The Daily Star
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SEGMENT 4

ANNIVERSARY SUPPLEMENTS 2020

DIGITISATION AND INCLUSIVITY: TAKING EVERYONE ALONG

DHAKA TUESDAY FEBRUARY 18, 2020, ***FALGUN 5, 1426 BS***

EDITOR'S NOTE

Dear Readers,

In today's world, digitisation is an inescapable reality. Although primarily talked about in the context of the more advanced countries, digitisation is uniquely impacting the lives of millions in this part of the world.

The compounding effects of digitisation has led to a global paradigm shift in how academics and policymakers think about the development of societies. This means that advances in technology can no longer be overlooked in the economic and financial decision-making processes at the national level. Neither can we ignore the realities of how technology can lead to increased or decreased levels of inequality.

This segment of the supplement sheds light on the numerous challenges that rapid technological advancement has brought forth, as well as the countless opportunities that it presents. At the end of the day, what is required is smart, well-planned policies, so that we can best utilise the possibilities that are ahead.

This issue, **"Digitisation and Inclusivity: Taking Everyone Along"**, is the fourth instalment of our 200-page special supplement on the occasion of *The Daily Star*'s 29th anniversary.

We would like to thank all the writers, who are experts, practitioners, researchers, scholars and academics, for enriching this issue with very insightful and thought-provoking articles.

We would also like to express our sincere gratitude to our readers and patrons whose endless support and dedication keep us going.

Be sure to follow up on the final instalment of this special supplement titled **"The Youth in the Era of Digitalisation"** which comes out on February 20.

Mahfuz Anam
Editor & Publisher

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2

CONTENT

Editor & Publisher
Mahfuz Anam

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Cover Illustration
Ehsanur Raza Rony

How IT innovations are transforming lives

CONTINUED FROM PAGE 3

Just 10 years ago, sending money from one place to another required visits to a bank branch or post office, filling out numerous forms and then it could take days and even weeks for the money to be seen by the receiving party. Today mobile financial services dominate this segment bringing instant money transfers between any two places within reach of all no matter how remote the location or what time of the day it is. A child born in a rural area 10 years ago may not know the name any bank but certainly knows the names of the most popular mobile financial service (MFS) brands. From MFS people are gradually moving to payment apps or digital wallets which have been around for some time but the adoption has been slow due to inherent sophistication of such apps that deter people with limited digital literacy from using such apps. This may soon change as more user-friendly digital wallets come to the market making its widespread adoption a reality as has been the case in USA, Europe and even China. In Singapore the Monetary Authority (MAS) is already issuing licenses for Digital Banks which require no brick-and-mortar operation. Combining distributed ledger technology, i.e., Blockchain and digital wallet technology the digital banks of the future may make traditional banks obsolete just as emails have made Fax machines obsolete.

Conventional trade settlement instruments such as Letters of Credit (LC) are already on the way out in many countries and trade finance automation tools based on blockchain will soon step in to fill the void. The digital onslaught is reaching tsunami proportions and is washing away old business practices like broken twigs. However, digitalisation of business and services by default requires appropriate mechanisms for digital identities, provenance and verification. These on the other hand raise issues of security, privacy and immutability. Together these six factors stand in way of digital nirvana.

Digital identity has been a hot topic in legislatures around the world for at least a decade. While Bangladesh has been in the forefront of introducing digital national identity cards and e-passports, these seemingly innocuous digital implements that make governance easier and presumably cheaper, happen to raise spectres of digital identity thefts and intrusion of privacy that have prevented adoption of these technologies in many technologically and economically advanced countries such as France, Germany, USA and others. Canada and Hong Kong, for example, are in the process of bidding out digital identity solutions that address these six vectors of digital incarnation for humans and objects. It may be several years before any definitive digital identity system is adopted by them. Centralised digital identities such as Aadhar in India have been found to marginalise the poor further bringing up one the most perplexing digital paradoxes of our times.

The security and immutability of digital identities and assets are similarly an intractable problem that has defied digital advances of the past half century until the advent of distributed ledger or blockchain technology in the past decade. However, building applications using this intrinsically complex technology is facing challenges due to tremendous scarcity of skilled resources. A digital identity can theoretically be hacked, copied or deleted. As long as the issuing authority is centrally managed, a rogue officer with proper access authorisations or a hacker having found a loophole in the security setup, could enter the identification database and copy data for fraudulent use as well as change or delete data for pure mischief—in both cases causing the affected persons tremendous grief and even a run in with the law. This is why no matter how honest and fool-proof a central digital identity system is, there is always a risk of such breach. While blockchain technology has the chutzpah to prevent such breach of security and provide immutability of data, its adoption will only pick up speed if the troika of academia, government and industry find a way to work together. In South Korea and Taiwan, such tripartite collaboration has given rise to a new breed of startups—some as fully owned subsidiaries of large corporations—that are bringing new paradigms of digital solutions not conceivable under conventional approaches.

South Korea is now a global leader in published research done in collaboration with industry. It is a widely known fact that industry-academia collaboration with a helping hand from the government gave rise to the most famous technology wonderland called "Silicon Valley".

Privacy of digital data is another major concern that has many privacy advocates around the world crying hoarse for decades on the loss of privacy entailed with digitalisation as a lifestyle. While in many countries it is unlawful to record the movements of the citizens, that has not prevented governments from digitally tagging the movements of people—citizens and non-citizens alike—which raises the phantasm of an authoritarian government tampering with such evidence to frame a person just as depicted in the sci-fi movie "Minority Report". In some parts of China, the local government has introduced loyalty points for good citizen behaviour based on where they go, what they do with their free time and what they eat, drink or smoke. Such total devolution of privacy is unthinkable in any country with a modicum of respect for privacy. In this country we need to be careful with what we do with all the data collected by various agencies of the government. It is technologically very easy to collate all that data through Big Data Analytics and get an exact picture of a person's activities and movements which is a total breach of one's privacy. There needs to be careful safeguards for and firewalls around various repositories of citizens' private data.

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Of course, just as you can take out a prick with another prick the privacy nightmare of digital identity can also be tackled by sophisticated digital techniques called self-sovereign digital identities and zero-knowledge proofs. However, the overall digital upskilling and capacity development needed to embark on such implements have been found to be a daunting challenge even for countries with ample resources. For a newly graduated middle-income country such as Bangladesh the challenges are much more acute.

On the one hand we must be bold enough to tread into emerging technologies in a pioneering road-warrior, and at the same time, we must be alert at all times on the pitfalls of technology, specially the widening digital divide, to make sure that "no one is left behind", borrowing from the singular mission of the UN sustainable development goals to be attained by the end of this decade. Despite the misgivings of a digital future portrayed in George Orwell's "1984", our future is inevitably digital. Let us rewrite that digital future to make everyone well-endowed to pursue "life, liberty and happiness" without sacrificing the human spirit to an automaton.

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DIGITISATION AND INCLUSIVITY: TAKING EVERYONE ALONG

The inclusivity paradox of the digital age

IMTIAZ A HUSSAIN

Behind every "age", as if by definition, lies a spark. Ironically, although the "digital age" may be the most profound of them all, as deducible from its own so-called "digital revolution", its time-span is too fluid and that "revolution" is more revolutionary linguistically than it is on the ground. Still, "digital age" captures our minds, just as the "Cold War Age" had done after World War II, and the "age of imperialism" did until World War II. Though scholars and pundits typically trace the "digital revolution" to the 1980s or 1990s (when a sedate extant term, "digital", dramatically acquired new glow in everyday usage), whatever "digita" was ascribed to at the time had actually been foreseen before, for example, in John von Neumann's "parlour games" of the late-1920s. Since nothing scientific validates a concrete "digital revolution" or a "digital age", a "digital transformation" in the second 20th century half may arguably be a more appropriate label.

Behind that thick introduction lies what the *Economist* posited in one of its 2014 cover-pages as the emerging "digital age" fear: "Rise of the robots," and with it, a "robot invasion. . .[to]. . .change the way people think about technology." "Digits" (numbers) have not displaced "texts" (description), and "net jobs" have not been lost to "robots" or other new gadgets. Of importance is to identify what catalysed this innocuous "digital transformation" into a force rattling our nervous system, serving both as a weapon we can wield and a threat we personally face.

Henning Meyer's five filters lubricate the start. These are ethical, social, corporate governance, legal, and productivity filters. Ethical filters get invoked, for example, when a new bio-technological contraption alters natural food components, triggering moral, religious, or political concerns. Of far broader relevance, social filters dig out job-related consequences of new technologies, ranging from job-displacement by machines (as the assembly-line does to manual production), to job-transfers (from one skills-level, or profession-specific technology, to another). How Dhaka's automated metro-line will soon shift train-drivers and train-conductors into programme managers, managing several trains simultaneously from remote switchboards rather than from within each vehicle, exemplifies the point.

Corporate governance elicits a similar fear: Meyer's distinction between the short-term Anglo-American orientation over the long-term European counterpart in technology-related preferences also has our own counterpart: whether meat should be prepared by human hands or machines in a Muslim, thereby *halal*-receptive, society. Automobile accidents or insurance similarly raise legal questions in western countries, as too productivity filters flagging a new online technology that adds prints on hand-crafted fabric, thus modernising only one component amid an otherwise traditional production process.

After filtration, which usually is not time-consuming, perhaps even a parallel function, the relationship between the human job and the new machine/technology invites other considerations, typically within a tripartite compartmentalisation: will the machine "substitute" the human, serve as a "complement", or become "creative", that is, generate new jobs.

Several empirical studies already question if machines actually substitute humans: if new technology displaces jobs in one part of the company, it cannot but create new jobs in other segments of the company's production line. Since machines have to be programmed, serviced, repaired, enhanced, and so forth, for the company to compete, new service-jobs get created as manual jobs get trenched. That is, modernisation, and particularly relevant to Bangladesh since its leading export commodity, ready-made garments (RMGs), faces automated external threats. Manual labour-jobs get swallowed (60 percent, experts say, by 2030), and robots service RMG plants.

Machines elevate society to higher skill-levels. After all, losing manual knitting and sewing just when higher-skilled technicians create and supervise robot programmes, represents advancement. Why should the society/country be worried?

Two other important trade-offs beg Bangladesh's attention. The first is economic: against increasingly intense RMG competition from such countries as Cambodia, Myanmar, and Vietnam (and in the near future, a string of African countries), might Bangladesh turn to automation just to retain its global competitive punch? The second has social bearings: what would happen to the 4-5.5 odd million RMG workers (more than half being women)? Would gender-balancing be constrained? Or would alternate jobs particularly suitable for women open?

Although both trade-offs must be empirically tested, since the very growth of information technologies (ITs) also requires the same meticulous manual attention and application as the RMG production processes, those same RMG workers qualify for higher-skill opportunities with their meticulous manual input. Women have done just as well, if not better, in this arena than men. Shifting laid-off RMG women workers to the IT industry releases two "sparks": more active recruitment of women in Bangladesh's IT sector, expanding the sector size; and pushing basic intellectual training upwardly to those women-dominated RMG-specific sectors. The private sector caters to the first if market demand is there, which promotes IT product transactions across the country and transfers/directs women-power into this sector. Robust governmental intervention enhancing comprehensive education from the very start is needed for the second.

"Digital Bangladesh" includes the newly initiated "Sheikh Russell Computer and Language Lab" (SRCLL) plan with the ICT (Information and Communications) Ministry and CRI (Center for Research and Information) to open 10,000 schools and colleges across the country. Bangladesh must now seize openings suitable for robotising the RMG industry, should "push" become "shove" globally.

Digressing into Bangladesh's RMG sector exposes five of Meyer's "digital age" cornerstones. His first adapts education to 21st Century technology-tailored jobs and society. Past education curricula will not withstand the needs of the practical and materialistic 21st century: theories have to go, meaning a greater blow on many social science disciplines than for professions or natural sciences. Bangladesh's Universities Grants Commission's glacial *a posteriori* flexes to intellectual changes must now be substituted by *a priori* calculations or assessments. Jobs on the streets and in the market must be actively supported, supplemented, and safeguarded by the Ministry of Education. It cannot but go online, instead of retaining tons of meticulously crafted manually assembled office files and registers.

Meyer's second cornerstone, of finding new jobs for robot-displaced workers, has already been addressed through Bangladesh's RMG industrial changes. So too has the third, of public policymakers reading the job-market accurately, but more importantly, pre-emptively, if only to retain a cutting-edge in this fast-moving world. Many policies require lengthy gestation from preparation to practice/enactment, and a jobs ministry working in tandem with a social affairs ministry should become a top-priority consideration. It also implies some degree of private-public partnership (PPP) between initiated and institutionalised sectors. In fact, the fourth cornerstone, of financing job-creation and -cultivation, especially for digitally displaced workers, overlaps this PPP initiative, which carries other spill-overs worth exploitation. For instance, the private could be broadened to include foreign entrepreneurs, since multi-nationalising economic behaviour is part and parcel of the digital revolution. Above all, the digital revolution now permeates almost every human function and/or production process.

Ultimately, the fifth cornerstone builds upon, and can actually happen only if all the above four become operational. Capital ownership, but no IT society, can be easily democratised, setting up a tension, since new knowledge stems more from individual-level than social-level skill-sets. Cultivated knowledge accelerates faster than socially streamlined knowledge: competitiveness, which is intrinsic to creating new knowledge, generates that private-public chasm. As it bears upon education, this tension must be allowed to grow, albeit along more tamed parameters and contours at more sub-innovation levels for the public. PPP democratises capital ownership by encouraging both new IT thinking at lower tiers and top-tier competition. Balancing both extracts the most, but necessitates governmental intervention.

That must be the digital age message: how to minimise the ever-widening gap between those who know and those who do not, those with "active" and "passive" brain-power, since there is no space for even resurrected brain-power to close that gap. Claims of a digital revolution also fall apart with knowledge emanating from individuals more than society. Pushed farther, even reference to a digital age is also not at all new within society: what is new to the public is unlikely to be so to the generator of that idea. Martin Krzywdzinski, Christine Gerber, and Maren Evers, among others, have been hammering away at this weak digital revolution claim for some time now. In a 2018 piece, "Social consequences of the digital revolution," they correctly pointed out how renowned Social Scientist Herbert Simon, along with Allen Newell, predicted in 1958, when there was no PC (personal computer), how a digital computer would defeat

CONTINUED ON PAGE 8

DIGITISATION AND INCLUSIVITY: TAKING EVERYONE ALONG

The inclusivity paradox of the digital age

CONTINUED FROM PAGE 6

the world chess champion. The only existing contraption was the massive ENIAC (Electronic Numerical Integrator and Computer) room-sized outfit, prepared under supervision of the century's greatest mathematician, John von Neumann, in the University of Pennsylvania's Moore School of Engineering and Applied Science (there was no Nobel Prize for economists then to award him for his contributions).

Another brilliant social scientist, the Norwegian Johann Galtung (and a repeated Nobel Peace Prize nominee), predicted the very pathway to digital preponderance (in "A structural theory of imperialism"). This was in 1971, far before digital revolution is commonly traced back to. His final phase sees imperialism emanating from communications, which incorporates anything digital. Military and economic imperialism began the ballgame, he contended, before producing political imperialism, followed by the cultural. Communications imperialism becomes the final straw. True, British imperialism did not begin with the military in South Asia, but the East Indian Company could come so far to scope economic opportunities only because "Britannia ruled the waves": its navy protected all passageways, from the English Channel through the Atlantic transit into the Indian Ocean. The rest became sordid imperial history.

Communication imperialism may be the recipe to create and destroy new information. This allows us to prevent others from learning, thereby making access to anything cutting-edge more privileged. Dooming others becomes a vital interest under cut-throat competitiveness.

As a professor, I walk that line constantly, how to prevent myself from not pushing new knowledge to students, many of whose families have put their final *paisas* into educating their children. How that would implode at the cusp of becoming a developed country yet still not finding the final push from its own future, that is, its present students, becomes burdensome. Students, by definition, struggle against acquiring new knowledge given their increasingly less spare time (given this digital age), but because it is being unloaded upon them, unloading cannot go on forever without consequences. The less they learn, the more gaps in our collective country-wide innovative capacities for the forward-pass we are so capable of but invariably fail to get.

This is where free-lancing makes a crucial distinction. Digital marketing has opened jobs that unemployed youths and married women can utilise from their very homes. Outsourcing software programmes, especially to promote corporate public relations, is already a vast and viable industry: Bangladesh ranks behind India in its freelancing business, earning USD 1 billion in foreign exchange, and with 600,000 participants perfectly complementing the SRCLL initiative.

There is more to the "inclusivity" capacity potential of new technologies. Where knowledge is concerned, inclusivity cannot happen in the private market, given how corporate competitiveness over-ride the search for new, often social, knowledge: the government must be involved, and

CONTINUED ON PAGE 9

The inclusivity paradox of the digital age

CONTINUED FROM PAGE 8

the more it is involved, the greater the inclusiveness of technological spread-effects. This we know from the onset of public education: it did not coincide with the industrial revolutions for no reason, since these revolutions created and consolidated the firmest of gaps between the "haves" and "have-nots". Public universities may not be at the cutting-edge of knowledge-creation all the time, but their job of stopping the knowledge-gap from widening is a full-time and very crucial job: no other agency can do it; and without the government, we will be under the complete command of knowledge creators, for either good, that is, harmony and progress, or for evil, that is, anarchy and the survival-of-the-fittest instinct.

Some authors emphasise the 5 Cs as the founding pillars of digitalisation (Sumeet Bhutani and Yashi Paliwal, among others): consciousness, connectedness, compliance, collaboration, and contentment.

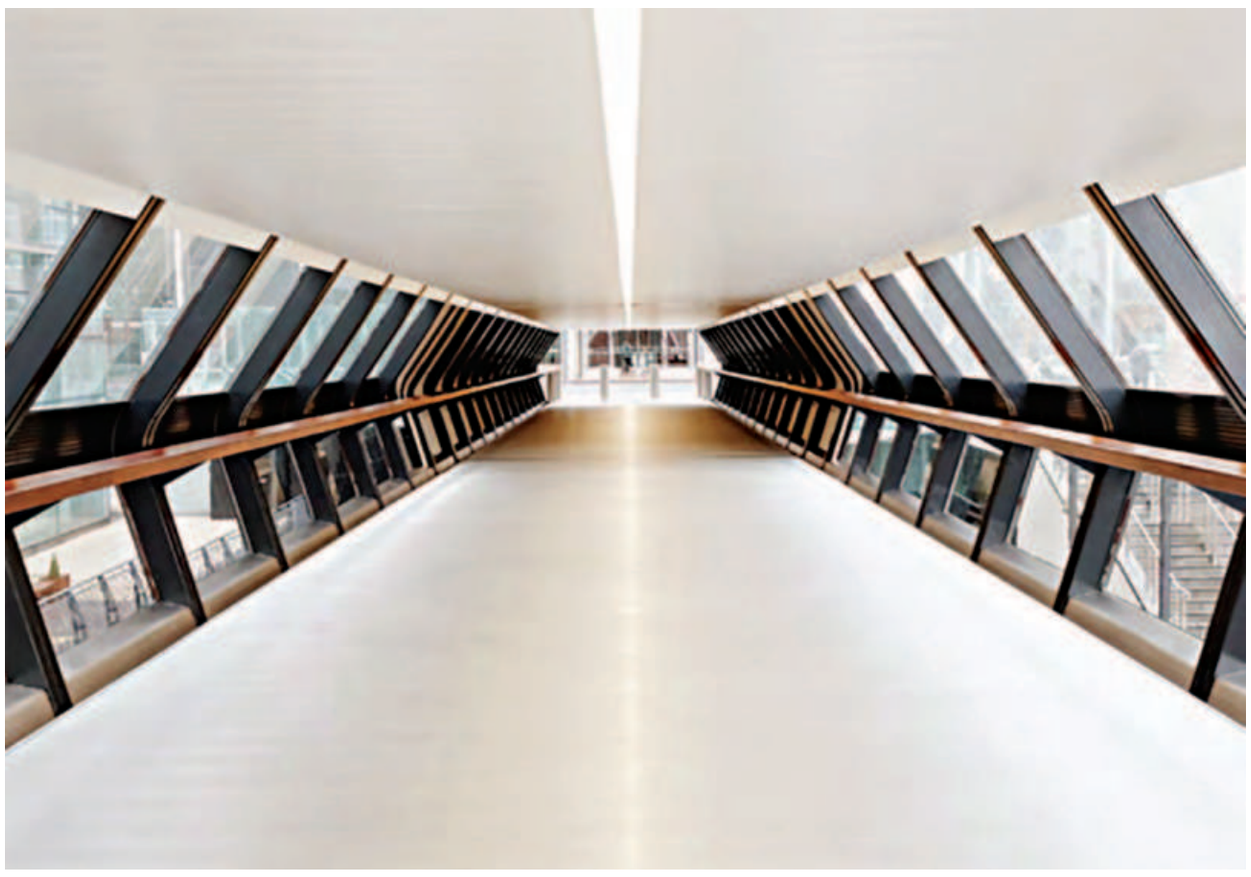
> Our collaborative capacity had three components, each of which digitalisation also advocates: collaboration only happens because there is "trust", upon which "purpose" is cultivated, in turn producing the "energy" propelling collaboration.

These qualities did not spring from digitalisation, but without the government helping the "have-nots" to sharpen them, and thereby the country, they would have no chance in a "networked society" itself, an over-drive digitalisation outcome.

Other authors, more concerned about knowledge controls (such as Xiudian Dai), reaffirm the crucial need for governmental presence, and thereby social inclusivity. They distinguish between "market regulation" (where the fittest survive) and "state-regulation" (where the less-fit get a chance to breathe), arguing both play a balancing role upon each other: the weaker one side gets, the stronger the other side gets, as if automatically, which must be stopped.

Nobody disputes the key features of digitalisation: how ubiquitous or universal it is, that it is so affordable anyone can jump in (perhaps to be bitten later). It is reliable ("numbers do not lie"), brisk (computers outpace even the brightest mind faster), and usable (application in "all" walks of life). Yet, it is in shepherding each of those five discussed cornerstones that the maximum gains can be extracted at minimal costs (what von Neumann and his equally genius mathematical partner, Oskar Morgenstern, dub *maximin*).

A careful dissection of "maximin" shows how it cannot be a one-person game, raising a digitalisation paradox: although digital information emanates from individual-level intellect (brutally exposing the "have-have not" divide), no digital revolution can be successful without disseminating that know-how, making "collaboration" an essential factor. Inclusivity needs collaboration, for example, bridging across economic, educational, political, societal, and all other divides for the outcome, as we Bangladeshis managed in 1971



to win the war. Our collaborative capacity had three components, each of which digitalisation also advocates: collaboration only happens because there is "trust", upon which "purpose" is cultivated, in turn producing the "energy" propelling collaboration. Rob Gross, Amy Edmondson, and Wendy Murphy emphasise precisely these features in articulating "the nuts and bolts of digital transformation" (*MIT Sloan Management Review*, Winter 2020, 37-43).

When the "enemy" shifts from another human being or a corporation to robots in this enveloping AI (artificial intelligence) age, just to stay ahead demands comprehensive changes, as much on "tangibles", such as the tools we use (to get the data first, then play with the numbers, ultimately to build the architecture connecting "inputs" with desired "outputs", and fixing the playground), as the intangibles, like attitudes (cultural, economic, educational, political, social). Across a combative, competitively-inclined world today, our "outcomes" have to be a maximin-defying second-best. While this is natural against the typically competitive business environment, governmental intervention may save the day (Iansiti and Lakhani discuss these in "Competing in the age of AI," *Harvard Business Review*, January-February 2020, 61-7).

In the final analysis, it is governmental intervention that breaks our biases and stereotypes to prepare the level digital playing-field demand today. Have we lived up to that challenge? Time will certainly tell, but having prior knowledge displays our capacity to stay ahead of robotic power.

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Poverty and Exclusion

Education and technology to the rescue?

MANZOOR AHMED

The poverty rate in Bangladesh in the fiscal year 2018-19 was 20.5 percent, announced Planning Minister MA Mannan on December 16, citing the latest projection of the Bangladesh Bureau of Statistics. The ratio of people in "extreme poverty" was reported to be down to 10.5 percent (bdnews24.com, December 17 2019).

The economic development narrative is justifiably upbeat for Bangladesh. There has been a high rate of economic growth over the past decade and a steady reduction of the proportion of people living below the poverty line. By regional and international developing countries comparison this is a creditable performance. However, it is subject to several caveats.

First, there is debate about how poverty rate is measured and what it means. Economist Wahiduddin Mahmud noted that Bangladesh estimates poverty based on its own measurement tools—by using what is called "the cost of basic needs" in the Household Income and Expenditure Survey (HIES). In this method, two poverty lines—lower and upper—are indicated based on two levels of consumption expenditures of households. The international practice is to use a per capita income measure—a minimum income to satisfy the basic needs of food, shelter and clothing. A dollar value of USD 1.90/day (adjusted for purchasing power parity for each country) was set as the extreme poverty threshold in 2015 by the World Bank which is commonly used for low income countries. Prof. Mahmud says if the income measure of USD 1.90 is applied, the rate of extreme poverty would be higher in Bangladesh. (*The Daily Star*, "Poverty line needs to be redefined: experts," February 25, 2018).

Two new international poverty lines were added subsequently by World Bank for lower middle-income (USD 3.20/day) and upper middle-income (USD 5.50/day) countries. Bangladesh has now moved up to the lower middle-income status by per capita GDP measure. About half of the population in Bangladesh would be below poverty line if the lower middle-income number of USD 3.20 is applied. Even by the official estimate based on the current modest criterion, at least 16 million people of Bangladesh are not in a position to meet their basic needs.

Secondly, while the economy has grown and poverty level has come down, the gap between the rich and the poor has widened. As per the latest Household Income and Expenditure Survey (HIES) of Bangladesh Bureau of Statistics (BBS), the country's Gini coefficient, which is the economic measure of equality, stood at 0.482 in 2016, up from 0.458 in 2010. The Gini coefficient is measured on a scale of 0 to 1; the closer it is to 1 the higher is inequality in society. A coefficient of 0.50 is regarded as a degree of inequality that is liable to generate social unrest. (*The Daily Star*, "Inequality at all-time high," May 19, 2019.)

Thirdly, the sources of deprivation from the benefits of the rapidly growing economy lie both in population characteristics and personal attributes of people. Where people live (e.g., remote and coastal areas, "char" and "haor", and hills with adverse ecological conditions, or being in urban slums); socio-cultural factors (such as ethnic and language status); and various personal attributes (such as, disabilities and special needs) are circumstances that are liable to marginalise people from the mainstream of society. Income poverty and gender discrimination tend to coincide with these sources of marginalisation. Targeted policy measures and affirmative actions are needed to overcome marginalisation and exclusion.

Fourthly, an aspect of the exclusion from opportunities is the large proportion of young people "not in education, employment or training" (NEET)—a situation that leaves young people without purposeful engagement, dims their hope for the future and undermines their self-esteem. Over 40 percent of the young people (15-24 years) in Bangladesh were estimated in a survey to be in the NEET category in 2013 (World Bank, "Toward Solutions for Youth Employment," 2015). This situation is not likely to have changed much. The number unemployed among youth who were looking for a job in 2018 was reported to be 4.4 million or 10 percent, more than double the general unemployment rate for the working population (World Vision Bangladesh, "Youth Employment Sub-Sectors Assessment," 2018).

Economist Rehman Sobhan defines poverty as a process that excludes significant segments of the population from opportunities to participate on equitable terms in development and decision-making. He describes this unequal opportunity for the rich and the excluded (poor) in society as "structural injustice." Drawing on cross-country experience from five South Asian countries—Bangladesh, India, Nepal, Pakistan and Sri Lanka—Sobhan identifies four sources of structural injustice. These are, along with unequal access to productive assets and unequal participation in the market, unequal access to human development (education and health) services and unjust governance.

Structural injustice does not necessarily arise from the play of market forces, but is rooted in institutional arrangements, argues Sobhan. These institutional arrangements include how the human development services of health and education are organized and the governance structure that fail to support effective services (Sobhan, *Challenging the Injustice of Poverty: Agendas for Inclusive Development of South Asia.*)

To sum up the points above, no country can rely on economic growth alone to end poverty in all its dimensions. For this to happen, the country's growth must benefit the poorest the most, and unlock opportunities for the extreme poor to get better jobs, access better quality health and education services, and build the foundations for the next generation to escape extreme deprivation.

In unpacking the macro-picture of inequality and exclusion, essential for finding workable solutions, we go on to examine briefly the situation of children excluded from education opportunities and whether and how use of digital technology for education and skills development can help.

OUT-OF-SCHOOL AND WORKING CHILDREN

Despite strides towards Universal Primary Education, meaningful participation in schooling with children not dropping out from primary and secondary education and acquiring the basic skills and knowledge (such as, functional literacy and numeracy) still remain a problem in most of South Asia including Bangladesh. A large proportion of the out-of-school children (OOSC) are also working children, whose participation in school is impeded by their being engaged in child labour.

A total of over 24 million in the 7-14 years age group in three countries were found out of school: India-12.3 million, Pakistan-7.3 million, and Bangladesh-4.5 million. Child labour is defined as work that prevents children from participating in schooling and is harmful to their health and growth. Statistics in this regard is imprecise, but about 17 million children are estimated to be in child labour in South Asia, including 5 million in Bangladesh. (ILO, *Measuring Children's Work in South Asia: Perspectives from National Household Surveys,* 2015).

Free, compulsory education up to the minimum employment age of 14 years is a crucial element in each country's efforts to tackle child labour and implement "education for all" (EFA) initiatives. Quality basic education at primary and secondary levels has the job of preparing young people, including those economically and socially marginalised, to take advantage of opportunities to develop general and job specific skills. They can then lift themselves out of poverty and find ways to become productive workers and active citizens.

A key element of the inclusion challenge is the neglect of children with disabilities. Despite some improvement in opportunities, they remain behind in enrolling in school, completing primary or secondary education, or being literate in Bangladesh and in South Asia. Disturbingly, these gaps have not been closing. Children with disabilities are being left behind by global efforts to improve education opportunities for all children (Global Partnership in Education, *Disability Gaps in Educational Attainment and Literacy*, Washington, DC, 2017).

EDUCATION EQUITY AND TECHNOLOGY: AGGRAVATING A DIGITAL DIVIDE?

Rapid technological transformation is a key feature of the economy. Technology has raised economic performance, improved efficiency, facilitated globalisation, and transformed societies. It is radically changing how goods, services, and ideas are exchanged. Can technology come to the rescue in overcoming the marginalisation and exclusion described above?

Education Technology (EdTech) including digital media for education, training and governance are proliferating through global and local collaboration. A recent Asian Development Bank (ADB) study (2017) of three South Asian countries (Bangladesh, Nepal and Sri Lanka) explored the policies and practices in ICT and their potential impact on equity, quality, efficiency and scalability in education. The study concludes that the countries need to emphasise coordinated efforts to sustain the gains and realise the potential from technology. Five strategies to optimize technology applications in education are proposed for the region: (i) Better coordination of ICT in education initiatives and quality efforts within the education sector; (ii) Better technical support for teachers as they use ICT for teaching and learning; (iii) Just-in-time and differentiated ICT in education professional support for teachers in schools; (iv) Localised and customised tutoring of teachers and students with off-line and on-line video-recorded lessons and ICT-mediated resources; and (v) Strong monitoring and evaluation of ICT use in schools. (ADB, *Innovative Strategies for Accelerated Human Resource Development in South Asia: Information and Communication Technology for Education - Special Focus on Bangladesh, Nepal, and Sri Lanka,* 2017.)

Governments are looking at policies and innovations from the point of view of what is called the Fourth Industrial Revolution characterised by a strong role of artificial intelligence, robotics, and "smart" means of learning as well as production of goods and services.

Can educational technology be seen as the panacea that solves major educational problems? There are clearly downsides of technology in the education context which cannot be ignored. Technology in the classroom can be a distraction unless it is handled in a blended format judiciously with guidance from the teacher. Technology can disconnect students from social interactions, especially by the lure of social media. Technology can prompt cheating in class and on assignments and make plagiarism too easy and tempting. The quality of research and sources based on "google search" still call for judgement and reasoning to reject the limitless world of "junk" and identify authentic and credible information. Proper lesson planning, updating relevant information and knowledge, and adapting these to the diverse needs of learners are labour-intensive and time-consuming tasks for the conscientious teacher, who need to be supported, as underscored in the ADB study.

Technology itself can be a source of disparity and division among learners

CONTINUED ON PAGE 14

A child working in a brick factory in Fatullah.

SOURCE: ALRASSXP.COM

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Sustainable development goals: Realities and illusions

SALEHUDDIN AHMED

The title of this article should not mislead you; the title is just to provoke you to think seriously and act boldly. We have to keep in mind that the post 2015 global development agenda incorporates actions which are basically normative and visionary, based on reality. But the results will come only if the actions are implemented. The global treaty does not have instruments of enforcement. The achievements depend on national and global actions.

We blame nature for environmental degradation and disasters. William Shakespeare aptly said "… when we are sick in fortune, often the surfeit (excess), of our own behaviour, we make guilty of our disasters, the sun, the moon, and the stars." [Shakespeare, *King Lear*, Act 1, Scene II]

The Club of Rome, a think tank based in Rome in 1965 started, in an informal way, exploring the depletion of earth's resources and its impact on socio-economic development of various countries. An international team of researchers at the Massachusetts Institute of Technology (MIT) in USA conducted a simulation study by computer. That led to publication of the book "The Limits to Growth" in 1972. That was the first red flag raised and warnings issued on the dangers of neglecting sustainable development approach. The warnings are still valid and the message of hope still worth keeping in mind which stated that "Man can create a society in which he can live indefinitely on earth if he imposes limits on himself and his production of material goods to achieve a state of global equilibrium with population and production in carefully selected balance."

The question of sustainable development (SD) has become a catchword now-a-day. People have become interested in the concept of SD and how it can be achieved. The World Commission on Environment and Development (WCED) defined sustainable development (SD) as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" ("Our Common Future" 1987, p. 43). Bangladesh 7th FYP (P. xxxvi) Part-1 defines SD as "… the needs of the present generation without compromising prospect of future generations."

The term SD means differently to different persons. There is the problem of conceptual clarity and interpretation. Many people use SD interchangeably with "ecologically sustainable or environmentally sound development." In contrast, some take SD as "sustained growth," "sustained change" or simply "successful" development. WCED stated the critical objectives of SD as: reviving growth; changing the quality of life; meeting essential needs for jobs, energy, water, and sanitation; ensuring a sustainable level of population; conserving and enhancing the resource base; reorienting technology and managing risk; and merging environment and economics in decision making (WCED, 1987, p. 49).

Within the international perspective and concern for "process" dimension, two more objectives are added: reorienting international economic relations, and making development more participatory.

> In many countries including Bangladesh, people are by-passed, not consulted and not even considered in taking major decisions of reform and development programmes. If people do not have confidence and trust in the government, even very pious and beneficial efforts of development can spark agitation and protests by the people as evident in the recent public outcry in Paris, in Hong Kong and in Chile.

The mainstream formulation of SD suffers from three major weaknesses in: establishing linkage between poverty and environmental degradation; conceptualising the objectives of development, sustainability and participation, and formulating strategy in the face of incomplete knowledge and uncertainty.

GLOBAL DEVELOPMENT AGENDA

The international community, with the leading role of UN, sets up global goals in various fields to contribute to global problem solving. UN adopted 8 Millennium Development Goals (MGDs) with 21 targets and sixty indicators in 2000 and the terminal year was set as 2015. Several countries are evaluating their respective performances. The goals of MDGs were set to be achieved in the context of complex relationship between the state and the market within the economy and also the relationship with the other countries located in both North and South of the globe.

Bangladesh has attained satisfactory progress in achieving the MDGs. Experts found that Bangladesh has some weaknesses in Goal 5—improving maternal health, specifically maternal mortality rate; weaknesses in Goal 7—ensuring environmental sustainability and Goal 8—developing a global partnership for development. Besides these, Bangladesh has some weakness in employment generation (Goal-1, Target 1.B) and malnutrition (Goal-1, Target 1.C).

In September 2015, the General Assembly of the UN adopted the Sustainable Development Goals (SDGs) that include 17 goals, 169 targets and 230 indicators. The motto of SDG is to "Transform our World by 2030." This is a gigantic task. Given the global situation of cooperation and declining trends in overseas development assistance (ODA), the tasks seem very ambitious with formidable implementation challenges. A glaring example is the Paris Climate Agreement or Committee of Partners (COP21) which was formulated in 2016. In this agreement all 193 countries were treated as equal stakeholders, some are solely affected by carbon emissions, some solely produce carbon emissions and some are both affected by and producers of carbon emissions. It may be pointed out that three-fourth of carbon emissions come from only 12 countries. A nail in the coffin was placed by USA in June 2017 when President Donald Trump announced the intention to withdraw from the Paris Agreement. I think voters in USA now should demand a political realignment in favour of solving climate issues. COP25 scheduled to be held in Madrid in December this year should follow more pragmatic and problem-solving approaches.

SOME FALLACIES

There are challenges both internal (within a country) and external (global) which should be addressed to achieve the SDG goals. Before I touch on some areas for scientists, researchers and academia, let me share two fallacies which are applicable for Bangladesh and many other countries.

Fallacy 1: Rapid growth will bring down poverty, increase the well-being of the people:

We can see, in Bangladesh, growth has resulted in increasing income inequality, lack of access of the poor to quality and affordable health facilities, lack of quality education at low cost (for the poor). The belief that growth first distribution later, is a wrong one. In fact, SDG Goal 1 (End of poverty in all forms everywhere) and SDG Goal 10 (Reduce inequality within and among countries) are not competing ones and no trade-off is necessary, these can be achieved together.

Fallacy 2: Participation of people in all phases of development activities is satisfactory:

The good governance of all public and private institutions must be established. Overall, democratic practices and rule of law are prerequisites for our efforts to achieve SDG goals.

SDG Goal 8 (Promote inclusive and sustainable economic growth) and SDG Goal 16 (Promote peaceful and inclusive societies) point out the importance of the above issues. However, we often see, in many countries including Bangladesh, people are by-passed, not consulted and not even considered in taking major decisions of reform and development programmes. If people do not have confidence and trust in the government, even very pious and beneficial efforts of development can spark agitation and protests by the people as evident in the recent public outcry in Paris (fuel tax), in Hong Kong (extradition measure) and in Santiago, Chile (for hike in metro price).

SUGGESTED AREAS TO BE ADDRESSED

The following areas are suggested for consideration by Bangladesh.

Inclusiveness: All people to be included in the planning, implementation, monitoring, and evaluation stages of projects.

Financing: Financing is a major challenge. In Bangladesh an estimate states that additional fund needed will be around USD 928 billion (2015-16 constant price). It will be difficult for raising such a huge fund from internal sources of Bangladesh. Financial assistance from the developed countries should come. It may be mentioned that the developed countries promised to contribute one percent of their gross national income (GNI) as overseas development assistance (ODA). But their commitment is far from the actual flow of ODA.

Localisation: Different districts, regions of Bangladesh have different problems; for example, coastal zone problems are different from "haor" and "barind" and dry areas. Urban problems are different than rural problems. The "Nature SDG Localisation Framework" is an example which the government may incorporate in the 8th Five Year Plan of Bangladesh (2021-25).

Implementation: For major implementation cross section of stakeholders namely, government, NGOs, civil society organisation (CSO), business, development partners and academia have to be included. "Institutions" to be strengthened and competent people should be placed to run these.

INTERNATIONAL COOPERATION

A country has to address issues related to poverty reduction and hunger; ability to take advantage of its openness and globalisation; acceleration of growth with equity; social security of the poor; energy need of a growing economy; climate charge; financial architecture to cater to the needs of a growing economy and financial inclusion. There may be several areas of global cooperation, which include: (i) Partners in development: The developing countries with their own resources and resources from a developed country or international agency may set up some projects in common areas of interest like health, education, energy, and climate; (ii) Sharing good practices: Experiences of one or more developing countries (graduated from LDCs) with other LDCs will also be helpful for global cooperation; (iii) Capacity building: The countries of South can cooperate in increasing the capacity of the respective countries to accelerate development process. These countries can also cooperate with other developing countries outside LDCs and with other global partners for increasing the efficiency of project formulation, implementation, monitoring and evaluation which will help increase the absorbent capacity of using external resources fruitfully; and (iv) Strengthening of networks: The institutions from different countries of South and North can strengthen their networks to exchange information and experiences to promote development.

CONTINUED ON PAGE 15

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SEGMENT 4

ANNIVERSARY SUPPLEMENTS 2020

DIGITISATION AND INCLUSIVITY: TAKING EVERYONE ALONG

DHAKA TUESDAY FEBRUARY 18, 2020, *FALGUN 5, 1426 BS*

14

Poverty and Exclusion

CONTINUED FROM PAGE 10

and potential users. All students do not have equal access to technological resources, because their families cannot afford them. The majority of children in Bangladesh do not come from tech-savvy home environment. Schools themselves are not able to make the appropriate technology resources available adequately and equitably to all students, and most communities lack libraries and community resources. A new digital divide can exacerbate the existing societal divisions. How the benefits of technology outweigh the negatives, therefore, is a critical concern.

The key to education technology outcomes still is appropriate teacher-student interaction. Technology can be a highly effective tool, but that's all it can be—a tool. Technology and teachers are not substitutes of each other, though technology portends new roles and tasks for teachers. (V. Himmelsbach, *6 pros and cons of technology in classroom*, 2019. https://tophat.com/blog/6-pros-cons-technology-classroom/).

Building "Digital Bangladesh" is seen by the government as the vehicle for propelling the country to the status of a modern and prosperous nation. "We want to give the students education in a modern way as part of our efforts to give them a modern technology-based education as they can move with the changing pace of the era," said Prime Minister Sheikh Hasina while launching the free textbook distribution programme for this year and receiving the primary and junior secondary public examination results on December 30, 2019 (*The Daily Star*, "PM stresses modern tech-based education for students." December 31, 2019).

Various initiatives are being taken to harness technology for education with better learning outcomes. A Tk 45 crore project initiated in 2018 aims to create Wi-Fi hotspots in 587 educational institutions in the eight divisions of the country. Students will have individual access to the Internet through 10 Mbps bandwidth in each institution free of charge for two years and subsequently for a small fee. The public sector Bangladesh Telecommunication Company Limited (BTCL), running the project, expects to increase the bandwidth and coverage of institutions in the future. (*The Daily Star*, "146 educational institutions get govt. Wi-Fi," January 13, 2020).

Equipping schools with multimedia equipment has been a major government initiative to bring technology into the classrooms. A multimedia classroom, equipped with laptops/computers, internet connection, projector and a sound system allow use of teaching-learning techniques through ICT based media. The results will depend on how efficiently and effectively these plans and programs are implemented.

IMPROVED GOVERNANCE AND MANAGEMENT: KEY TO ACHIEVING RESULTS

The technology initiatives and the aim of transforming education and skill development by harnessing the potentials of information and communication tools can produce the results only when they are planned and designed well, managed and implemented effectively, and monitored and assessed objectively with accountability and transparency. These issues are challenges across the board in the public sector including the education sub-sectors.

A case in point is the well-intentioned initiative for multimedia classrooms in which Tk 10 billion has been already invested. "If providing 35 thousand classrooms of different educational institutions all over the country with multimedia equipment is part of the government's digitisation effort, the programme has failed to live up to the expectation," according to an editorial comment of a national daily. (*The Financial Express*, "Editorial," August 14, 2018).

The editorial cites the Board of Intermediate and Secondary Education noting that, "the performance of only a few districts is satisfactory in the use of multimedia technology in school classrooms. The rate of usage is negligible in most others." The obstacles include lack of qualified teachers to use and run the equipment, few teachers who can select and compile the relevant content and absent or erratic power supply. A two-week training offered to some of the teachers has not removed the shyness about technology and the reluctance to depart from known ways (*Ibid*).

It is obvious that achieving equity and inclusion has to be a key governance agenda in education as in other sectors. Basic information has to be collected regarding the proportion of children accessing, participating in and completing primary and secondary education, with a breakdown of students by geographic location (urban-rural, remote); socio-economic status (income quintiles); gender; ethnic-linguistic characteristics; and special needs. A useful step would be to introduce tracking of education resource flows to schools and communities. Such tracking of resources is promoted by various organisations, such as, the Global Partnership for Education (GPE), the International Institute for Education Planning (IIEP) and the UNESCO Institute for Statistics (UIS). However, the tracking of resource flow and the results is not a common practice yet and its influence on governance and management decisions is not noticeable (UNESCO, Ensuring adequate, efficient and equitable finance in schools in the Asia-Pacific region, 2017).

Manzoor Ahmed is Professor Emeritus, Brac University.

Sustainable development goals: Realities and illusions

CONTINUED FROM PAGE 12

AREAS FOR SCIENTISTS AND EXPERTS OF BANGLADESH

Scientists from science, bio-medical backgrounds, social science and experts from various fields may take note of the following aspects for their research and actions: (i) Networks of professional and experts will have to provide the policy makers with data/information and analysis on some priority SDG goals which are to be addressed in Bangladesh immediately. Unfortunately, benchmark data and quality periodic data are not available in Bangladesh for the majority of 169 targets some of which are not even quantifiable. So, the challenge must be tackled primarily by the relevant government agencies which can be complemented by special focus studies by scientists and experts; (ii) Professional and experts should launch new research, action research and demonstrate models to promote innovative knowledge and practices for fulfilling SDG goals; (iii) The organisations and networks of organisations to which scientists, social scientists and experts are affiliated with should come up with measures to solve national as well as global problems; and (iv) The scientists and experts should come up with pragmatic design of projects and programmes as well as implementation processes for achieving SDG goals in Bangladesh and in other countries.

CONCLUSION

I would like to mention that there are several challenges before Bangladesh. We have to reduce percentage of poor from 25 percent now to much lower level by 2030. We have to reduce maternal mortality, child mortality rates and increase enrolment to primary school to by 2030. The quality of education in Bangladesh needs to be improved significantly. The poor in Bangladesh still suffer from nutritional deficiency which can be improved by increasing entitlement capacity of the poor to have balanced diet.

I shall not go into the various challenges and caveats we face, but will single out one of the most important challenges that are "institutional challenge". Impact of various efforts for improving the socio-economic conditions of the poor in the developing countries can be maximised through proper management and implementation of development projects. Effective project management and implementation are also crucial for sustainable development. Institutions, which encompass entities at the local level, community level, national level, and project management units, are integral parts of project management and implementation. However, despite strong statements and rhetoric from politicians and policy makers about the essential role of institutions, and the realisation of its potential contribution in development efforts; the issues of institutions have received relatively little attention by policy makers, planners and implementers of development projects.

Nobel laureate Bengali poet Rabindranath Tagore about 89 years ago lamented in his poem about the ill effects of environmental degradation on human beings, "My voice is choked, my flute is tuneless. My world is dark, the air is poisonous, people who are responsible for these, cannot be pardoned."

In conclusion I would like to say, time has come for everyone to act now so that the commitment of SDG "Leaving no one behind" can be achieved throughout the world in the shortest possible time.

Dr Salehuddin Ahmed is a former governor of Bangladesh Bank and currently Professor at Brac University.

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SEGMENT 4

ANNIVERSARY SUPPLEMENTS 2020

DIGITISATION AND INCLUSIVITY: TAKING EVERYONE ALONG

Education and employability in the digital age

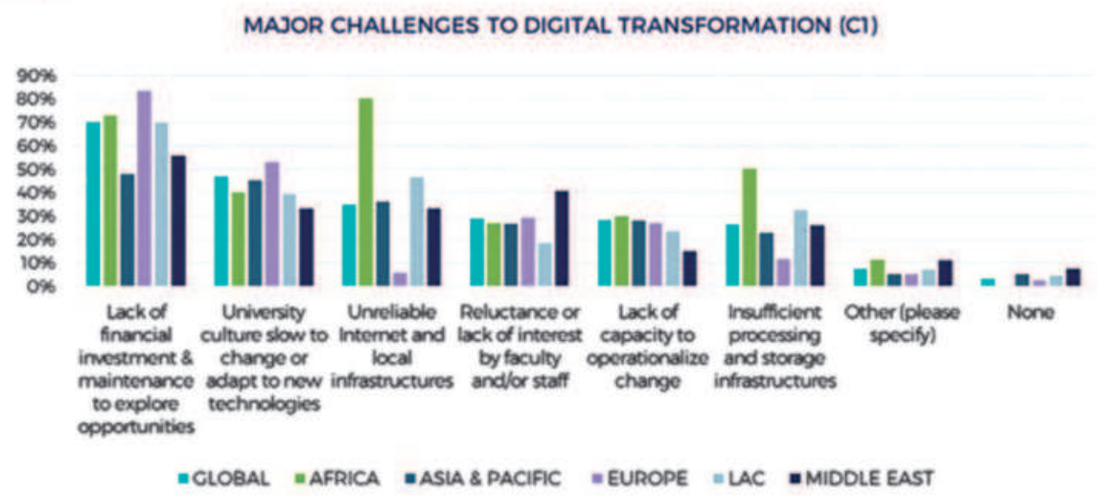
CONTINUED FROM PAGE 17

service sector, 30.6 percent in the agriculture sector and 24.1 percent in the industry sector."

While underemployment is of serious concern, what is also of substantial concern is the emerging and disruptive role of technology, artificial intelligence, and automation that has the potential of displacing more people from employment in a technology-driven world.

Again, McKinsey states that "about half the activities people are paid to do globally could theoretically be automated using currently demonstrated technologies and in about 60 percent of occupations, at least one-third of the constituent activities could be automated, implying substantial workplace transformations and changes for all workers."

Fig. 62



Pew Research Center (USA) also indicates how machines are intruding into jobs, including high-skilled work: "The machines can do equal or sometimes even better work than humans who are dermatologists, insurance claims adjusters, lawyers, seismic testers in oil fields…and even replace those who programme software—that is, the creators of algorithms." To many, these views may sound alarming. Thus, "employability" must become a key watchword in national strategy and involve all sectors that contribute to education and skill development, thereby enabling the workforce to perform optimally.

In this matter, according to the Commission on the Future of Undergraduate Education, "Workers of the future can [ ] expect to change occupations and careers several times and may even end up in jobs and industries that do not now exist… emerging technologies will continue to replace routine functions across many job categories at all levels, even as they create new opportunities for workers in hundreds of fields, including medicine and healthcare, manufacturing, and communications."

DIGITAL BANGLADESH

Fortunately, Bangladesh has been proactive and has taken a bold and futuristic stance. The Digital Bangladesh agenda was launched in 2009 by Honourable Prime Minister Sheikh Hasina to transform Bangladesh into a digital economy by 2021 and a knowledge-based economy by 2041. The programme has begun to take deeper root and has four pillars: Human Resource Development, Connecting Citizens, Digital Government, and Promotion of ICT Industry.

According to Mr Zunaid A Palak (MP and State Minister for ICT, Ministry of Posts, Telecommunications & IT, Government of the People's Republic Bangladesh), the Government's training programmes resulted in over 65,000 IT/ITES trained professionals in the past year. Specialised labs are being installed in 130 universities. Related investments are being made in frontier tech Centres of Excellence to address emerging areas such as IoT, Big Data, Artificial Intelligence, etc.

Significant achievements are also seen in Connecting Citizens "with over 93 million internet subscribers, and 160 million mobile subscriptions." For example, such connectivity has transformed lives through greater access to market-related information previously controlled by middlemen. Plans also include early adoption of 5G.

The government has been "proactively pursuing the digital penetration of all government portals by 2023," to enhance services of different government offices via e-Governance. An additional 5,000+ Digital Centres across the country provide various digital services to the citizens, thereby reducing the Digital Divide. The scale and scope of Digital Bangladesh is certain to be transformative.

A vibrant ICT Industry is the fourth pillar with the software and service (IT/ITES) industry generating a billion dollars in income; this is expected to grow to USD 5 billion in the next few years. Hi-Tech Parks are also being built around the country to provide a thriving platform for entrepreneurs to partner with investors.

The positive results of Digital Bangladesh are reflected in "registration for admission to academic institutions, publication of results of examinations, registration for jobs abroad, registration of pilgrimage, collection of official forms, online submission of tax returns, online tendering, etc. Online banking systems…SMS services for lodging complaints to police stations, online bill payments for utility services, instant communication with persons working abroad, and e-passports", are some additional examples. Telemedicine services, videoconferencing for the treatment of diseases and various administrative activities such as remote monitoring are other examples of evolving e-services changing Bangladesh. These developments point to new avenues for modern-day job creation.

ICT IN HIGHER EDUCATION

Given the pace of change and development in the digital arena, driven largely by the Government of Bangladesh, the education sector must come alive and become more vibrant to align itself better with emerging technology to equip future citizens for the new era. It is high time that it shakes off its dour image of being largely responsible for the mismatch between the skills it offers and job requirements in various sectors of the economy.

The Strategic Plan for Higher Education (2018-2030) recognises rapid developments in Information and Communication Technology (ICT) and urges the universities to keep track of the changes to minimise the gap between university teaching/research and industry needs. The Strategic Plan outlines the following to be seriously addressed:

Implement e-learning and distance education.

Build close partnership with industry.

Develop unified curriculum.

Set up a pedagogical/teachers training academy.

Establish fast global connectivity.

Train and develop academic staff.

Establish academic networks.

Establish a clear ICT strategy for each university

Build software labs in the universities.

Build linkages between high tech parks and academia.

ESTABLISHING PRIORITIES

What do the impending changes mean for the entire education sector? How must it gear up? The first step is for educational leaders to begin asking the right questions. For example:

What important skills are needed by the workforce of the future? This also includes up-skilling and re-skilling the current workforce.

How should the curricula be adjusted (across the board) and sequenced?

What is the existing capacity of the education system to transmit these skills?

How quickly can the capacity gap be addressed in the entire supply chain (starting with pre-school and primary education) to harness effective skill-builders at various levels?

What types of partnerships need to be built (perhaps with the private sector and the NGOs) to scale up? How should the partnerships be structured?

What methods (technologies) can be used best for the needed skills be instilled rapidly (online, self-directed, industry engagement, etc.)?

What type of organisation structure (yes, starting from the MoE) is needed to achieve scale of transformation? Should the MoE be restructured as a Human Resource Development Ministry?

What kind of incentive structure must be re-envisaged to retain the best educators and eliminate the poor ones in the system (yes, there's much rot in the system that is downright harmful in equipping the next generation)?

How will a national plan for workforce development by the education system be implemented with many attendant parts to be coordinated?

How will progress be monitored and managed?

How will success be recognised, with what success indicators and mileposts along the way?

ANTICIPATING CHALLENGES

The education system must also anticipate the challenges to successfully align, transform, and deliver an education package for the next generation. A recent International Association of Universities (IAU) report shares a global perspective on the challenges faced as shown in the first figure.

Bangladesh too faces similar challenges. Lack of financial support is a serious barrier at the institutional level to achieve quick technology integration. This problem is particularly acute for private institutions which receive almost zero support from the government. The culture of our education system has also been rather slow to adapt to change (we still use lectures in the main to teach, seat our learners in benches, use chalk boards, and require mandatory mid-term and final examinations to regurgitate information instead of having students demonstrate comprehension, analysis, synthesis, application, etc.—the Bloom's Taxonomy framework)! The

CONTINUED ON PAGE 22

PHOTO: STAR

Informal economy and economic inclusion

Policy options for Bangladesh

MUSTAFA K MUJERI

The definitions vary globally, but essentially the informal economy means economic consists of activity that takes place outside the formally regulated structures. Typically, informal economic enterprises are small, often based around households. These usually do not pay taxes, nor do they enjoy social protection. While their activities are not necessarily illegal, they are not covered by the framework of national laws in the country.

Importantly, there is not always a clear divide between formal and informal economies; for example, sometimes people may work cash in hand for formal, registered businesses. So defining informal economic activity can be difficult. And if the informal economy is hard to define, it is even harder to measure. But we do know that it is very big, especially in Bangladesh. According to BBS Economic Census 2013, out of a total of 7.82 million enterprises in the country, 7.81 million (99. 8 percent) are small and micro (including cottage) enterprises, most of which belong to the informal economy. In Bangladesh, the informal economy plays an important role both in employment generation and in production and distribution of goods and services. The informal sector activities are mostly small in size and transient in nature.

For the labour market, informal employment is a job-based concept and encompasses those jobs that generally lack basic social or legal protections or employment benefits. The operational definition adopted by the BBS for informal employment is a combination of both the informal character of the individual job and employment in the informal sector. According to the Labour Force Survey (LFS) 2016-17, out of the total 60.83 million employed labour in the country, 85.1 percent work in the informal sector; females are more involved in informal activities (91.8 percent) relative to 82.1 percent for males. In both rural and urban areas, females and youths (aged 15-29) are more likely to be in informal employment.

In 2017, a total of 51.7 million people was engaged in informal employment; of them 31.0 percent were 15–29 years old, while 64.9 percent were 30–64 years old, and only 4.1 percent were 65 or older. There exists a clear negative correlation between higher educational attainment and informal employment i.e., highly educated persons are more likely to be in formal rather than in informal employment. It is seen that nearly half of those who are engaged in informal employment have no schooling while only a small fraction (less than 0.5 percent) has received any vocational/technical/skills development training. Further, protective labour regulations and unions do not cover informal sector employment.

> The informal economy rotates around a variety of economic activities that evade costs; additionally, all these activities are excluded from not only the benefits and rights incorporated in laws but administrative ruling and commercial licensing.

PHOTOS: **KAZI TAHSIN AGAZ APURBO**

The informal sector accounts for around 40 percent of the total gross value added, with the highest contributions in agriculture, fisheries, trade, and industries (micro, small, and medium enterprises, MSMEs) where capitalisation is relatively low. Over the years, there has not been much change in the level of informality. In 2000, 75.2 percent of employment has been informal, and the share rose to 85.1 percent in 2017. The rising share of informal employment, however, is not due to declining levels of formal employment, but due to more rapid growth in informal employment than formal jobs.

ALTERNATIVE VIEWS ON INFORMAL LABOUR MARKET

There is an ongoing debate on whether informal sector employment is a result of competitive market forces or labour market segmentation. More recently, it has been argued that the informal sector shows a heterogeneous structure. For some workers, the informal sector is an attractive employment opportunity, whereas for others—rationed out of the formal sector—the informal sector is a strategy of the last resort.

The dualists have a posit view towards the informal economy and consider the informal sector as a tangential or marginal occurrence that results when there is an inadequate amount of jobs in the formal economy; and this will recede with the development of the modern sector. The structuralist school perspective does, however, view the informal economy as a means to reduce labour and capital costs by subordinating small informal producers and traders into completing tasks, creating competitiveness.

On the other hand, the underground economy approach views the informal sector as downgraded labour who receives lower wages, fewer benefits in addition to inferior working conditions in comparison to individuals employed in the formal economy. The legalist school does, however, have a rational response regarding the absence of over-regulation of employees of the informal sector as they are able to avoid governmental regulations and bureaucracy, reducing costs and promoting wealth creation.

Nevertheless, the development and magnitude of informal employment has been traditionally credited to the displacement of workers into insecure forms of labour market attachment as the only feasible alternative to unemployment. The informal economy rotates around a variety of economic activities that evade costs; additionally, all these activities are excluded from not only the benefits and rights incorporated in laws but administrative ruling and commercial licensing. Thus, this sector not only has little to no social protection or employee benefits but undermines the principle of inclusiveness within the labour market.

Moreover, the feminisation of poverty combined with prejudice with regard to gender, age, ethnicity, or disability implies the most exposed and marginalised groups tend to end up in the informal economy. This is especially true for women and young people especially since informal employment is the standard condition amongst most youths in Bangladesh. Consequently, a significant disadvantage of working in the informal sector rotates around a lack of economic security. Economic insecurity defined by several factors, irregularity of income, pricing skills as well as a low-income customer base. Dealing with unprincipled employers is another familiarity when dealing with the informal sector.

EMINENCE OF INFORMAL ECONOMY IN BANGLADESH

The eminence of the informal economy in Bangladesh derives from the promise it offers of generating a reasonable source of income for the most vulnerable

CONTINUED ON PAGE 23

ENVOY TEXTILES LIMITED

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Envoy Textiles Limited is the largest denim manufacturer of Bangladesh, a LEED Platinum certified company by U. S. Green Building Council which is the highest worldwide recognition for Leadership in Energy & Environmental Design. Envoy Textiles Limited is the first to score `LEED Platinum' among all Denim Mills in the WORLD.

Energy Saving | Water Saving | Sustainable Material

CLEAN PRODUCTION

As an ardent supporter and believer in sustainability, in addition to the LEED, Envoy Textiles Limited (ETL) has been running an Effluent Treatment Plant and has complied with various standards on environmental sustainability issues, like, PaCT, Higg Index, BEPI and CPI2 for Carbon Footprint. On the other hand, ETL also has adopted some unique technologies like Ozone Finishing, Aero Finishing and Advance Denim Dyeing. Moreover, ETL is using Liquid Indigo and following ZDHC chemical guidelines in the dyeing process to minimize the impacts in ecology and in human health.

RESPONSIBLE SOURCING

ETL is engaged with different project to play its role as a responsible sourcing company. It procures cotton with complete traceability and prioritizing to source BCI Cotton, CIMA Cotton and other materials which are sustainable and environment friendly.

CORPORATE OFFICE: Envoy Tower, 18/E, Lake Circus, Kalabagan West Panthapath, Dhaka-1205, Bangladesh

FACTORY: Jamirdia, Bhaluka, Mymensingh, Bangladesh

HONG KONG OFFICE: Flat H, 16th Floor, King Palace Plaza 55 King Yip Street, Kwun Tong, Kowloon, Hong Kong

www.envoytextiles.com | info@envoytextiles.com

COMPANY FEATURES

- Started commercial operation in 2008
- 1st Denim Mill in Bangladesh with 'Rope Dye' Technology
- 50 million yards per annum capacity
- State-of-the-art technology
- Lab Accredited by Levi's, Debenhams, VF, H&M and TEMA
- AERO Fabric Finishing Machine for high performance bi-stretch products
- Advanced Ozone machine for reduced chemical and water consumption
- Built on 55 acres of land

AWARDS

- 7-TIME WINNER OF NATIONAL EXPORT TROPHY
- 2-TIME WINNER OF PRESIDENT'S AWARD FOR INDUSTRIAL DEVELOPMENT
- WINNER OF NATIONAL PRODUCTIVITY & QUALITY EXCELLENCE AWARD
- WINNER OF NATIONAL ENVIRONMENT AWARD
- 3-time winner of ICSB National Award by Institute of Chartered Secretaries of Bangladesh
- 3-time winner of ICMAB Best Corporate Award by Institute of Cost & Management Accountants of Bangladesh
- HSBC Export Excellence Award
- 2-time winner of TAX Payer Award by National Board of Revenue
- CPI2 Factory Award for Carbon Performance Improvement Initiative
- 3-time winner of Highest Regular Electric Bill Payer Award by Bangladesh Rural Electrification Board
- LEED Green Factory Award by Bangladesh Garments Manufacturers and Exporters Association

CORPORATE SOCIAL RESPONSIBILITY (CSR)

- Setup & Maintenance of Pediatric HDU at Burn Unit of Dhaka Medical College Hospital
- Tree Plantation Campaign in Schools
- Paying Salaries of deceased victims of other companies through BGMEA
- Priority appointments to people with disability
- Bird Nest Installation
- Awareness Programs for Dengue Prevention
- Awareness Programs for Fire Prevention
- Financial Aid for accident in other concern
- Financial Aid for natural disaster
- Effluent Treatment Plant

OUR MAJOR CLIENTS

Education and employability in the digital age

CONTINUED FROM PAGE 18

technological infrastructure (e.g., video conferencing, online delivery of content, electronic boards, incubators, etc.) has seen some adoption, albeit not at a pace that would be needed to scale up rapidly. Reluctance or lack of interest of faculty and staff to adopt technology is still of concern, although new faculty (many returning from abroad) are more willing to take on this challenge. Academic leadership is also in the doldrums as interference is felt widely across the academic institutions that impose unnecessary restrictions.

PRIORITIES FOR EDUCATION AND EMPLOYABILITY

Leadership: Leadership in the education sector has simply been insipid and lacking in virility. Unless educational leaders emerge to show a clear vision, prioritise programmes, organise and effectively allocate resources, continuously build capacity, be action-oriented, and stringently monitor progress, future-readiness of the nation's workforce will be sacrificed to mediocrity. It must be emphasised that our population is not a liability but a great asset, especially having advantage of the demographic dividend that is yet to be properly harnessed.

System Thinking: Among the most important issues to be addressed is the supply chain problem. Unless the various tiers of the education system are systematically integrated for flow and continuity, valuable time will be wasted in training the workforce. A concept of "tiered skill set development" may be envisioned in which learners may step off at various points of the supply chain to start working. They may be allowed to re-join the system whenever they feel the need to upskill and reskill.

Core vs Specialised Knowledge: Learning for a changed workplace requires core skills, embellished by specialised skills depending on what the learner is being developed for. For example, basic STEAM+L skills (Science, Technology, Engineering, the Arts and Mathematics + Languages) may be developed with an emphasis on creativity and critical thinking to imbue life-long learning. For future employees, according to one source, employers are looking for the following: Problem solver, Communicator, Team work, Technical skills (Apps, Big Data Analytics, Quantum Computing, Artificial Intelligence, Virtual Reality, Augmented Reality and many others) and global thinking are now vital. These core skills ought to be widely instilled and embellished with subject area knowledge (engineering, medicine, mathematics, languages, etc.).

Financial Allocations: Financial allocations have been a bone of contention for ages. Experts have repeatedly suggested the need to increase allocation to education from 2 percent of GDP to 6 percent. Unfortunately, the sector has continued to succumb to its lack of power and failure in managing the politics of resource control by other sectors. Always cast as second class, the lack of attention to the education sector has meant that human capital development has generally taken a back seat.

Technology Infrastructure: Technology infrastructure has made progress but still ranks low even by South Asian standards. It is important to find ways to quickly build this infrastructure. It is also not enough to simply have the infrastructure in place, but also important to be able to leverage it.

Slow-to-change culture: The slow to change culture built into the system is also a serious issue. Those who are unwilling to change with the times must be systematically removed while vibrant energy is continuously sought and added to the system. Only the right combination of human resources can take the system full-steam ahead.

HRM-HRM-HRM: The education system is extremely poor in managing its human resources. The various elements of the figure below (source: Internet) require emphatic attention. With a strong HRM system, the education sector can help develop the nation's best asset—its human asset!

Partnerships: To lead a successful transformation in the sector, the different stakeholders (faculty, staff, students, employers, government, financiers, etc.) must be in a partnership role and take ownership of the process. "Public-private partnerships may be explored to stimulate investment in enabling infrastructure…The private sector can play a more active role in education and training, including providing better information about needs to learners and the education and training ecosystem…Through tax benefits and other incentives, policy makers can encourage companies to invest in human capital, including job creation, learning and capability building, and wage growth."

Research: Information dearth is the final missing block, attenuating the education system's ability to adapt to the future. In this information-deficient environment, one wonders how decisions are made to guide the system. There is even no centralised data system to capture key elements reflecting growth, development, and attainments of the sector. The metrics are simply not there for public consumption. For example, do we know "how humans work alongside machines"? Do we know "the productivity benefits of technology"? Do we know how "well-developed is the nation's brain pool"? Questions such as these are numerous and will fill pages: I rest my case.

CONCLUSION

Sustained economic growth depends on a long-term strategy to improve the educational environment, leading to human development—i.e., improving their levels of consciousness and by making them more intelligent, more ready, and more capable in their evolving work environment in a globalising and rapidly changing world.

There is no single mantra for a country's education sector and its need to build strategic human resources. The sector is different in nature, scope and operations in different parts of the world, shaped by its context, resources, and stage of development. While they are all confronted with the question of how to adapt and evolve in an increasingly digital world, it must be understood that Bangladesh must find its own answers.

Leadership, vision, learning goals, financial allocation, infrastructure development, culture, partnerships, and a strong research and information environment must interact in positive ways to align with the coming digital age. But it must be recognised that, "Technology in itself is merely a means to an end, and it is therefore essential to debate, question and inquire about 'the aim' of digital transformation, which ideally should be to advance and improve the quality and relevance of [] education." After all, education is the nation's backbone—as it grows from strength to strength, the nation will surely advance in leaps and bounds.

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Informal economy and economic inclusion

CONTINUED FROM PAGE 20

populations. The informal economy has become an important characteristic of all sectors, with economic units employing millions of workers. All sectors in Bangladesh are characterised by dualistic structures, i.e. the prevalence of formal and informal activities. The LFS 2016-17 shows that 95.4 percent of all employment in the agriculture sector is informal employment, followed by 89.9 percent in industry sector and 71.8 percent in the services sector. Further, informal work covers a vast spectrum of activities, ranging from fairly basic survivalist labour to sophisticated and skilled craft work.

What induces entrepreneurs to hire contract workers? Major suspects are the rigid labour regulations, increasing import penetration leading to substitution of regular workers by contract workers due to lower wages of the latter, and effect of staffing companies. Further, formal firms may hire more contract workers to curb the bargaining power of regular workers for keeping their wage demand in check and use them as an alternative workforce to their strategic advantage against unionised regular workers.

Employees of the informal economy are not protected by law and as a result stand at risk of being exposed to different forms of abuse and exploitation. Additionally, expansion of this sector potentially has the ability to intensify problems connected with slums, congestion and health already plaguing the major cities in the country. Furthermore, informal economic activity severely limits tax revenues, most in need for a stable tax base in Bangladesh.

PHOTO: **ANISUR RAHMAN**

TECHNOLOGY AS THE DRIVER OF ECONOMIC INCLUSION

In the coming years, the present 4IR will bring an unprecedented pace of technological change, building on the digital revolution to combine technologies and transform systems, production structure in agriculture and other sectors—including the Bangladesh society itself. For Bangladesh, advances in computing power, connectivity, artificial intelligence (AI), biotechnology and GIS, and more capable technologies hold tremendous promise of generating decent employment, especially in the rural areas. This will accelerate inclusive agriculture, rural growth and structural transformation to high-productivity agriculture and rural nonfarm activities. One key policy for realising the positive outcomes of 4IR is to bridge the widening gap between skilled and unskilled labour. For reaping the benefits of technology, the key will be to transform the country's rural economy and create skilled jobs in rural areas. The need is to ensure more investments in transportation, power, and internet access to create more employment for women and youth in the rural areas.

Agriculture and food processing represent an untapped reservoir of opportunities for the rural youth for economic inclusion. While local and regional demand for food is rising, the scope for developing and integrating rural youth into the local value chains remains largely underexploited. Most rural youth engaged in agriculture are currently involved in production and very few are involved in downstream activities in the value chain. There are many reasons why investing in local value chain development in the agri-food sector could become an engine for decent job creation and food security. From

CONTINUED ON PAGE 24

Informal economy and economic inclusion

CONTINUED FROM PAGE 23

a rural perspective, local food processing is compatible with the relatively low level of skills possessed by the rural youth, and is more likely to remain located in small towns and rural areas to ensure proximity to the production source. Additionally, it can create strong forward and backward linkages with other food and non-food system activities, paving the way for a virtuous cycle of territorial development.

The labour market's major problem is not a shortage of jobs; it is the shortage of employable skills. The speed of a nation's development is directly related to the quantity and quality of vocational skills possessed by its workforce. The wider the range and the higher the quality of vocational skills, the faster is the growth and more prosperous the society. The availability of employable skills is one of the major determinants of how readily new job seekers find employment. The very low level of employable skills makes the search for work much more difficult. It reduces the market value of the job seeker and adds to the costs of employers who must train new recruits from scratch.

INNOVATIONS AND SKILL DEVELOPMENT IN INFORMAL ECONOMY

There is certainly a lot of innovation going on, and it takes many different forms in the informal sector. For the metalworkers in Bangladesh, it is often a case of reverse engineering products sold by formal businesses and working out how to make cheaper alternatives from available materials. But there is also some brilliant high-end creative work. The informal manufacturers are innovative not only in terms of new products they come up with but also in the way they market those products—through attractive, distinctive packaging and other types of branding.

A construction worker stands on a frame of a pillar with sharp iron rods all around him.

There is a diverse range of innovation, but one can also identify some important common points. For example, as in the formal economy, geographical concentration is noticeable. Activities tend to focus in certain areas so that one can identify innovation clusters (e.g. light engineering in Bogra). Indeed, there is often some overlap between formal businesses and informal businesses or workers within a cluster.

Usually, there are ways of regulating knowledge flows and intellectual property (IP) in the informal economy. While these are not the same as formal IP mechanisms, they show some similar features. For example, if a worker within a cluster invents a new product or a new way of doing something, they can enjoy a competitive advantage for a while by being the first to produce or use it, but they will be expected to share it with their peers in due course. That sort of period of near-monopoly followed by the mandatory sharing of knowledge is essentially the same idea that underlies the patent system and other IP systems. So there is a real sense that informal workers often have their own informal IP rules.

Moreover, through an increased income as a result of economic engagement in the informal economy, many entrepreneurs are able to save earnings hence aiding in the transformation from informal to formal activities. Additionally, employees in the sector often receive good pay as their employers have no tax obligations. What is more, employee effort in this sector of the economy is often directed towards achieving a loyal customer base through producing the best goods and/or services.

CONTINUED ON PAGE 25

Informal economy and economic inclusion

CONTINUED FROM PAGE 24

Furthermore, auxiliary positive effects of the informal economy consist of a reduction in the crime rates, reduction in rural to urban migration, a reduction in poverty levels as well as the construction of an appropriate base for apprenticeship training. However, many informal entrepreneurs have no access to banking facilities or collateral as a means to secure a bank loan.

Given the overwhelming dominance, skills development in the informal sector is an issue of great importance for Bangladesh. It concerns almost all the sectors in the economy. For ensuring greater efficiency and higher productivity, it is necessary to develop technical and vocational skills for these young people and other stakeholders in the sector. The informal apprenticeship programmes that currently exist in the informal sector have better external efficiency although it costs about three times less than formal training courses.

Skills development in the informal sector means focusing on the needs and capacity building of the MSMEs. The skill development initiatives for enhancing skills improvement in the informal sector are no doubt challenging tasks. There is over six million children out-of-school in Bangladesh who have either dropped out of or were never enrolled in schools. Most of these children are engaged in informal employment, as unskilled labour, involved in hazardous or non-hazardous, paid or unpaid work. These children, especially from the large urban slums have to be given an opportunity to not only complete courses in non-formal basic education but also stream into training on livelihood skills. Still, informal skills development remains outside the scope of government programmes. A large number of NGOs—both large and small—have adopted various programmes of skilling young people, especially from the marginalised and disadvantaged sections of the society.

In Bangladesh, the Directorate of Technical Education (DTE) and the Bangladesh Technical Education Board (BTEB) have been adopting different models towards skill training delivery options for the disadvantaged, particularly for the working children. It is expected that these models will be institutionalised through government-run vocational training centres. Supervised informal apprenticeship model has been designed to deliver livelihood skills training to out of school children with low level of educational qualification (depending on trade). This innovative intervention ensures that 14+ years aged urban working children have the opportunity to acquire competency-based skills under a trade-based master crafts person (MCP) who is based in a local market.

Formal work environment in Bangladesh is also undergoing rapid transformation in the context of globalisation and technological change, leaving the majority of the workforce in the informal sector, composed of non-farm or off-farm rural activities and work in family-run micro-enterprises. The informalisation of the labour market with changes in the concept of employability risks exclusion from employment for those without appropriate skills. Further, the rapid expansion of the country's informal sector is an outcome of the inability of the formal sector to generate adequate employment opportunities.

Although the informal and modern economic sectors are closely interdependent and have many forward and backward linkages, the organised sector in Bangladesh has never provided a very large employment base. According to the Labour Force Surveys, the growth of formal sector employment has been very slow over the years. Most of the additional labour force has been absorbed in the informal sector. Therefore, the changing concept of employability requires an innovative approach to education, training and skill development for the informal sector. One of the principal development challenges for Bangladesh is the creation of employment for new entrants into the labour force, most of whom are underemployed.

A POLICY AGENDA FOR BANGLADESH

In theory, the government has several policy options for dealing with informality: it can choose to do nothing about it, or it can seek to reduce it either by deregulating the formal economy or by facilitating formalisation. In reality, the negative impacts of doing nothing mean that interventions to tackle informal employment are required. Deregulation means reducing taxes and state regulations that apparently forces up labour costs and prevent flexibility, and which thus act as a disincentive to formalisation. However, there is little evidence that reducing taxes and deregulating the formal economy reduces the informal economy.

Given the problems that informality poses, a policy to eliminate the informal economy is a daunting challenge. It would simply be unrealistic in Bangladesh, where over 85 percent of the labour force works informally—mostly for a subsistence-level livelihood and for want of alternative employment. The point of the policy aimed at reducing informality is not so much to eradicate it per se as to bring informal workers and enterprises within the sphere of formality. The objective is indeed the growth of the formal economy, decent work, fuller employment and increased tax revenue for the government. The efforts should therefore be not only shifting informal workers into formal jobs, but also registering and taxing formalised enterprises, providing informal workers with benefits such as access to legal and social protection as well as support services (e.g. skills or business training), and enabling them to participate in collective bargaining processes.

The policy measures available for promoting formalisation may be divided into a hard compliance approach and a soft approach that seeks to foster a culture of commitment to acting lawfully, including through the pursuit of broader development objectives. In the hard compliance approach, deterrence measures and/or making formalisation beneficial and easier are used both to prevent businesses and labour from entering the informal economy and facilitate the formalisation of businesses and labour already in the informal economy. The intention is to change the terms of the cost/benefit trade-off confronting those engaged in or planning to join informal employment.

The deterrence approach concentrates on the cost side of the trade-off by increasing the perceived or actual likelihood of detection and penalties and sanctions for those who are caught. Policy measures might include enforcing the obligation to register all new workers with a social security agency prior to their first day at work, increasing labour inspections, strengthening or creating new monitoring agencies, improving cooperation between agencies and increasing the penalties for offenders. This, therefore, constitutes a "negative reinforcement" approach, using punitive measures to elicit behaviour change among those not in compliance. The evidence on whether this approach works is mixed. Although some find that improving detection and/or penalties does reduce informal employment, others find that informal employment actually grows in the face of such policies.

Rather than increasing the cost side of the trade-off, recent policies have given more attention to making it beneficial and easier to formalise. Firstly, preventive action can be taken against non-compliance, notably by simplifying regulatory compliance, introducing new categories of legitimate work, providing business support and advice, giving direct and indirect tax incentives, and developing initiatives to smooth the transition to formal self-employment. Secondly, measures can be taken to facilitate the formalisation of those already in informal employment. Such "remedial" action can include business advisory and support services to those seeking to formalise their endeavours, and a variety of targeted direct or indirect tax incentives encouraging the use of declared rather than undeclared work.

The hard approach thus assumes that participants in the informal economy are rational economic agents and that it is simply a case of changing the cost/benefit ratio confronting them. The soft approach focuses on developing a culture of commitment to being lawful so that "sticks-and-carrots" are no longer required. In other words, it shifts the policy focus from direct to indirect controls. Specific policy measures include educating people into the benefits of formality and not evading labour laws, running awareness campaigns about the benefits of formality, and promoting procedural justice and fairness among tax and social security offices and labour directorates.

What is clear is that informal economic activities are highly diverse and there is no one-size-fits-all policy to support the development of formal businesses. In order to truly change the living conditions of the populations of Bangladesh, it is essential that the government not only realise but take advantage of the hidden potential within the sector. The people in Bangladesh are natural innovators in lots of different ways; we need to understand that and help them make the most of it.

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ANNIVERSARY SUPPLEMENTS 2020

DIGITISATION AND INCLUSIVITY: TAKING EVERYONE ALONG

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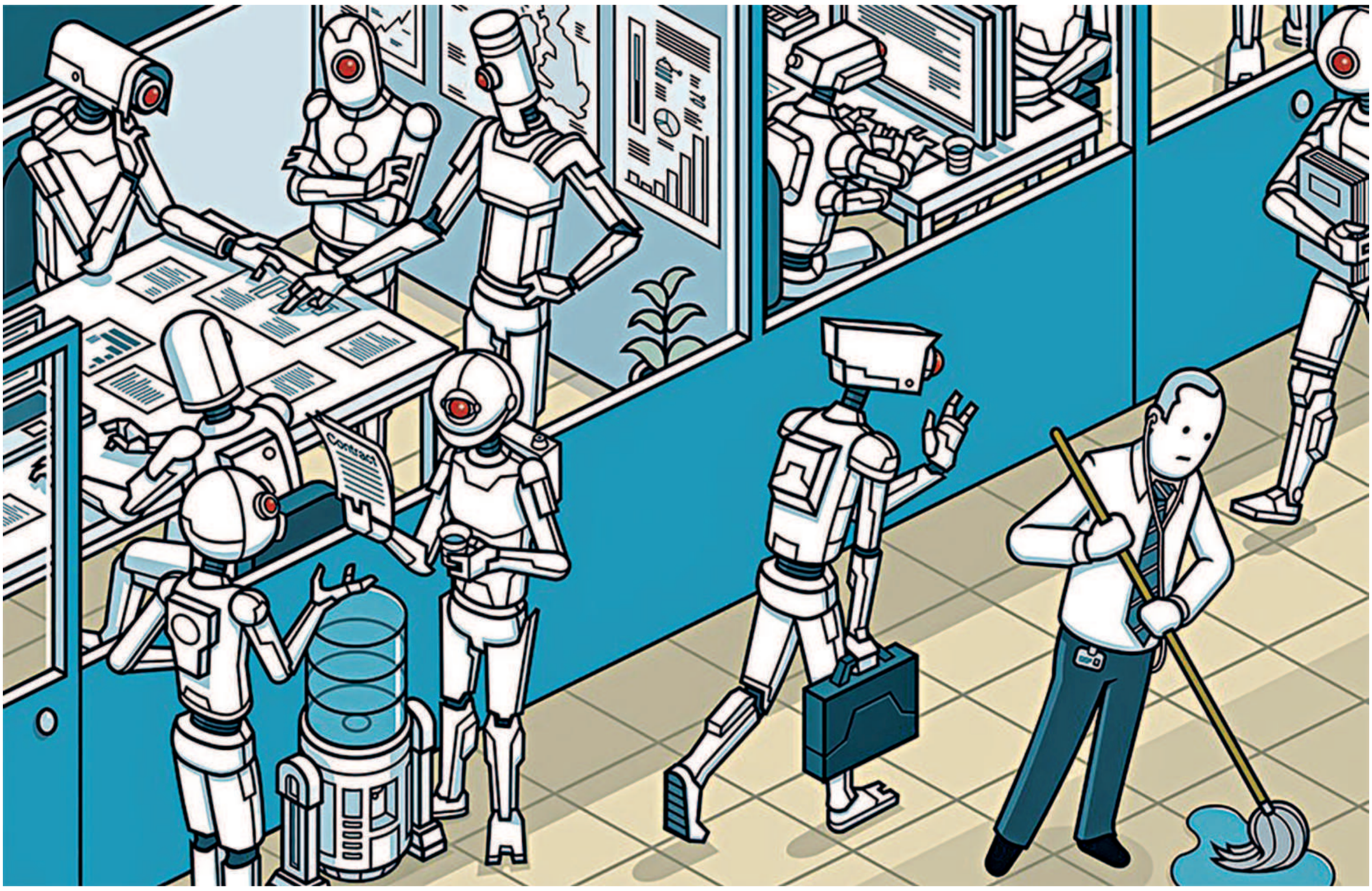


Digital revolution: Prospects and preparations

RASHED AL MAHMUD TITUMIR

The digital revolution is shaping ways and means of people and planet by blurring fence lines amongst physical, digital, and biological worlds. This fourth industrial revolution or Industry 4.0 is characterised by fusion technologies in artificial intelligence (AI), robotics, internet of things (IoT), virtual reality (VR), 3D printing, genetic engineering, quantum computing, and other technologies. The unprecedented scale and associated complexities of digital systems also test capabilities of governments in their commitment to "leave no one behind" of the Sustainable Development Goals (SDGs), particularly concerning sustainable growth, reduced inequalities, decent work and responsible consumption and production.

The First Industrial Revolution of 17th century changed the traditional production system with the invention of steam engine. The Second Industrial Revolution was driven by new sources of power such as electricity, oil and gas in the beginning of 19th century. The Third Industrial Revolution in the post-second world era heralded computer technology, semi-conductor and microchips, and other electronic and electrical devices, besides newer sources of energy like nuclear power. The penultimate one brought huge changes through likes of internet, mobile communication technology, etc. as well as massive progress in medical technologies, biotechnologies, pharmaceutical industry etc. Nevertheless, the changes and effects of Industry 4.0 on peoples' lives are in no match to the three revolutions.

WORK AND MARKET

The digital transformation is espoused as an "open access opportunity for all." This forceful tagline suggests digital revolution's supposed intrinsic promises of creating more job opportunities and reduction in hours of work. Such a milieu pronounces less work as an expression of freedom and self-fulfilment. The World Economic Forum (WEF), however, states that about 800 million people could lose their jobs worldwide by 2030. In Bangladesh, approximately 5.7 million unskilled labourers are projected to be redundant at home and abroad due to requirements of technological skills. This is further vexed by historic tracking of developing countries moving away from manufacturing into services at a faster pace than those observed in cases of developed counterparts. This process of premature "de-sindustrialisation" is evinced by indicators such as lesser share of employment of manufacturing along with its value addition to economy compared to those of service sectors. There is a long-held consensus that manufacturing is the primary channel of modernisation and creation of employment, especially by absorbing unskilled labourers. The stories of development in pre-and-post Second World War bear testimonies in this regard as underemployed from agriculture are pulled into manufacturing, thereby increasing consumption spending and resulting into growing national income.

Digital revolution has not emerged from a vacuum. Ceaseless amalgamation of human knowledge and skills, funded primarily by tax payers, reached this level. Yet, publicly-funded innovations are constantly being usurped by a few tech giants, instead of those remaining as public or common goods. Secondly, these behemoths are profiting out of a rather radically changed workplace where producers are also transformed into consumers. The oligarchies are getting their work done by a few numbers of remunerated employees compared to traditional companies while bulk of production is created voluntarily by unpaid users who are too reduced as their consumers, amassing huge amount of surplus by two distinctive ways, besides much of innovations being subsidised by public exchequer. One is seized as economic rent from volunteer producers while the other is generated out of sales of goods and services to them. The economic rent is generated from unpaid labourers, a factor of production, for which costs needed to bring them into production, are not paid. Thirdly, the digital markets are conceptualised as institutions to provide consumers with material well-being. Yet mounting academic research demonstrates evidences of consumers being systematically exploited through illusion, manipulation and deception due to asymmetric information, psychological weaknesses and unequal power.

CONTINUED ON PAGE 28

Digital revolution: Prospects and preparations

CONTINUED FROM PAGE 26

Digital markets, rather than being benign, allegedly intrinsically "phish" consumers as "phools." Such oligarchic system, if not regulated at every level, run risks of rendering people at large exploited and marginalised, instead of allowing them to enjoy freedom and self-fulfilment.

EMPLOYMENT AND SKILLS

The revolution opens up an opportunity for Bangladesh to utilise her huge unemployed youth and can transform from the current jobless growth trajectory to a job-creating economy. The country has the potential to reap benefits of "demographic dividend" as one in three people is aged less than 24 years. But the rates of youth unemployment and underemployment are 10.9 percent and 18.7 percent respectively in the country. Moreover, there is an alarming miss-match between creation of employment and new entrants to the labour market. About one million are absorbed in organised and formal sectors out of two million new entrants of the labour market each year since labour force are growing at a rate of 2.2 percent per annum, leaving another million jobless.

E-readiness, comprising e-skills and e-literacy, is a fundamental requirement for a digital society. Unfortunately, out of 58.5 percent economically active population of the country's total population, a mere 5.3 percent have attained tertiary education. The Information and Communication Technology (ICT) industry employs only 0.3 percent of the country's total labour force. This paints a sordid state of demand and supply in quality and quantity while also points out an opportunity for further employment in the sector.

Strategic skills are needed to understand the pros and cons of digital revolution. Furthermore, matching education, training and awareness raising are crucial to make the best out of this transformation. There is talent and potential, but such call for harnessing in quality education and training institutions to match requirements. Skills alone cannot be developed by individuals; rather comes from education systems and on-the-job trainings. The cycle has to start from primary education, strengthen in secondary and vocational spheres and further in tertiary level. A significant rise in public expenditure is required for enhancing capabilities, and that too have to be supplemented by the industry. Bangladesh will not be able to march forward, if she remains a mere recipient of digital services, pioneered by other countries.

ENTERPRISES AND INFRASTRUCTURE

There is an elating hope that IT export would surpass the ready-made garment sector, transiting from the current domination of a single-export to a diversified economy. This means 40 times increase in the sectoral export, which is currently valued at one billion US dollars. The industry has exhibited higher growth curve in recent years, indicating enormous latent possibilities, though the current size is notably tinier than other offshoring titans. Most of the country's IT firms are small-sized and a few international conglomerates operate on a limited scale. The start-ups may show resilience, if infrastructure and incentives could be provided in addition to supply of quality skills.

Infrastructures have emerged as big challenge in developing countries like Bangladesh to realise potentials of digital revolution. Introduction of new technologies such as analytics, development of networks and smart devices face impediments due to poor ICT infrastructure. For example, broadband penetration is still low in Bangladesh like other developing countries compared to developed economies. The estimation of Bangladesh Telecommunication Regulatory Commission suggests that internet penetration is just above 50 percent of total mobile users in Bangladesh.

E-Commerce Association of Bangladesh reports 1,000 e-Commerce sites and active 8,000 e-Commerce Facebook pages in the country. Besides, commercial banks and financial institutions are adopting online transactions. In addition, mobile financial services enabled easy and quick transactions of money. Against 40 million bank accounts, only 8.3 million debit cards were issued across the country. Customers under online banking system are only 1.5 million.

REGULATION AND REVENUE

There is much adulation about big data. Big data is a non-rival public good. Yet there are examples of such being monopolised. In the new wave of changes due to digital transformation, new problems regarding public good management are emerging. In this regard, government provisions are needed to have citizens' command over data and make a dent to release from grips of monopolies. Bangladesh needs to revisit her policies adopted in the lines of liberalisation and deregulation and to undertake rigorous research to formulate policies to face the digital challenges.

Blockchain is often described as decentralised, distributed, and often times public technology and huge potentials are attributed as a means to development. Nevertheless, in an absence of regulatory oversights, there are volatilities due to scams and market manipulations in cryptocurrencies and such penalise investors like Ponzi schemes. Blockchain are touted to do away with intermediaries, but in some occasions traditional means such as banks provide services apparently at low

CONTINUED ON PAGE 30

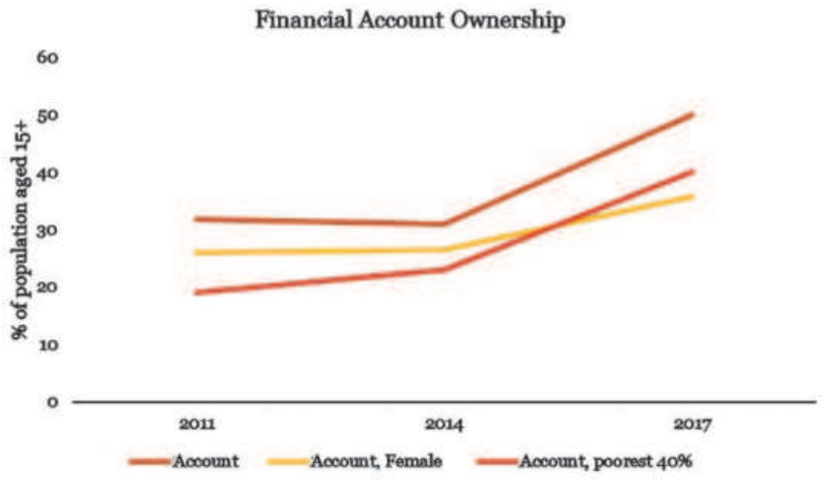
Financial inclusion: Banking going beyond banks

MAMUN RASHID

Despite a lot of loud discussions regarding financial inclusion, a large number of people in Bangladesh are far from being granted access to basic financial services, making financial inclusion development an essential project in the country. Women, marginal farmers and informal sector enterprises are affected the most in this case. Studies argue that supply-side initiatives must be accompanied by financial literacy to attain the main objectives of financial inclusivity.

According to the World Bank, "Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs—transactions, payments, savings, credit and insurance—delivered in a responsible and sustainable way." However, less inclusive financial systems lead to income inequality and slower economic growth. Therefore, financial inclusion is crucial for a country's economy and in enhancing welfare and ensuring consumption levelling amongst underprivileged people.

Bangladesh Bank and the government have been extensively trying to expand financial services for disadvantaged groups for the past few years, but it has been challenging to implement. This is due to low literacy amongst rural dwellers, large population and high-interest rates.



From the first graph, we observe a notable increase of financial account ownership, jumping from 31.74 percent in 2011 to 50.05 percent in 2017. Financial accounts may be a bank account, Microfinance Institution (MFI) membership or Mobile Finance Services (MFS) account (World Bank Group, 2018). Out of the total financial inclusion figure, 25 percent are through banks, 23 percent through Non-Bank Financial Institutions (NBFI's), and an impressive 17 percent through mobile money (Bangladesh Bank, 2019).

AGENT BANKING

Commercial banks operate agent banking systems. This system offers a limited scale of financial services through engaged agents in rural areas. It allows the disbursement of inward foreign remittance, collection of cash deposits and withdrawals, utility bill payments, loan disbursement and more. Bangladesh Bank recently reported that, although, Tk 5,248 crores worth of savings have been collected through agent banking in Bangladesh in the past year, only about Tk 237 crores have been disbursed in the form of loans. That is only 4.48 percent of the total amount. Moreover, as of June 2019, out of the total amount of bank loans, only 10 percent have been given about in rural areas. This failure to comprise the rural population into the financial system indicates a foremost loophole in the system which may be solved through the wide-scale advent of fintech.

NON-TRADITIONAL BANKING

The introduction of microfinance programmes in rural Bangladesh led to the initial jump to a financially inclusive economy. Millions of people, especially rural dwellers, were granted access to credit, saving schemes and more.

Afterwards, the development of Financial Technology (FinTech) in Bangladesh contributed towards the project of achieving a financially inclusive economy further. FinTech is an evolving global sector which utilises technology to revamp financial services for both consumers and businesses, resulting in a remarkable influence on economic activities. It offers innovative platforms for savings and borrowings such as agent banking. This takes out the bank branches out of the equation. Bangladesh Bank believes these activities may help alleviate liquidity and credit risks and, therefore, improve financial stability.

MOBILE FINANCIAL SERVICES (MFS)

Digital Finance Services (DFS), a FinTech platform, allows individuals and businesses to have more hold over their personal finances and make timely decisions and transactions. This platform consists of a range of financial services which are accessed through digital channels like

CONTINUED ON PAGE 31

Details	Amount in October, 2015	Amount in October, 2019
No. of Banks currently providing the Services	20	16
No. of agents	547,813	954,290
No. of registered clients in Lac	302.38	773.75
No. of active accounts in Lac*	120.57	290.11
No. of total transaction	107,374,681	227,246,774
Total transaction in taka (in crore BDT)	13,041.22	37,762.54
No. of daily average transaction	3,579,156	7330,541
Average daily transaction (in crore BDT)	434.70	1218.15

Year	Made digital payments in the past year (percentage 15+)	Made digital payments in the past year, female (percentage 15+)	Made digital payme in the past year, income, poorest 40 percent (percentage 15+)
2014	5.94	2.96	3.21
2017	30.13	17.28	22.52

Digital revolution: Prospects and preparations

CONTINUED FROM PAGE 28

cost to the end user. Blockchain requires large amounts of computing power to run complex algorithms, necessitating enormous amount of energy. This costs heavily on environment, particularly in the backdrop of climate crisis, causing higher vulnerabilities to countries such as Bangladesh. This calls for transformation of the system to a low intense energy user.

Moreover, the tech oligarchies remain

out of reach of taxation. For example, these are operating in Bangladesh and earning billions of revenues, but are non-resident for the purposes of taxation. Some tech giants are also reluctant to have country offices in smaller countries, with much interest in having the company registered in tax heavens. Several countries, like Spain, France, and India have introduced "digital tax" and taxation on these companies could be a significant source of revenue for the government.

CONSENT AND DISSENT

The fourth industrial era has opened new platforms for citizens to engage with governments, express their opinions, organise their efforts, and even circumvent supervision of public authorities. At the same time, governments can use digital means to control citizens and manufacture consents. Nevertheless, regulatory role of governments depends on the nature of a state.

Government can regulate misuse of digital platforms using policies, means and instruments. Yet controlling provisions of governments may also go against fundamental rights of citizens. For example, "Digital Security Act" in Bangladesh has been, decried by human rights defenders as a means to silence dissent. Hence, regulatory policies should be made adhering to civil and political rights so that authoritarian states may not be able to turn those as weapons of reigning in atmospheres of fear and domination. There should be a balance of government's efforts to reach people through promotion of their services and people's opportunity to express their opinions. If justice cannot be ensured, coercion would prevail.

NORMS AND VALUES

Technology is shaping existing social order. It is making a new wave of fusions among societies and cultures. Established norms are reshaping and preferences derived from those norms within societies can also be mobilised through technology. Different views, ideas, concepts, doctrines can be created, disseminated and reinforced easily than before. Social media has enabled people from different unknown backgrounds to gather in a common platform to present their perspectives. In this way ICT is tremendously influencing politics and democratic norms. Social networking sites are being used by populist leaders, emotionally engaging within a same tribe, isolating them from other narratives. In this way, politicians are manufacturing consent in favour of their ideological projects.

Social media is also making people altruistic. For example, an open platform like Wikipedia demonstrates that people often have altruistic motives, though mainstream views that individuals are guided by virtues of self-interest and do not care about outcomes of others. Such projects reveal human beings' two intrinsic qualities: reciprocity and inequality aversion. Reciprocity is people's willingness to reward friendly actions and punish detrimental actions while inequality aversion implies people's tendency to reduce inequality by taking costly actions with altruistic preferences.

Digital platform is, therefore, opening new windows for many as well as increasing inequalities. It is connecting people from many parts of the world as well as creating a "connected isolation". People are virtually connected but remain isolated even within a family. Technological development has become a new means of generating, disseminating and reinforcing different views and ideologies, which are often challenging established order. In facing challenges of the changing order there is a need to place regulatory provisions that represent cultures and traditions of Bangladesh as well as encompass universal values and obligations.

SECURITY AND PRIVACY

As technological advancement is occurring rapidly, there is a widespread concern regarding legal and social protection. New technologies like artificial intelligence, drone system which have created a huge hype and added substantial values, amongst others, in the areas of human rights, economic outcomes and basic service deliveries. On the contrary, there are strong allegations that these technologies are being used, violating human rights, civic freedoms and sovereignty. The persisting contrast of the same technologies has become a major concern. For example, there are cyber wars often among countries. Artificial intelligence and drones are being used as lethal weapons. Advocacy groups, trade unions, child-rights organisations and other institutions are also facing digital threats and attacks. In some cases, ordinary citizens are killed and sovereignty of countries is put at risk. There are fears of robotic war in future if this negative aspect of technological advancement cannot be reined in. Most importantly, it has to be realised that technological transformation should be used as a blessing for general public, not as a weapon for mass destruction.

In this current flow of movement towards digital transformation, security and privacy are two pivotal issues that too have become notable concerns. This creates a mounting challenge in countries with authoritarian regimes and fragile institutions. In order to integrate the whole, multilateral enforceable security and privacy regulatory mechanisms should be developed. Innovative and resilient privacy and security system will lead towards faster and more flexible collaborative value networks and smart production provisions. More challenges are yet to come hand in hand with increased use of data analytics. "Trust" is a significant issue and also an imperative in this new era.

CONCLUSIONS: ECOSYSTEM AND SUSTAINABILITY

The current digital revolution is supposed to affect the whole ecosystem. The relations amongst human being, technology, nature and society may lead to massive transformation. All stakeholders within the system must have their just share such that no one gets alienated or exploited from the cycle.

There were more than 26 billion connected devices in 2019, which may increase to 75 billion by 2025. Estimations indicate that the current digital transformation consumes about seven percent of the world's electricity, which is to leap up to 12 percent by 2020. Digitalisation has, therefore, emerged as potential challenge to sustainability of ecosystems pertaining to social and environmental wellbeing. The ecosystem sustainability depends on the provisions that guarantee just and equitable share and access to digital platforms irrespective of class, caste or creed as well as on the terms of access and benefit sharing between humans and nature. Technological advancement, much like nature, will, hopefully, find its way.

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Financial inclusion: Banking going beyond banks

CONTINUED FROM PAGE 29

payments, savings, credit, insurance and remittances. Moreover, DFS also includes Mobile Financial Services (MFS). Using technology in business is one of the four core elements of the government's "Digital Bangladesh" vision. Since this was implemented, MFS has had the most significant improvement in years.

The table reflects the impressive leap in digital payments through the MFS industry from 2014 to 2017. With only the requirement of a national ID and mobile phone number, MFS allowed millions, who were financially excluded prior to this injection, to send and receive payments easily. bKash, Rocket and Nexus Pay are the top players of the current MFS industry.

The second table shows some key figure comparisons of the total MFS industry in Bangladesh of 2015 and 2019. The number of daily average transactions increased by 104.81 percent and a whopping 189.6 percent in total transaction value in the past 4 years.

> Successful implementation of the IDTP alongside further development and innovation in the current mobile financial services is essential in the upcoming years. This will help ensure financial inclusion, create a cashless society and impede financial fraud, terrorism financing, money laundering and various other economic crimes.

BANKING APPLICATIONS

With the launch of the smartphone apps by the industry players, many new features were introduced. Through the app, one can now instantly send money without having to visit a brick-and-mortar establishment. Moreover, people can now pay their utility bills, make merchant payments, recharge their phones and carry out other fundamental activities. The convenience gained through the usage of MFS has encouraged more people to utilise these services instead of relying on traditional banking services.

However, commercial banks have focused on digitising their services as well. People have benefitted greatly through banking apps and chat bots, launched in the recent years. Visiting bank branches for minor banking operations is no longer necessary as apps have a wide range of services to offer and chatbots which can automatically solve a client's frequently asked questions. Although, according to a Bangladesh Bank report, there are currently over 10,000 branches spread across the country. The high concentration of bank branches is deemed unnecessary and closure would greatly reduce the bank's costs given the high real estate costs in the country.

Unlike few other similar or developing countries, payment apps like Google Pay, Apple Pay and some more have not been launched in Bangladesh primarily due to the unavailability of contactless card machines. Moreover, these apps would not likely aid financial inclusion in the country as they require a formal bank card for payments. According to World Bank data, only 0.2 percent of the population own a credit card as of 2017. Instead, bKash, Rocket and many more applications can easily be used for payment through bar code and do not require an individual to possess a bank account.

SECURITY CONCERNS

Cyber security and operational risks are some major concerns of Bangladesh Bank stemming from fintech. Increased velocity may cause an increase in money supply. This results from the increasing usage of fintech such as ATMs and point of sales (POS) machines. This widespread use of fintech through credit cards for purchasing foreign products risk leakage of foreign currency from the country. Moreover, effortlessly accessible fintech solutions is likely to provoke transactions past legal boundaries like the practice of hundi. However, possible susceptibility of fintech on financial stability may convey essentially through a payment system mechanism.

THE WAY FORWARD

Financial inclusion in Bangladesh has significantly improved with the introduction of various non-traditional and mobile banking systems. This digital age demands uncomplicated access, convenience, efficiency and speed which have shaped a significant and massive market for the FinTech industry. MFS companies in Bangladesh may seek inspiration from others such as Ali Pay in China, M PESA in Africa, Paytm in India or as such few others to further innovate their services.

Just recently, in December 2019, the ICT Division and Bangladesh Bank signed a Memorandum of Understanding (MoU) with the objective to device an "Interoperable Digital Transaction Platform (IDTP)". Financial transactions, transfers, e-commerce, M-commerce, bill payment, merchant payments, remittance exchanges, machine-to-machine payments and other financial services can then be made by fin-tech organisations through this platform.

Successful implementation of the IDTP alongside further development and innovation in the current mobile financial services is essential in the upcoming years. This will help ensure financial inclusion, create a cashless society and impede financial fraud, terrorism financing, money laundering and various other economic crimes.

It would be also interesting to see how our banks and financial institutions are aligning themselves with newer technologies and the innovation industry at large. It is apparent that banks need to reorient themselves to the fast-shifting dynamics of the industry. This might inevitably entail looking beyond the traditional banking model to satisfy different markets and a new clientele.

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Financial inclusivity and the banking sector

From progress to regress

ZAHID HUSSAIN

Financial reforms have been on a reverse gear in Bangladesh. The latest being the announcement to return to a regime of interest rate repression. Following the easing of loan classification and write-off standards and announcing generous rescheduling facility to the defaulters last year, this is yet another attempt to return to a financial regulation regime that we successfully got out of several decades ago.

A STORY OF REFORMS

The financial sector turned around following a series of reform programmes in the 1990s. Legal, policy, and institutional reforms improved the regulatory and governance environment and enhanced the ability of bank owners, management and regulators, and the markets themselves to provide for better governance and regulation. The domination of the banking system by the State-owned Commercial Banks (SCB) declined while Private Commercial Banks (PCB) and Foreign Commercial Banks (FCB) gained market share, increasing competition in the banking industry. The private sector banks have consistently outperformed specialised banks and SCBs in terms of growth in deposits, bank advances and other banking services.

Banks were heavily burdened by high levels of nonperforming loans (NPLs) accumulated over many years due to weak management of the SCBs. Priority lending to loss-making state-owned enterprises, a deficient legal and debt recovery framework, weaknesses in loan screening and supervision, lack of accountability of bank officials, and a weak credit culture undermined good management. The share of NPLs rose steadily from 1972 onwards with the gross NPL ratio to total loans in the banking system peaking at 41.1 percent in 1999. The SCBs and Development Financial Institutions (DFI) recorded the highest NPL ratios. Directed lending programmes led to a massive build-up of poor-quality loans in the 70s and the 80s. Banks were reluctant to write off the long-lasting bad loans mainly due to sub-standard underlying collateral and fear of probable legal complications.

The government adopted several measures, dating back to the 1980s, to ensure better policy framework for managing NPLs. Administrative and judicial measures for solving problem loans of SCBs and DFIs suggested by the National Commission on Money Exchange and Credit, formed in 1986, were heeded to. The Financial Sector Reform Project in 1990 supported enactment of different laws and regulations to expedite settlement processes. A concrete loan recovery policy for SCBs was put in place based on recommendations from the Banking Reform Commission in 1996. The Structural Adjustment Performance Review Initiative in 2000 concentrated on better loan screening and monitoring standards of individual banks while the Credit Risk Grading Manual in 2005 made the Credit Risk Grading system mandatory for analysing credit risk. SCBs were corporatised in 2007 and the minimum capital adequacy ratio was increased from 9 to 10.

CONTINUED ON PAGE 37

The Daily Star
CELEBRATING
20
YEARS OF
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FEAR OR FAVOUR

SEGMENT 4

ANNIVERSARY SUPPLEMENTS 2020

DIGITISATION AND INCLUSIVITY: TAKING EVERYONE ALONG

DHAKA TUESDAY FEBRUARY 18, 2020, *FALGUN 5, 1426 BS*

34

Reporting live from the future, Circa 2021, 2031 and 2041

AI-powered Digital Bangladesh has finally taken off

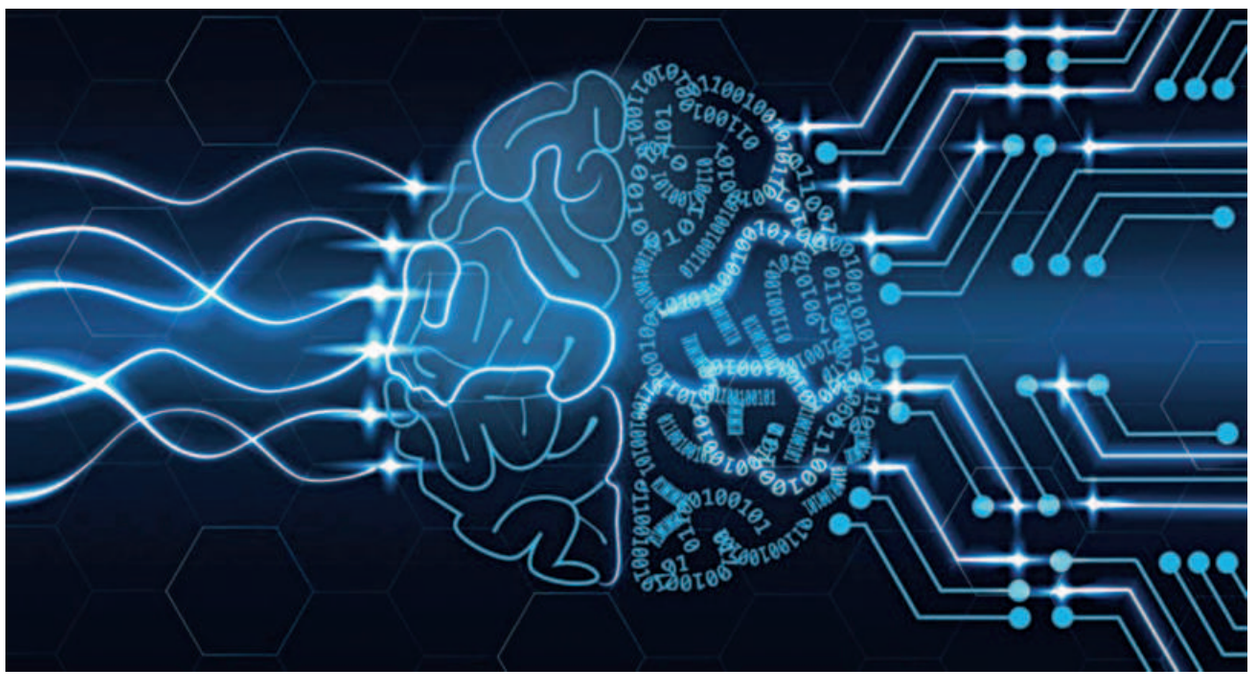
SAM SAMDANI

Imagine you're aboard a time machine and have just been whisked first to the year 2021, then to 2031, and finally to 2041, marking the 50th, 60th and 70th anniversaries of the independence of Bangladesh. What's more, you're able to toggle the machine's settings to be able to travel across 2021, 2031 and 2041 in no time at all. Amid the golden, diamond and platinum jubilee celebrations across the country, what would you report about the state of Bangladesh, especially on the scale and scope of her adoption and adaptation of advanced technologies, such as artificial intelligence (AI), towards realising the dreams of a Digital Bangladesh for all? That's exactly the thought experiment we're about to embark upon here. Are you willing to join us in this awesome journey where your observations are, conveniently enough, in the present tense for you to be able to report live from the future?

Welcome! First, a few ground rules: Since we're deploying a very old technology called "poetic license" inside this time machine, we're allowed to disguise the actual names of individuals and institutions and replace them with fictitious ones to protect the innocent; and equally important, we cannot comment on highly specific developments or events, such as the winning numbers for certain lottery jackpots in 2021, 2031 or 2041, without forfeiting the precious privilege of our poetic license here.

On the occasion of her golden jubilee (affectionately known as "subarna jayanti") in 2021, the people of Bangladesh joyfully celebrate the achievement of several milestones put forth in the country's Vision 2021 manifesto, which was the political manifesto of the Bangladesh Awami League before winning the National Elections of 2008. Several golden jubilee celebration programmes have been held in many countries worldwide, including India, Russia, Germany, Sweden, Hungary, Poland, Nepal and Bhutan. Highlights include the fact that Bangladesh is among seven Asian countries whose gross domestic product (GDP) grew around 7 percent through 2020. In real terms, this means Bangladesh's GDP per capita is expected to surpass India's by 2031.

As one of the fastest-growing economies in the world, Bangladesh is now dubbed the next Asian tiger by the World Economic Forum, *The Economist*, and others—a far cry from the "basket case" that the-then US Secretary of State Henry Kissinger described it as in 1971. This rapid economic growth has contributed to a substantial decrease in extreme poverty from 40 percent in 2005 to less than 20 percent in 2021. A dynamic, growing middle-class of nearly forty million people has propelled Bangladesh to "middle-income" status, according to the World Bank.



Of course, GDP is not the only, or even the most relevant, metric of progress toward the dreams of a Digital Bangladesh, which now includes universal access to personalised self-education and AI-augmented preventive self-care as the preferred form of healthcare throughout the country. Thus, when AI meets digital in Bangladesh, the impact is nothing short of miraculous.

The vintage 2021 version of AI is typically defined as the ability of a machine to perform cognitive functions we associate with human minds, such as perceiving, reasoning, learning, and problem solving. Examples of technologies that have enabled AI to solve business problems are robotics and autonomous vehicles, computer vision, language, virtual agents, and machine learning.

Deep learning is a branch of machine learning that has its roots in mathematics, computer science, and neuroscience. Deep artificial neural networks learn from data the way that babies learn from the world around them, starting from fresh eyes and gradually acquiring the skills needed to navigate novel environments. Deep learning is used at Google today in more than 100 services, ranging from Street View and driverless cars to Gmail Inbox Smart Reply and voice search.

More than 75 percent of trading on the New York Stock Exchange is automated, fuelled by high-frequency trades that move into and out of investment positions in fractions of a second. Deep learning is getting better and better at making more money as hundreds of algorithms are deployed and the best ones are continually combined to optimise financial returns.

People are still talking in 2021 about Google's multiple accomplishments in AI dating back to 2016, one of which is known as the Google DeepMind Challenge Match. This was a five-game Go match between 18-time world champion Lee Sedol and AlphaGo, a computer Go programme developed by Google DeepMind, played in Seoul, South Korea between the 9th and 15th of March in 2016.

AlphaGo won all but the fourth game. AI experts often describe AlphaGo's stellar performance at this ancient Chinese strategy board game of Go as "AI's version of man's landing on the moon."

Another breakthrough came in 2017 when Google's DeepMind subsidiary took a bold leap to creating an AI software akin to general human intelligence with AlphaZero, which learned three computer games, namely Go, chess, and shogi, on its own. Unlike AlphaGo Zero, which received some instruction from human experts to beat its human counterpart, AlphaZero learned strictly by playing against itself, and then went on to defeat its predecessor AlphaGo Zero at Go (after eight hours of self-play) as well as some of the world's best chess- and shogi-playing computer programmes (after four and two hours of self-play, respectively).

AI experts have been so impressed with AlphaZero's superhuman performance that some have declared this accomplishment as momentous as if "the aliens have just landed and the earth will never be the same again."

Throughout the 2020s, AI has been fine-tuned by applying machine learning to very large data sets. Machine-learning algorithms are able to detect highly complex patterns and learn how to make predictions and recommendations by processing data and experiences, rather than by receiving explicit codes or programming instructions from human programmers. The algorithms are also adapted in response to new data and experiences to improve efficacy over time. When applied correctly to the right problems, AI feels like pure magic!

It was the British futurist Arthur C Clarke who once noted: "Any sufficiently advanced technology is indistinguishable from magic." Well, what do we see when we watch a magician pull a rabbit out of a hat?

CONTINUED ON PAGE 36

Reporting live from the future, Circa 2021, 2031 and 2041

CONTINUED FROM PAGE 34

More often than not, we are captivated by the illusion and even applaud the fact that we have been fooled. But the people of Bangladesh have realised since 2021 that advanced technology is no fool's errand but the stuff of real magic. As a result, they have enthusiastically embraced Clarke's above truism (also known as his 3rd Law) along with his two other eponymous "laws" about our technological future in Bangladesh and beyond:

Clarke's First Law: "When a distinguished but elderly scientist claims that something is possible, he is almost certainly right. When he states that something is impossible, he is very probably wrong."

Clarke's Second Law: "The only way of discovering the limits of the possible is to venture a little way past them into the impossible."

Another counterintuitive idea that has gone viral in Bangladesh in the 2020s is attributed to futurist Ray Kurzweil: Thanks to the exponential growth trajectory of many disruptive technologies, we won't experience merely 100 years of progress in the 21st century; it will be more like 20,000 years of progress at AD 2000 rate. Imagine that! Of course, agriculture was invented only about 10,000 years ago and the internet-based worldwide web is only about three decades old now.

The accelerating pace to technological progress is counter to most people's linear way of thinking about the world since for some two hundred thousand years spanning the evolution of *Homo sapiens* on this planet, it was safe to assume that the world in which humans have lived and died would look pretty much the same as the one in which they were born. But that is no longer the case in 2021 as most of the people in Bangladesh have just witnessed how much things have changed in the first two decades of the 21st century. The shortlist includes hassle-free mobile money transfer through wireless internet, apps-based on-demand services accessible via smartphones, and multiple worldwide connectivity and collaboration platforms to choose from, e.g., Facebook, LinkedIn and Twitter. As a result, people have already started to imagine how vastly different things will be in 2031 and 2041.

People have begun to realise that problems that might have seemed intractable in the past, could become eminently solvable in the near future. Not only does this new mindset inform their investing and planning practices for the future, it also changes what they think of as possible for humanity. Things that they could barely have imagined a few decades ago have now come within reach. For example, chemistry is treated as the world's toolbox. It has become increasingly clear that it is the creative, constructive act of seeing the periodic table of 90+ chemical elements as a palette of new-to-the-world chemical compounds and advanced materials created by combining and recombining the elements—be that carbon, hydrogen, nitrogen, oxygen, phosphorus, silicon or zirconium—to paint a better and brighter future for everyone.

Indeed, combinatorial explosion is one of the few mathematical phenomena that outgrows even the exponential growth trajectory. Throughout the 2020s this has meant that combinatorial innovation is the best way for human ingenuity to outpace even the Moore's Law (named after Intel founder Gordon Moore who observed in 1965 that the number of transistors in a dense integrated circuit doubled about every two years while the cost of computers dropped by 50 percent).

However, in the early stages of combinatorial development, growth is constrained by the number of potentially new and useful ideas, but later on it is constrained only by the ability to go through all the potential permutations and combinations to find the truly valuable ones. The deployment of AI turns out to be critical during this time since when combined with human experience, people are able to make connections between things that at first glance seemed to have nothing to do with each other. Thus, AI-powered curation of combinatorial innovation is poised to become the mantra for the continuation of economic progress in Bangladesh in the 2020s and beyond.

On the diamond jubilee of the country in 2031, Bangladesh is duly recognised as an upper middle-income country with per capita income of USD 5,500 although the odds of achieving this status by most accounts were less than 40 percent back in 2021. What's more, economists are more confident than ever that Bangladesh is on track to achieve the coveted high-income status with per capita income of USD 16,000 by 2041. What follows is a shortlisted selection of developments on the technology fronts that have made it all not just possible, but almost inevitable. Each bold initiative has been a strategic bet placed by the decision-makers toward having AI-powered Digital Bangladesh finally take off and achieving by 2041 the status of a high-income country that is also an equitable, inclusive and just society by design.

BanglaDISH has emerged in the 2020s as the most inclusive digital ecosystem in Bangladesh representing the leading players in the telecom, media and technology sectors at large. The goal has been to drive the adoption and adaptation of AI, especially in improving the delivery of personalised self-education for marketable skills-building and advanced diagnostics-based preventive self-care as the cornerstone of healthcare to everyone in Bangladesh. This multi-industry consortium has also managed to help with closing the GDP growth gap between the actual (around 7 percent) and potential (higher than

CONTINUED ON PAGE 38

Reporting live from the future, Circa 2021, 2031 and 2041

CONTINUED FROM PAGE 36

9 percent) for Bangladesh to achieve its 2031 and 2041 targets.

Reports from the International Telecommunications Union, for example, have suggested that for a middle-income country like Bangladesh, an increase of 10 percent in mobile broadband penetration yields an increase of 1.8 percent in GDP for the country while an increase of 10 percent in digital ecosystem development index yields an increase of 1 percent growth in GDP per capita. Through its concerted efforts and strategic investments, BanglaDISH has played an instrumental role in boosting the country's mobile broadband connectivity and its digital ecosystem development index to meet the GDP growth rate target of 9 percent from 2021 onward to meet its 2031 and 2041 targets.

Furthermore, according to reports from the global management consulting firm McKinsey & Company, AI has the potential to deliver additional global economic activity of around USD 13 trillion by 2030, or about 16 percent higher cumulative GDP compared with the status quo. This amounts to 1.2 percent additional GDP growth per year. BanglaDISH has been committed to delivering as much of the additional "kicker" as possible to the country's GDP through further penetration of AI and the associated digital infrastructure.

BanglaDISH has also been pushing for a leapfrogging strategy by investing heavily in developing the requisite AI-savvy human capital. It turns out that the concept of leapfrogging originated in the context of economic growth theories that promulgated sustainable development for developing countries by way of accelerating their economic development by skipping inferior, less efficient, more expensive, more polluting technologies and industries and moving directly to more advanced ones.

A case in point is digital communication in developing countries like Bangladesh by moving directly from having few telephones to having widespread mobile phones, thus skipping the stage of copper-wire landline telephones altogether. Another example is the adoption of solar energy technologies to avoid repeating the mistakes of highly industrialised countries in creating an energy infrastructure based on non-renewable fossil fuels and "jump" directly into the Solar Age instead. In other words, the leapfrogging concept implies that Bangladesh could learn from the experiences of industrialised countries, such as Germany and the United States, and reimagine its own economic development path to bypass the potentially expensive and environmentally irreversible damages from an early stage.

The social dimension of the leapfrogging concept entails diffusion and adoption of modern technologies that would not only reduce costs and adverse environmental impacts, but also contribute to the realisation of the United Nations-initiated Sustainable Development Goals (SDGs), such as no poverty, zero hunger, good health and wellbeing, and quality education, among others.

Since its launch in 2021, Newseum has been another bold initiative in Bangladesh for enabling the country's key decision-makers to directly experience what's possible in the future from where the future has already happened, namely the "front-runners" in the so-called Fourth Industrial Revolution or Industry 4.0. Billed as the "museum of news you can use" to accelerate the pace of meeting the country-specific SDGs ahead of the 2030 deadline while managing the transition to Industry 4.0 with minimal disruption, the Newseum has also become a virtual laboratory for AI-powered innovation and cross-industry collaboration in Bangladesh and beyond.

For example, Newseum has invested heavily in learning from direct "go & see" visits to the Industry 4.0 "lighthouses" curated by the World Economic Forum (WEF) that serve as beacons of digital transformation journeys for organisations worldwide. A Newseum-sponsored visit in 2021 to one of the sites in the WEF lighthouses network, namely the Bayer Pharmaceuticals Division in Garbagnate, Italy, inspired the leading pharmaceutical companies in Bangladesh to adapt their production practices to leapfrog to Industry 4.0 levels with unprecedented increases in efficiency with minimal displacement of workers. This catapulted the Bangladesh pharmaceutical industry to the top spot—ahead of the ready-made garments industry—by 2031 as the government and industry worked together to develop the requisite assets and capabilities to be among the global leaders in the production of advanced biopharmaceuticals.

By 2031, Newseum has evolved into an AI-powered virtual reality platform with the rank and status of a lighthouse based in Bangladesh showcasing the best practices and technologies representing the WEF-endorsed Industry 5.0 framework, which by now has also evolved to incorporate environmental sustainability, social responsibility and good governance practices. And not a moment too soon, 2041 is the year when Newseum gets recognised by the Prime Minister's Office as a national treasure as the country celebrates its platinum jubilee. The spectacular celebrations have included a laser-light show (as an environmentally friendly alternative to the traditional air-polluting fireworks) along with highly orchestrated online virtual reality demonstrations of joy that made everyone in Bangladesh, which is duly recognised as a developed economy in terms of its GDP per capita, to be proud of the fact that the country has come a long way since its humble beginning in 1971.

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The views expressed here are his own and do not necessarily represent that of McKinsey & Company.

Financial inclusivity and the banking sector

CONTINUED FROM PAGE 37

use it to obtain preferential access to capital, in particular from, but not limited to, the state-owned banks. The consequent weak financial regulation and enforcement limit access to finance for less established competitors.

The financial sector contains a number of very large institutions organised into powerful banking associations. They can afford lobbying through well-prepared participation in public debate on regulatory measures. Finance is necessarily characterised by asymmetric information between banks and their clients, and by systemic effects. Risk is an inherent feature of the industry. Confidence effects among banks and between banks and their creditors create various forms of externality. Other externalities arise because of competition. The competitive behaviour of banks varies depending upon their financial condition. Sound banks have lower funding costs and weak banks compete more aggressively. The regulations favoured by the key players may promote financial stability and largely coincide with what would promote overall efficiency if they perceive such regulation is in their self-interest. Often, they are not so perceived.

Politicisation of entry and excessive forbearance of risky lending lead to inefficiency and stability risks. Political influence led to allowing new banks without extensive scrutiny in recent years. Several of these fourth-generation banks suffered a severe liquidity and capital adequacy crisis. These had to be bailed out by the government. The costs are borne largely by a subset of institutions whose interests diverge from the users of financial services and those seeking financing who have less ability to exercise influence over regulators. The ability of just a few business interests to capture the regulator may be enough to undermine the public's confidence in the competence of the banking regulator.

When people lose trust in formal financial systems, they keep their savings in un-regulated or under-regulated investment avenues, making them more vulnerable to fraud. Anecdotal evidence suggests a number of weak PCBs are plagued by insider lending and other owner abuses.

The political capture of the regulatory entity prevents proper resolution of failing banks. While there is an explicit deposit insurance scheme, it has never been used. BB has de facto extended an implicit guarantee to all banks. Over the past years, no domestic bank has been allowed to fail. Weak banks are referred to the Problem Bank Monitoring Department within BB where they are subject to special supervisory oversight, certain regulatory restrictions and regulatory forbearance. These produce systemic inefficiencies. Larger loan loss provisions of weak banks drive up the spread between lending and deposit rates, allowing other healthy banks to enjoy rents in the form of higher profits.

THE DRIFT TOWARDS EXTRACTIVE INSTITUTIONS

In their "Why Nations Fail: The Origins of Power, Prosperity and Poverty", Daron Acemoglu and James Robinson, suggest that countries can be bedevilled by economic institutions "structured to extract resources from the many by the few and that fail to protect property rights or provide incentives for economic activity." The banking sector has historically been a target for extractive elites in many economies. The wealth of the financial industry gives them enormous lobbying power, including as contributors to political campaigns or to ruling parties. A narrow elite seizes control of bank regulation to prevent broad based financial inclusion.

Sustained economic reform

> The banking sector has historically been a target for extractive elites in many economies. The wealth of the financial industry gives them enormous lobbying power, including as contributors to political campaigns or to ruling parties. A narrow elite seizes control of bank regulation to prevent broad based financial inclusion.

requires a framework of long-term policy to which the government can credibly commit itself. But the backsliding in the reform process is eroding most of the structures of institutional insulation of long-run economic management decisions against the wheeling-dealing of day-to-day politics. There are very few assurances that commitments made by the government will be kept even by itself under pressure. The pressure comes from insiders who have a strong incentive to block or reverse financial reform as financial development improves the conditions for entry of new players, thus challenging rents of the insiders through increased competition.

CAN WE STILL HOPE?

Bangladesh's financial sector development lags those of peer economies. Dealing with symptoms of a financial crisis before the crisis becomes full blown requires swift action to maintain stability and confidence in the banking system. Within Bangladesh's political elites, the leadership at the top plays a decisive role in shaping the policy. A leadership committed to reforms faces resistance from three quarters: opponents within and among the supporters of the government, those in the opposition, and the vested interests that expect to lose from the policy change. A determined leadership can often overcome resistance from all three sources.

The focus on regulation and corporate governance of banks is important given the prevailing dominant role of banking institutions as a source of finance for the corporate sector and the SMEs. Improved board structures, administrative procedures and disclosure requirements could result in better governed banks, which are more likely to allocate capital efficiently. The evolving discourse on financial regulatory reforms recognises that the motivation for state intervention in finance must be guided by an understanding of the sources of market and regulatory failures. The government has been taking on a very active role in the financial system to enhance savings mobilisation, direct credit to priority sectors, and make financial services affordable to larger parts of the population. Through interest rate controls the government is hoping to reduce lending costs for borrowers, while credit quotas are reportedly under consideration to guarantee that financial resources flow to priority and underserved sectors.

Government solutions to overcome market failures have not worked. Bureaucrats have limited expertise to run financial institutions and they are subject to political and regulatory capture. Bureaucrats as bankers have failed almost everywhere, but especially in developing countries. Being owner, borrower and regulator of an institution at the same time, the Financial Institutions Division under the Ministry of Finance face obvious conflicts of interest.

Experience in Bangladesh has shown once again that government-owned banks are often used by politicians to finance commercially unviable government projects or state-owned enterprises. Present approach to financial regulatory reform has been limited to addressing the symptoms. This approach relies on the government to enable and develop markets.

The role of government has to be redefined to make Bangladesh's financial system more efficient and investment friendly. Beyond ensuring macroeconomic stability and providing an effective and reliable contractual and informational framework, the government should move from the role of an operator and arbiter in the financial system to the role of enabling and creating markets.

Yes, the financial sector suffers from the general governance problems in the economy and the society at large. This actually strengthens the case for putting financial sector reform at the centre of governance reform, since it is here that the money and thus the temptation is. The depoliticisation of financial sector regulation and supervision can send an important signal to the rest of the economy and society and be an important catalyst for governance reforms in other areas.

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