

Insights from First Survey

IIT Bombay is conducting a study for Ministry of HRD, Government of India to assess the level of adoption of technology in Indian higher level academic institutions in administration as well as teaching and learning. The study would:

- Assess the present level of ICT adoption
- Determine bottlenecks in adoption of ICT
- Share best practices
- Disseminate findings to wider audience

As a part of the study a survey among institutions of higher education was conducted. There were roughly 12 questions. Around 101 institutions participated in the study. Results were revealing.

Analysing Results

At the outset one must caution that this analysis is one person's interpretation of data and is not a substitute for studying survey results.

In analysing survey results, one has to be very cautious and adopt impartial attitude without imposing one's preconceived notions. Also in such a survey, while one starts the study and survey with certain objectives in mind, these objectives themselves may perhaps modify slightly in view of the findings.

For instance one cannot hold on to the opinion that there are necessarily bottlenecks in adoption of ICT – one may need to be flexible to perhaps allow for the fact that one's initial prejudices may perhaps need to be set aside while studying the result of survey.

Scientists – whether social scientists or scientists of physical sciences - cannot have results of experiments, predetermined before conducting experiments and analysing results. The proverbial cart cannot get ahead of the horse.

With these factors in mind, having set one's biases and prejudices aside, and without any predefined conclusions in mind, following is an attempt to analyse survey results in their summary form.

Analysing individual responses could be useful in understanding a particular organisation and its technology adoption; however, such microanalysis may not significantly improve understanding of overall technology adoption across several institutions.

Further this document is not a substitute for examination of summary of results that is also available on website. Analysis of any data is one person's interpretation of that data and useful as it is, it cannot be a substitute for examination of raw data without the weight of analysis imposed upon it.

Who makes decisions?

It is very clear that educational institutions attach a very high importance to information and communication technology. This may be judged from the fact that in almost 50% of organisation, the Trustee or a Governing Body Member was involved in making technology decision. The Vice Chancellor or person at that level was involved in making technology decisions in 40% of cases.

The Director or the Principal was involved in making decision in almost 60% of cases. Very rarely was the technology decision relegated to operational level executives, with technology decision made by the CIO at less than 25% and by the Head of E-learning at less than 14%.

This augurs well. Educational Organisations – Universities and Colleges realize the importance of technology and the drive for technology intervention starts at very top.

How much do you spend?

If the fact that a very senior person is involved in making technology decisions is cause for celebration, the amount being spent on technology leaves much to be desired. Even granting for the fact that significant number of organisations participating were colleges and not universities, expenditure on information and communication technology is slightly on the lower side.

Almost a quarter of respondents spent less than 10 lakhs on technology per annum – this is very small amount, even for a college. Another quarter could be spending between Rs. 10 lakhs to Rs. 25 lakhs, not exactly adequate. Only about 10% of institutions spent between Rs. 25 lakhs and Rs. 50 lakhs.

The data shows a jump here; one suspects this is the transition from colleges to universities. Nearly 20% of institutions spend between Rs. 50 lakh to Rs. 1 crore; a little more than 15% spend between Rs. 1 crore to Rs. 5 crore; at least 2% of institutions spend between Rs. 5 crore and Rs. 10 crore and another 2% spend over Rs. 10 crore.

Of course it would not be wise to jump to conclusions without examining the finances of organisations and the percentage they devote to technology investments. Yet, it seems that while technology gets top management attention, the investment devoted to technology could see some improvement.

Yet making such a blanket statement is fraught with risk. One needs significantly more information before one is able to comment on the financial aspect of technological deployment. At the very least one needs to know the finances of organisation as in revenues and costs before one is able to analyse data.

Hence in absence of adequate amount of information, it would be inappropriate to give a definitive and final statement on financial aspect of technology investment, except to inform that any financial statement on technology investment would require much more data that many organisations may not be willing to reveal.

Hurdles and Bottlenecks

It should be remembered that this survey was launched with the objective of determining hurdles and bottlenecks in technology implementation, so that one may suggest means to ease these hurdles and bottlenecks, so that Indian educational institutions are able to deploy technology to the best possible extent.

And here the survey throws surprising results. Very interestingly, there are actually no real hurdles and bottlenecks in technology implementation. Educational institutions are near unanimous in their view that there are no hurdles as such.

Neither funding, nor lack of support is cited by significant number of organisation as a hurdle. Inappropriate policies or lack of strategy is also not cited as hurdle for technology deployment.

Lack of available technology solution also does not figure as a hurdle or bottleneck. Unwillingness of staff to engage with technology does not find too many takers as hurdle for technology investment.

Indeed a very frivolous reason of lack of time as a hurdle finds many takers suggesting that there actually may not be any hurdle or bottleneck in technology deployment for educational institutions.

That is very bold statement to make, yet that is what the survey results indicate. The following is summary of the percentage of people who thought that following caused high impact or medium impact in acting as hurdle for technology deployment.

	High Impact (%)	Medium Impact (%)
Lack of Money	18	26
Organisation Structure	8	18
Inappropriate Policies	10	20
Non Supporting Institution Structure	9	18
Staff IT Literacy	14	28
Student IT Literacy	11	25

If one analyses the above data, it would seem that there actually is no real hurdle in terms of mind set or technological readiness among Indian educational institutions.

Of the above cited reason, lack of money, seems to have the most impact, even though even that reason is not cited as very strong hurdle or bottleneck for technology investment.

In our previous section one had left the analysis on financial aspect bereft of conclusion citing inadequate information as reason for being circumspect. In view of the data from this section, that cites the financial aspect as the strongest hurdle, there is need to give adequate importance to the financial aspect in technology investment as actually being the most significant hurdle in technology deployment.

Where?

Where do educational institutions deploy technology? Do they deploy technology in administration? Do they deploy technology in teaching and learning? Do they deploy technology in support functions?

Is there truth to the wildly held belief that educational institutions deploy technology in administration but are hesitant to do so in teaching and learning? Is there a resistance in adoption of technology in teaching and learning?

It is very true that educational institutions are at cutting edge when it comes to use of technology in administration. Almost 75% of institutions deployed technology in student admission and record management. A near 75% also use technology for finance and accounting. Technology is used in library by over 80% of organisations.

However it is not entirely true that educational institutions face significant resistance in use of technology in teaching and learning. The adoption of technology in teaching and learning may slightly lag behind technology adoption in administration, but that may not necessarily be because of resistance but because of the nature of function.

For instance nearly 55% of institutions use technology for examination and evaluation, with another 20% planning to do so. Almost 60% use technology in teaching and course delivery with almost another 30% planning to do so. Over 50% use technology in course material distribution, with more than 25% planning to do so.

Hence it is wrong to argue or submit that while administration has ready technology adoption, there is resistance to adoption of technology in teaching and learning. Indian educational institutions are adopting technology as and when required both in administration as well as teaching and learning.

The area where educational institutions seem to be lagging in technology adoption is in support functions. Only 20% use technology in catering and canteen. Only 35% use technology in hostels and residences. Only 35% deploy technology in campus security. However this may be due to inadequate funding an issue that has been discussed in two previous sections extensively.

Thus educational institutions in India are aware and awake to importance of technology in education and do adopt technology, where and when possible. Also there seems to be little resistance to adoption of technology in teaching and learning. And a belief that while educational institutional may adopt technology in administration, they are reluctant to do so in teaching and learning may require revisit and re-examination.

Admittedly there is some catching to do in adoption of technology in support function, but that is firstly a matter of adequate funding and secondly a matter of priority. It is very likely that educational institutions consider teaching and learning and core administration more far more important than support functions, when it comes to prioritizing technology investment.

In short adoption of technology presents a healthy scenario.

Where in Teaching and Learning?

While the earlier section seemed to indicate that educational institutions are not laggards in adoption of technology in teaching and learning, a more focused question seemed to offer markedly different conclusion.

Educational institutions seem to take to presentation and projection systems eagerly with almost 80% of institutions either adopting them completely or largely. However apart from this area there seems to be some sort of lag in technology adoption in other areas in teaching and learning.

Live capture of recorded lectures account for only about 20% in completely or largely category. Digital whiteboards does worse at 15%. Flipped classrooms barely cross 20%. Social Media is less than 15%.

Online forum is just above 25%. Virtual learning environments are less than 20%. Yet all is not lost, with digitized lessons crossing 32% and classroom videos crossing 45%. Learning Management Systems also crosses 50%.

Yet there is no escaping the fact that educational institutions are not adopting technology in teaching and learning to the extent possible. This contradicts our conclusion from previous section, where we challenged the widely held belief that educational institutions are not adopting technology in teaching and learning to extent possible or desirable.

The reason for such disparate conclusions is not far to seek. While the previous question was more generalized question on adoption of technology in teaching and learning and administration, this question focuses more specifics, like digital white boards, flipped class rooms, capture of recorded lectures, social media and so on.

The divergence between the above results, if one were to give benefit of doubt to educational institutions, is due to the fact that perhaps educational institutions are not aware of the possibilities of technology implementation in teaching and learning.

Hence while there seems to be genuine desire to adopt technology and the willingness to do so, there seems to be lack of awareness of possibilities of variety of possible areas of technology adoption in teaching and learning and their benefits.

For instance educational institutions are aware of projection systems and they readily adopt it; they also adopt learning management systems; but they lag behind in adoption of live capture of blended lectures or digital white boards because of lack of awareness of lack of appreciation of utility for such technological adoption.

What perhaps is needed is education and training and awareness building on variety of possibilities of technology adoption in teaching and learning. Indeed while our analysis threw sanguine and cheerful beliefs on adoption of technology in education, this section presents a disturbing result contradicting results in other section of the same survey.

The devil they say is in detail. We might have come up with a conclusion us to complacency that educational institutions are adopting technology in teaching and learning, save for this section that throws up contradictory results.

However even in this area all is not lost. If one tries to dig in data for partial adoption of technology in these areas of interventions things seem encouraging, though not entirely assuring.

For instance social media is used partially by over 40%. Digital white boards is used partially again by over 40%. Live capture of recorded lectures is partially used be nearly 30%. Classroom videos are used partially by additional 30%. Online forum is partially used by another 35%. Virtual learning environments add another 40% in partial adoption of technology.

Thus there seems to be awareness too, but slow and graded adoption in technology in teaching and learning. Hence what this needs is not just awareness building but encouragement to hasten significantly greater adoption of technology.

Adoption of Technology in Administration

The previous section threw results that contradicted our building belief the educational institutions are adopting technology in big way. A closer examination however contradicted our hasty conclusions.

An examination of adoption of technology in administration paints similar picture. There seems to be graded and calibrated approach to adoption of technology in administration.

For instance in accounting and budgeting 25% of institutions adopt technology completely, 30% adopt largely and nearly 23% partially. In fees collection nearly 38% adopt technology completely, around 23% largely and 25% partially.

Faculty appraisal presents similar picture with near 25% adopting completely, another 25% largely and little over 25% partially. Attendance presents similar picture with complete technology adoption at 40%, large adoption at 23% and partial adoption at 17%.

Thus just as adoption of technology presented a graded picture with partial adoption entirely altering our conclusions regarding adoption of technology, similarly adoption of technology in administration presents a mixed picture with organisations at various levels of technology adoption.

Is Infrastructure Adequate?

Questions on adequacy of technology infrastructure presented interesting conclusions. A very significant number of organisations thought that while their technology infrastructure was adequate for present needs it would be inadequate for the future. Thus many educational institutions plan to adopt technology in deeper ways and realize that such technology adoption would require more infrastructures.

Almost 40% of people thought that their Internet infrastructure was adequate for present and future, whereas nearly 50% thought that Internet infrastructure was not adequate for the future. Intranet infrastructure revealed a similar skew, with 42% expressing belief that infrastructure was adequate for now and future and 40% not being so sure about adequacy of infrastructure in the future. Examination of Wi-Fi infrastructure presented an even more interesting scenario, with 25% expressing adequacy for present and future, 40% for present and another 25% suggesting that infrastructure was not adequate for present needs.

Similar levels of satisfaction were seen in software. Around 25% thought that software for administration was adequate, 40% were doubtful if it was adequate for the future and 30% thought it was not even adequate for present needs. While around 25% thought that software for academic purposes was adequate for present and future, 50% thought that it was not adequate for the future and near 20% thought software for academic purposes was not adequate for present purposes.

Technology in Support Functions

While our earlier section results revealed that educational institutions were lagging in technology adoption in support functions, a closer examination reveals that educational institutions present calibrated adoption of technology in support areas.

For instance when one examines the information that only 10% of institutions adopt technology in extracurricular activities completely, one is likely to be disappointed. However, 30% report large adoption of technology in managing extracurricular activities. Similarly 20% adopted technology in placement completely, 30% largely and 30% partially. 10% of institutions adopted technology in events completely, 40% largely and 30% partially.

Conclusions

Proclaiming neat conclusions from a survey that yields contradictory results, calibrated results is fraught with risks. However one can say a few things without risk of being wrong or forgetting to capture shades of results. Here are a few insights :

1. There do not seem to be any identifiable hurdle in adoption of technology.
2. Educational institutions realize importance of technology
3. Technology adoption may be cramped a bit due to inadequacy of funds.
4. Technology adoption is lagging in support functions.
5. Technology adoption in administration presents healthy picture
6. There isn't any resistance to adoption of technology in teaching and learning
7. There seems to be graded adoption of various technologies in teaching.
8. Similar graded adoption of technology is seen in administration

9. Partial Technology adoption in support function is picking up.
10. Educational institutions find present technology infrastructure adequate.

This is just one insight and one interpretation of survey results. Readers are advised to examine data themselves and gain their own insights from information presented.