

Symposium Summary

Digital Transformation of Informal Sector

Challenges and Opportunities for EdTech

Organised by
Centre of Excellence for Digital Transformation, IFHE
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Background

EdTech is commonly understood as a necessary tech transition for school education. Millions of workers in informal sector, either learning on job or joining the labour market through vocational training institute too need EdTech for advancing skill and career propositions. There is increasing informalisation of work specially in post covid times. The Future of Work will be more and more supported by technology, either as means to fulfill work and/or as site of work. Workers need to upskill or reskill to survive in job market. EdTech could be a gamechanger here, crucial and necessary to leverage technology to remain relevant in the rising digital economy.

According to [multiple studies and position papers by UNICEF](#), school to work transition is not linear in informal sector, as young people may be studying while holding jobs, may go back to school after work, start off in irregular employment and then transition to regular employment etc.

In terms of work environment, informal workers need training in assessing oneself in terms of interests, abilities, values, strengths, and weaknesses. They would need tools for exploring and learning about a range of career fields in terms of eligibility criteria, advantages, disadvantages, educational/training related opportunities in those fields. Workers in informal sector might need an enabling ecosystem to improve skills needed at the workplace, overcoming

weaknesses, understanding and managing barriers.

However, there are issues of accessibility, availability and affordability in using EdTech in informal economy. There is also the issue of accessibility to such solutions for further marginalised groups such as women informal workers as they are less likely to own gadgets and also face time and knowledge poverty due rampant patriarchy and triple burden. Education and awareness level are found to be poorer in case of women and other genders.

Relevant SDG Targets related to Informal Economy correspond to

SDG 8.3- Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage formalization and growth of micro-, small- and medium-sized enterprises including through access to financial services

SDG 10.2- By 2030 empower and promote the social, economic and political inclusion of all irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status

EdTech platforms can provide Escape Velocity for the informal sector workers to get out of their low-skill- low wage vicious cycle and shift orbit to a higher wage through better skills.

Broad discussion questions taken up in the symposium were:

- Is there quality EdTech available for informal workers, to upskill / reskill in the fast-changing world of work? Yes or no, why? How agile is the EdTech in adapting to changing world of work?
- Who are the stakeholders in the EdTech in skill sector? What are their visions for the sector?
- Is EdTech available for each step of career transition? Does it help in realising the one's potential, mid-career transitioning, moving up the ladder and is not just about learning new ways of doing the same job?
- How mindful is the EdTech (if available) of specific needs of different workers groups like women, other genders, PWDs etc.

Besides the inaugural and valedictory sessions, there were three impactful panel discussions focused on education, technology and the ecosystem respectively.

Inaugural Session

Welcome Address - Prof J Mahender Reddy, Vice Chancellor, IFHE

Prof J Mahender Reddy, the Vice-Chancellor of IFHE in his welcome address highlighted the importance of the informal sector for the developing economies like India. He emphasized upon the formalization of the informal sector and the role of technology driven education in achieving digital transformation. Dr Reddy in his address also underscored the increasing need for focus on skills in addition to traditional focus on the acquisition of degrees and certificates. Dr Reddy provided an overview of the symposium and suggested that the symposium should conclude by suggesting a roadmap for the future that should be adhered to and monitored by the partners, CeDT, IFHE and FES India.

Welcome Address - Mr Ulrich Storck, Country Director, FES India

Ulrich Storck is Country Director, FES India, Delhi office. He previously worked for the FES in the United Kingdom, Greece, Guinea, the West Balkans, Central America and Morocco. He studied economics, psychology and development policy in Frankfurt, Montpellier, Hamburg und Berlin.

FES is doing some pioneering work on Economy of Tomorrow, especially around three mega trends:

- Energy transition
- Urban transformation
- Digital automation

FES is committed to the cause of gender justice, digital justice and climate justice

and is bringing together a coalition of actors and thinkers who can build a socially equitable and resilient model in the light of these trends.

The pandemic has seen rising unemployment and informalization of work. Needless to say, the future of work will be driven by technology and tech innovations.

The informal workforce makes up about 90 per cent of the total workforce. These workers are unskilled/ semiskilled and most of them are migrant workers often trapped in the vicious cycle of inequality and injustice across generations. Their access to technology is limited due to lack of resources, access to information and awareness. Women are particularly disadvantaged due to traditionally patriarchal society. To make cities resilient, transformation of the informal sector is a must, and this purpose, education and skilling can be game-changers.

The informal sector is not homogeneous and there are different levels of accessibility, affordability, capacity, ability and strengths. Age, sex, disabilities, ethnicity and economic status are also key factors to be considered. A one size fits all solution cannot work. Learning behaviour, adaptability and agility of informal workers towards changing pace of work and their aspirations needs to be understood and assessed.

The key questions to be addressed are:

- Who are the stakeholders?
- What are the options available?

- How can they be accessed?
- How do we bridge the gap between the workers and industry?

An inclusive approach to transforming the lives of people in the informal sector is required. Workers should be looked at as change agents for social development.

Keynote Address - Mr Jayesh Ranjan, Principal Secretary, Industries & Commerce (I&C) Department, & Information Technology, Electronics and Communications (ITE&C) Department, Government of Telangana.

Jayesh Ranjan is a member of the Indian Administrative Service of the 1992 batch. A thinking bureaucrat and visionary, he oversees developing policy frameworks, attracting new investments, identifying opportunities for utilizing IT in various government processes, and promoting the digital empowerment of the citizens. Mr Ranjan is one of the most visible faces of the Telangana government.

In his keynote address, Mr. Ranjan, spoke about four megatrends related to current digital revolution. These trends were visible even before the pandemic, but they have become more pronounced in recent months.

Digital transformation

Digital transformation is now happening at an amazing pace. Companies which cannot fully optimize all the digital opportunities will find themselves at a tremendous disadvantage.

Digital technology enables management of activities far more efficiently and effectively. In a \$ 5 trillion economy, which India is hoping to become in a few years, the share of Artificial Intelligence and Machine Learning might be easily \$ 500 bn. Digital technologies are not a monopoly of the west. They are being developed in all corners of the world. Startups, large established companies, academic institutions and R&D organizations are all contributing.

Telangana is one of the most advanced states when it comes to embracing technology. The state has very effectively used predictive analytics during the pandemic to plan the unlocking of the economy.

The digital divide

Divides in society, such as rich/poor, urban/rural, men/women and between religions are not new. But today, it is the digital divide which has reached alarming proportions and has far reaching implications. The digital divide is indeed pulling down a large section of the population. The pandemic has deepened this divide.

Inclusive approach is required when it comes to the use of technology. Being more inclusive does not mean merely providing the infrastructure such as internet connectivity. It is really about using technology to alleviate people who have been excluded so far. A common person will be motivated to embrace technology only if he sees useful solutions rolling out in front of his eyes.

The changing nature of jobs

Traditional jobs associated with the organized sector are becoming fewer and fewer. More than degrees, what matters today are skills. However, there are many people without jobs while simultaneously there are jobs with no takers.

The need for skilling

The demographic dividend can easily become a liability if young people are not skilled. It has become common these days to see news reports such as tens of thousands of B.Tech graduates applying for the job of a police constable or panchayat secretary. While these jobs are important, it is a clear indication that people do not have the skills needed by the industry. Under these circumstances, they have no other option but to apply for any job which comes their way.

Concluding remarks

Today, the EdTech sector is focused more on students who are part of the formal schooling system. It is not really focused on skilling people in the informal sector. The EdTech sector certainly has the capability to innovate and rise to the occasion to address the problem.

The symposium can provide a turning point as far as the development of learning solutions for the informal sector is concerned. The symposium will lead to an ongoing engagement among the different stakeholders. Hyderabad has a strong innovation ecosystem and the government of Telangana will be glad to partner with all the stakeholders for the

development of tech solutions focused on the informal sector.

Panel discussion on Education

Moderator: Prof Sudhakar Rao

Panelists: Ms Chhandasri Kundu, Mr C Jeevan Kumar, Dr M.S Shivakiran

About the panelists:

Prof Sudhakar Rao heads Branding and Corporate relations for ICFAI Group. He earned his Mechanical Engineering degree from Osmania University and an MBA from IIM Bangalore. He has worked for 20 years in sectors like Textiles, Pharma, Food and Education. His areas of interest include EdTech, entrepreneurship, innovation and design thinking.

Chhandasri Kundu is the founder & CEO, Guardian Education Services Pvt. Ltd. She holds an MBA and PG (History) from Jadavpur University. Chhandasri enjoys creating meaningful learning opportunities for children and young adults. She had earlier led the marketing efforts in "KATHA", a national level Not for Profit organisation working extensively with the Government school children; and "VHAI (Voluntary Health Association of India)". She has worked with diverse social enterprises like Blind persons association, CRY (Child Rights and You), HelpAge India, UNICEF as volunteers. Ms Kundu is a successful social entrepreneur and has received various awards from reputed organizations like Goldman Sachs and NITI Aayog. She has contributed to the World Economic Forum platform "UPLINK" on building better (Education) after COVID.

C Jeevan Kumar is Program Coordinator at Quest Alliance. He has done his Master's in social work from TISS Mumbai. He is a development professional with considerable expertise in skill training and enabling employability. He has worked as a teacher in low-income English medium school at Teach For India Fellowship and as a facilitator in a Government ITI in Jaipur. At QUEST he has supported skill training and placement in Government ITIs and private NGOs. Currently at Quest Alliance, Mr Jeevan manages multiple partnerships with NGOs in Tamil Nadu. He also contributes to the training, placement, content and tech-enabled learning components in the programs of QUEST Alliance. Mr Jeevan has witnessed first-hand the emergence of online training in vocational training institutes, its immense benefits to disadvantaged sections and also the challenges faced during COVID 19.

Dr M S Shivakiran is currently Chief Executive Officer, at Atal Incubation Centre at Sri Krishnadevaraya University, Anantapur, Andhra Pradesh. He has mentored 20+ startups. One of his key responsibilities is to help academic institutions in building their startup ecosystem and enabling them to synergize their conventional learning processes with non-conventional entrepreneurial learning processes. Earlier, Dr Shivakiran was Founder CEO of Vignan Technology Business Incubator, Associate Dean, R&D, Vignan's University and Scientist, Vignan's University. Dr Shivakiran has received 2 patents, filed 5 patents, published 12 research articles, developed 5 technologies and led 3 research projects funded from

different agencies. Dr Shivakiran is a recipient of DRDO Technology Group Awards for his contribution towards developing new technologies in Genetic Engineering. He has developed low-cost diagnostic tools for Defence Applications and Vaccine molecules against biological weapon agents.

Introduction

The informal sector is characterized by low wages, lack of social security, low technology (often obsolete and polluting) and low capital endowment. People typically work in labor intensive sectors where low levels of skills are needed. Over the years, India has launched various schemes to address the needs of the informal sector:

Apprenticeship Act, 1969: The ITIs (Industrial training Institutes) were launched to provide training in various trades.

National Skills Development Corporation, 2008: This is a not-for-profit public limited company incorporated as a Public Private Partnership (PPP) model. NSDC aims to promote skill development by catalyzing the creation of large, quality and for-profit vocational institutions. NSDC acts as a catalyst in skill development by providing funding to enterprises, companies and organizations that provide skill training. It also develops appropriate models to enhance, support and coordinate private sector initiatives.

Director General of Employment and Training: This is the apex organization for development and coordination at the

National level for the programmes relating to vocational training. An employment service is operated through a countrywide network of Employment Exchanges. While the ITIs are under the administrative and financial control of State Governments or Union Territory Administrations, DGE operates Vocational Training Schemes in some of the specialized areas through field institutes under its direct control.

The National Institute of Open Schooling (NIOS): Formerly known as National Open School (NOS), NIOS was established in November, 1989 as an autonomous organisation. NIOS is providing a number of Vocational, Life Enrichment and community-oriented courses besides General and Academic Courses at Secondary and Senior Secondary level and some elementary level Courses.

Skill Training and Assessment Reward: The scheme is for encouraging skill development among the youth by providing monetary rewards for successful completion of approved training programmes. After the training programme, a STAR (Standard Training Assessment & Reward) certificate is given by designated government departments.

Pradhan Mantri Kaushal Vikas Yojana: This is the flagship scheme of the Ministry of Skill Development and Entrepreneurship (MSDE) implemented by National Skill Development Corporation (NSDC). PMKVY aims at enabling Indian youth to take up industry

relevant skill training that will help them in securing a better livelihood.

Despite all these initiatives, many gaps remain in terms of financial support, customization and linkages between training, assessments and employment.

Importance of being human centric

Content, platform, delivery and feedback are the key to great learning irrespective of whether technology is used or not. Often learning interventions lack human centricity. The students are not kept in mind. For example, as Dr Shivakiran pointed out, in Anantapur, which is a reasonably well-connected town, students have to climb up trees on occasions to get connectivity. There is also a language barrier. Many children may lack proficiency in English.

The Quest Alliance understands that connectivity is a challenge for many students. It uses a Raspberry Pi and does not depend on connectivity in the classroom. The company's mobile app is easy to download. The language is customized according to the region. The platform has evolved based on student needs. As Mr Jeevan mentioned, it is important to listen to the voices on the ground.

Dr Shivakiran emphasized that learning need not only be in one direction - from the teacher to the students, that is, one to many. Parents, friends, relatives can also be teachers. Then there can also be many to many, peer group learning with the students also learning from each other.

Technology should facilitate all these forms of learning. Content should be customized for students. It should evolve and adapt in a dynamic way based on how students are consuming it.

Bite sized videos are more appealing to the students. However, as Ms Chhandasri mentioned, learning should not be diluted, rigor is needed in some cases. To learn certain skills such as welding, a minimum number of hours of immersion is required.

Role of parents in children's education

Parents can be enablers as far as the education of their children is concerned. But on occasions, they can become overprotective. Many parents do not want their children to go through any hardship or pain. It is important to counsel them and explain that they must give their children some space to work on the problems and thereby create an impact. As Ms Chhandasri added, it is important to inculcate a risk taking attitude in children.

Using technology to improve life

Ultimately, technology must enable people to solve their problems in life and enjoy a better standard of living. Gram Vani incubated in IIT Delhi is a great example. Dr Shivakiran explained how it uses basic mobile and IVRS to provide a variety of information to people. Goes to show that smart phones are neither essential nor sufficient to solve the problems faced by the informal sector. Another example is of a local girl who iterated an idea for 2 years. She teaches 50+ monetizable skills like pottery making online.

In Puttaparthi, where Dr Shivakiran completed his college education, Vidya Vahini is a very interesting project. Students can give a missed call to their mentor. Then they can have a 20-minute free flowing conversation on any topic. This way the children learn English and other languages too. Dr Shivakiran himself knows 7 languages and the other volunteers associated with the project are also multi-lingual.

Importance of an exploratory mind

Ms Chhandasri emphasized on encouraging students to develop an exploratory mind and move away from rote learning. She mentioned an interesting project at the famous Loreto School in Calcutta. The school was finding it difficult to handle some students who were scoring low marks in the exams and were tagged as slow learners. Through the research conducted by expert psychologist, Prof Mallika Banerjee, Calcutta University's Head of psychology department, it was revealed that even the so-called slow learners had the potential to do well. Children struggled when they moved to higher classes as their initial base was narrow and not explored properly. What they needed was a mentor who could encourage them. The lesson here is not to be quick in labelling some students as slow learners just because they are not performing well in the traditional exams.

Addressing the digital divide

The digital divide can be addressed in various ways. Mr Jeevan gave a relevant

example from work done by Quest. In the south, although connectivity is good, data charges can be unaffordable. One way is to reimburse data charges. Another way is to provide a mobile library where say 10 phones are kept for students to share and use. Shared infrastructure and multi-functional spaces should be designed to facilitate services for communities.

Importance of collaboration

Mr Jeevan emphasized that collaboration with different stakeholders can produce great results. Quest collaborates with other partners, government and even the spouses of young women students. While working with the government, it is important to understand and appreciate the challenges they face and be clear about the kind of support needed from government departments. Focusing on deliverables can help in mobilizing support from such collaborators.

Relevance of certification

Dr Shivakiran argued that while certification may be needed in some cases, all skills need not be assessed. The market can decide whether the skills are valuable or not. However, some specialized, technical areas such as surgery or microbiology, cannot be left to the market. Formal training and certification are needed.

Today, it is the startups and not the government which is creating jobs. In the startup eco system, it is the customers who do the assessment and skills are more important than qualifications. Too much

emphasis on formal assessment may undermine creativity.

Supporting blue collar work

There is a stigma associated with blue collar work in the country. It is because of the stigma that vocational education has not received the importance it deserves. This also explains why ITIs do not get required thrust, even though the students are as good as their counterparts studying in colleges. Fortunately, under the National Education Policy 2020, this problem is being addressed.

Concluding notes

Prof Sudhakar wrapped up the session with expert comments and pointers on the way forward. He mentioned the experiences of SECMOL and the Boys Town Industrial Training Centre, which has emerged as one of the best ITCs in Telangana. IIT Bombay is also doing a lot of work for the informal sector. It is time for educational institutions to set up a Centre for Informal sector. The faculty and students should appreciate the challenges of the informal sector and develop appropriate solutions.

Note

SECMOL: The Students' Educational and Cultural Movement of Ladakh (SECMOL) was founded in 1988 by the legendary social entrepreneur, Sonam Wangchuk and a group of Ladakhi college students who felt that the education system needed great change., SECMOL has not only worked on reforming the government school system but has also grown into an eco-village where students, staff and volunteers live, work and learn together. It

is not a conventional school, but a place to pursue practical, environmental, social and traditional knowledge, values and skills. The Campus is solar powered and solar heated. Culture plays a very important role. Students learn ancient Ladakhi songs, dance and history alongside modern academic knowledge. It is the students who mainly manage, run and maintain the campus.

Panel Discussion on Technology

Moderator: Prof R Prasad

Panelists: Prof Nimmi Rangaswamy, Mr Sanjay Sanyal, Mr Shailesh Reddy

About the panelists

Prof R Prasad is an alumnus of IIT Bombay and IIM Calcutta. He has played various roles in his long stint at IFHE. He is currently the head of the Academic Wing and manages the online learning program. Prof Prasad has a deep understanding of education technology.

Prof Nimmi Rangaswamy is currently Associate Professor at the Kohli Centre on Intelligent Systems, IIIT Hyderabad. She is an anthropologist by training. She is also Adjunct Professor at the Indian Institute of Technology (IIT) Hyderabad where she teaches courses at the intersection of society and technology. Formerly, Prof Rangaswamy was a senior research scientist and led the Human Interactions research area at the Xerox Research Center India. Her stint at Microsoft Research was a combination of theoretical analysis and ethnographic field research to understand technology use in developing countries. This included studies of technology adoption in various social contexts and spaces in India: middle-class consumption of domestic media, business models of cyber cafés and the use of mobile internet and Facebook among urban slum youth.

Sanjoy Sanyal has about 30 years of experience in finance and entrepreneurship. He founded Regain Paradise, a

sustainability consulting firm which works with public and private investors to identify opportunities and risks in climate related investing. Before founding Regain Paradise, Sanjoy was part of the management team at SumTotal Systems, a global leader in Learning Management software. He has also co-founded and run Aesthetic Technologies, an e-learning content provider. Sanjoy has a Post Graduate Diploma in Management from the Indian Institute of Management, Calcutta and a Bachelor of Technology degree from the Indian Institute of Technology, Kharagpur.

R Shailesh Reddy is the CEO of the Society for Telangana State Network (SoFT NET), an initiative from the Government of Telangana State to provide quality education by harnessing the potential of satellite communications and Information Technology. Mr Reddy holds Postgraduate Degree in Journalism and Mass Communications from Osmania University. In a career span of 20 years, he has worked in Newstime, Eenadu Television, Zee Entertainment and Zee News. As Business Head at Zee News Limited, he was instrumental in the expansion of operations of Zee Group in Telangana.

Understanding informality

Informality is a way of life. It has its own structure, processes and roles. The only difference from the formal sector, is that it exists in a domain that is not recognized. There is nothing to suggest that the informal sector implies lack of quality while the formal sector guarantees quality.

Prof Rangaswamy enunciated the same with the case of informal education system in Ameerpet in Hyderabad which is customized according to the needs of the user. It is possible for a student to get personalized instruction for Rs 50,000 for a course on say blockchain. However, the same skills can also be picked up sitting in a classroom along with many other students for a fee of Rs 500. Ameerpet is a place where demand and supply meet, people negotiate with each other and get exactly what they want.

Putting technology to good use

Technology is just a part of the toolset. The EdTech sector has been disappointing in terms of pulling people up from the informal sector into the formal sector. EdTech has by and large targeted only students who have access to formal education.

Mr Sanyal gave three examples of how technology can be put to good use:

1. In rural areas, some companies are enabling access to clean energy for local people. EdTech can help amplify these efforts.
2. Farmers are becoming more vulnerable due to climate change. There is a need to educate them on sustaining and improving their livelihood practices to combat extreme weather patterns that are likely to increase in coming years.
3. Mobile phones can be used to promote English learning skills for cooks, nurses and security guards. Acquisition of English-speaking skills can lead to better earnings.

Mr Shailesh Reddy mentioned Ashok Nagar, a place similar to Ameerpet, albeit for preparation for government recruitment-oriented exams like police constables, IAS and IPS. However, city wide classes are not accessible to students from rural areas due to funds shortage. To address this, SoFTNET has created affordable content and made it accessible to all. SoFTNET has identified the best teachers, recorded their sessions and has been broadcasting them over various media including television, online platforms and through cell phones. In this way, instead of students coming to the classes in the city, the classes have been taken to the students.

Using technology to personalize learning

Today, technology can figure out how much people already know and accordingly create customized pathways. Prof Rangaswamy mentioned that every website today has a recommender system. While these systems are good, they are probably not sophisticated enough. The understanding of AI is still narrow. Human beings are complex and the choices they make are also complex. It would be too much to expect technology to figure out exactly what is needed.

Understanding human behavior is crucial to improve the way technology works. It is important to understand why many students still prefer conventional modes of learning, that is physical classes? Clearly, technology has to improve further before the necessary customization is achieved.

To be effective, these technologies must be fed with relevant data.

Importance of social context

Technology alone is not sufficient. The social context also matters. Mr Sanyal gave the example of microgrids (30-35 KW plants) supplying electricity in the rural areas of Jharkhand and Bihar. One of the operators is a lady who took up the mantle after her husband died at a construction site and the responsibility of raising the children fell on her. She admitted that she was able to do the job only because it is near her home. There is no way in which she can travel 20 km up and down to reach her place of work. In other words, providing jobs near home is far more important than any technology.

Similarly, in Bihar, if the supervisor in a family is not a Brahmin (upper caste), people will not report to him. So, in many companies, the use of surnames or family names is banned. This is a great example of how enterprises can change the cultural norms quickly and modernize the set up even in the informal sector. Technology can be optimally leveraged with better understanding of social context.

Mr Reddy gave the example of The Vivekananda Institute of Languages, Hyderabad, which attracts students from all over Telangana. Some 25,000 students take the qualifying exam but only 200 make it. What about the remaining 24,800? SoFTNET has come up with a solution in this regard. They record language training sessions and make them available on television. The trick is to identify the target

segment, find out what they need and then give it to them using technology. Largely, two technological approaches have made it possible to provide connectivity to people across the country: satellite based and mobile phone based.

Meanwhile, the residential social welfare schools of Telangana (<https://tgswwreis.in/>) have demonstrated that there is an upward path for students even from the underprivileged sections of society. Last year they produced 5 IITans. The lesson here is to enable better outcomes for students by carefully examining their needs.

Concluding remarks

How does the semantic web understand the context? Technology will continue to improve and transform lives provided it is positioned properly. Technology is a social phenomenon as it changes behaviors. Dating platforms, for example, have changed behaviors and expectations. Socio technical systems develop around technology. Cross disciplinary conversations are required. Simultaneously, gender issues within technology ecosystem need to be addressed.

Technology is of no use, unless it benefits the common person. Currently the focus of EdTech is on schools and colleges in urban areas. Rural masses need to be integrated too, by creating more opportunities for semi-skilled workers like village tailor, motor bike mechanics, accountants for small businesses.

Panel discussion on Shaping the Ecosystem

Moderator: Dr M. Sainath

Panelists: Mr Kumar Anubhav, Ms Meera Shenoy, Ms Rama Devi Lanka

About the panelists

Dr M Sainath is Dean (Curriculum, Faculty and Entrepreneurship Development) and Professor, IcfaiTech, President, Institution's Innovation Council (Ministry of Education, Govt. of India initiative). He holds a PhD in Physics and is a renowned expert in electromagnetism. He has published more than 85 research papers in reputed journals and conferences. He is the innovation champion for the ICFAI Group.

Kumar Anubhav is a certified mountaineer and social thinker and has a passion for purposeful travel. Kumar quit his job & comfortable life in 2016 in search of meaning. He started a social initiative called NotOnMap which is focused on sustainable alternative livelihood for marginalized & vulnerable villagers. NotOnMap has won various recognitions and awards: a place in the World's Top 10 Social Innovative organization by Booking.com in Amsterdam, Runner up at UNWTO Global Rural Tourism Competition – 2020, Best Social Innovative Startup of the year by NASSCOM & SATTE AWARDS in 2019, Winner at WTFL (Luzern, Switzerland) under Culture Innovation category, Chosen as one of the Top 5 Social initiatives in India by National Start-up Awards - 2020 (Govt of India). Before starting his own venture, Mr Anubhav spent

over 15 years in the corporate world. He is an expert in analytics & BIG Data.

Meera Shenoy set up Youth4Jobs in 2012. It is now the largest organisation in South Asia skilling less educated youth with disabilities and linking them to jobs. Youth4Jobs has touched 7.8 million households with the message of "ability in disability" and is today a one stop shop for 750+ companies working on inclusion. The organization has won various recognitions and awards like the Asia winner for MIT prestigious Future of Work award, Inclusion Innovation Challenge, and the global Zero project award for innovations in IT & employment. The work done by Youth4Jobs has been recently documented in a Harvard business case study. Her inspirational book, "You Can", a Bloomsbury publication, was launched at the world's largest literary festival, Jaipur literary festival.

Rama Devi Lanka is currently working as Director, Emerging Technologies & Officer on Special Duty, in the Information Technology and Communications Department (ITE&C), Govt of Telangana. She formulates and implements policies for the State to promote the growth of emerging technologies and assist the government in leveraging the same for better governance. In a short time, she has been successful in positioning Telangana State as a pioneer in terms of adopting emerging technologies such as blockchain, AI, drones, Cloud, IoT, Cyber Security. She has also played a key role in shaping the tech ecosystem in the State and making it a favourable destination for investments.

Introduction

In emerging markets such as India, the informal sector lacks social security, safety mechanisms like insurance and a proper wage structure. The contribution of the informal sector is difficult to measure accurately but is probably more than 50 per cent of the GDP and accounts for approximately 73 per cent of India's population.

Investments in EdTech have also picked up in recent times, growing by 340 per cent year on year to reach \$ 44bn in 2019-20. Despite these heavy investments and the availability of technology, the outcomes are far from satisfactory. According to the 2020 Human Development Report, only one in five Indians can be considered skilled, earning India the dubious rank of 129 in a list of 162 countries – on par with some sub-Saharan countries. The key question remains: Despite the investments in technology and EdTech tools, have we really enabled the labour in the informal system to reskill themselves? Under this larger question, Dr Sainath probed the panelists with more specific questions.

Are the user interfaces (UX/UI) in existing platforms and tools too daunting for people in the informal sector?

Various laudable initiatives have been launched to provide quality education to the masses in the hinterlands. These include Swayam/NPTEL, Deeksha and TSAT. But are the user interfaces too daunting for the people in the informal sector? For example, to log in, one often

needs a Google or Facebook account and probably a basic knowledge of English.

Mr Anubhav admitted that it is indeed difficult for people whose lives are untouched by technology. At the same time, the rapid adoption of digital payments across the country is an indication that UI/UX may not be the real problem. The EdTech sector has the capability to customize the user interface. The real issue is the intent. The intent to enable technology to reach the bottom half of the pyramid (the informal sector) seems to be missing. Any investment in this sector will take a long time to get the required returns. That might be a much bigger issue than UI/UX or language both of which can be easily adapted.

Ms Rama Devi acknowledged that some of the tools and platforms may have interfaces which could be challenging for the informal sector. But schemes like PMGDisha aim to bridge the gap and make support digitally illiterate people. This is likely to enthruse people to embrace technology. In some cases, technology may not be usable as it is but with some ingenuity, it is possible for informal sector to leverage it. That is likely only when they clearly see the benefits accruing to them. There is a need to make the marginalized digitally literate. They need to be made aware of the benefits of technology, for example, they need not understand how AI works but they need to understand what AI can do for them.

How do we make investments in EdTech for the informal sector more attractive for investors?

Ms Shenoy felt that many of the tech startups are more concerned with their valuation than with the outcomes they are producing. A lot of the spending by the EdTechs goes into pushing their product through aggressive marketing rather than pulling and enthusing the customers. Aggressive marketing can mislead poor people who are not capable of making intelligent choices in their own. EdTechs must appreciate that social returns are as important as investor returns. Patient Capital like Acumen is needed. It is possible to be conscious capitalists and become a stock market darling. Only the path is longer and will take more time to traverse. Additionally, there is an urgent need to attract more impact investors.

Also, as per regulations, companies have to spend 2 per cent of profit on CSR initiatives. Mr. Anubhav felt that maybe a percentage of this amount can be reserved for the informal sector.

What can be done to make the end users embrace educational technologies?

As far as encouraging the end-user is concerned, Ms Shenoy felt that a clear path needs to be established which shows some form of career development or assured jobs. Without this, the unskilled would see no value addition to upskilling themselves.

It is very important to see if the skill sets of the unskilled can be transformed into some saleable product. Thereafter, it

would be easy to bring in impact investors. 'Incentivisation' is therefore vital for both the investors and the end-users.

Note: Acumen was founded by Jacqueline Novogratz in 2001 to build a world where everyone had the opportunity to live with dignity. The goal was to invest "Patient Capital" to bridge the gap between market-based approaches and pure philanthropy. Acumen believes that the markets alone cannot solve the problems of poverty. At the same time, charity and aid cannot tackle the challenges faced by over two-thirds of the world's population living in poverty. Patient Capital can bridge the gap between these two approaches. Acumen invests in early-stage companies whose products and services enable the poor to transform their lives. Acumen supports these companies with the tools, networks, technical assistance and guidance needed to build scalable long-term solutions to poverty.

What kind of government initiatives/support are needed to enable EdTech for the informal sector?

Ms Rama Devi highlighted the different business models which the Government has introduced to encourage investments. These include Charge per Service, Public Private Partnerships and Government funded projects. Many of these ideas can be applied to EdTech for the informal sector. Similarly, many aspects of the Telangana government's ICT policy can be extended to the EdTech sector.

There is already a strong start up ecosystem enabled by THub. The government gives grants to start ups. In many cases, the government also becomes the first customer and pilots the solution to see how it works.

Mr Anubhav narrated an interesting experience from Nagaland where the government was not willing to give grants to farmers to try out new crops. So, the farmers asked themselves a basic question: What can we do to help ourselves? Thus, was born the concept of the Farmers Innovation Centre. Farmers began to experiment with growing apples in places where it had never been grown before and new fruits like kiwi and cardamom. Once the pilots were completed and satisfactory results achieved, it became much easier to convince the government to provide funding.

In short, people in the informal sector need not wait for someone to come and help them. They can start by helping themselves. Then government support will be more forthcoming.

Note: Collaborating with Better Life Foundation, NotOnMap has used crowdfunding to build a "Farmer's Innovation Centre" at *Tuensang*. This centre provides training to farmers and helps them earn a better income, to protect their way of life and enables sustainable living and farming practices to leave a positive impact on the environment. The Centre is built on three principles- Sustainable Agriculture, Financial Literacy and Grassroots

Innovation. The Centre is entirely made up of bamboo, pinewood and locally sourced materials. There is also a gallery that displays indigenous arts.

This project aims to empower the local tribes to earn a better livelihood and protect their culture, traditions and heritage. The centre has not only benefited farmers and the locals but also travellers who get an opportunity to stay and live here like a local.

NotOnMap and Better Life Foundation are currently working with 80 families, 300+ farmers and 700 beneficiaries. NotOnMart, an initiative of NotOnMap is also providing a platform to farmers for selling their local and indigenous produce without the help of middlemen.

What about upgradation of the existing technology/ infrastructure for the end users?

More than the infrastructure per se, an upgradation of the software, i.e. the curriculum is required. Course design should cover the basics of technology such as how to start a computer or how to take good photos. A good photo is necessary to create a great visual appeal while selling items over the internet. The vegetable vendor understands the importance of polishing the vegetable at the start of the day, to attract customers. A similar thought process must come to the online world. Students and faculty at professional institutions could take it on themselves to design such basic courses and go into their local community to educate the unskilled workers. This has

the potential to become a massive movement and produce great results, without the need to revamp existing technology. Like CSR, if there is a policy mandate that a small percentage of funds by companies should be spent for EdTech and its propagation, it would certainly help in the long run.

Ms Rama Devi opined that the current technology and infrastructure seem adequate. She gave an interesting example from her own personal life. As she struggled to convey an instruction for chores to be done, her domestic worker who is not literate, suggested using voice messaging on WhatsApp. WhatsApp is a tried and trusted technology and comes free of cost and can be used by people with little or no education. There are many such technologies available. The trick is to use them to people's advantage.

More often than not, intelligence of people in the rural areas is underestimated due to social stereotypes. Once the Telangana IT minister, Sri K T Rama Rao was travelling to a remote village to visit one of the rythu vedikas. The solution provider began to explain to KTR how the dashboard worked. One farmer jumped in and explained that he was using the dashboard differently and explained how to navigate the screen in a very simple and straight manner – without much use of technical jargon! More than technology upgrade, it is about making people device innovative ways to use it.

Dr Sainath recalled that during his IIIT Basar days, a student had developed an

app that would enable farmers to find out in which market yard their crops would fetch the best price. Dr Sainath was unsure of the use of app as it required English language knowledge. But the student, who came from a farming family, was confident that the app would gain acceptance. During the pilot, all the 25 farmers certified that it was a good product. The student later explained that while the farmers might not know English, they knew some of the characters and then could link the whole thing to make sense. This enabled them to figure out how to use the app. They did not know the technology, but since their tough upbringing made them highly adaptive, they could figure out the business end of the app!

Thus, in many cases, the existing technology is sufficient. What is more important is to educate the end user on the benefits.

Traditional knowledge – importance and challenges related to underutilization. How can this problem be resolved using EdTech?

All humans were tribal at one point and had to learn new skills to survive. Society is a powerful teacher. It is important to understand the traditional lifestyle and practices. There is a scientific reason behind every traditional practice. Most of the traditional knowledge is passed on by word of mouth. There is an urgent need to document these traditional practices before they vanish, understand them and disseminate these practices across cultures. People should feel pride in their

culture and traditional ways. When it comes to accepting a technology, social acceptance is as important as economic empowerment. Incentivising and popularizing technologies through awards or grants can also help in a big way.

Ms Ramadevi provided an example in Telangana where traditional artifacts were being protected using NFTs based on blockchain technology. This project is a classic example of how technology can be used to protect traditional knowledge.

Dr. Sainath observed that cross-cultural dissemination of traditional knowledge can also enable it to survive. For example, an attempt to revive the traditional yakshagana received a major boost thanks to a local television channel and the support of the Kannadiga diaspora through this channel. An innovative attempt was also made to include contemporary topics like eve-teasing through yakhsaganas.

Note: Yakshagana is a traditional folk-dance form popular in coastal Karnataka districts. It is an elaborate dance-drama performance involving dance, music, song, scholarly dialogues, and colourful costumes. Loud singing and drumming form a backdrop to dancers clad in striking costumes. Hence the name Yaksha (celestial) Gana (music). Each performance typically focuses on a small sub-story from the ancient Hindu epics of Ramayana or Mahabharata. The show consists of both stage performances by talented artists and commentary accompanied by traditional music.

Concluding notes

It is important to involve all the stakeholders and understand the pulse of the informal sector before launching a new technology. A policy framework for the informal sector needs a wider consultation. People in the informal sector need exposure. This can help change the mindset and make them more willing to develop new skills. Moreover, training alone is not enough for the informal sector. It must be linked to placements.

Innovation, exposure and promised outcomes are the key to evangelizing technology. At the same time, the challenges in implementation should not be underestimated. Informal sector skilling will be one of the top agenda items in the coming years. The Indian education system must rise to the occasion.

The way ahead

Closing remarks: Ms Mandvi Kulshreshtha, Program Adviser, FES India

Mandvi Kulshreshtha is an urbanist and feminist. She is currently working as Program Adviser for the Economy of Tomorrow at Friedrich Ebert Stiftung (FES-India) office. The program looks at building progressive discourses for three megatrends in India: Urban Transformation, Energy Transition and Digital Automation. She is interested in social, economic and ecological aspects of development policymaking.

Some pertinent question that need urgent attention as a way forward for transformation of informal sector worker through EdTech are:-

Why do we need education?

Is education obtained to get a job? Is our education system forcing us to think in prescriptive manner? Are our pedagogies innovative enough? Has the time come to redefine education? Who designs the curriculum, for whom and for what objective? Should it be driven by market interest, or should it cater to the needs, interests and aspirations of the one receiving education? Is it being influenced by peer pressure and societal pressure?

Education should enable humans to reach their full potential and fulfill their role as social actors and not just to get a decent job. The aim of education should be to make us better human beings. And for that, a fresh look at our education system, educators and curriculum is required.

Why do we need technology?

Technology is presented as a solution for all societal problem. And the way it is designed or the ones who control it, transfer their biases into those solutions. Technology should be treated as just a tool to meet the ends. Technology should be used for the common good. In fact, it should become a common good. Quality technology must be accessible and affordable for all citizens and should not remain a commodity to be used for furthering private interest.

Why do we need transformation?

Any transformation should address not only the problem of economic justice, that is upliftment in the living standards of the poor but also social justice. Technology should be used to address and eliminate the indignities faced by marginalised sections of the society. Most initiatives today are transactional in nature, providing short-term fixes. Transformation, including multi-stakeholder interest, is required to scale up the positive impact of change making efforts.

Closing remarks: Prof A V Vedpuriswar, Senior Advisor, ICFAI Group

Prof Vedpuriswar concluded that the day long symposium had seen intense and meaningful deliberations on the use of technology to empower and benefit the underprivileged. Making the poor digitally literate is not just about providing training or funding. It is also about shaping the right behaviors and creating the right incentives. Various examples were given during the day to illustrate that simple

tweaks to the ecosystem can make the poor embrace technology and use it to their advantage. The poor are also enterprising enough to find interesting uses for technology on their own. The symposium has created a sense of optimism and yet made us aware that a lot more needs to be done to make technology benefit the common man.

About the organisers

The ICFAI Foundation for Higher Education (IFHE), Hyderabad, has emerged as one of the top universities in the country with four constituents: ICFAI Business School, ICFAI Law School, ICFAI Tech School and ICFAI School of Architecture. IFHE has put in place world class processes for governance, academic excellence, industry interface and student centricity.

About CeDT

The Centre of Excellence for Digital Transformation (CeDT) at the IFHE has been established with an agenda of leveraging the information and communication technologies for the benefit of the underserved.

We, at CeDT, believe that constructive interactions between actors in an ecosystem shape various aspects of business, social practices and technology. Thus, continuous engagement with key human and non-human stakeholders across industry, academia and society to advance our agenda, is the guiding principle of the centre.

The activities through which we plan to engage with key stakeholders include research, consultancy, training/teaching and outreach. The tools that we plan to use for the aforementioned activities include experiments (both field and laboratory), surveys, digital gap analysis, content creation and curriculum design.

Friedrich-Ebert-Stiftung (FES) is one of the oldest foundations in Germany, which remains loyal to the legacy of its founder Friedrich-Ebert, the first democratically elected president of Germany. FES works

on the core ideas and values of social democracy: freedom, social justice and solidarity. FES is active in more than 100 countries around the world. FES has been active in India since 1980s, building platforms for exchange of progressive discourses and fostering debates at the national, regional and global levels.

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