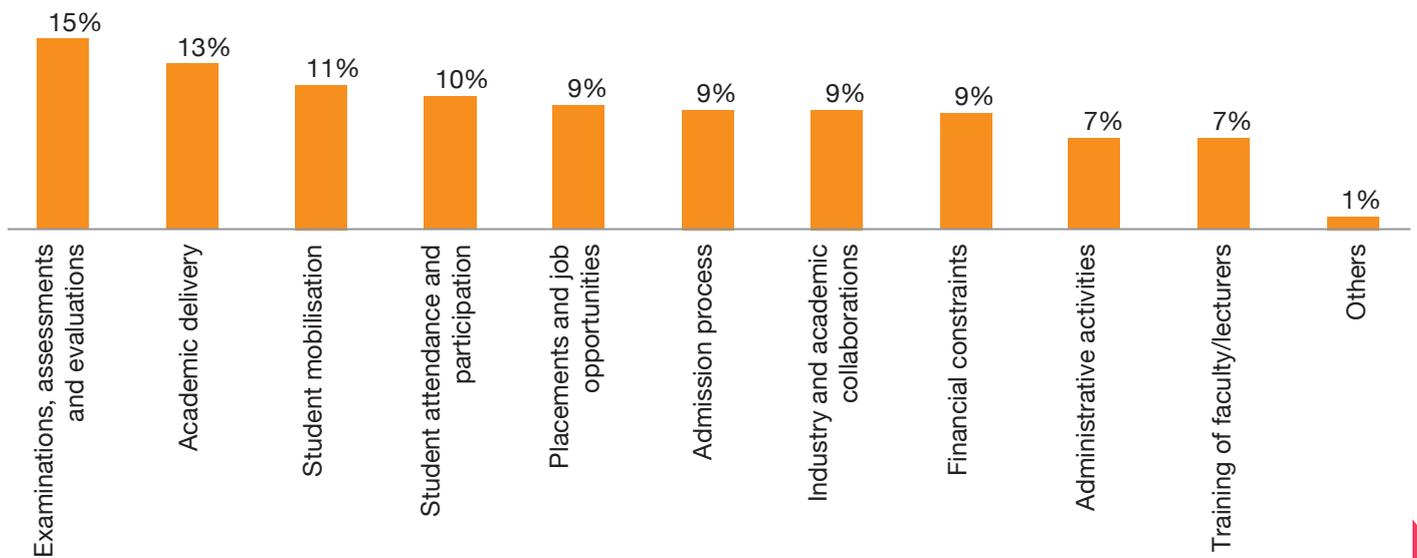
# Operational implications of COVID-19 for HEIs

## Major areas of impact

The pandemic has significantly affected the day-to-day operations of academic institutes. They are finding it challenging to hold proctored examinations and create a secure and authenticated remote environment. While many institutes are conducting online classes, academic

delivery has been affected due to lack of interaction and low motivation among students and staff. Digital fatigue has also affected the performances of students and teachers alike.

## Major areas of impact for HEIs



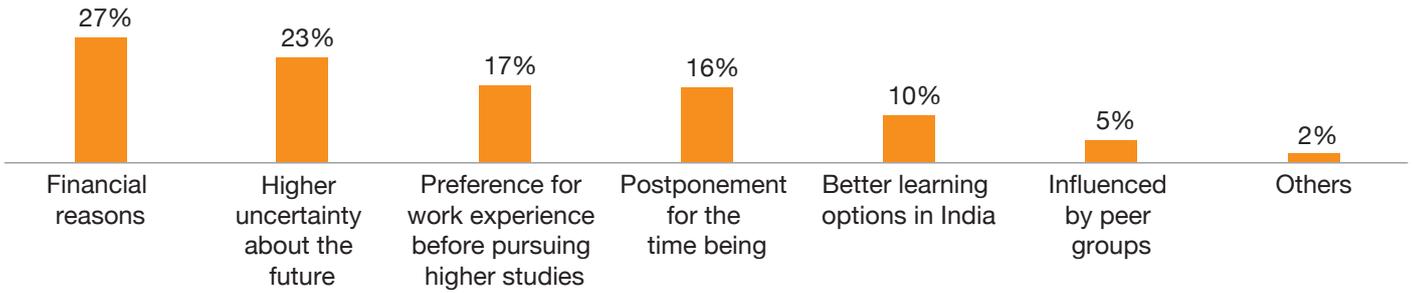
### Impact on pursuing higher studies abroad

The pandemic has created uncertainty in the global job market. It has also caused widespread loss of income, resulting in several students cancelling or deferring their plans of pursuing higher studies abroad. This has further created a demand for online certification from foreign institutes.

### Reduced placements and sponsorships

As people-to-people interactions decline, many faculty members feel that industry interaction across the sector will move towards online platforms. They also foresee a decline in placements and internships due to the impact of the pandemic on the global economy.

### Reasons for cancelling/deferring plans to pursue education abroad



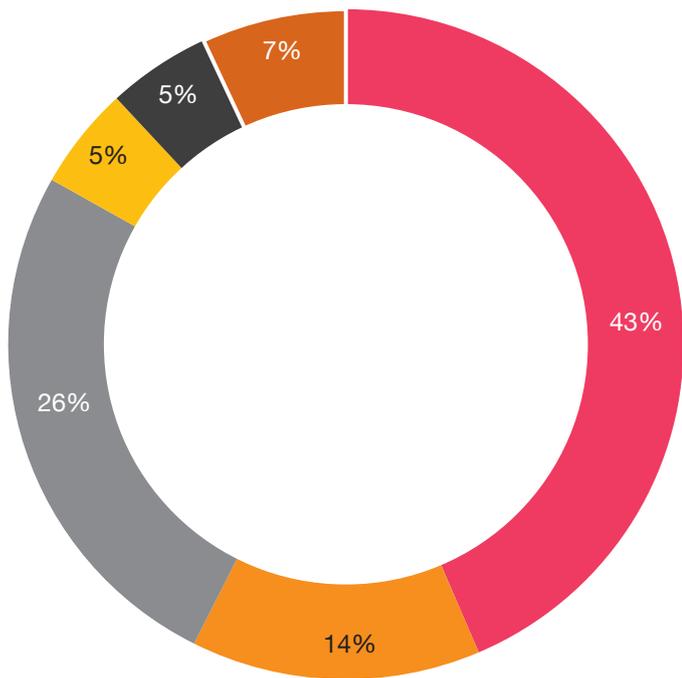


# The shift towards digitalisation

## The future of digital transformation

The pandemic has affected examination and admission processes, thereby making it difficult for students to get into HEIs. All HEIs are not equipped with digital infrastructure that enables them to conduct large-scale online admission tests. HEIs have started adopting new strategies like **digital promotion** and **online examinations** to continue imparting education during the pandemic. Of the HEIs we surveyed, **43%** are conducting online admission tests. They are also engaging in digital promotion of the courses they offer. Robust infrastructure where both digital and physical platforms play equally important roles would be the need of the hour in the new normal. Currently, digital promotions by HEIs account for **26%** of online admissions.

### Admission methods adopted by HEIs



- Entrance exams (admission tests) conducted by institutes
- School tie-ups
- Digital promotion
- Alumni referrals
- Regional education fairs
- Others

As per our survey, 77% of the HEIs feel that robust infrastructure is of paramount importance for increasing their reach and likability during their admission process. Digital transformation in higher education, especially in the post-pandemic world, is seen as inevitable and digital maturity is considered as the key predictor of success. Accordingly, 89% of HEIs have integrated technology solutions during the pandemic. However, institutes continue to face challenges in their digital-adoption journey, and 64% of the management in HEIs faced difficulties in adopting digital technologies.

All stakeholders agree that technology adoption has been beneficial for certain aspects of higher education. While respondents from management believe that HR and payroll systems are the biggest beneficiaries of digitalisation, faculty members and students are of the opinion that attendance, online admission and access to e-resources are areas where technology has played a crucial role during the pandemic.

### Top three impediments in the digital journey of HEIs

- **Connectivity issues:** Only 42% of urban households in India have internet connectivity. The lack of proper internet connections creates impediments in the digital journey of HEIs.
- **Lack of a 360-degree digital solution:** HEIs are actively looking for a one-stop solution that seamlessly integrates with all of their existing functions.
- **Target audience:** Keeping students (target audience) engaged and motivated are major challenges faced by faculties.

### Top three areas of digital maturity in HEIs (as per managements)

- Attendance and tracking
- Online admission
- HR management and payroll systems

### Top three areas of digital maturity in HEIs (as per faculty members)

- Attendance and tracking
- Online admission
- Online libraries, e-resources and online laboratories

### Top three areas of digital maturity in HEIs (as per students)

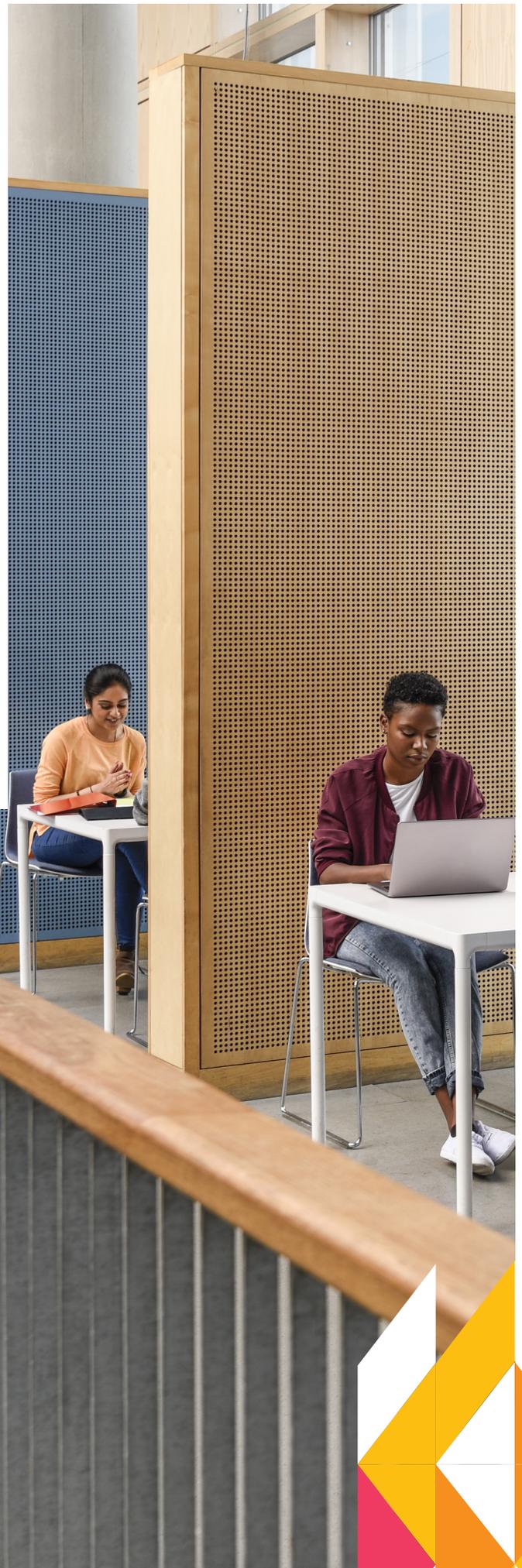
- Online admission, mailing system and online fee payment
- Online learning platform/learning management
- Library, e-resources and online laboratory access

## Changing preferences of students

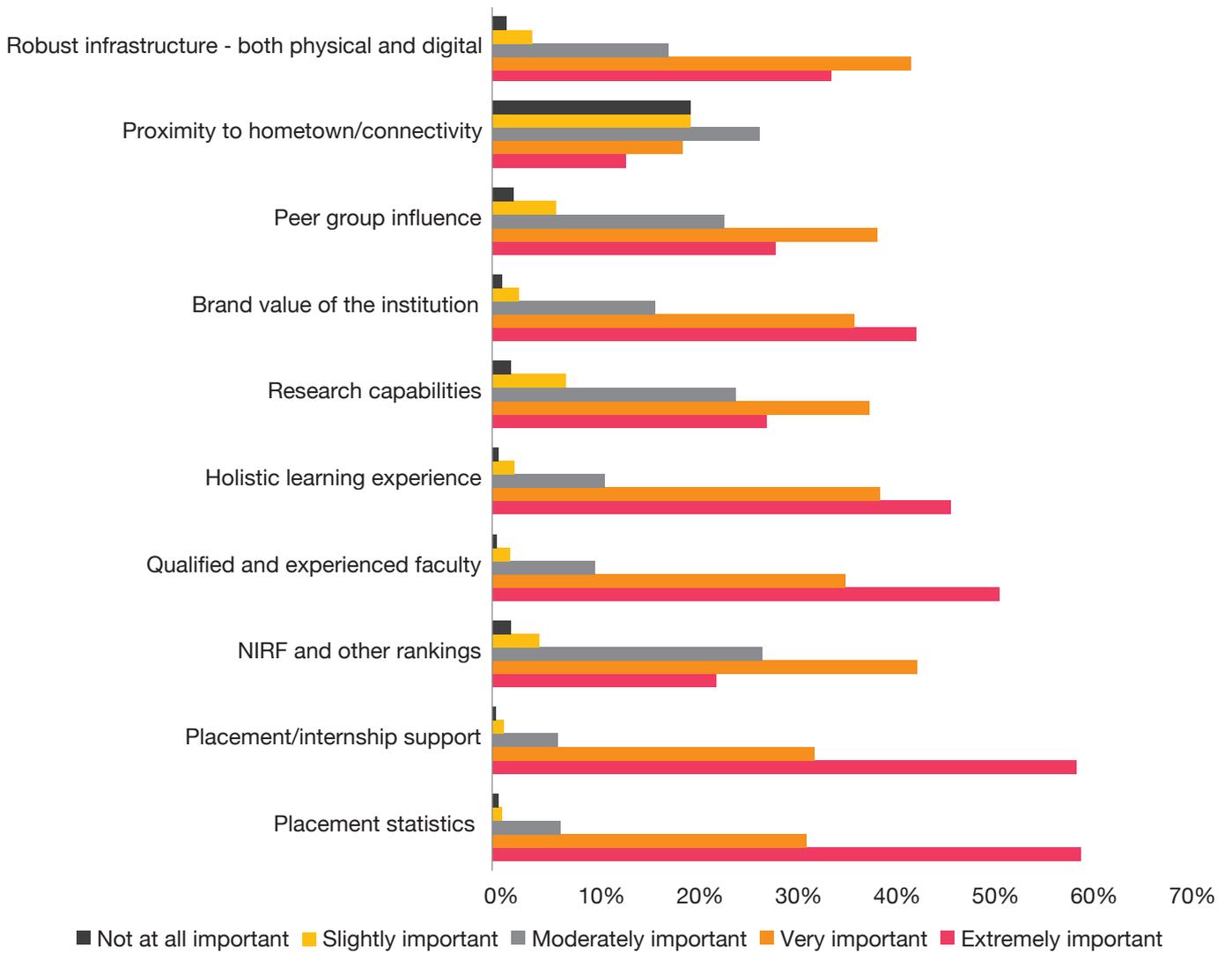
### Top three reasons for choosing an HEI

- Placement statistics
- Placement and industry support
- Qualified and experienced faculty

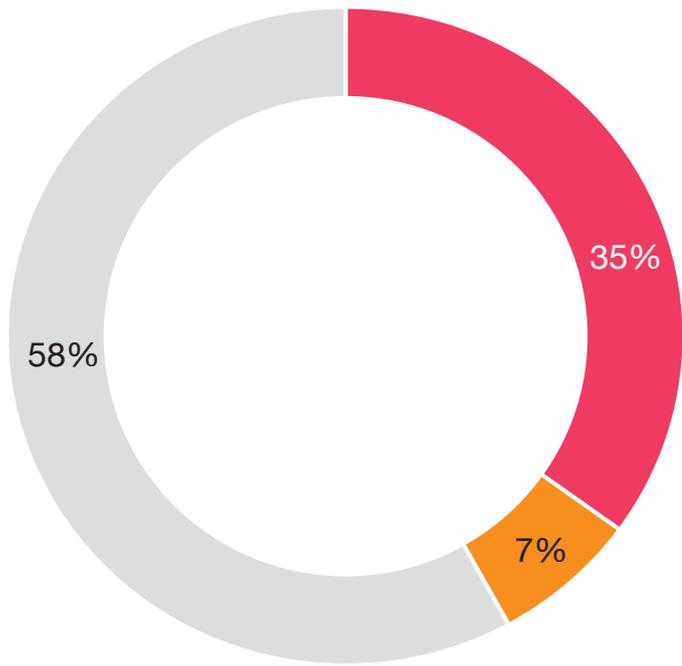
Our survey reveals that **58%** of the students are interested in certification courses. However, **35%** of the students would still prefer degree courses. Further, **68%** of the students would be willing to explore the option of a parallel supplementary online degree from another institution along with their current one. Since **14%** of the students selected an HEI because of its tie-ups with other reputed institutes, HEIs can consider offering parallel supplementary online degree programmes. Finally, **53%** of the students are open to the idea of an online course offered on a blended or university-owned platform.



## Importance of reasons for choosing an HEI during the admission process

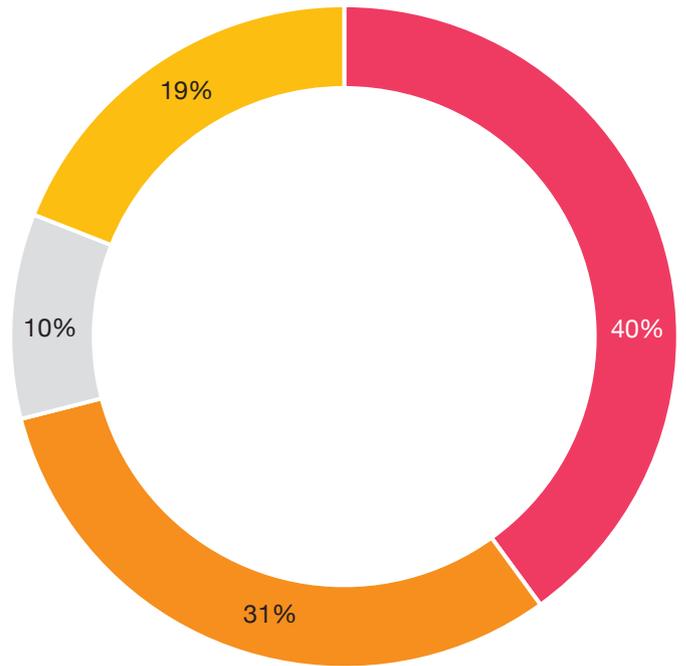


### Course type preference of students



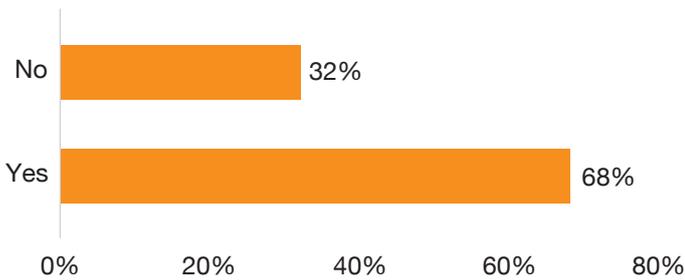
■ Degree course ■ Diploma course ■ Certification course

### Students' views on alumni networks

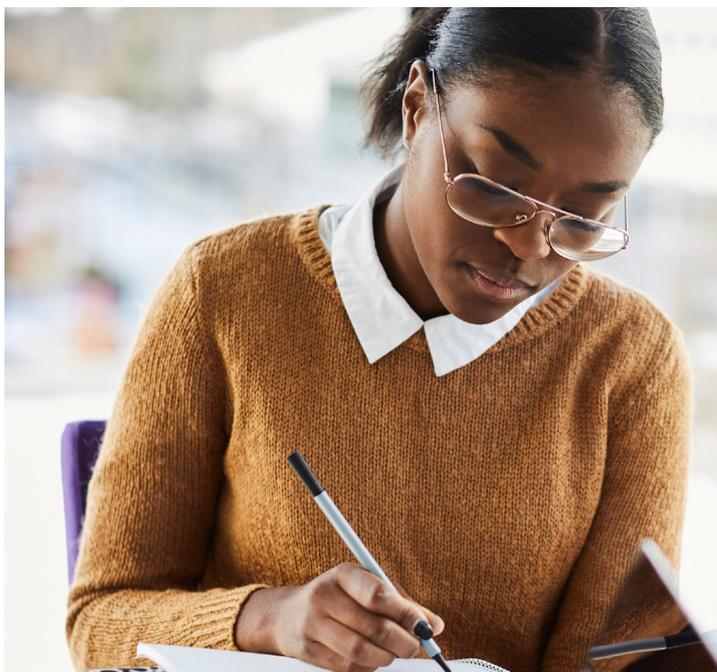


- Yes, alumni network supports the institute in placements and internships
- Yes, the institute facilitates alumni engagement in providing mentorship support
- Yes, institutes have access to an online alumni database/portal
- No, alumni engagement is minimal or non-existent

### Student's willingness to opt for an online degree from another institution along with the current one



Further, **40%** of the students believe that a robust alumni network helps them secure placements and internships. However, **19%** of the HEIs surveyed do not have any alumni engagement initiatives.



### Top three courses that students are most interested in taking up

- AI and machine learning (ML)
- Data and analytics
- IoT



## Changing preferences of faculty

The digital transformation that has taken place during the COVID-19 pandemic has shifted the focus of educators to the importance and relevance of learning to adopt emerging technologies.

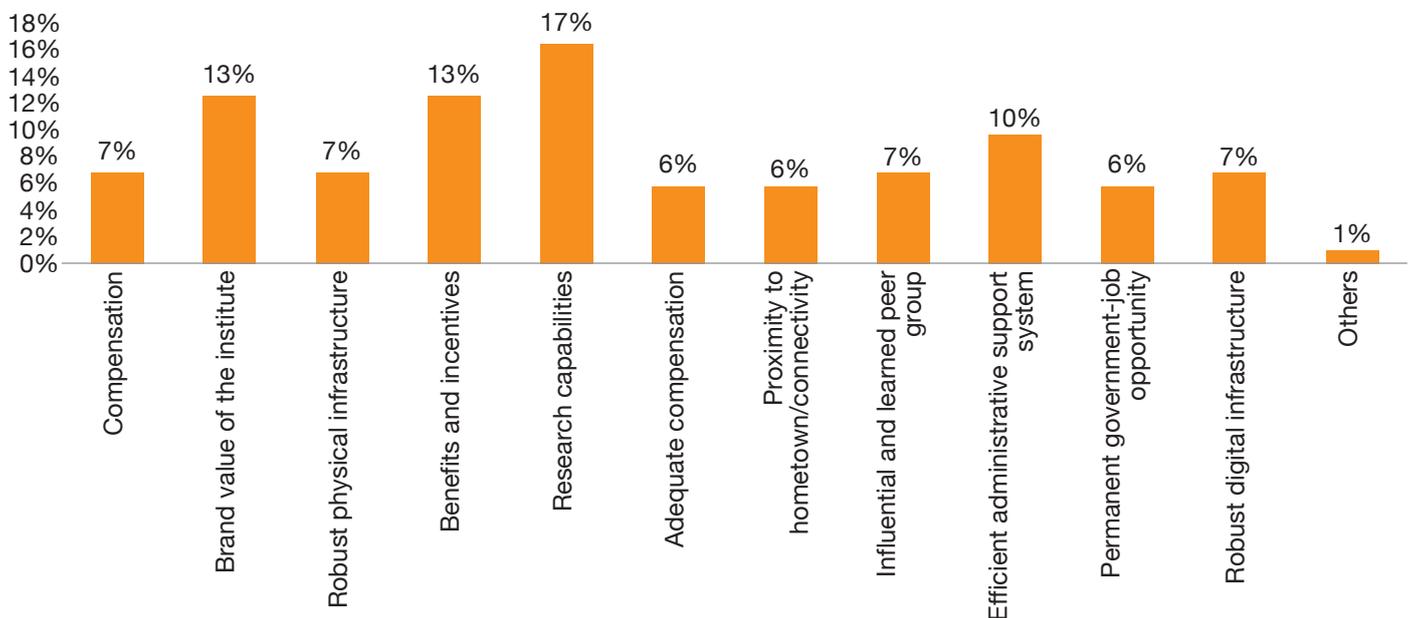
### Top three courses that HEI faculties are most interested in introducing at their institutes

- Data and analytics
- AI and ML
- Blockchain

Resource-intensive undergraduate research programmes are beneficial for students, faculties and managements of HEIs as they play a significant role in developing both verbal and non-verbal skills. They also encourage students to engage in out-of-the-box exercises that sharpen their critical thinking and problem-solving capabilities. These skills, whose acquisition is a crucial part of the educational system, add value to the learning experience by preparing students for the job market. As per our survey results, **17%** of the faculty consider the research capabilities of an institute as one of the key factors for accepting a position. Presentations and publications of research bodies at an HEI cement its reputation and image, thus increasing its visibility amongst peers. Both student-generated and mentor-generated projects help students apply hypothesis-driven scientific methods to solve complex problems.



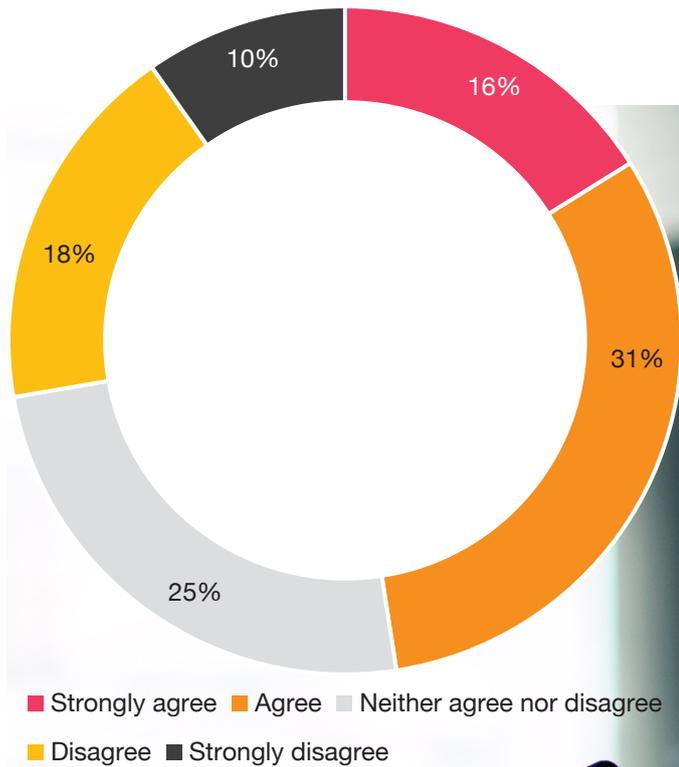
### Reasons for accepting a new faculty position at an institute



With online courses seeing increasing adoption, **47%** of the faculty feel that an online degree is the future of education.

## **47%** of the faculty feel an online degree is the future of education

**Do faculty consider online degrees as the future of education?**



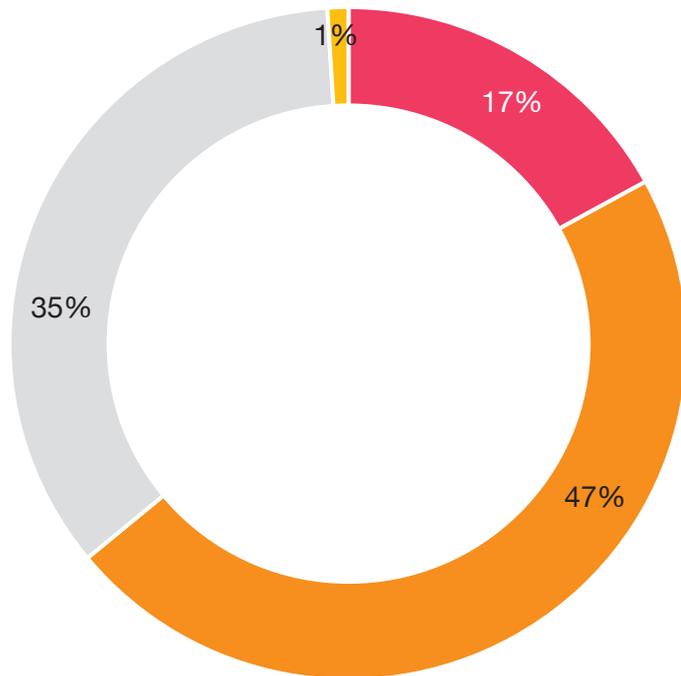
## HEIs and EdTech players need to adapt

**While HEIs have already moved delivery of courses and exams digital, online platforms need to be more effective**

The majority of HEIs are utilising an LMS for the administration of online courses. As theories of distance education evolve, digital technologies to support learning and pedagogy continue to transform as well. Our survey reveals that **83%** of the students and **90%** of the faculty are using online LMSs.

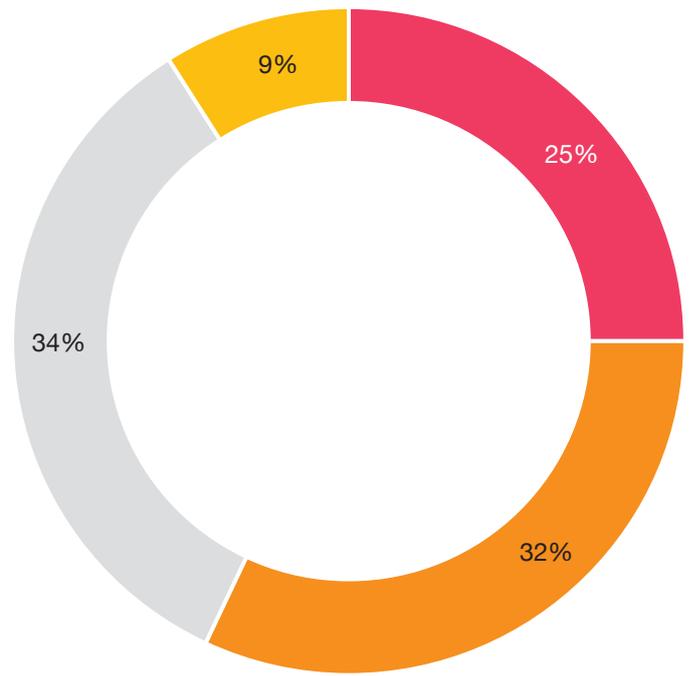


**Examination methods that faculty is comfortable with**



- Open book examinations
- Online examinations
- Online supervised examinations
- No online examinations

**Examination methods that students are comfortable with**



- Open book examinations
- Online MCQ-based examinations with proctoring
- Online supervised examinations
- No online examinations



Further, **82%** of the faculty and **66%** of the students are comfortable with online examinations. In terms of methods of assessment, **47%** of the faculty favour online multiple-choice questions (MCQ) based assessments, while **35%** prefer supervised online examinations. Among the students, **32%** say they would prefer online MCQ-based assessments. Though online examinations are the future, other methods like open-book examinations are increasingly gaining popularity amongst students.

**Interestingly, while a significant percentage of the faculty regards e-learning as the future of education, only 10% believe that a completely online education system is effective.**

While **71%** of the teachers feel that learning can happen online, **44%** still prefer the offline classroom. As few as **10%** can provide complete online delivery of their courses. Although HEIs have started conducting e-training sessions for the faculty to enable them to teach online and conduct e-examinations confidently, **17%** of the teachers have not undergone any training.

**More than 50% of the faculty have undergone training to conduct online classes and examinations.**

## Top four challenges faced by faculty in transitioning to an online delivery model

- Physical student-teacher interaction
- Connectivity issues
- Classroom discussions
- Conducting examinations

## 85% of the management are willing to explore holistic technology solutions

The COVID-19 pandemic has forced the education sector to rapidly move towards digitisation. Institutes want to adopt new technology, so they remain relevant in this dynamic and competitive landscape. This is evident as most of the institutes are looking for a holistic technology solution due to challenges in integrating existing piecemeal solutions. Institutes want a one-stop solution that caters to all their needs – from admissions to alumni, from academic delivery to hostel management, and from transport to estate management.

## HEIs are seeking the right EdTech/tech partner but find most EdTech solutions inadequate

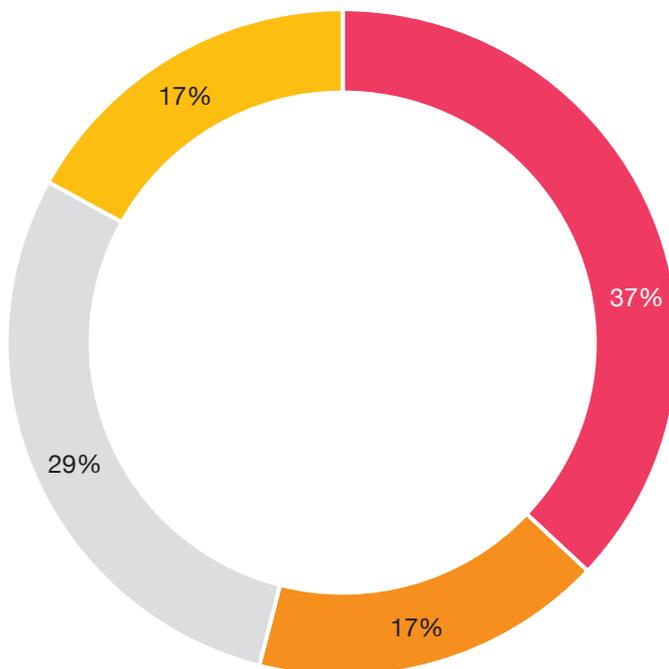
According to the survey, **71%** of the faculty feel that the accelerated shift to online learning has proved that learning can happen online. Although **46%** of the management are very satisfied with their current LMS and teaching content at their institutes, **21%** are not satisfied with the content and **15%** of the institutes are still seeking a holistic LMS with high-quality content. Further, **36%** of the faculty agree that existing platforms lack essential support for online education.

With students eager to pursue online courses, **64%** of the management are willing to offer online courses either on a blended or university-owned platform,

Blended learning is a hybrid form of instruction that combines traditional face-to-face and online learning and occurs through both classroom and online formats. In this approach, the online component acts as a natural extension of traditional classroom learning.

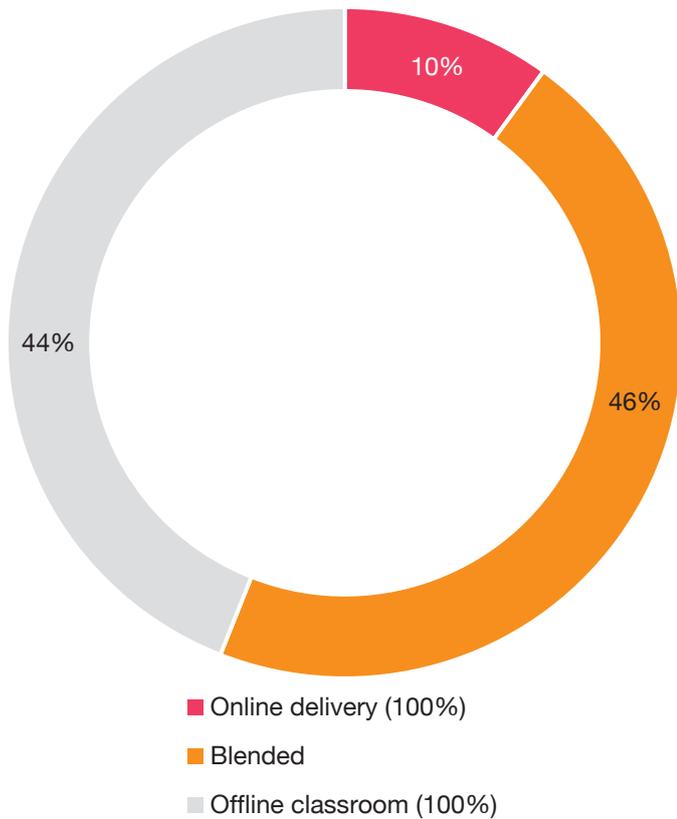
According to our survey, **46%** of the faculty are convinced that blended learning is the most effective way of learning. Although **62%** of the faculty have faced challenges in transitioning to an online delivery model, **83%** feel that students can easily grasp concepts using online learning. Moreover, among students, **86%** have most of the prerequisites for online learning platform and **96%** are satisfied with existing online course delivery. Therefore, with online learning becoming increasingly popular and effective for students, HEI faculties are advocating this new normal way of learning.

## Has faculty undergone any training programme for conducting online classes?



- External self-learning training
- External group-mode training
- In-house training
- No training

**Which is the most effective way of course delivery according to the faculty?**



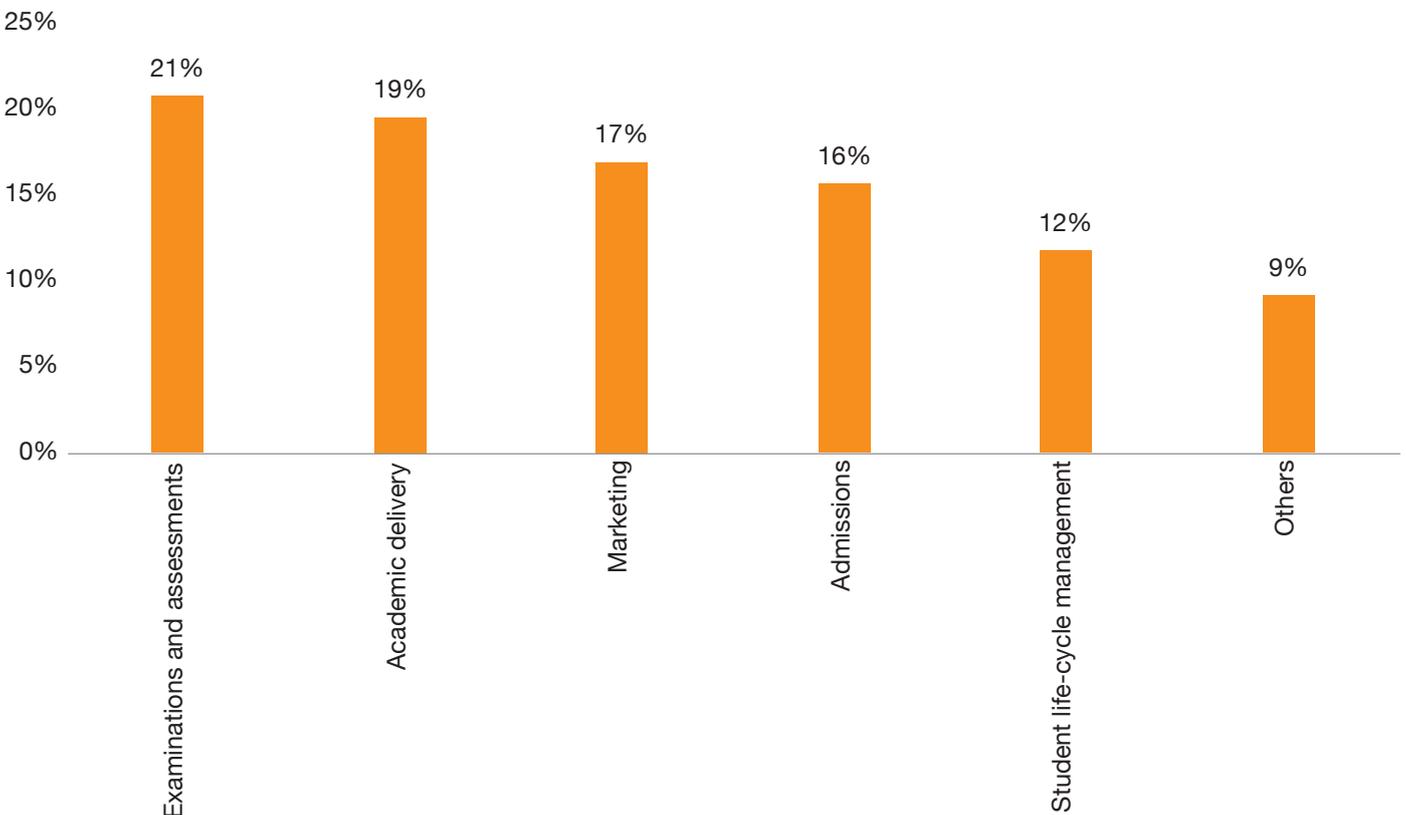
EdTech companies have witnessed a boom in the past decade as more opportunities have arisen. Digital technology is increasingly being used to deliver lessons to students. With the availability of EdTech tools and digital content, the student is more empowered than ever before. Institutes across India are willing to partner with EdTech firms across the areas of examinations, academic delivery and marketing.

**60%** of the faculty have enablers in mind to further the online learning experience

**Top three areas for HEIs to partner with EdTech firms**

- Examinations
- Academic delivery
- Marketing

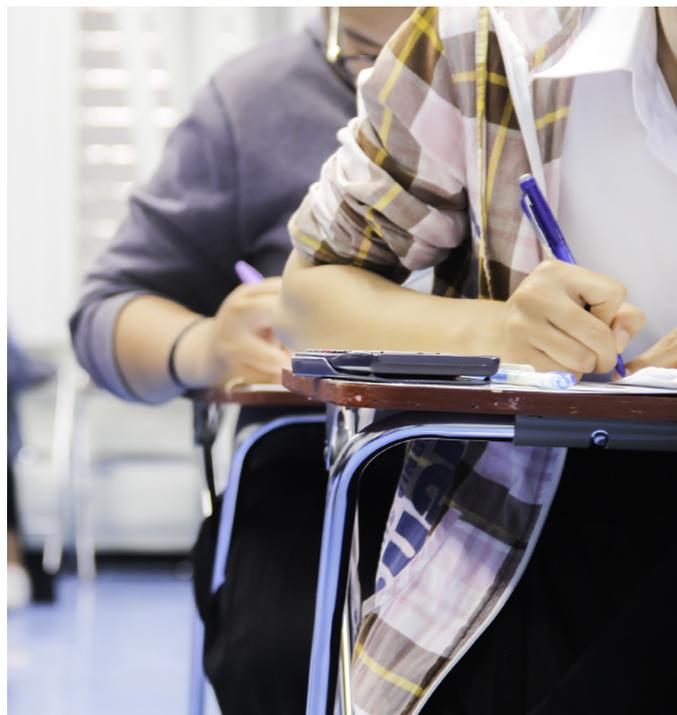
**Areas in which management are willing to partner with EdTech companies**



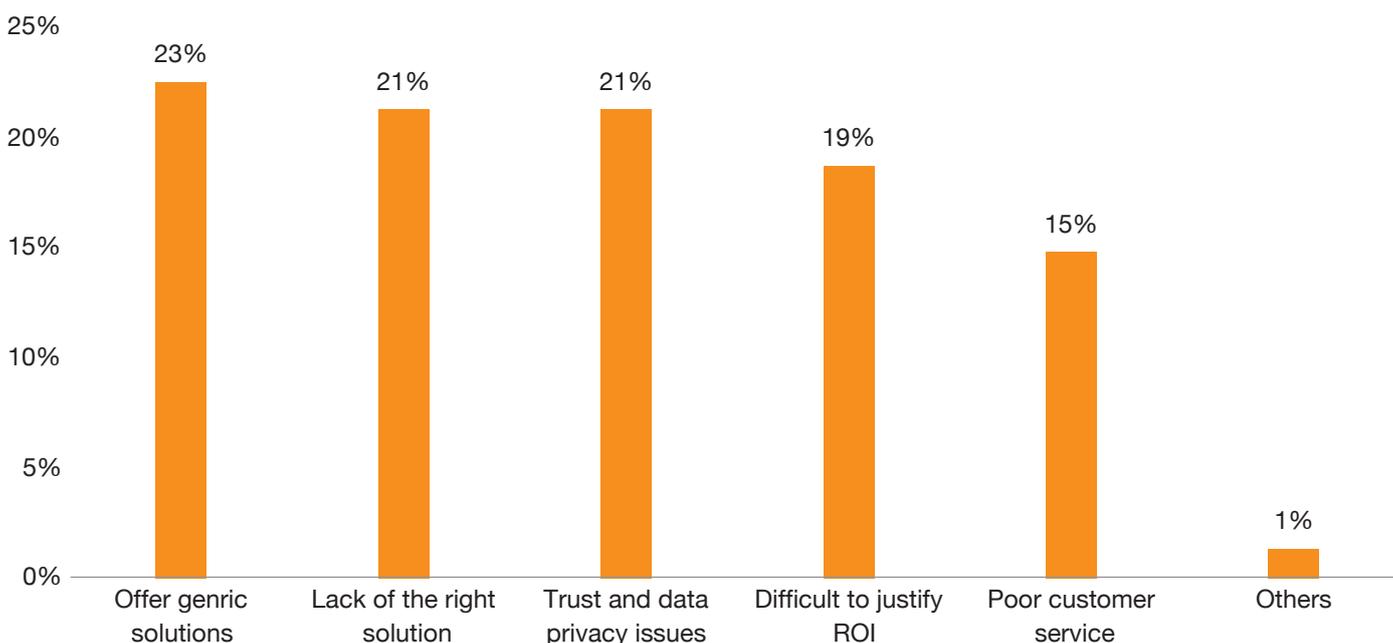
While HEIs are eager to partner with EdTech companies, the generic nature of the solutions available is a challenge. These platforms offer a low level of customisability, thus making it difficult for HEIs to adapt them to their operations. The biggest issues HEIs face are very specific, and there is no off-the-shelf solution in the market to address those problems. In addition, institutes are concerned about data security and the rising costs of data breaches. Defining clear business rules for data governance, storage, transmission and use is critical, but HEIs are finding it more difficult to create and adhere to regulations due to the pace of digital transformation.

## Management find it difficult to choose the right EdTech partner

There are a few key areas where HEIs are actively looking to partner with EdTech companies, and setting up virtual laboratories is one of them.



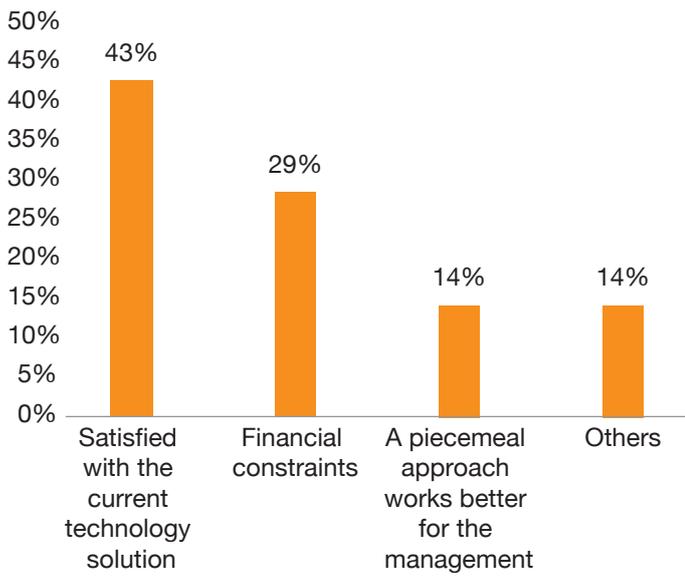
### Challenges foreseen by management in partnering with EdTech companies



**Virtual labs** enable students to perform experiments and learn interactively through visual aids and without the need for physical equipment. As per our survey, 14% of the HEIs are interested in setting up virtual labs. **Self-learning facilities** provide students access to a variety of learning material in interesting and engaging formats. **Online synchronous class** facilities ensure greater participation from students. This can be enabled through

tools which assist teachers in taking tests and organising polls and allow students to ask questions during online learning sessions. In addition to using learning management platforms, 9% of the management and faculty in HEIs want to enhance the learning experience of students by introducing 3D classrooms, which are more visually impactful and engaging and enable experiential learning.

### Management's reasons for lack of interest in partnering with EdTech companies

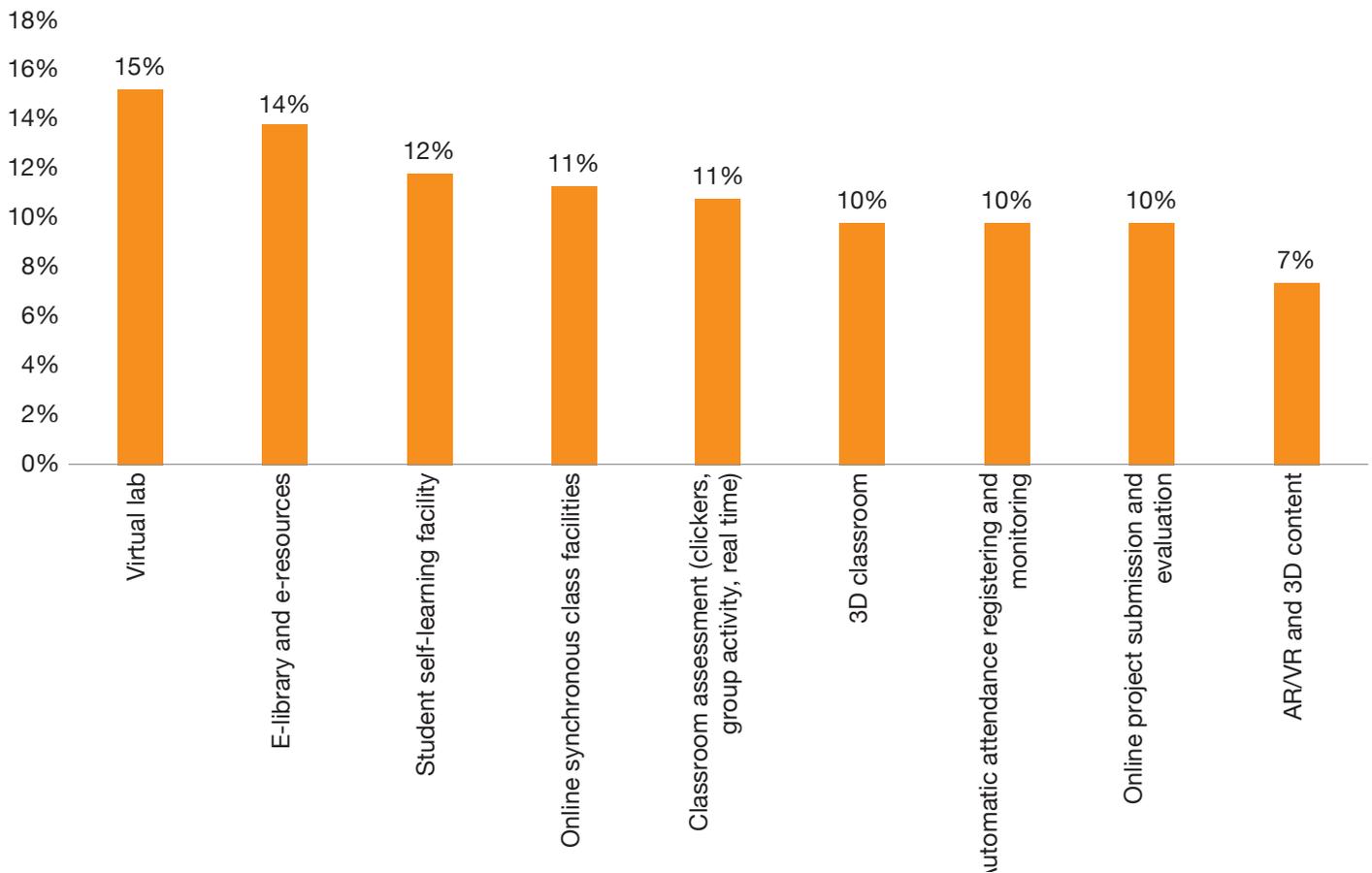


As per our survey, 21% of the HEIs are sceptical about online education because of trust and data privacy issues and 29% face financial constraints in adopting technology.

Top four enablers which faculty and management feel will further online learning:

- Virtual labs
- E-libraries
- Student self-learning
- Online synchronous classes

### Enablers that management feel are most likely to further the online learning experience





## Implementation of NEP will be key

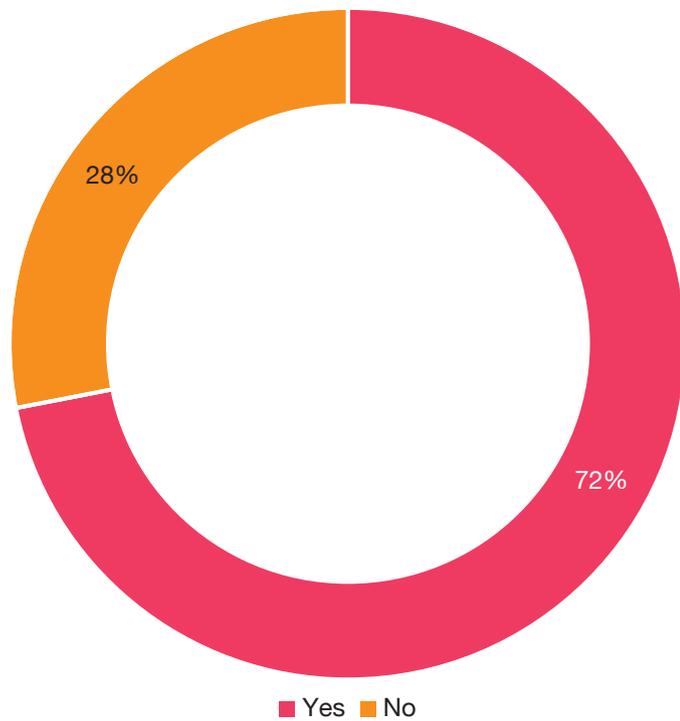
In our survey, **82%** of the faculty have responded positively to NEP 2020 and **58%** of the management say they are prepared to implement the changes envisaged in the policy. However, despite this optimism about the NEP, the faculty and students believe that implementation will be key to its success.

HEIs will need to focus to the following areas to ensure that the policy achieves its objectives:

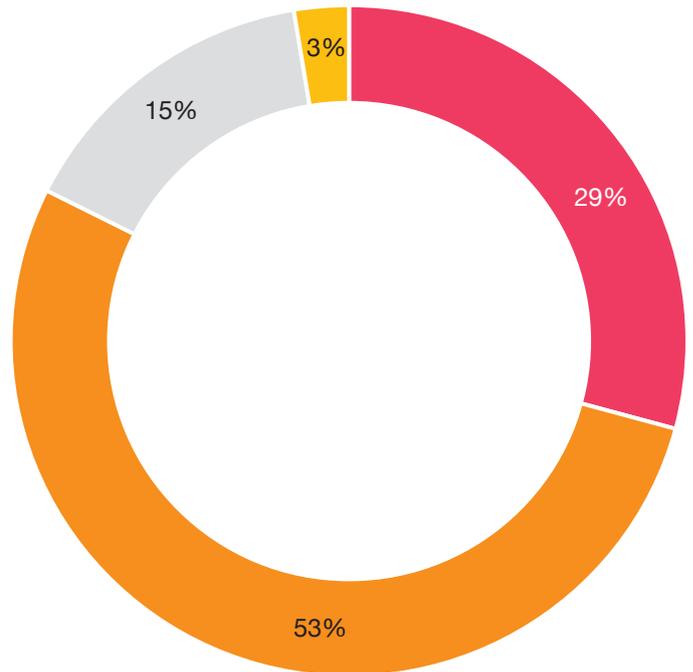
- **Technology:** NEP 2020 lays a lot of emphasis on technology-enabled education, but many Indian institutes lack the infrastructure required for online education. Institutes must therefore focus on seamless integration of education and technology, and enable both faculty and students to smooth-run classroom processes through information and communications technology (ICT) enabled tools.
- **Flexibility:** HEIs should focus of creating flexible curriculums through an interdisciplinary approach, creating multiple exit points.
- **Research:** HEIs must focus on research, since NEP 2020 has categorised universities into research-intensive universities, teaching-intensive universities, autonomous degree-granting colleges, etc.
- **Professional education:** HEIs must take charge and introduce professional education in the main curriculum. HEIs should work towards becoming independent multidisciplinary institutions of technical learning, legal learning, health science learning, agricultural learning, etc.

The majority of the students are aware of the NEP. While the majority of the faculty are also aware of the policy and believe it is comprehensive, they believe implementation will be key

Are students aware of the changes due to NEP 2020?



Faculty's opinion on NEP 2020



- Step in the right direction
- Comprehensive, but implementation will be key
- Will not have positive implications
- Not satisfied





## PwC's point of view

Our higher education survey examined the views and outlook of HEI stakeholders to offer a useful perspective for both HEIs and EdTech solution providers. Importantly, the survey findings point out gaps between the expectations of HEI management, faculty members and students, and the offerings of EdTech companies. We have listed some steps below that can enable HEIs and EdTechs to gain a competitive advantage.

### HEIs

- Be open to digital transformation, which is inevitable.
- Build robust infrastructure, including both physical and digital platforms.
- Invest in digital marketing, digital promotions and branding to attract students.
- Set up an online admission system with admission status tracking, online proctored admission examination, counselling and online admission fee collection.
- Focus on aspects important to students (e.g. placements) under digital transformation.
- Train faculty.

- Understand the implications of the NEP, strategise and re-strategise in order to adapt it.
- Partner with EdTech companies.
- Select a fully functional ERP to digitise every operational process such as HR, payroll, fee collection, grant management and hostel management.
- Promote online degrees and certification courses as part of mainstream education.
- Tie up with other reputed institutes to offer parallel supplementary online degree programmes.
- Conduct remote industry connect and online mentorship programmes.
- Set up externships and online alumni engagement systems.
- Connect with recruiters for online placement of students.
- Make emerging technologies such as AI, data and analytics and IoT part of the student curriculum.

## EdTechs

- Customise solutions to students' needs.
- Market well to help HEIs understand the value proposition.
- Improve customer services and build trust with management.
- Develop an interactive, modular, manageable and user-friendly online learning platform with rich and quality content.
- Help institutes set up virtual classrooms, e-libraries and AR-VR laboratories.
- Understand the implications of the NEP and create flexible platforms/solutions.



# About CII

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering Industry, Government and civil society, through advisory and consultative processes.

CII is a non-government, not-for-profit, industry-led and industry-managed organization, with over 9000 members from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 300,000 enterprises from 294 national and regional sectoral industry bodies.

For more than 125 years, CII has been engaged in shaping India's development journey and works proactively on transforming Indian Industry's engagement in national development. CII charts change by working closely with Government on policy issues, interfacing with thought leaders, and enhancing efficiency, competitiveness and business opportunities for industry through a range of specialized services and strategic global linkages. It also provides a platform for consensus-building and networking on key issues.

Extending its agenda beyond business, CII assists industry to identify and execute corporate citizenship programmes. Partnerships with civil society organizations carry forward corporate initiatives for integrated and inclusive development across diverse domains including affirmative action, livelihoods, diversity management, skill development, empowerment of women, and sustainable development, to name a few.

As India marches towards its 75th year of Independence in 2022, CII, with the Theme for 2021-22 as Building India for a New World: Competitiveness, Growth, Sustainability, Technology, rededicates itself to meeting the aspirations of citizens for a morally, economically and technologically advanced country in partnership with the Government, Industry and all stakeholders.

With 62 offices, including 10 Centres of Excellence, in India, and 8 overseas offices in Australia, Egypt, Germany, Indonesia, Singapore, UAE, UK, and USA, as well as institutional partnerships with 394 counterpart organizations in 133 countries, CII serves as a reference point for Indian industry and the international business community.

## Confederation of Indian Industry

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# About PwC

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