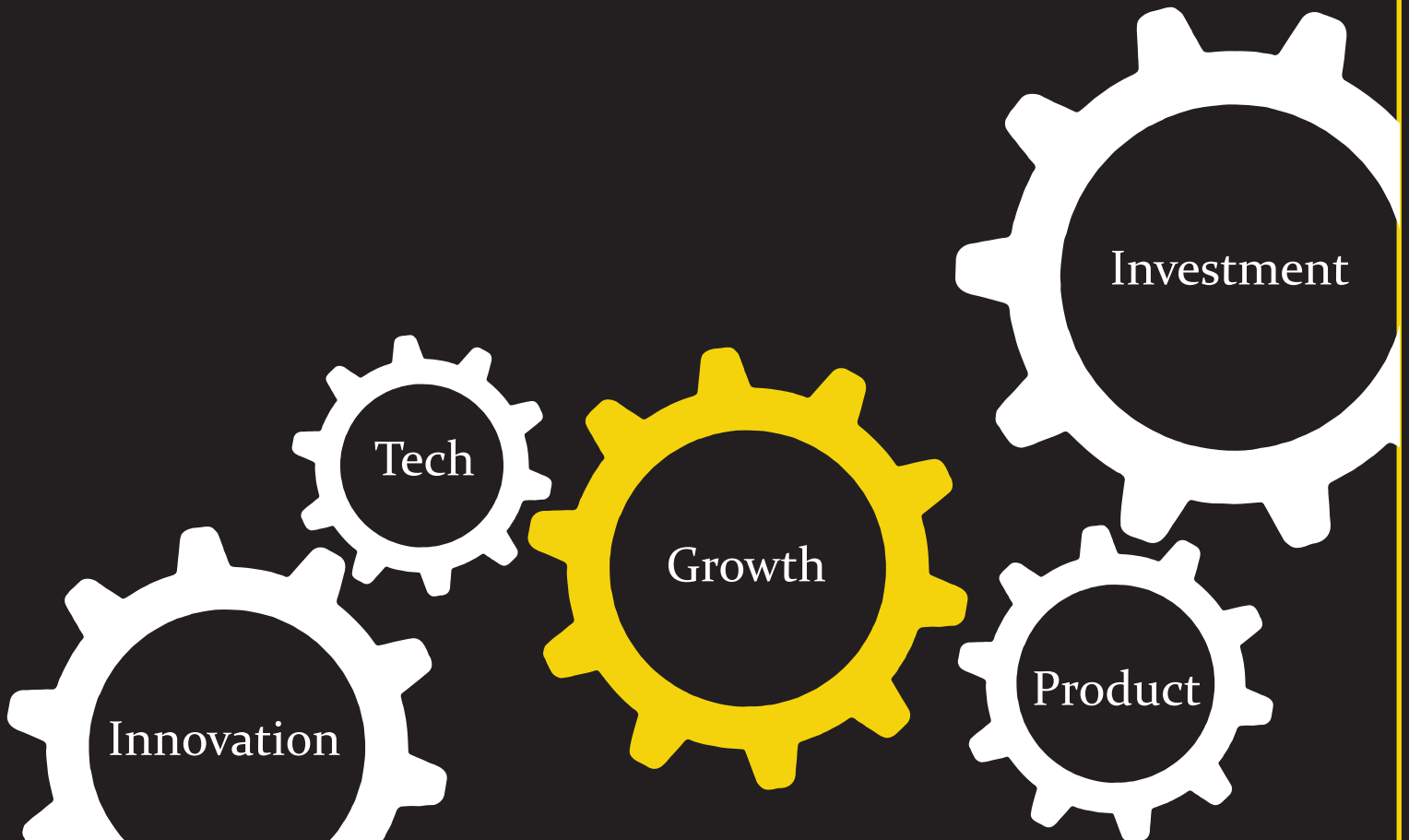


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INDUSTRY INSIDER

Trend • Analysis • Insight





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From the Chief Advisor

Bangladesh has been making remarkable strides in the industrial sector, and it is high time that we highlight these achievements to the world. 'Industry Insider' can play a pivotal role in achieving this objective by providing an excellent platform for industry experts, business leaders, and policymakers to share their insights and experiences. It can serve as a platform to provide insightful and thought-provoking perspectives on the industrial landscape of Bangladesh. It is my pleasure to be a part of this promising initiative that is poised to achieve something noble and unforeseen. I convey my best wishes and hope that Industry Insider touches the milestones nobody could even think about.



From the Editor

Industry Insider has been created with a singular objective - to strengthen Bangladesh's industrial ecosystem by providing a platform which creates opportunities for collaboration, innovation and integration through knowledge and experience sharing and at the same time showcases our stories to the global stakeholders.

We are here to harness knowledge by subject-matter experts, covering industry need gaps, innovations, and futuristic technologies and solutions. We firmly believe that knowledge is the key to unlocking the full potential of Bangladesh's industrial ecosystem, and our magazine will play a vital role in leading this change. I am exhilarated to invite you to join us on this exciting journey and hope that Industry Insider will serve as an navigator for your future industrial understanding and analysis.



CEO says



The ultimate growth of any industry depends on the knowledge it generates, the ideas and insights that'll assist future generations to build upon. We want to present Industry Insider as an enriched industrial literature with unique, insightful, creative, useful and elaborative content. Ours will be an open book where industry professionals will write, rewrite, change, exclude, and pitch ideas, opinions, and knowledge. In this journey, you, the readers, will be our most important stakeholders. With your support, we hope to achieve newer heights together and give our industries the required knowledge support. Welcome aboard on a voyage toward enormous possibilities!

Managing Editor says



It brings me great pleasure to present the first issue of Industry Insider to the readers. I have long felt the need for a platform where the academia and industry of Bangladesh can exchange ideas, build upon each other's momentum and help the country take incremental small steps towards a better future. We know that our readers are eagerly waiting to play their part in shaping the industry's future in Bangladesh. On our part, we commit to our readers to bring the best of the ideas on a regular basis, kindle curious conversations, and help forge a community of thoughtful pioneers.

Here is to a better future!

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News Flash

Local cloud storage market expected to grow to \$46.3m by 2025

According to industry stakeholders, the domestic cloud storage market in Bangladesh is currently valued at USD 20 million and is predicted to reach USD 46.3 million by 2025. Although international players like Amazon, Google, Huawei, and Oracle presently dominate the business, accounting for around 90% of the market, local players are increasingly vying for a more significant slice of the pie.



BD exceeds USD 5.0b export target for 3rd consecutive month



Bangladesh has outperformed expectations by generating more than USD 5 billion in export receipts for the third consecutive month in January, according to data released by the Export Promotion Bureau. Exports grew by 5.89 percent year-on-year to reach USD 5.13 billion in January. With a positive trend, the country's total export earnings for the first seven months of FY 2022-23 stand at USD 32.45 billion, representing a 9.81 percent increase from the previous year.

Luxury apartment demand unaffected amid economic slowdown

Despite a slowdown in the sales of regular properties and the initiation of new housing projects due to the ongoing economic crisis, demand for luxury apartments in Bangladesh remains unchanged, according to market players. The Real Estate and Housing Association of Bangladesh (REHAB) has assessed that the sustained inflationary pressure resulting from global crises such as the Russia-Ukraine war has driven up apartment prices by increasing the cost of raw materials.



Over 50 Bangladeshi companies participate in Ambiente Trade Show



More than 50 Bangladeshi companies participated in the Ambiente trade show in Frankfurt, Germany, to showcase their locally produced goods to international customers. Bangladesh was the second largest participant from the South Asian nations after India, as per Ambiente. The 5-day fair featured 4,561 exhibitors from 83 countries showcasing their latest innovations and trends in consumer goods from all over the world. A large number of buyers from almost 160 countries attended the event.

Foreign currency reserves down to a 6-year low

Official figures reveal that Bangladesh's forex reserves have hit a six-year low of USD 31.15 billion. The decline comes after the central bank cleared import bills totaling USD 1.05 billion with several Asian countries, including payments made through the Asian Clearing Union (ACU). The current reserves level represents a decrease of approximately 30% from USD 44.14 billion recorded in March last year. It is also the lowest level since the financial year of 2016-17, when the reserves stood at USD 33.49 billion.



Bangladesh's trade competitiveness declines, says World Bank



The World Bank has stated that Bangladesh's trade competitiveness is declining due to factors such as high import taxes, non-tariff barriers, over-reliance on ready-made garments, and delays in meeting border and documentation requirements. The bank also warned that competitiveness would further decrease after the country graduates from the group of least-developed nations in 2026.

Bangladesh to extend export incentives until 2026

Bangladesh's government will provide cash incentives on export receipts until 2026 to help local exporters remain competitive globally after the country's graduation from a least-developed country. Senior Commerce Secretary Tapan Kanti Ghosh confirmed that the subsidy will not be given in cash and the government is looking for other ways to provide it. The incentive will assist local businesses to perform well despite losing preferential trade benefits after graduation.



Edtech startup Shikho raises \$900,000 in strategic funding round



Shikho, a Bangladeshi edtech startup, has raised \$900,000 from a strategic funding round with four investors, including three foreign venture capital funds: Goodwater, Sturgeon Capital, and Black Kite Capital. The fourth investor, Sajida Foundation, is a charitable organization. Shikho intends to strengthen its focus on creating social impact through online education. The company has raised \$6.5 million to date, the highest amount for any edtech startup in Bangladesh, according to a press release.



Asia

Sri Lanka getting \$2.9b bailout from IMF

International Monetary Fund (IMF) to provide Sri Lanka with a USD 2.9 billion bailout, with the crisis-stricken country already receiving USD 330 million as the first tranche. Economists expect that this support by the global lender will catalyse more external support from the likes of Asian Development Bank (ADB), the World Bank, and others to alleviate the country’s economic crisis.



Pakistani defense minister admits the country’s bankruptcy



Pakistan’s veteran politician and current Defense Minister, Khawaja Asif, acknowledged that the nation has already gone bankrupt. However, the Pak government believes the country can fight the crisis internally, and IMF assistance may not be needed, reported a Pakistani national television Samaa TV.

India marching towards a green railway Network

By 2030, India claims, it will have the greatest green railway network in the world, a development that will significantly accelerate the fight against climate change. India’s railway ministry announced that when it meets the goal of fully electrifying its network, the nation’s train system will become a ‘net-zero carbon emitter’ in seven years.



Samsung will reduce chip production by 96%



As revenues have dropped by 96%, Samsung Electronics, the largest memory chip manufacturer, will reduce chip production. The dramatic fall in demand for semiconductors enforced this decision-making. US-based ‘Micron Technology’ and South Korean ‘SK Hynix’ have also cut back on their output.

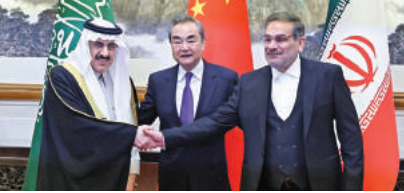
Middle East

Sharjah raises 1.0 billion for green sovereign bond

The Sharjah government plans to generate USD 1 billion by selling the first sustainable 9-year dollar-denominated bonds in light of the strong demand for ESG financing. The director of the Gulf stated that the bond would be used for social and environmental goals, reported on the Middle East Economy.



Saudi might begin investing in Iran



Following negotiations led by China in Beijing that concluded on March 10, Riyadh and Tehran decided to restore diplomatic ties and reopen embassies. The regional rivals might open embassies in each other's country within two months, reported Saudi and Iranian state media.

Billion-dollar agreement between middle-eastern countries

UAE, Egypt, Jordan and Bahrain signed 12 agreements across 9 industrial projects in their 3rd meeting of the Higher Committee for the Integrated Industrial Partnership for sustainable economic developments. The total investment value of the signed agreements will exceed USD 2 billion.



Dubai Police's newer surveillance biometric can solve any crime



A next-generation video-based multiple biometrics system created by the Dubai Police can solve 3000 crimes. As per an Arabian Business report, deployed in 2016, the system was used in 3,022 crimes in 2022 alone. The system aids in identifying people in any type of video evidence that is available, whether it comes from CCTV, social media, or other digital assets.

Africa

African Bank vulnerable to billions in carbon risks

African banks' exposure to industries facing carbon risks, primarily in the mining, oil, gas, manufacturing and transport sectors, is estimated to be worth USD 106 billion, according to Moody's survey of rated financial institutions.



Investment in private debt soars in Africa



Research conducted last year by the African Private Equity and Venture Capital Association (AVCA) revealed that the overall value of private capital acquisitions had hit a record high of USD 7.4 billion in 2021, a rise of 118% from USD 3.4 billion in 2020.

Renewables to lead Nigeria's energy sector by 2050

Renewable energy sources can meet over 60% of Nigeria's energy needs in 2050, saving 40% and 65% of natural gas and oil use, respectively. If the African nation can follow its Renewable Energy Roadmap, it'll be the first nation to ensure renewable energy the bigger slice of the pie.



Kenya-Rwanda agreements on trade, innovation, and youth



Kenya wants to improve its bilateral ties with Rwanda in the areas of IT, youth empowerment, and cooperatives. Since the country exported \$278 million to Rwanda in 2021, President Ruto has signed agreements on his two-day visit to Rwanda.

Europe

EU to up its renewable energy goals

The European Union is set to increase its renewable energy targets for 2030, aiming to decrease its reliance on fossil fuels and reduce emissions while decreasing its dependence on Russia. Negotiators from the European Council and Parliament have reached a preliminary agreement to source 42.5% of the bloc's energy from renewable technologies such as solar and wind by the end of the decade.



UBS buying Credit Suisse for more than \$3 billion



Regulators desperate to stop a hazardous fall in confidence in the global banking system drove UBS Group into the biggest banking deal in years, agreeing to acquire its longtime competitor Credit Suisse Group for more than \$3 billion, reported in The Wall Street Journal.

UK firms compete for the electric car battery recycling act

Since electric cars are more environmentally friendly, recycling spent batteries could yield £350 million, stated to the UK-based Society of the Chemical Industry. Experts predict recycling up to 40% of lithium batteries can reduce carbon emissions and mining costs by 2040.



France 2030 funds a project to promote plant-based dairy innovation

The French government has allocated €8.3 million as part of its France 2030 activities to encourage local plant-based dairy innovation. An €11.4 million project will be managed by the French public investment bank 'Bpifrance' with the goal of empowering farmers to develop a sustainable local plant-based ingredients business.



America

SVB collapse, fears of more banking failures



The 16th largest bank in the USA, the Silicon Valley bank, has failed. Experts have cited several factors, including risky laws from the Trump era, top-level mismanagement, inflations, and increased interest rates, contributing to the downfall of the tech-based startup lender. Even at the end of 2022, the bank's total assets stood at USD 212 billion.

Meta fired 21,000 in 3 months

Facebook's founder Mark Zuckerberg has proposed 2023 as Meta's 'year of efficiency.' The corporation fired 10,000 workers on March 14th, totalling 21,000 employees who lost their jobs in three months. This only added to the long list of a layoff frenzy by the tech giants that started last year.



Inflation in Argentina reaches 100%, highest since 1991



Latin American nation Argentina faces its worst inflation situation in 3 decades, with inflation reaching as high as 102.5% in February this year, the highest since 1991. As this number is given by the government, experts fear the real scenario to be worse.

Global renewables capacity rose by 10%

The world's renewable energy capacity reached more than 3300 gigawatts (GW), over 295 GW or 9.6% more than the year before, revealed International Renewable Energy Agency's (IRENA) annual report. The year-on-year growth is very good, according to experts, and it will only grow in the coming years.



Will AI sell products in the future?

by Farabi Shayor

COMPUTERS ARE BETTER THAN humans at coordinating and automating repetitive and mundane tasks. The fiery growth of artificial intelligence and its use in the user-facing market has demonstrated that AI is the future of the internet and e-commerce. Almost every technology company, including social media sites, deploys a *machine learning algorithm* (MLA) to serve content to the right users. Every piece of content that a user sees on any social media platform, from Facebook videos to TikTok's 'For You' page, is determined using a proprietary algorithm.

There has been a significant advancement in artificial intelligence – to the point where it can now choose when and where adjustments need to be made and how to optimize the algorithms it uses to do so.

When it comes to shopping, social media companies already own the algorithm that delivers items in their marketplace and stores. It enables them to sell directly to consumers, a trend currently being adopted in a whirlwind of current events. Hence, theoretically, AI is already selling products to users.

In addition, technological advancements have allowed for the maximum possible benefits of automation in sales to the extent that they no longer need human involvement. AI can handle every step of the sales process, from discovering potential customers to providing them with relevant content. Let's look at the state of AI in retail.

According to industry experts, global AI in retail is projected to reach a growth rate of 24% CAGR by 2028. Moreover, World Economic Forum suggests AI services will increase from 5 to 31 billion by 2028. The growth of technology will create high-skilled jobs in the technology market and open doors for researchers.

However, this report by the UK government suggests approximately 7% of the jobs could face extinction due to the probability of automation over the next five years, increasing to around 18% in the next decade and 30% in 20 years. A PwC

analysis suggests that approximately 500,000 job losses are predicted within the UK, likely to catapult as the technology improves over time.

Technology advancements have allowed for the maximum possible benefits of automation in sales to the point where they no longer need human involvement. AI can handle every step of the sales process, from discovering potential customers to providing them with relevant content.

Different types of AIs are utilized for analyzing data and sales. Some are designed to keep the customers engaged 24/7, reducing the dependency on human operators. Take chatbots as an example. Using *Natural Language Processing (NLP)*, conversational AI can automate tasks such as generating and nurturing leads, onboarding, sending customer reminders, processing payments, and tracking shipments.

The growth of *Large Language Models (LLM)*, such as Chat GPT, a type of NLP, has taken the world by storm. Just as Bing incorporates Chat GPT into their browser, other companies will likely follow suit. This isn't an average chatbot constrained to answering specific questions, but more human-like and able to have an in-depth discussion, as it learns from every single input.

There are certain aspects of the retail industry where AI has and will possess a long-lasting impact, including:

Customer Discovery – AI can understand what a customer wants to see and perform *sentiment analysis* to show their desired product. Social media sites widely deploy the technology to serve product ads. The algorithm making recommendations constantly learns from user behavior to improve in its next customer discovery phase. The algorithm then uses a lead scoring system to increase the accuracy of discovering the right customer.

Inventory Management – Large retailers such as Amazon and Walmart are already deploying AI on a grand scale. It helps them provide instant notification of stock requirements, produces in-



store and online heat maps, and forecasts when a product sits on a shelf.

Autonomous Supply Chain – While Amazon Web Services (AWS) has long been known for using robots to move items in warehouses such as ‘Proteus,’ Walmart has rolled out their Symbotic Robot in all 42 warehouses in the US. Such initiatives will help drastically improve the fulfillment process.

Amazon uses robots in almost all its warehouses and depends on its algorithm to predict stock count for decreasing lead times.

On the sales side of commerce, AI will speed up many mundane tasks, from tracking to warehouse operations to delivery optimization.

Another excellent example of AI selling products is the Amazon Fresh stores. Fully automated, has no checkouts, and has very few colleagues responsible for receiving the delivery and replenishing stocks. Otherwise, users walk in using a QR code, pick up a product, and leave. No checkouts, no hassle of waiting in lines to pay.

This writer has visited the Amazon Fresh store in Aldgate multiple times and tried many ways to fool the AI. Overhead, hundreds of cameras recognize human movements and track who’s picking up products. Once a customer picks up a product, the AI adds it to the basket. The AI completes the checkout process the second you walk out. After three to four minutes of completing the shopping, a receipt will pop up explaining how much time the user has spent and what they’ve bought.

Approximately 7% of the jobs could face extinction due to the probability of automation over the next five years

It’s worth noting that while AI is rapidly becoming the norm in online retail, it won’t be doing so at the expense of people any time soon. Selling a product as an AI in a physical store, completely automated or online, is most likely a decade away. Sales representatives who understand complex human emotions cannot be removed from this supply chain soon. Even so, until Boston Robotics starts selling its robots to Walmart or Sainsbury’s, there will always be a need for people in stores to perform particular tasks. Artificial intelligence may supplement human sales executives in influencing relationships, streamlining processes, and managing forecasts.

Nevertheless, AI’s influence will continue to increase on the marketing front. Scientists suggest that AI is likely to influence marketing strategies, business models, the process of sales, and customer service and even tap into things like understanding complex customer behavior.

Will AI be selling products in the future? It already is, but AI needs more time to reach the level of fully autonomous physical stores without humans. In summary, here are the five aspects that we will see more of in the next five years:

AI-powered checkouts and fully cashier-less shops will allow people to walk in with a code and simply walk out with their shopping.

Use of Vision AI and optical image recognition to analyze user behavior in-store and online and improve stock management.

Use of LLMs such as ChatGPT to humanize chatbot behavior, where AI will have more control over a process, will effectively reduce call centers.

Increase of retailers using social media and its algorithm effectively to sell products and reach out to customers

More partnerships between tech giants and retail, such as Google and H&M partnership, will improve the retail supply chain backbone through advanced AI.

Farabi is a Chartered Scientist and a published author. He works as a consultant for the UK government, startups and academia, focusing his research on blockchain and AI. He is also a Research Lead at Imperial College London, one of the top 10 institutions in the world.

The world is moving toward electric vehicles

by Taiyemul Islam Safowan

BACK IN 1886, WHEN CARL BENZ MADE THE FIRST GAS ENGINE-OPERATED vehicle, it shocked the whole world. Fast forward nearly 14 decades since the first inception of four-wheel gas-operated vehicles, electric vehicles have entered our markets. At first, Electric vehicles, or EVs in short, seemed to only be in Sci-fi movies. But now, in most developed countries, you see EVs everywhere. But how did this sudden boom of EVs in our lives happen?

In 2006, Tesla CEO Elon Musk first revealed the Tesla Roadster, a two-door sports car, to the general public; it didn't captivate much attention as people then didn't trust the lithium-ion-based battery-powered electric vehicle technology. Whereas a year earlier, Bugatti unveiled its gas-guzzling 16cylinders engine, which people seemed to love a lot.

Though Tesla received some orders for that vehicle, the first unit rolled off the factory floors and was delivered in February 2008. Next came Nissan Motor Corporation; they hyped up the EV game with their Leaf in 2010, and it was a 4-door 5-seater practical electric vehicle, unlike the Tesla Roadster. Surprisingly the Leaf sold a lot, and to this date, Nissan still produces the Leaf.

After that, Tesla unveiled the Model S, a full-sized sedan that opened the door for all EVs of today. It was a practical car with 5 seats and proper cargo space.

It didn't emit harmful gases, and it didn't empty people's pockets during charging. With its 60kwh battery pack, it could go up to a range of 400km.

Slowly but surely, people started to get drawn to this car. Tesla also upgraded the battery pack to a 100kwh afterward, which had a range of roughly 600km.

No one but time can tell whether the transition from internal combustion engines to battery-powered vehicles will occur.

But based on what we see today, it is heading that way.

Many manufacturers are jumping on the bandwagon and producing electric vehicles, such as Ford, Toyota, Honda, Porsche, and many other reputed brands.

EVs can give you exhilarating performances like 0-100km in less than 2 seconds while being environment-friendly. It is also economical as there are fewer parts than in a conventional car. But it also tends to break less and doesn't need the general fluid change services that a conventional car

EV sales in Canada and the USA climbed by 48%

China saw an 82% yearly growth in sales

Production cost significantly higher for EVs

0-100km in less than 2 seconds while being environment-friendly

needs, saving money there.

Gasoline, a natural product, will one day end as it's a finite resource. So battery-powered vehicles need to take over the world. The governments of many nations also think EVs are the future, as European Parliament and the council said that all cars and vans will be zero emission by 2035. China will also ban the sale of fueled vehicles by 2030. The country also provides subsidies to people who buy electric vehicles, which has promoted the growth of electric vehicles there a lot.

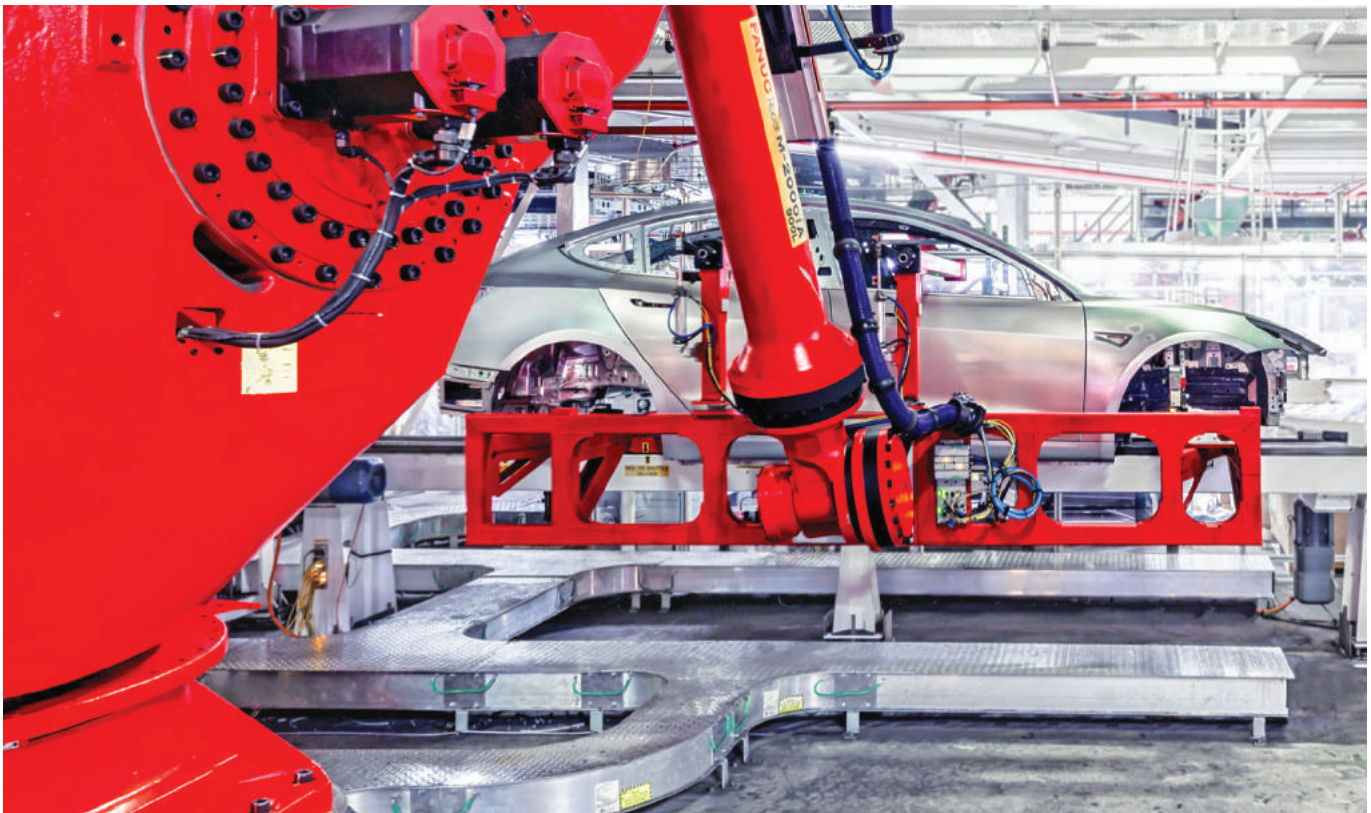
electric vehicle.

According to the Norwegian Road Federation, in 2022, 79.3% of new cars in Norway were BEVs. The government will likely accomplish its goal of having all vehicles sold in Norway be electric by 2025.

Despite increasing demand for EVs and their wide-scale production, EVs are still more expensive than traditional engine-based cars. According to INSIDEEVs, a news site for EVs, an average C-segment ICE sedan costs about 14,000 euros to

the shell/exterior of the car is also more expensive than ICE (Internal Combustion Engine) cars due to requiring different welding techniques and using lighter materials such as aluminum and carbon fiber. As EVs become more popular, the economy of scale will improve, and the cost of production is expected to decline. However, ICE cars still have a significant advantage in economies of scale due to their long history of production and established supply chains.

Considering all these initiatives, EVs truly have great potential for the future. But,



The EV market size is increasing at warp speed in the world. If manufacturers use this opportunity wisely, it could be a gold mine. According to EVvolumes, an electric vehicle sales database, 10.5 million new BEVs (Battery Electric Vehicle) and PHEVs (Plug-in Hybrid Electric Vehicle) were delivered in 2022, a 55% growth from the previous year. Year on year, EV sales in Canada and the United States climbed by 48%. Even crisis-stricken China saw an 82% yearly growth in sales. Norway now boasts the most electric automobiles globally, owing to the government's lower taxes and incentives for purchasing an

produce. At the same time, an EV of the same segment costs roughly 20,200 euros to roll off the factory floors. That's an extra 6200 euros.

The main culprit for this cost difference is the battery pack. Battery production requires expensive raw materials such as lithium and cobalt, and the production process is complex and involves a lot of energy. However, battery production costs are expected to decrease in the coming years due to technological advancements and increased demand.

The manufacturing cost for producing

for certain people who enjoy the scream of powerful engines—which, to most motorheads, sounds like a symphony, it's not good news. A mechanical connection between a man and a machine appears only in internal combustion engine cars.

Unlike an EV, which lacks these features, each gear shifts, and each firing cylinders of a car excite the driving experience. Most EVs are as quiet as church mice and some pump in artificial audio through speakers. Surely engine powered vehicles are a dying breed, but whether they remain or not, only time will tell.

Democratizing simulation tech: An opportunity for Bangladesh

by Sameeul Bashir Samee

WHEN PALEO MEN BUILT TOOLS FOR THE first time in human history, they learned an important engineering lesson: build-test-repeat loop. The shorter this feedback loop, the greater the pace of innovation. And we live in a time when the pace is at its all-time peak, and we can surely say the pace tomorrow won't be as slow as today. As a citizen of Bangladesh, this writer cannot ponder and ask what our place on this highway of innovation is. Historically, we have always been at the consuming end of innovation. Yet, recent developments in various technical fronts can give us an entry point to turn the table and start serving technological innovations to the world.

Current state of simulation technology

For most of the industrial age, the build-test-repeat loop was exceptionally long. The building phase was always the costliest and longest one, with numerous occasions when organizations brought a product to market too late or of inferior quality and paid the price due to the laggy nature of this loop. Because of these experiences, there was always a drive to devise ways to shorten this feedback cycle.

Since the dawn of computing, there have been efforts to incorporate computers in the design process so that part of this build-test-repeat loop can be done virtually, which can save both time and money. Aerospace and nuclear reactor design industries were the early adopters, with automobiles following suit quickly. Today, virtually all industries, whether running shoes or high-end cellphones, paper towels, or HVAC systems, invest deeply in simulation technology. Modeling and simulation have become the bread and butter for gaining key insights during design and testing.

The last 50 years have seen enormous growth in computational science, and ideas from academia have poured over to commercial products. Most successful commercial software lineages can be traced back to university laboratories. Although academia is still living on the bleeding edge and working on new challenges of simulation technologies, much of its output has matured enough to become stable tools for industrial application.

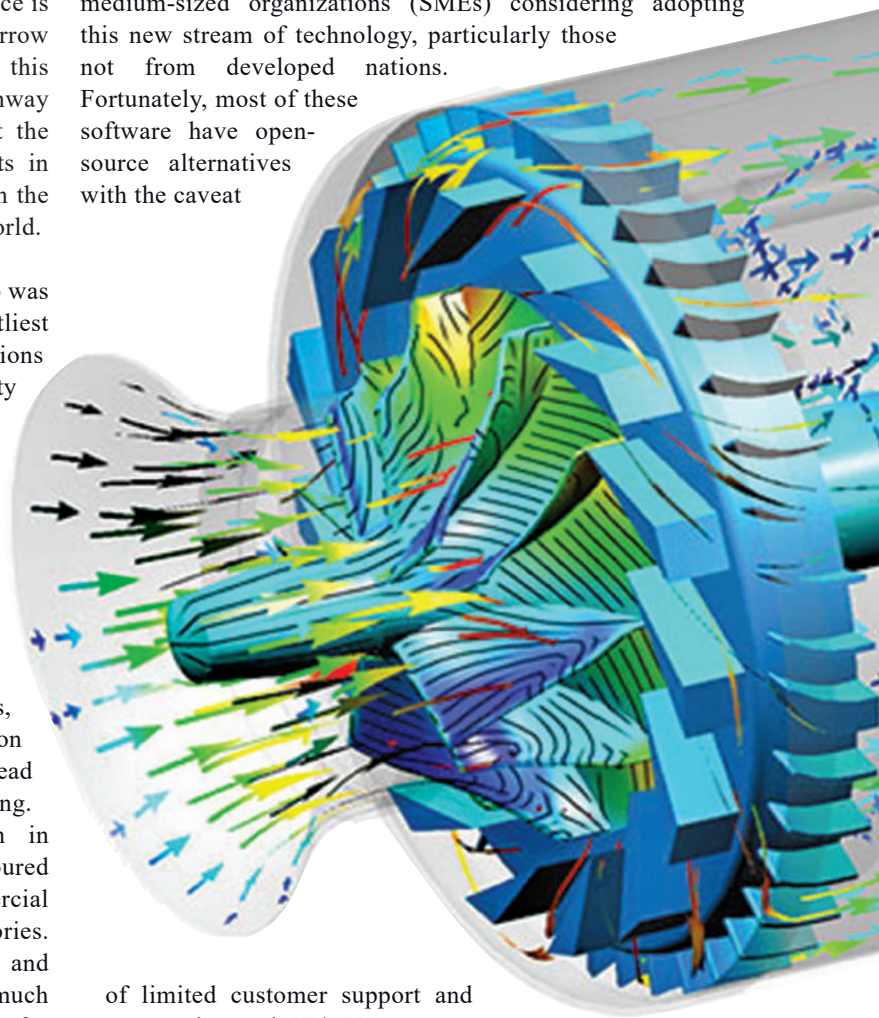
We have seen a continuous investment from companies to make these tools user-friendly, reliable, and efficient. In the last decade, we have experienced the appearance of digital twins, which can represent a physical product or process completely

in a simulation environment. Digital twins have become a key enabler of Industry 4.0.

The open-source innovation

It might feel daunting and cost-prohibitive for small and medium-sized organizations (SMEs) considering adopting this new stream of technology, particularly those not from developed nations.

Fortunately, most of these software have open-source alternatives with the caveat



of limited customer support and not-up-to-the-mark UI/UX.

Many successful commercial products are built on top of some open-source products. NASTRAN and Code Aster are two highly capable open-source finite element simulation software, and quite a few commercial software are based on them. OpenFOAM can feature-wise compete with Ansys Fluent

and Star CCM+. If we are looking for some first-principle-based modeling, FENiCS can be a really powerful tool. Also, not to mention, the Python ecosystem has a lot of tools that can offer the same capability as MATLAB.

So, for both academic institutions and industrial organizations, if they want to dip their toes in modeling and simulation, open-source software can be an alternative to long-term investment in commercial counterparts. Also, this is an opportunity for local academic institutions to collaborate with international academic institutions and make fundamental contributions to these open-source software.

The Cloud Model

Since the 1980s, there have been predominantly two kinds of simulation infrastructure: one using a node-locked licensed version of simulation tools on an expensive high-end desktop and the other using a relatively light desktop to build the model and then using the HPC cluster to run the models. Both cases require upfront

technical development.

The commercial simulation software vendors are also pushing for these changes as this helps them to capture more untapped users. We are also seeing a shift to a subscription-based pricing model. The subscription model helps the vendors predict their future revenue consistently and helps the users to amortize the software cost over a period. We also see a push to offer low-fidelity and fast simulation products over the cloud, particularly targeting designers. Along with the market leaders like Ansys, Siemens, and Dassault Systemes, many start-ups like SimScale, Simerics, and OnShape are popping up and offering pay-per-use models for users that save them from upfront investments.

In Bangladesh, the thought of investing in modeling and simulation is likely to be shot down in an executive room meeting due to the lopsided cost-benefit curve. Even for large corporations, mid to long-term investment in such technical ability development comes with many risks due to factors like business climate, talent turnover, etc.

However, with these new pay-per-use and subscription-based models for hardware and software, Bangladeshi companies need not feel left out when it comes to leveraging modeling and simulation to innovate. They no longer need to funnel heavy capital investment for infrastructure and talent development. Starting small and organic growth of simulation footprint can be the new mantra for local engineering firms.

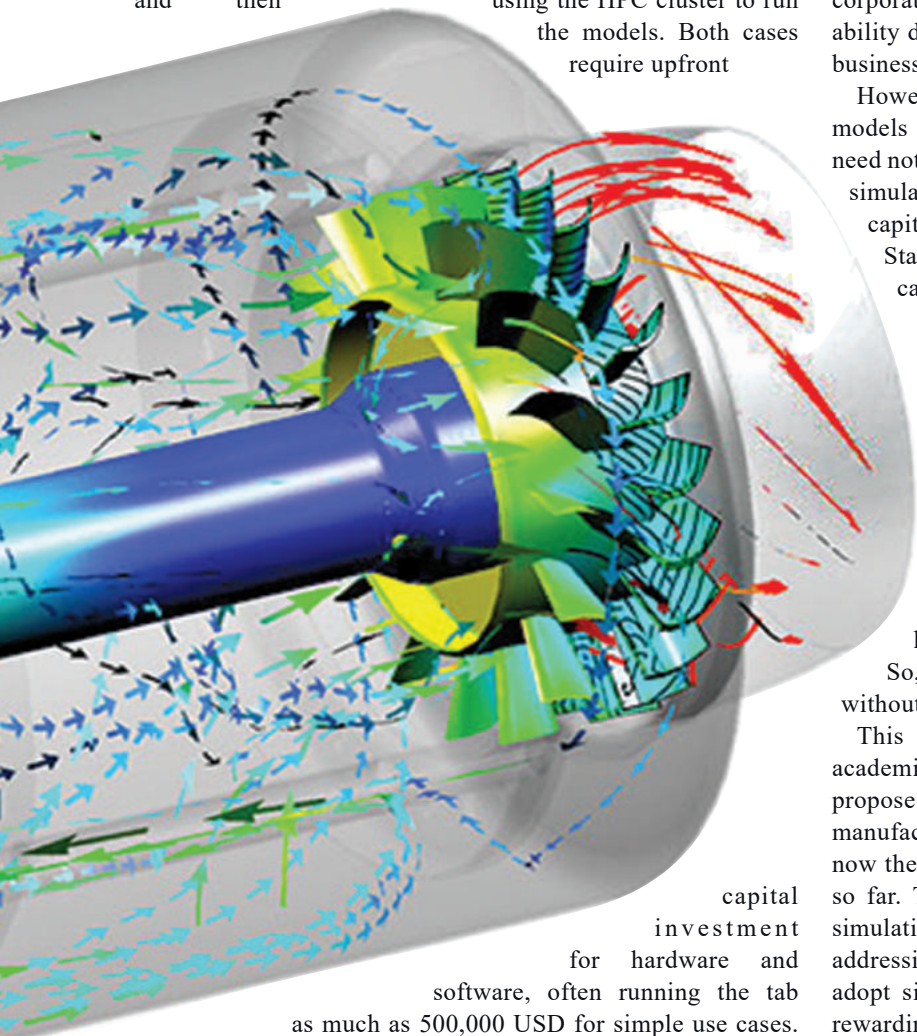
Innovation opportunities at home

You will often hear simulation tool veterans saying, “Garbage in, garbage out.” Indeed, computer models merely generate outputs based on the inputs given, and they rarely judge the quality of the input. So, if the models are weakly developed, the simulation results will be unreliable. There are many case studies where companies invested in the wrong modeling techniques and found the results unusable. That scarred experience left them second-guessing every later venture they did in modeling and simulations.

So, investment in simulation tools will never bear fruit without investing in developing the users.

This opens a new avenue for collaboration between academia and industry in Bangladesh. Often, when advocates propose adopting modeling and simulation in the design and manufacturing process, executives get scared thinking that now they must completely change how things have been done so far. This is not how successful organizations incorporate simulation technologies in their workflows. It often starts with addressing low-hanging fruits. An organization that aspires to adopt simulations in its processes should identify small but rewarding technical design or manufacturing problems it wants to resolve using simulation. The next step would be to develop collaboration with academia, where the expertise is already available to develop models and interpret results.

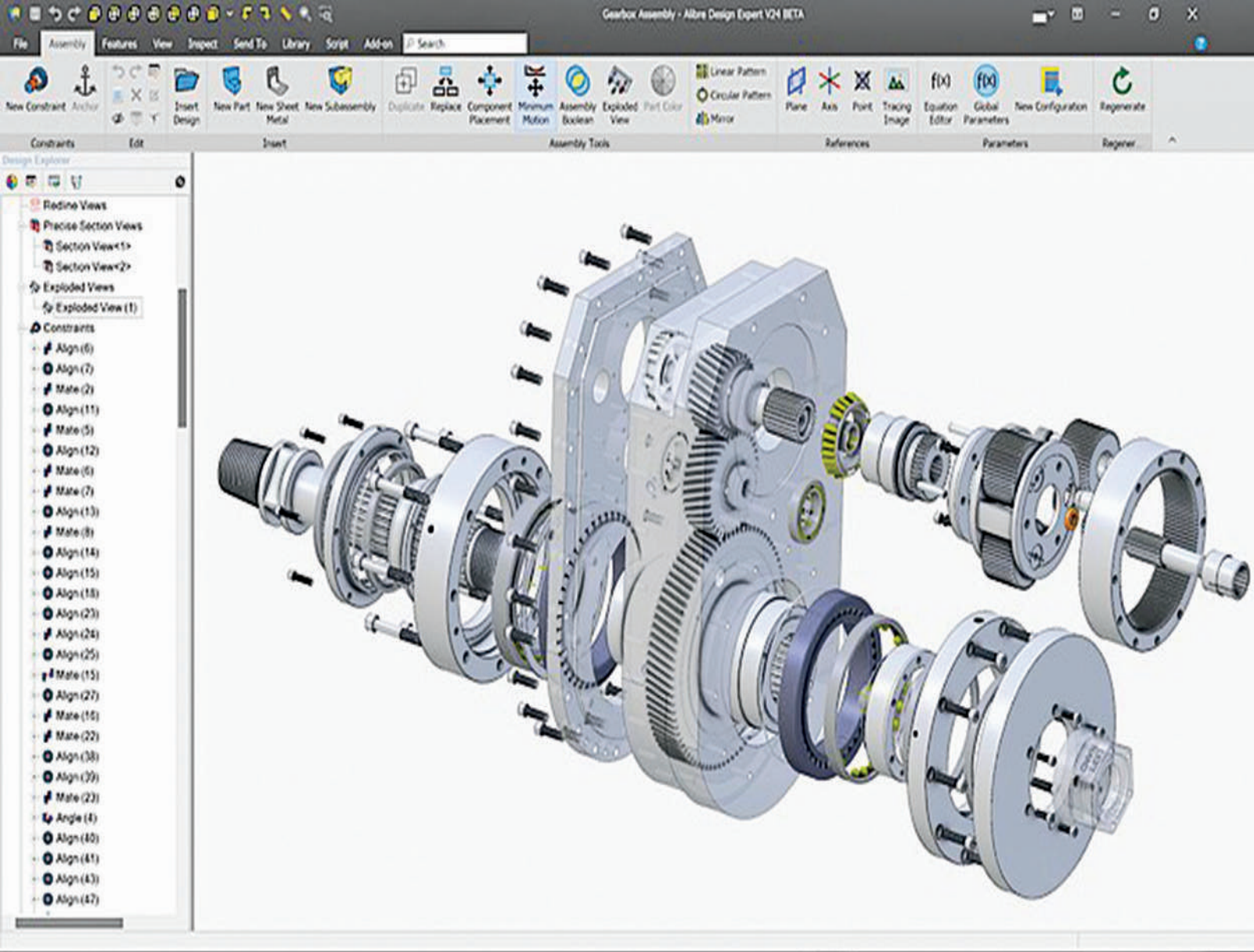
In the past, the unavailability of hardware and software would have stalled the process here. But today, numerous open-source and low-cost pay-as-you-go services are available for most simulation problems, particularly in the low-fidelity domain. This is where academia should train current students with the



capital investment for hardware and software, often running the tab as much as 500,000 USD for simple use cases.

This is often an entry barrier for SMEs adopting modeling and simulation in their design process.

With the emergence of cloud-based computing, we are now experiencing two new business models: Software as a Service (SaaS) and Infrastructure as a Service (IaaS). These models offer organizations the ability to overcome the entry barrier. Now they can start small and scale up as needed. This also frees up a valuable investment they can now divert to invest in



first-principal modeling and the latest off-the-shelf software. Most software companies are willing to work with academic institutions to offer low-cost or free academic versions of their products, as this helps increase their user base.

Since commercially available simulation tools have reached a certain maturity, for any academic, it feels daunting at first to make any fundamental contribution in this domain. Bangladeshi academic institutions should take a more pragmatic approach to developing talent in this space. First, we need to overhaul our engineering curriculum by eliminating outdated coursework and introducing simulation courses. There should be courses that teach basic first-principle-based simulation techniques and utilize industry-standard open-source or commercial software. For example, mechanical engineering students should learn to develop models based on the heat equation or the laws of elasticity and take courses that teach modeling and simulation using Ansys or Nastran

The key focus should not be on reinventing the wheel but rather on understanding the principle of how the wheel works and then using existing wheels to solve some real-world problem. Academics should not confine themselves to their

offices and wait for industry professionals to bring problems to them. Rather they should take an active role in reaching out to the industry and seeking out problems to which they can offer solutions.

Developing talent in any domain is a medium-to-long-term project. It would be foolish to expect any short-term gain from the investment. There should be a fast feedback cycle of solving small problems and using the results in the industry, which will develop the analyst community's competence and confidence. As this progress, problems with incremental complexity can be tackled. On complex problems, there will be temptations to get it done by shipping it overseas. Undoubtedly, this will be a costly and harmful move for the long-term local talent development process.

Bangladesh has raw talent that can be nurtured and morphed into a capable high-tech workforce. Due to various shifts and congruence in technology and business models, a new opportunity has opened up, and we should not waste it.

Sameul Bashir Samee is a computational scientist currently working at the National Institute of Health in the United States.

Embracing autonomous vehicles

A rational step forward

by **Dr. Jaffrey Al Kadry**

ROAD TRAFFIC SAFETY CANNOT BE TRADED LIGHTLY. MANY people, including this writer, can attest to the life-altering experience of traffic accidents. What if there is a way to reduce traffic accidents? Should we keep ignoring it? Let's not rush to the answer. Let us first take a detour with history.

As soon as multi-storied buildings started to pop up, elevators were invented. These were different from what we see today. The safety features were not as great as today. Numerous accidents happened either due to design flaws or operational errors. Nevertheless, the elevator's motion is simple - going up and down with controlled acceleration and deceleration. Still, there used to be operators employed whose sole job was to close the door and press the button to take elevators to the desired floor.

Until the 1940s, this was a common scene in the USA; even in the early nineties, it was also common in Bangladesh. Slowly but surely, people realized that the elevator operation was simple and did not need a full-time employee.

Adopting any technology is a gradual shift and depends on many socio-economic factors. The extinction of the liftman was also such a case. Between 1920-1960, there were a few elevator strikes in New York City when the operators refused to work in demand of better wages. The 1945 strike brought the city to a standstill. These strikes created incentives to design elevators that would be easy to use and not need any operator. At some point, it became the norm that lifts would work on button presses without needing a trained professional.

Cities like Vancouver, San Francisco, Seattle, and some European cities have foggy climates year-round. Although pilots face a greater challenge landing aircraft in those cities, accidents are rare in these airports. It is because pilots rely heavily on sensors and onboard computers to evaluate the surrounding environment and make decisions.

Fog can create a barrier to human visibility, but modern aircraft have sensors that can see through dense fog and make the landing a breeze. When planes fly at a high altitude, the onboard computer system takes over most of the navigational tasks. A pilot can intervene and manually override a computer's decisions, but pilots are overly dependent on the computer for navigation. We still have a psychological barrier that does not allow us to board a plane where computers fly, but we got used to riding an elevator without an





operator. We will become comfortable boarding a plane without a human pilot someday.

So now the question arises, what are the issues if we outsource the tasks of driving a car to computers? Imagine you want to use an app on your phone to summon a car. The ride-sharing company sends you a car with a human driver who takes you to your destination. Now, let us assume this. The company sends you a driverless car, it takes you to the destination, and you pay for it from the app. No fuss.

If you ask 100 people how far that future is away, half of them will say 10 years down the road. But the future is already here. Although the technology is not perfect yet, level 5 autonomous driving cars are here now. Like any technology, it is still nascent and has some kinks that need to be ironed out. In the last 2-3 years, many cities have allowed these cars to be driven experimentally on public roads, and the data so far makes us hopeful. The cars have already amassed a few billion miles of driving and have a near-perfect driving record.

Each driverless vehicle has about 30 cameras, lidar, radar and other sensors. Because of these, the vehicle can better assess the environment than humans. The statistics available today attest that autonomous vehicles are much better drivers than humans. They do not break

Each driverless vehicle has about 30 cameras, lidar, radar and other sensors, they do not break the rules, and if there is a situation where the onboard computer cannot decide, it can be remotely resolved or navigated using connected technologies. Because of these, the vehicle can better assess the environment than humans

the rules, and if there is a situation where the onboard computer cannot decide, it can be remotely resolved or navigated using connected technologies.

Some vehicles coming to the market do not even have steering wheels or seats for drivers. The biggest hurdle at this point is not the technology but the lack of a legal framework. It is not just the politicians, ranging from the public to insurance professionals -- many of us are still struggling to accept the new reality.

It has become necessary for countries to create a legal framework for driverless vehicles and develop a strategic vision to replace human drivers with computers. Because driverless cars will cause fewer traffic accidents than human drivers. The number of lives lost each year due to traffic incidents can be dramatically reduced to a fraction of what it is today if all vehicles become driverless.

Elevators have become operator-less, most aircraft operations are computer-assisted, and cars, buses and trucks will become autonomous also. Driving as a profession may even become extinct. In developed nations, most long-distance trains still have drivers; however, airport shuttles and short-distance freight trains are usually driverless nowadays.

We must recognize that advances in machine learning and big data, new sensor technologies, and onboard

computers with lots of processing power enable autonomous vehicles to make decisions faster than humans. Most vehicles now have redundant navigation capability to guard against a single failure mode.

Here is another economic argument for driverless cars. When we buy a vehicle for personal use, it stays parked 95% of the time -- a significant investment that remains underutilized. So, there are now discussions about changing the ownership model. If there is a way to have on-demand access to reliable and fast driverless vehicles, there is no reason to buy a traditional car and keep it idle most of the time. There will be no time wasted finding parking after reaching the destination. The car can drop the passenger and move on to the next one.

A few decades ago, philosophers conceived the ‘Trolley Problem.’ We are here going to present it as a driving scenario. Suppose you are driving a car extremely fast and realize the brakes are not working. Looking ahead, you see that 5 people are crossing the road, and a collision will be fatal for them. On your right side is an old man standing, and if you steer the car in that direction, the man will die, but those 5 pedestrians will survive. Also, there is a wall on your left and crashing into that wall will surely save all of them except you. Now the question is which way you should decide.

The problem might appear overly dramatic but not improbable. We want to understand the implication of each decision and solve this problem now. Because, in an autonomous vehicle, you will not make the decision. The onboard computer or the programmer writing the software needs to know the ‘right’ decision. And ‘right’ is questionable here since we are dealing with moral philosophy.

As computers are fast and accurate at computing things, they are usually programmed to solve this type of problem using laws of probability. It tries to compute a decision tree

with an estimated loss for each node and then opts for the node that minimizes the loss. It may find out that running over the old man minimizes loss and attempts to do that. Some benevolent programmers might decide to kill the driver but none of the pedestrians. It all sounds very utilitarian in principle, but you will probably not buy such a car.

The odds of a trolley problem scenario are extremely low, particularly when all vehicles will be driverless. There is no point in letting so many lives be lost in fatal vehicle accidents just because of this remote possibility of ending up in a trolley problem. Stories portrayed in science fiction and movies swayed some people’s opinions against computers and robots with decision-making abilities. But like COVID vaccines, the rewards outweigh the risks for autonomous vehicles.

Commercial trucking is expensive in the United States due to high driver wages and regulations on how long a driver can operate without a break. This incentivized some companies to invest in autonomous trucking. It will probably take a strike from truck drivers like elevator operators in New York to show people that autonomous trucking is safer and cheaper than human truck drivers. There are about two million professional drivers in the United States, and all these jobs may be lost. But, making and maintaining these fleets of autonomous vehicles, there will be a huge need for programmers, engineers and a variety of new professions which do not even exist today. There is no way to ignore the economic importance of this future possibility.

Dr. Jaffrey Al Kadry is an IEEE senior member and an expert in the domain of electrified vehicle high voltage system and component design. His work has generated 12 patents in the field and he has continued to develop tools and techniques for high voltage system analysis.



Bangladesh's pharmaceutical



Registered Company
257



In operation
150



Yearly Growth
4.03%

MARKET IN NUMBERS



Market Size
Tk 33,000cr
in Sept 2022



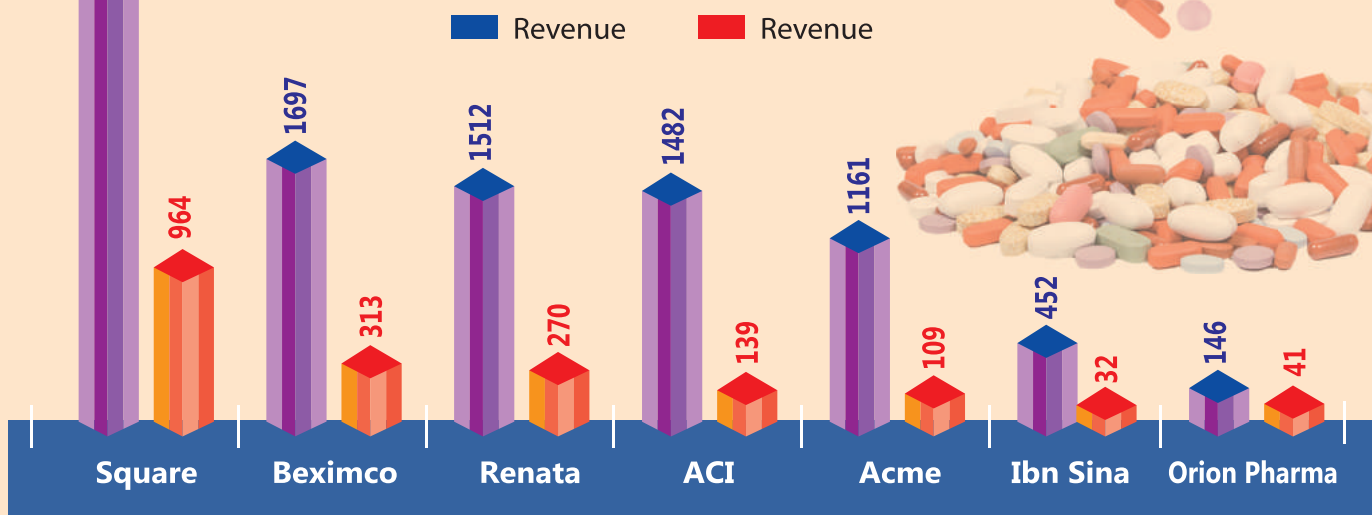
Per Capita Consumption
Tk 2000



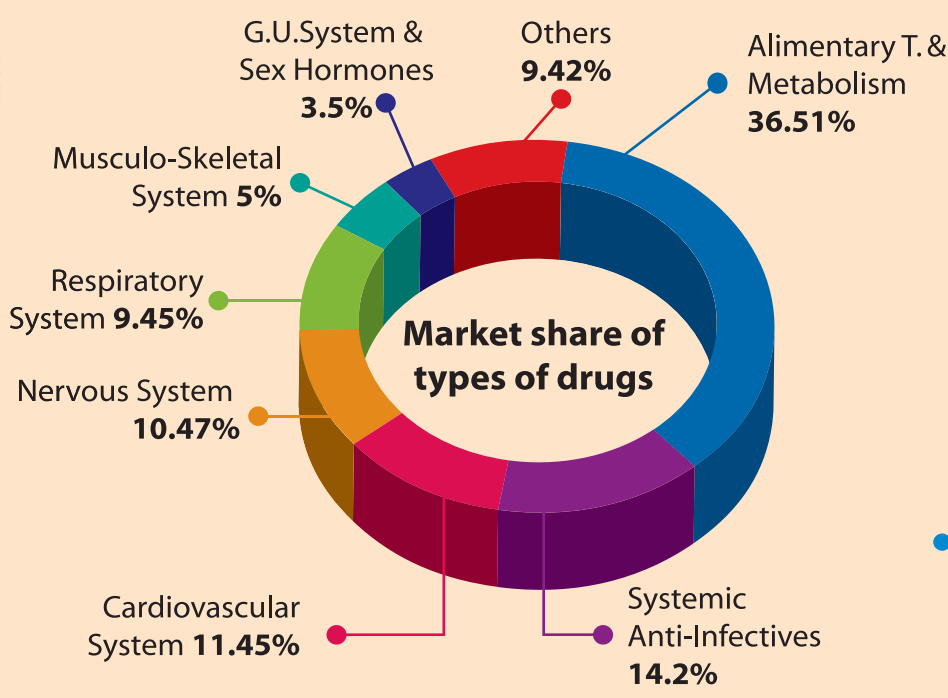
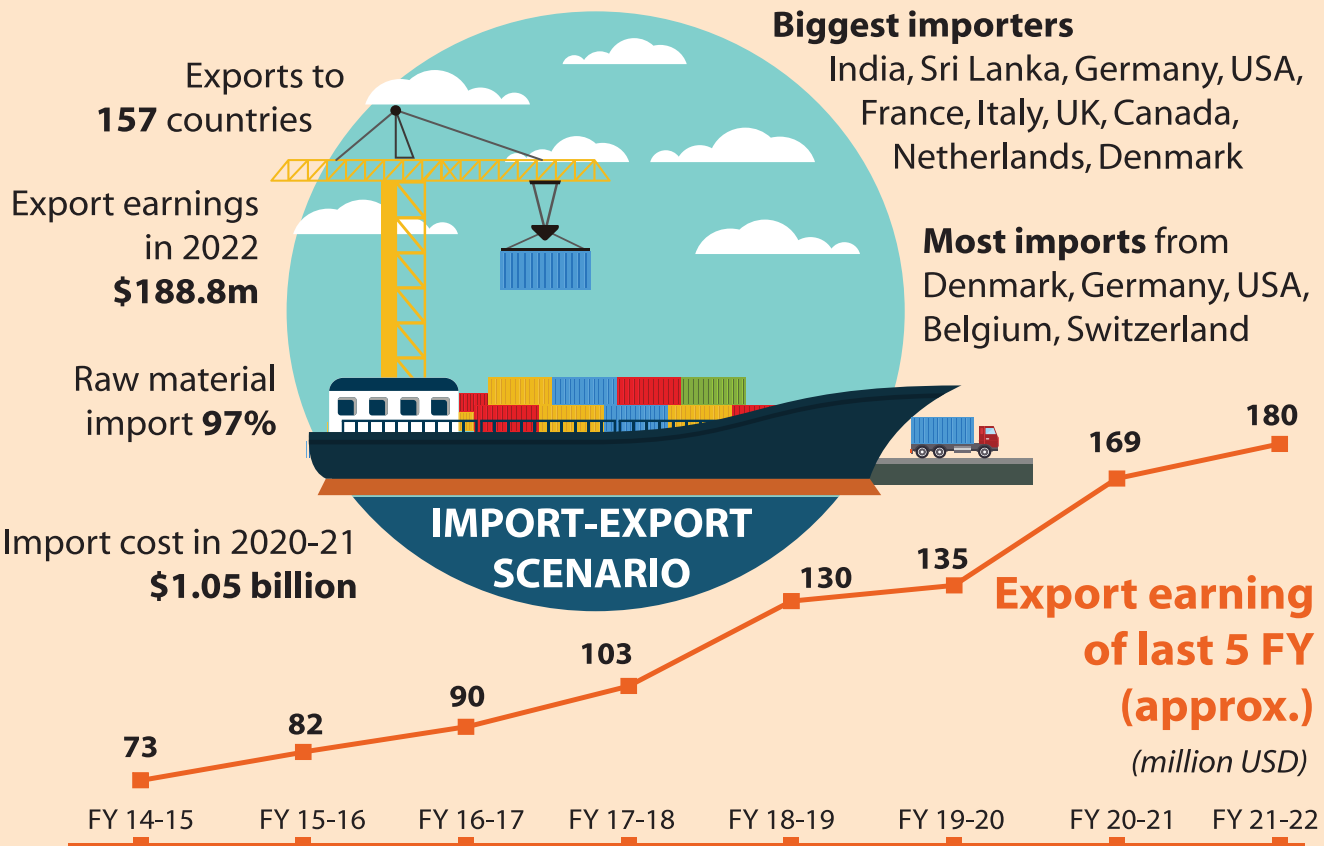
Local Demand Met
by Local Cos
97%

Top performing Pharma companies of FY 22 first half

In crore Tk



industry doing wonders



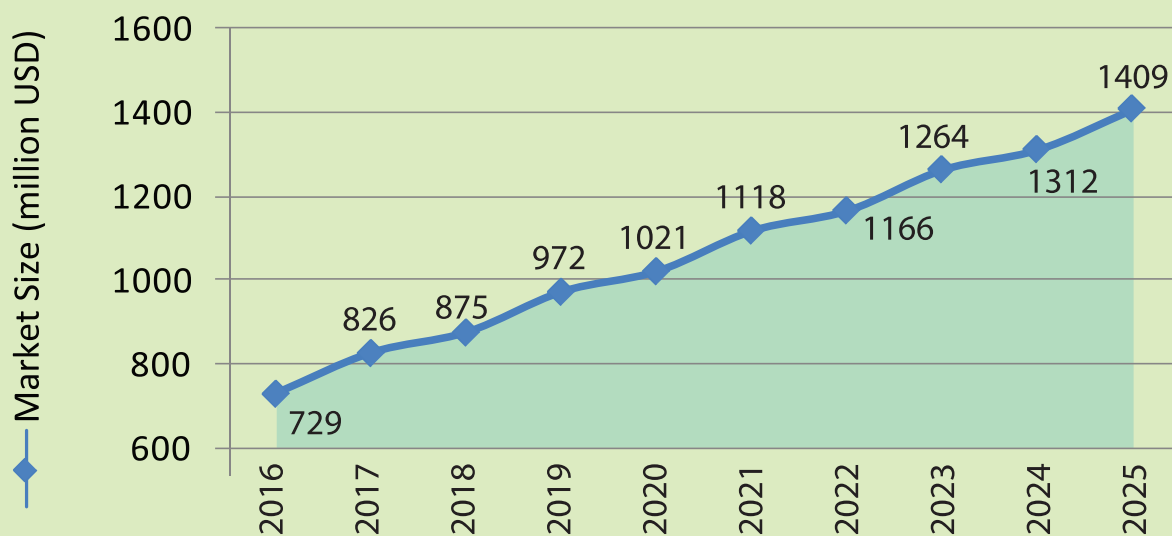
FDI SHARE

- Total FDI in Pharma **1.94%**
- Growing **API industry**
200 ACRES API Park Under construction in Munsiganj
- Biggest contributors**
UK (40.6%), India (7.1%), Netherlands (5.7%)

Source: Directorate General of Drug Administration



Growth potential of Bangladesh's API industry



Source: MRC Bangladesh Limited



Annual growth rate
17% (2014-20)



FY 20-21 export
USD 169 million



Export growth rate
15%



Contribution to GD
2%



Production cost comparison
to India and China
15% lower

Burgeoning API manufacturing in BD

A blueprint for a robust pharmaceutical sector

by Syed Raiyan Amir

THE PHARMACEUTICAL SECTOR, ONE OF Bangladesh's few knowledge- and technology-intensive industries, is anticipated to develop at a compound annual growth rate (CAGR) of more than 12% and reach a value of more than USD 6 billion between 2019 and 2025. Even during the pandemic in FY 2020, when other major sectors saw a decline in output, the pharmaceutical and medical chemicals business growth accelerated.

However, in recent decades, the industry has kept its manufacture of active pharmaceutical ingredients (API) the

same. Consequently, the whole sector is gradually relying on numerous players to ensure the continuous supply of API goods. Furthermore, since the global pharmaceutical sector faces unprecedented production pressure, the significance and demand for API have begun to rise. To overcome the hurdles, Bangladesh has finally begun to produce API, ushering in a new chapter in the pharmaceutical business.

Why is API so important?

API of medicine is its physiologically active component. APIs are synthesized or taken from natural sources and

packaged into tablets, pills, and injections. Ibuprofen, aspirin, and acetaminophen are APIs. Thus, API is the basis of any Bangladeshi pharma product.

APIs make up 30% of small molecule medication prices and 55% of generics. Currently, Bangladesh can satisfy 98% of the demand for finished pharmaceutical goods produced inside the country. Though self-sufficient in finished pharmaceuticals, over 90% of API and raw ingredients are imported.

However, substantial raw material imports leave the pharmaceutical business subject to supply chain disruptions and price instability. The backward linkage may affect our burgeoning pharmaceutical industry. The current global economic crisis has also delayed global commerce, manufacturing, and supply chain disruption, posing several problems for the global pharma business. In this respect, the relevance of API is more than it has ever been before in the annals of history.

Government initiatives and journey of Bangladesh's API industry

The Bangladesh government and pharmaceutical sector recognized the necessity of API manufacturing and even the prospect of export. The Government of Bangladesh (GoB) has been granted various incentives to stimulate the domestic manufacture of pharmaceutical raw materials. The API policy and establishing API parks are also key factors in incentivizing local API production.

The Ministry of Commerce developed the National Active Pharmaceutical Ingredients (API) and Laboratory Reagents Production and Export Policy to encourage API manufacturing in 2018. The API strategy seeks to generate 370 major API compounds for export (41 in 2017) and reduce raw material import dependency from 97% in 2016 to 80% by 2032.

In May 2019, the National Board of Revenue (NBR) granted domestic API makers a 15% VAT exemption until December 2025, subject to a minimum value addition of 60% to imported raw materials. However, since 60% value addition is not practicable for all pharmaceutical items (many medications need just 30% to 40% value addition), NBR cut the rate of value addition from 60% to 20% on January 6, 2020. NBR also lowered the number of molecules generated yearly from 5 to 2 locally.

How will this benefit the pharma industry and Bangladesh's economy?

Bangladesh's pharma industry has transformed and become an economic driver. Bangladesh's USD 3.5 billion pharmaceutical business fulfills 97% of local demand. In fiscal year 22 (FY22), the government exported pharmaceutical items valued at USD 189 million. This indicates that the nation's pharmaceutical

industry has the potential to grow yearly export revenues to USD 5 billion in the next five years, up from the current level of USD 200 million. Local API manufacturing will strengthen its position in this environment and build a bright future.

After 2026, Bangladesh will lose its WTO exemptions from the Agreement on Trade-Related Aspects of International Property Rights (TRIPS), making API manufacturing flexible for the post-LDC economy. Our pharmaceutical sector will struggle with intellectual property taxes on medication and rising API imports. Because of this, the local API business will become a game changer for the pharmaceutical industry in Bangladesh. Self-sufficiency in API production may also help Bangladesh's pharmaceutical sector survive TRIPS.

Accessing the vast API manufacturing market will provide a platform for pharmaceutical sector growth with overseas enterprises. The API Policy also encourages new raw material producers and attracts USD 1 billion in foreign direct investment. Thus, pharma FDI will surge. Bangladesh's API Park provides a chance to expand commercial partnerships with Indian and other Asia-Pacific pharmaceutical and related sectors.

Additionally, Bangladesh may export API to regional and worldwide markets. Due to the COVID-19 pandemic, the Asia Pacific API market is expected to expand by 9% from 2021 to 2027. Bangladesh's developing market offers collaboration prospects

and a model for penetrating global markets. Moreover, a dedicated backward connection would allow pharmaceutical producers to make world-class goods at lower rates and local customers to obtain high-quality medications at lower prices.

The API sector in Bangladesh is growing, although there are some obstacles. The impending global economic crisis, technology inadequacy, and infrastructure issues are prevalent. However, Bangladesh has built a world-class pharmaceutical

sector from scratch. Therefore, the country can and does possess the capability to lessen all obstacles by using its enchanted economic expansion, qualified workforce, and supportive authority.

To further enhance Bangladesh's pharmaceutical industry, increasing its API exports is crucial to producing raw materials domestically and decreasing the country's excessive import dependence. Because of this, the initiative made by both the government and the pharmaceutical sector has indicated that Bangladesh's pharmaceutical business's future will be prosperous and clairvoyant.



Syed Raiyan Amir is a Research Associate at the KRF Center for Bangladesh and Global Affairs.



The consumer industry remains on track

by **Ipshita Maliat Rahman**

BANGLADESH IS EXPECTED to become the ninth-largest consumer market globally by 2030, as reported in the HSBC Global Research Report in 2022. The industry is segmented into fast-moving consumer goods (FMCG), durables, and consumer services.

The FMCG sector, which includes food and beverage, personal care, and home care products, is the largest segment of the consumer industry in Bangladesh. The industry is largely dominated by multinational corporations such as Unilever Bangladesh, British American Tobacco, Procter & Gable, and many prominent local brands.

The growth of the FMCG industry is driven by the factors like increasing purchasing power, changing consumer lifestyles, and a higher demand for high-quality consumer goods. A rise in consumption in the middle and rural classes also drives it. By 2030,

33% of the population is expected to be middle-class.

There has been a significant rise in consumption expenditure in rural areas, increasing to 103% over the past 15 years. To take advantage of this growth, many companies, including local giants such as Square Group and Bashundhara Group, have entered the FMCG business since the 2000s.

The consumer durables market in Bangladesh is also growing. This industry has seen significant growth of 14% compound annual growth rate (CAGR) from 2016-2020 and is currently worth USD 2.35 billion. According to a report by UCB Asset Management, published in October 2021, the industry is expected to reach USD 10 billion by 2030, driven by rising disposable incomes, urbanization, and changing consumer preferences.

The industry's growth is largely correlated to the country's nominal GDP

growth, the rise in purchasing power, and female labor force participation. Bangladesh has achieved 99% electricity coverage, and the electricity demand is projected to grow, leading to sustained growth in the consumer durables sector. Revenues of publicly listed companies have increased with more electricity coverage. The rise in female labor force participation, nuclear families, and supportive government policies will further drive consumer durables demand.

Financing and payment options, mobile financial services, and influencer culture on social media are expected to shift consumer behavior and increase purchasing power. With the increasing penetration of the internet and mobile devices in Bangladesh, the e-commerce market is expected to grow in the coming years. This may lead to more consumers shopping online, drastically changing how goods are distributed and sold in the country.

The consumer services sector,

encompassing retail, entertainment, and healthcare, is also rising in Bangladesh. The retail market, in particular, is expected to reach USD 19 billion by 2025.

The Boston Consulting Group reported that 20 lakh Bangladeshis are joining the middle and affluent class (MAC) each year. An analysis from EBL Securities in 2017 estimated that the number of MACs was around 1.2 crore and expected to reach 3.4 crores by 2025.

A few important indicators will shape the trends of the consumer industry. Economic factors such as GDP growth, inflation, and disposable income will likely influence Bangladesh’s consumer industry in 2023.

A strong GDP growth rate is a positive indicator for the consumer industry. It indicates that the economy is expanding, and consumers have more disposable income for non-essential goods and services. Bangladesh has been consistently growing at around 7% in recent years and is expected to grow at a similar rate in 2023.

Disposable income is the amount consumers have left over after paying for essential expenses. Rising disposable incomes

in Bangladesh have been driving the consumer industry forward in recent years. However, the increasing inflation rate in 2023 may reduce disposable income, negatively affecting the consumer industry.

High inflation can discourage consumers from spending, leading to declining demand for non-essential goods and services. Bangladesh has been facing an inflation rate of around 5-6% in recent years, which is considered moderate. However, the inflation rate has recently increased to a 7.92% monthly average, according to government data, and more, according to private sources, and is expected to keep rising in the foreseeable future. This may hurt the consumer industry this year.

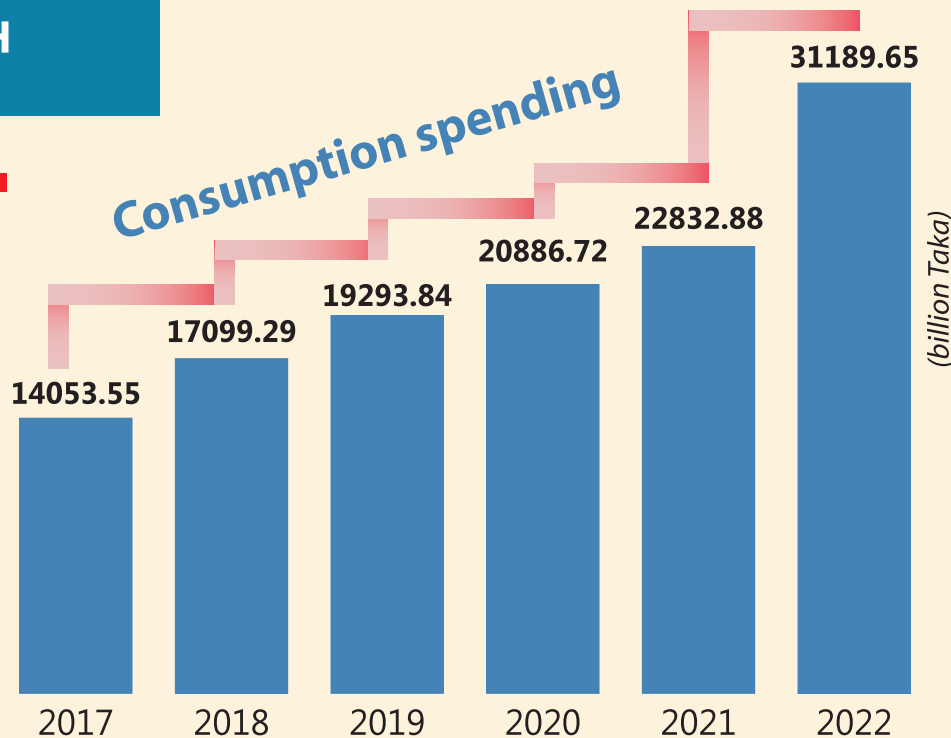
Overall, the consumer industry in Bangladesh is expected to continue growing at a steady pace in the coming years, driven by increasing disposable incomes, urbanization, and a young and growing population. Government policies may be able to drive the situation in a swift direction. The inflation may slow down the industry’s growth in 2023, but the country is expected to see an overall rise in the industry in the coming decade.

CONSUMER SPENDING IN BANGLADESH



Most spending growth sectors

- Transport
- Communication
- Health
- Housing
- Education
- Food
- Alcohol & Tobacco
- Clothing and Footwear
- Restaurants and Hotels



Startup ecosystem shaken, braces to wait out the storm

Insider Desk



BANGLADESH'S POSITION IN THE WORLD'S startup ecosystem has fallen from 103rd to 123rd in 2022, indicating a downward trend in startup activity. In addition, total funding decreased from USD 50 million in 2021 to USD 22 million last year, along with a significant lack of local angel investment, a crucial funding source for early-stage startups.

With a looming global economic recession perpetrated by the Russia-Ukraine war, production challenges and supply-chain disruptions, the already dire startup ecosystem is anticipated to shrink further this year.

However, the situation is not entirely bleak. In the first half of 2022, local startups raised over USD 90 million, which included the largest-ever pre-seed funding of USD 65 million by the largest tech-based B2B e-commerce platform in the country, ShopUp. The largest B2C e-commerce platform in the country, 10 Minute School, also received USD 2 million in early funding from Sequoia Capital India's rapid scale-up program, Surge.

Agritech startup Agroshift managed to raise USD 1.8 million last year, the largest-ever pre-seed round in the country's startup ecosystem. Shikho, an ed-tech startup, raised USD 4 million in new seed funding in March this year, the largest seed funding ever raised by a Bangladeshi startup.

There has also been an increase in investments from local sources, and policymakers have proposed several measures to facilitate the ease of starting and operating startups. The government has proposed reducing startup turnover tax to 0.1% and exempting startup businesses from all other types of reporting except submitting income tax returns. Additionally, startup companies are allowed to set off and carry forward losses over a

period of nine years.

Startup Bangladesh, the first and only venture capital fund sponsored by the government, Bangladesh Angels, has made several investments in startups such as Bimafy, Shuttle, and Pickaboo. However, out of approximately 200 new startups born every year, only a few survive, with 80-90% failing to survive for various reasons. Industry insiders consider this normal for any growing ecosystem.

The way forward lies in partnering with seasoned advisory organizations to strengthen startups and formulate strategies to overcome obstacles. The industry-academia collaboration can also nurture the startup ecosystem by encouraging innovation and talent development at the school and university levels. A strong network must be built among Bangladeshi startups and global venture fund networks. Bangladesh's development partners can guide, aid, educate, finance, and promote Bangladeshi startups in the global arena.

Despite the challenges, Bangladesh's position as a maturing startup hotspot has attracted global attention, with over 1,200 active startups creating innovative products and services that have significantly impacted Bangladeshi lives. In 2021, bKash, Bangladesh's largest mobile financial service, raised USD 250 million from Softbank, making it the country's first unicorn.

While Bangladesh's startup ecosystem faces challenges such as declining funding and a fall in the global ranking, there have been positive developments, small but significant. The country's potential as a maturing startup hotspot has also attracted global attention. With the right support, Bangladesh's startup ecosystem can continue to flourish and create innovative products and services that positively impact people's lives.

IT sector shooting up steadily



Registered companies
(software and IT-enabled services)
More than **4,500** companies

BASIS

BASIS members
2,300



Average annual
growth (past 5 years)
40%



Employment
Over 3 lakh

Exporting
companies
350+

FY 22 export
earning **\$596m**



Export to
80 countries

Unofficial
earning estimate
by BASIS **\$1.3b**

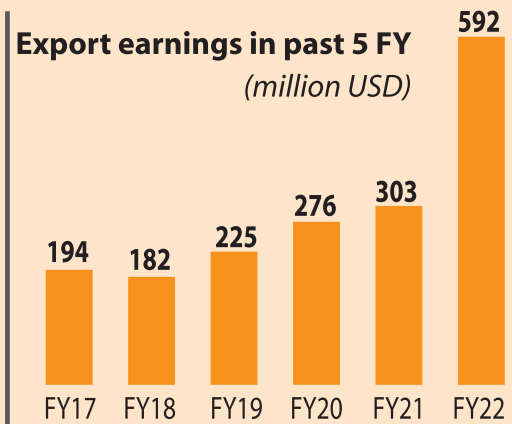
Export goal

2025: \$5b

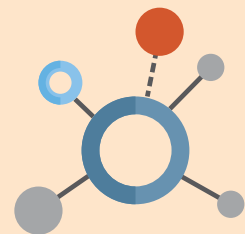
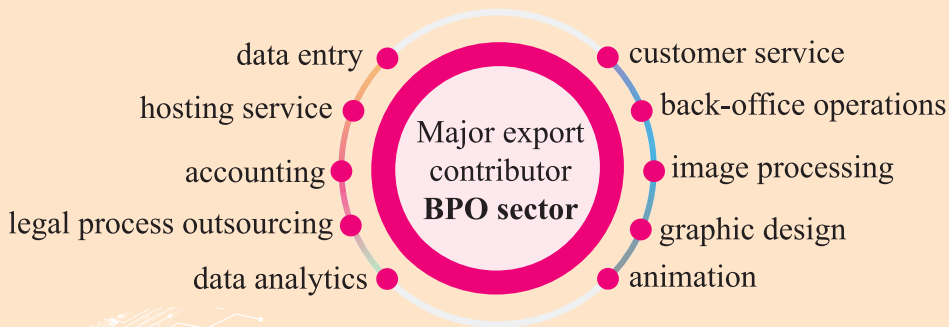
2031: \$20b

Market trends

- Local IT firms expanding fast
- BPO sector boosting exports
- Becoming a global freelance hub
- Fears of an economic blow for probable recession
- Foreign inflow thru unofficial channels hurt growth
- Vocational education needs focus
- World-class training facilities required



Source: Export Promotion Bureau



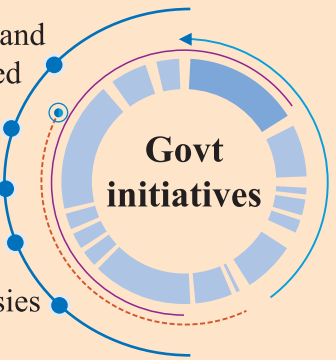
28 Hi-Tech Parks, Software Technology Parks and
IT Training and Incubation Centers planned

4 Hi-Tech Parks operational

IT parks being developed in 12 districts

Database of IT-skilled expatriates to be created

ICT Desks to be set up in embassies



Source: Bangladesh Association of Software and Information Services

Streamlining e-commerce sales and support in Bangladesh: The MyAlice way

by Naziba Ali

IN ECOMMERCE, CUSTOMERS call the shots. They can swiftly compare prices across multiple stores and choose to vote with their wallets. As a result, an excellent customer service is no longer an option but a necessity.

Modern shoppers value customer experience far more than price. They remember the interaction and the product experience much longer than they remember the price. In fact, 51% of customers will never do business with a company again after only one negative experience, according to survey results.

The key to success is placing the customers first - responding quickly and offering a personalized experience. And this is where MyAlice comes in with its Conversational Commerce features.

Where it all started

Shuvo Rahman, the founder and CEO of MyAlice, created MisFit Communications along with his friends following his graduation from BUET. However, the co-founders branched out soon, and Shuvo concentrated on building MyAlice - a product-driven SaaS startup.

This is how the MyAlice story unfolds. While operating an online boutique store, Shuvo and his wife Anika realized that managing customer data and inquiries is a challenging task. The struggle primarily stems from the abundance of messaging platforms - there are too

many, such as Facebook, WhatsApp, and customer service agents must monitor them simultaneously. This proved to be ineffective and expensive for businesses, especially SMBs.

For further clarity, Shuvo mentions, "During a work trip abroad, I had a terrible customer service encounter with a bank. I called the call center with an emergency query but the wait time was unbearable. In fact, they responded to my email three days later."

To resolve such customer annoyances, he devised the concept of MyAlice, which can automate customer interactions while

helping organizations reduce support costs.

Furthermore, he was quick to grasp the fact that messaging apps were becoming the go-to for customers. To put it in numbers, more than 175 million people contact businesses via WhatsApp every day. This number will continue to climb as businesses increasingly rely on digital platforms.

Thus, Shuvo wanted to help businesses make their customer support and sales efficient. And to start with, the team developed a dashboard from which businesses can efficiently manage orders



and inquiries across multiple channels.

Empowering e-commerce and DTC brands

One of the top achievements of MyAlice is ending the struggles of businesses in between platforms. Connecting all their customer-facing channels, such as website chat and social channels, to a unified inbox simply empowers them.

To automate customer service and convert leads, MyAlice also provides sophisticated chatbots. With such preset responses, the team's effort is subsequently reduced while customer satisfaction goes up a notch. In fact, the chatbot can fully automate 70% of customer service interactions. Businesses can also gain insight into their support teams' response rate, response time, and sales conversion.

In addition, MyAlice can decode customer behavior and offer product recommendations accordingly. Utilizing the data around previous orders and products in the cart, the platform helps businesses sell more through up-selling and cross-selling.

"MyAlice impacts how our customers manage their customer experience. The ease with which our clients are able to manage their different messaging channels and how they can build lasting relationships with their customers are areas where we feel we add the most

value," remarked Arnab Rahman, Customer Success Lead, MyAlice.

"This translates into much faster response times, much higher conversion and retention of leads and much better visibility and traceability to improve processes or to devise marketing strategies. While some of our clients have achieved around 15% increase in the number of orders placed, some have achieved around 30% increase in their CSAT scores," he further added.

Global footprint and growth trajectory

MyAlice works locally and internationally with FMCG, e-commerce companies, and brands. Small and medium-sized businesses make up the majority of the company's clientele, but they have also frequently collaborated with enterprise clients to create unique, tailored solutions.

Unilever Bangladesh, BMW Malaysia, Berger Paints Bangladesh, the Institute of Southern Punjab, MiBS Myanmar, Shikho, Truck Lagbe, Star Cineplex, Gro.Club India, and others are just a few of the names on that list.

The brand is eager to establish itself as a 'WhatsApp Commerce Platform.' By participating in the e-commerce expo 2022 in Singapore, they have demonstrated how businesses can utilize WhatsApp as a new revenue-generating channel. With this proposition, the tech

startup is well on its way to capturing the WhatsApp-heavy markets of APAC, MENA, and Latin America.

In the words of Shuvo, "In APAC, we definitely have an edge as our team is based out of this region. We also received investments (and raising) from VCs and angels in MENA which can help us expand into that segment."

However, the company is still pretty nascent, considering the Bangladesh Market.

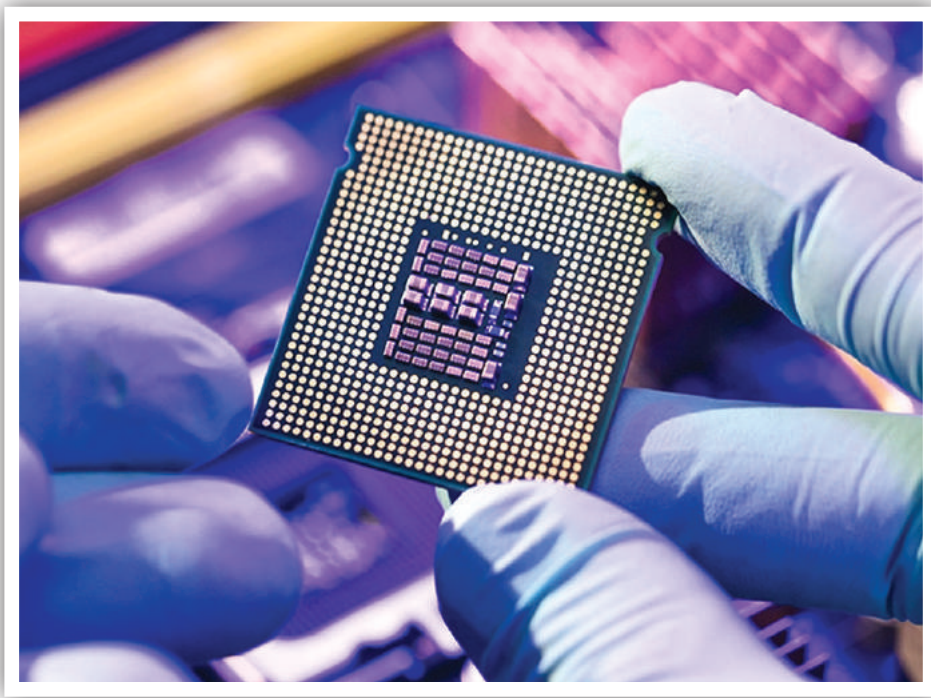
"In our country, the reluctance to use software to automate workflows and the lack of USD payment infrastructure are the two greatest obstacles to achieving a proper product market fit. Pakistan, for instance, has over 4,500 Shopify stores while Bangladesh has just over 100. Currently, we have approximately 40 paying customers in Bangladesh, including Unilever, Berger, etc," mentions Shuvo.

Vision for 2023

The company's revenue increased by about 12% MoM during the second half of 2022, and it now targets an MoM revenue growth of about 25% for the first half of 2023. Aside from that, the business plans to concentrate all of its efforts this year on expanding its product in countries such as Pakistan, the United Arab Emirates, Brazil, and India, where it is seeing early signs of Product Market Fit.

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SEMICONDUCTOR MARKET IS ANTICIPATED TO REACH THE ENORMOUS TRILLION-DOLLAR THRESHOLD BY 2030

A SIGNIFICANT AREA OF THE WORLD economy, the semiconductor business is rapidly expanding. This business is anticipated to keep expanding in the near future due to the development of technological advancements and the rising demand for electronic devices. Bangladesh can tap into this industry and profit from its prosperity thanks to its advantageous location and expanding economy.

Manufacturing semiconductor chips is still a new industry. While Ulkasemi, Neural Semiconductor, Prime Silicon, and Toton Electronics have so far served the Bangladesh industry, two more

major firms, ACI and Walton, are also poised to enter the market, which is anticipated to reach the enormous trillion-dollar threshold by 2030. But just the beginning of the labor-intensive process—which also includes silicon refinement, intellectual property, equipment, precision chemical processing, bonding, assembling, and packaging—results in the design of a chip.

According to Trading Economics, Bangladesh’s average monthly wage for labor is just 101 USD, while it is 135 USD in Myanmar, 170 USD in Cambodia, and 518 USD in China. The burgeoning semiconductor manufacturing sector in Bangladesh

The semiconductor industry looks prosperous

by **Syed Raiyan Amir**

benefits from these low labor costs. In 2020, the silicon-based computer hardware chips market was estimated to be worth USD 425 billion globally. Bangladesh makes up to USD 5 million annually from designing semiconductor chips, which is a pittance in comparison.

However, Bangladesh has made tremendous infrastructural development gains in recent years, fostering a favorable economic environment. The nation can potentially become a major force in the semiconductor industry with the correct backing and investments. Markedly, Ten to twelve IT villages, Silicon City, Electronic City,

IT incubators, and ICT parks, such as the Bangabandhu High-Tech Park and the Jashore Software Technology Park, have been established by the government. These parks offer investors plots on simple terms with tax holiday benefits.

In recent years, the government has taken several initiatives to promote the semiconductor industry, such as establishing the Bangladesh Association of Software and Information Services (BASIS) and the Bangladesh Hi-Tech Park Authority. These initiatives aim to create an enabling environment for the growth of the semiconductor industry in the country. According to

government sources, the Bangladesh Hi-Tech Park Authority has secured investment initiatives from 79 companies. The plausible investment will be USD 1264.84 million. Here some 419 million USD will come from abroad. A 35-acre tract of land is available to foreign investors.

Besides, Bangladesh has a sizable labor force that is highly educated and skilled. The nation boasts a robust educational system with numerous colleges and technical institutions offering programs in engineering, computer science, and other relevant subjects. There is a consistent flow of talent that can support the expansion and advancement of the semiconductor sector. Bangladesh is also the perfect site for semiconductor manufacturing due to its strategic location and easy access to ports. The nation is conveniently located at the intersection of South and Southeast Asia, giving it quick access to its largest markets.

Bangladesh must concentrate on luring foreign direct investment (FDI)

and building specialized IT zones for manufacturing to compete in the enormous semiconductor market. Most of the nation's semiconductor activities are currently small-scale; to grow, investment in infrastructure, human resources, and research and development must rise.

The government can incentivize investors, such as tax rebates, simplified rules, and access to inexpensive labor, to draw FDI. The government might also designate specific IT zones where businesses can set up manufacturing plants with the required support and infrastructure.

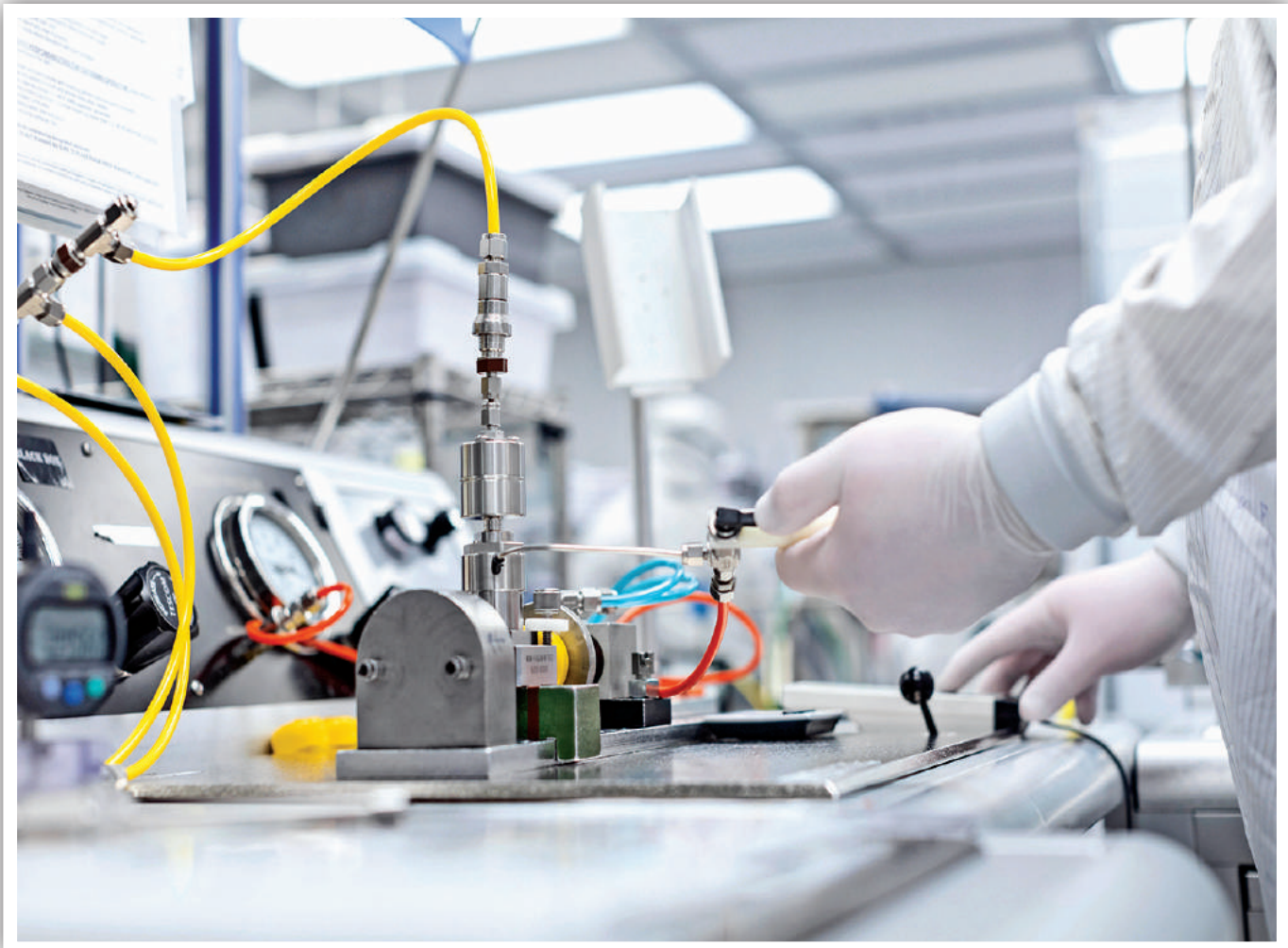
The development of the semiconductor sector depends on technical education, so the government must invest in raising the standard of technical education. This includes expanding the number of colleges and universities that offer programs in engineering, computer science, and related disciplines. The government should promote partnerships between businesses

and academics so that they can collaborate to train students and provide them with real-world experience. Nevertheless, 500 Bangladeshis work for Intel. It's a brain drain. They could return if we could develop the industry and offer them opportunities.

In addition, the government needs to encourage and finance semiconductor sector research and development efforts. This can assist local businesses in growing their capacities and competing on a global scale.

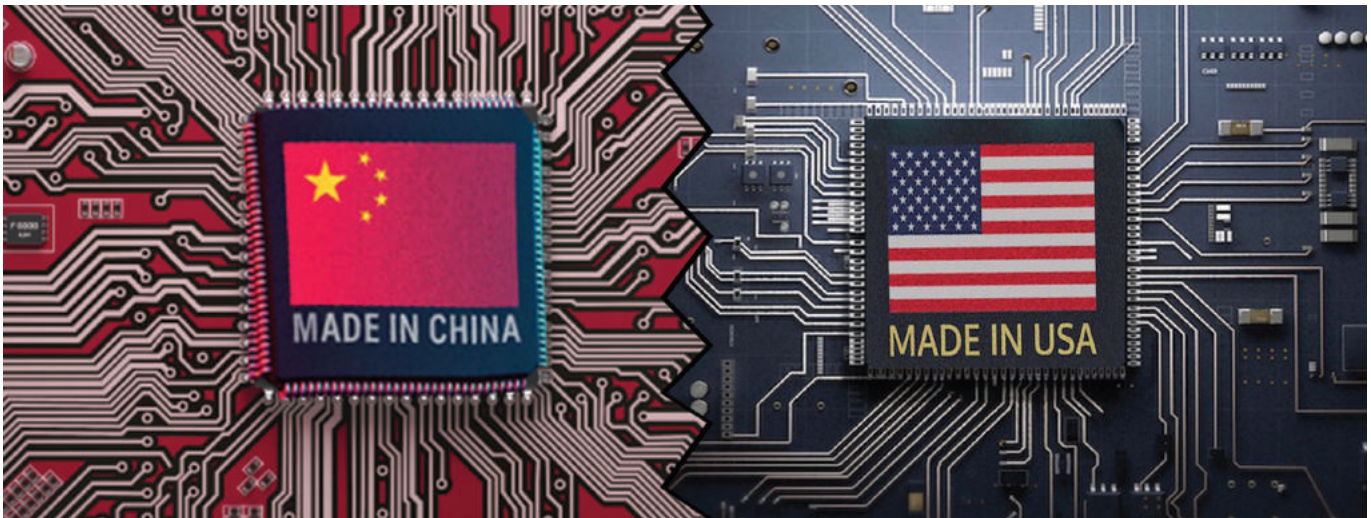
Bangladesh has the potential to become a key player in this fast-expanding industry with the correct investment and support. The government and the business sector should collaborate to take advantage of this chance and build a successful future for the nation.

Syed Raiyan Amir is a Research Associate at the KRF Center for Bangladesh and Global Affairs.



US-China chip war is the dawn of a new global economy

Insider desk



OVER THE LAST CENTURY, OIL HAS BEEN a precious resource that has triggered wars and diplomatic tensions. Now, however, semiconductors – tiny fragments of silicon – have taken center stage as the world’s two biggest economies, China and the US, vie for control. This USD 500 billion industry is expected to double by 2030, and whoever controls its supply chains will hold the key to global superpower status.

China is striving to produce these chips, with the US being one of its primary tech sources. However, the US has now cut off China’s access, creating an arms race in the Asia Pacific region. This is also being fought regarding the quality of Artificial Intelligence algorithms used in military systems.

Semiconductor manufacturing is a complex and highly specialized process integrated deeply into the global economy. The US invented the semiconductor, but East Asia has become the manufacturing hub, largely due to government incentives. As the industry develops, it becomes increasingly crucial to make the best and most efficient chips at scale, with the smaller, the better.

For the top chip manufacturers, the aim is to double the transistor density over time to create more powerful, valuable devices, such as supercomputers and AI. Most of the world’s chips are currently produced in Taiwan, providing the self-ruled island

with a ‘silicon shield.’ Beijing has also prioritized chip production and is investing heavily in AI and supercomputers. It is nowhere near a global leader but is catching up quickly, especially in chip design capabilities.

The Biden administration is trying to choke off China’s access to chip-making technology, and last October, announced sweeping export controls. It has also banned US citizens and permanent residents from supporting the ‘development or production’ of chips at certain factories in China. This has hit China hard, as it imports both the hardware and the talent that drives its nascent chip-making industry.

To this end, the US is also working to create more chips, with the Chips and Science Act offering USD 53 billion in grants and subsidies to companies producing semiconductors in America. TSMC is investing in two USD 40 billion plants in the US, its only facilities outside Taiwan. Micron, the US’s largest manufacturer of memory chips, is also investing in producing more of these valuable components.

The battle for semiconductors has emerged as a central point of tension between China and the US. As these chips become increasingly valuable and integrated into every aspect of our lives, the winner of this battle will have the upper hand in an economy reshaped by the new digital age.

BITS AND BYTES

Metaverse as our future workplace?

by Fawziya Osman

FAREENTAHSEEN (FICTIONAL) glances up at the board, the pie chart displaying favorable statistics. She steers her gaze around the room, observing the reactions of her co-workers, and is met with several nods of approval. The meeting that ended just now has led to the finalization of a collaboration they had been anticipating.

The day had been productive. She slides her card through the attendance machine, signaling her departure, and leaves the room with a smile etched onto her face. Heaving out a long, contented sigh, she takes off her VR headgear, head slightly buzzing, and her thoughts turning away from work for now.

You've just taken a glimpse at how office work may be handled in the future!

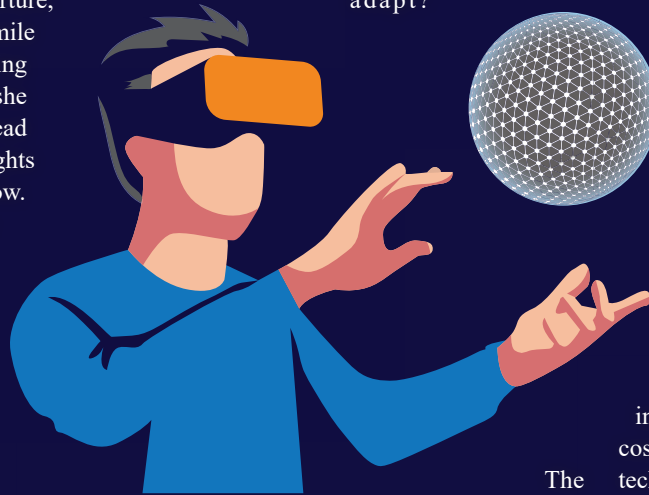
Post-pandemic, using Zoom to hold an emergency meeting or conducting a rescheduled class using Google classroom has become customary. This augmented reality is a platform that immerses the user in a mesh of the real and virtual worlds.

Augmented reality (AR) and virtual reality (VR) are inextricably tied to the metaverse, the current tech buzzword, thanks to the rebranding of Facebook to Meta in 2021. While AR keeps the real and virtual worlds perfectly discernible, VR provides a more extensive experience by entirely plunging the user into an artificial atmosphere, making it difficult to distinguish between reality and virtual reality.

Although virtual reality isn't anything

novel in specialized fields such as surgery, astronomy, manufacturing, and law, the pandemic has restructured the way of almost every profession, propelling a shift from the nine-to-five workplace model to working remotely via online platforms.

This rapid transition has prompted several questions: are we collectively moving away from the traditional workplace model? If so, how fast will people adapt?



during covid seeded a newfound love (or tolerance) for digital workspace, or so the result of a recent McKinsey survey shows. Cited by Forbes, this survey shows that 87% of workers would take advantage of the opportunity to work remotely owing to its flexibility.

So what exactly is metaverse? Despite its overhype, most of us only have a vague notion of what it implies. Metaverse refers to a series of interactive worlds accessible via headsets. Users create avatars through which they physically interact with others. Microsoft Mesh by

Microsoft and Metaverse by Facebook are notable examples. And while VR is only a component of the metaverse, the two terminologies are interchangeably used.

With the capabilities of VR technology advancing exponentially, high-profile companies such as Yelp, Twitter, and Airbnb have fully brought into remote work. Through headsets, metaverse will offer the engagement of face-to-face in-person work.

According to research and analysis by Bloomberg Intelligence, as cited by digite.com, a blog site on remote working, the Metaverse market could reach around USD 800 billion in 2024 versus nearly USD 500 billion in 2020, representing a compound annual growth rate (CAGR) of just over 13%.

Some benefits remote working offers are less commuting time, more autonomy, reduced workspace, and more flexibility. It also entails certain challenges, including but not limited to the substantial cost of VR headsets and other associated technology, their prolonged use, getting employees accustomed to these devices, decreased productivity, burnout, and other negative health outcomes.

Some fear that drastically remodeling the workplace in this manner translates to 'robots taking over the world.' Even more so, some technologists staunchly believe in the futility of metaverse projects, believing them unnecessary and problematic.

While the debate over the feasibility of the metaverse rages on, there is little room for doubt about the metaverse's impact on our present lives, personal or professional. As such, corporate leaders must assess the utility of metaverse and effectively integrate them into workspaces.

The evolution of chatbot technology

by **Safrina Kabir**

AI-GENERATED CHATBOTS have created quite a buzz in recent times. Since the launch of the latest version of ChatGPT by OpenAI in the November of last year, people have been going crazy over it. Overloaded traffic is a testament to the platform's overwhelming popularity.

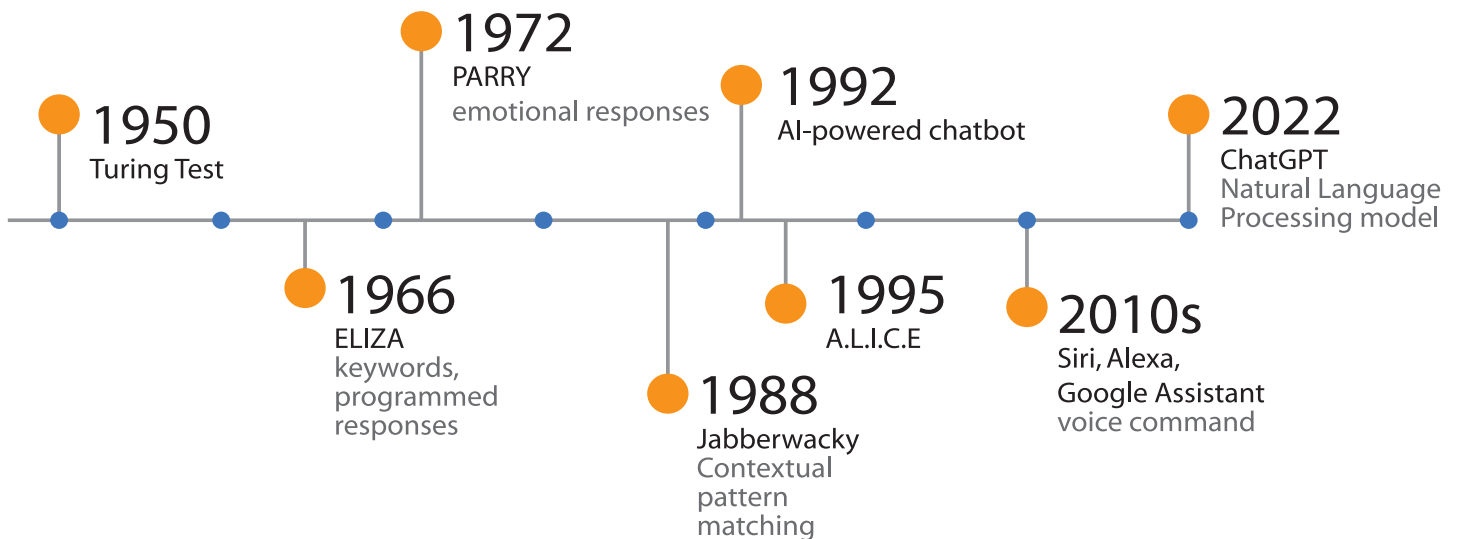
The working capacity of this chatbot marvels the world. It can answer your question in natural human language, write an article on any topic, create content,

created it. ELIZA could mimic human conversation and simulate conversation using substitution methodology and pattern matching. But it failed to converse understanding the situation. It was less advanced than those we see now. But the birth of ELIZA sure opened a new horizon of technological exploration.

Another such chatbot is Dr. Sbeitso. It is also an AI-based program designed in 1992 for MS-DOS personal computers. The main charm of the program was that it

Coming to some famous chatbots at the customer level. Smarterchild gained much popularity coming to being in 2001. It attracted over 30 million users as Messenger 'buddies' on AIM, MSN, and Yahoo. ActiveBuddy, an American chatbot maker, developed it for fun conversations.

More or less, we all know about SIRI. Apple designed this personal assistant for iOS in 2010. It also works as a learning navigator. From there, similar apps



fictional stories, and many more. Even a few months ago, our perception of chatbots was no more than that of a program that can reply to certain questions according to training. But here we are in a new reality where ChatGPT exists.

The journey of Chatbot technology started in 1966 through the creation of ELIZA, the first chatbot ever programmed to process natural language. It was created at the Massachusetts Institute of Technology (MIT). American computer scientist Joseph Weizenbaum

acted like a psychologist. The funny thing is, it did not even project any complicated interaction; rather, it would say, "Why do you feel that way?" in reply to most of the things the user said. This chatbot is still available to play online.

Following the footsteps of ELIZA came ALICE (Artificial Linguistic Internet Computer Entity) in 1995. Its working process is similar, processing natural human language. It can engage in human conversation depending upon the previous inputs given by the user.

like Google Assistant(2012), Microsoft Cortana(2014), Alexa(2014), and some others emerged.



And the latest addition to the list, ChatGPT, has snatched all the attention. With this powerful AI, whether AI will replace mankind is in discussion again. Already people have started questioning the need for content developers, teachers, coders, article writers, software developers, market research analysts, traders, graphic designers, and many more. What is your say on this?

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Unleashing the potential of Bangladesh's energy industry

by Zanjabil Mashkura



BANGLADESH IS PREPARING to exit the list of Least Developed Countries (LDC) in 2026 with higher aims to be listed among the developed countries by 2041. For stable economic growth, having a reliable energy system is a necessity.

Firstly, the scarcity of reserves of fossil fuels is a red flag for our development. Secondly, achieving self-sufficiency in the power sector is a challenge for us. Bangladesh requires core knowledge of all available local energy resources in this geological position.

The reliability of energy is a major factor in consideration. Loadshedding is a huge obstacle for any business that wishes

to thrive. Reliable power is, therefore, a priority for the government. Being a victim of climate change, Bangladesh's coastal areas and riverbanks are always open to risks. Erosion and flooding force investors to rethink and relocate their renewable energy infrastructure and policy.

The demand for electricity in Bangladesh is estimated to reach 50 thousand MW by 2041. To fulfill the expected demand while increasing growth in the export-oriented economy, the government plans to increase power generation by 40 GW simultaneously.

The economy of Bangladesh depends on RMG, agro, and the manufacturing sector. The progress in all these sectors largely

depends on the uninterrupted supply of electric energy. The supply deficit of power energy is constraining our GDP. To continue at a high GDP growth rate, ensuring surplus electricity production should be the government's target. By 2041, Bangladesh needs an estimated USD 35 billion investment in the power sector to meet its goals.

Production of gas is largely government-controlled. However, the government has incentivized private investors to attract investment in the energy sector. 60% of the investment for energy projects is sponsored by the Bangladesh government, which collects funds from international organizations like the World Bank, Asian

Development Bank, etc. The other 40% of the fund comes from private investors, which includes FDIs and local companies.

The recent geo-political and economic events showed uncertainty and riskiness of relying only on import-based energy. The Russia-Ukraine war has caused inflation and volatility in the supply and demand of energy in the international market. Globally increased demand for gas has led to increased prices for consumers and higher costs for investors. Boosting cross-border interconnectivity is one way to reduce dependency on imports.

Many of the neighboring countries of Bangladesh, including India, Nepal, Bhutan, and Myanmar, have abundant hydropower resources. This gives Bangladesh an alternative option to import hydro-based electricity from the neighboring countries for power supply. Hydropower can be a great solution to reduce the local energy crisis while keeping environmental concerns in mind. The Chinese state-owned company National Machinery Import and Export Corporation has shown interest in building renewable energy infrastructure for Bangladesh.

The partial independence from imported fossil fuels amid the global energy crisis can be our story of rise as we strive to be a middle-income country. Bangladesh relies heavily on domestic sources of natural gas. A constant decrease in domestic gas reserves puts pressure on importing expensive LNG in higher amounts. The country also depends on other fossil fuel sources such as diesel, furnace oil, coal, and hydropower.

Renewable energy sources like the solar system, wind energy, and hydropower are sources of energy that can reduce pressure on fossil fuels. However, Renewable energy only covers 3% of the national energy mix. Bangladesh National Solar Energy Action Plan proposed to install 40(GW) of power by 2041. To discover the potential resources of Renewable Energy in Bangladesh, the World Future Council initiated the project ‘100% Renewable Energy for Bangladesh – Access to renewable energy for all within one generation’ in 2018.

The most common renewable energy sources are solar, wind, biomass, hydro, biogas, geothermal, etc. Bangladesh, China, India, and Japan are renowned countries of renewable energy development in Asia. So, there is potential for a diversified renewable energy mix

in this geographical land.

Treating nuclear energy as renewable energy is a controversial topic worldwide. Despite being environmentally hazardous, economists believe constructing the Rooppur nuclear power plant (RNPP) was a good thought. It is being prepared to start its first commercial operation by 2024 and the second operation by 2025.

Bangladesh has planned to transition its dependency on natural gas to coal-based fuel due to the lower renewable energy potential. Coal currently accounts for only 10 percent of Bangladesh’s primary energy demand. In 2021, the government of Bangladesh planned to ensure coal-based power plants with the capacity to produce 7.5 GW of electricity. According to an estimation, Bangladesh has 1117-million-ton (MT) coal reserves that are extractable from the five different suitable points.

Barapukuria Coal Mining plant is the only coal extraction plant in Bangladesh that supplies coal fuels to power production units in the country. The Dighipara coal mine in Dinajpur is predicted to produce 3,500 tons of coal daily. Bangladesh’s government has been focusing on shaping the energy sector with utmost priority. Both sustainable (solar, wind, hydro, biomass, etc.) and conventional energy (oil, gas, coal, etc.) sources are considered significant energy resources for our country.

The government of Bangladesh has introduced various renewable energy-based projects making it easier to be goal oriented toward secure, reliable, and affordable energy access for all. During the last two decades, Bangladesh has significantly impacted rural areas by providing and expanding electricity access. Solar home systems (SHSs) got popularized due to their lower cost and more accessible installation facility.

Solar Irrigation Programs, Solar Home Systems, and Solar Rooftop Systems are outstanding projects that helped shape rural electrification. With gas still being the dominant fuel energy, the uptake of solar power, wind, and hydropower has been promising. Perhaps Bangladesh is on its way to achieving the SDG 7 target of Affordable and Clean Energy and the SDG 9 target of Industry, Innovation, and Infrastructure.

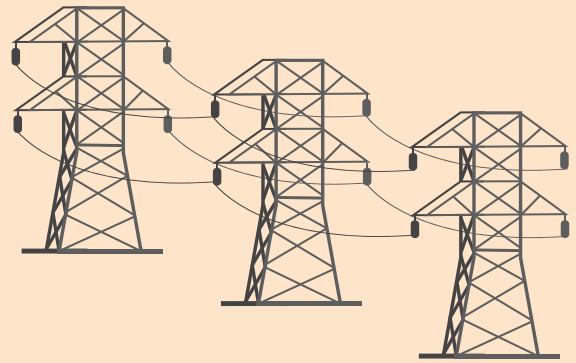


Focusing on electricity problems and solutions

Source: Govt. Power Cell

Electricity sector at a glance

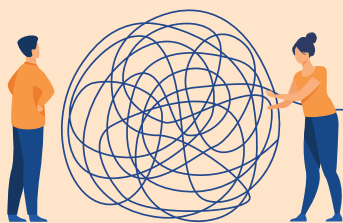
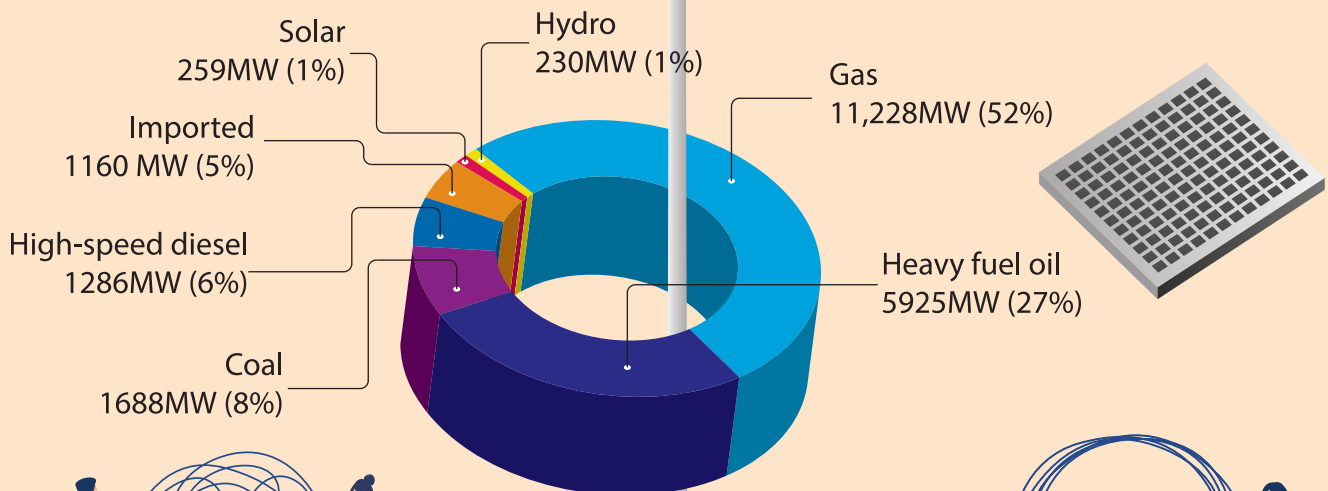
- Electricity coverage - 100% (2022)
- Installed capacity - 25,700 MW
- Daily demand - 13,500 MW
- Total customers - 4.46 crore
- Per capita production - 609 KW/H
- Prepaid meter installation - over 53 lakh



Electricity usage by sectors (FY21)

- Residential - 56.42%
- Industrial - 28.40%
- Agriculture - 2.43%
- Commercial and public sector - 12.74%

ELECTRICITY GENERATION BY SECTORS (AS OF JANUARY 2023)



PROBLEMS

- Dependence on imported fossil fuel
- Unstable fossil fuel market, imports dented
- High amount of capacity payment to idle plants
- Regular power tariff hike through new regulation
- Sluggish renewable energy growth



SOLUTIONS

- Focusing on renewable electricity generation
- Improving transmission and distribution infrastructure
- Checking distribution and other losses
- Exploiting existing capacity properly
- Rethinking quick rental policy to save money

Our potential key to green energy goals

by **Morium Kulsum**

IN 2000, A MERE 32 PERCENT OF THE POPULATION of Bangladesh had access to electricity, according to the World Bank. Fast forward to 2022, Bangladesh achieved a momentous milestone by bringing 100% of the population under electricity coverage.

Though the numbers looked impressive, recent power cuts have painted a bleak picture by highlighting the country's energy challenges. The ongoing global supply chain disruptions that stemmed from the Russia-Ukraine war, combined with the devaluation of the Bangladeshi Taka against the US Dollar, led to a dire fuel crisis in the country. In light of the situation, experts have once again raised questions about the country's electricity sources.

While achieving 100 percent access to electricity is certainly commendable, the country's over-reliance on non-renewable energy sources such as natural gas, coal, and oil raises concerns. These sources are finite, expensive, and import-dependent — leaving Bangladesh susceptible to global price fluctuations. They are neither environmentally sound, which casts a shadow over the country's greenhouse gas reduction efforts.

As a result, experts are advocating for cost-effective, self-sufficient, and eco-friendly energy sources for the future. A relatively new yet promising innovation in the renewable solar sector, namely, the floating solar farm, is gaining experts' attention as a potential solution to the country's fuel crisis.

What is floating solar?

Floating solar, formally known as a floating photovoltaic system (FPV) or floatovoltaic, is a type of solar panel installation where panels are placed on

the surface of water bodies. This approach differs from traditional solar panel installations, as FPV systems can be installed on lakes, reservoirs, dams, and ponds rather than being mounted on roofs or open spaces.



Floating solar farms can generate vast amounts of electricity without using valuable land. A study published in the journal *Nature* highlights the potential of this technology, noting that covering only 10 percent of the world's hydropower reservoirs with floating solar panels could produce as much electricity as is currently produced by all the world's fossil fuel power plants — amounting to approximately 4,000 gigawatts.

Global scenario

The global market for floating solar panels has grown exponentially, with an estimated market size of USD 2.5 billion in 2021. It is projected to expand at a compound annual growth rate (CAGR) of 16.5% from 2022 to 2030, reaching USD 10 billion by 2030, per a report by Precedence Research.

The number of floating solar farms being constructed worldwide is increasing rapidly, with Asia emerging as a particularly popular region for such installations. In 2021, the Asia Pacific region generated 73.27% of the global revenue in the floating solar panels industry. Japan made history by pioneering installing a floating solar power plant in Chiba in 2006. And 15 years later, the world witnessed the launch of the biggest floating solar power

farm in Singapore. Comprising 145,000 panels and generating 60 megawatts, this massive farm covers an area equivalent to 45 football pitches and powers five water treatment plants.

China's Dezhou Dingzhuang project outdid this achievement within three months by unveiling an even more impressive farm that can produce 320 megawatts of electricity — which still holds the title of the world's biggest floating solar farm. However, this record may soon be broken, too, as India gears up to launch a 600-megawatt-peak floating solar energy plant at the Omkareshwar Dam in Madhya Pradesh.

The largest floating solar project in the United States is located in California, known as the Healdsburg Floating Solar Farm. It comprises 11,600 solar panels and can generate 4.8 megawatts of electricity, enough to fulfill 8 percent of the electricity requirements of Healdsburg.

Following Russia's invasion of Ukraine, Germany and other European countries also started bolstering their efforts to adopt renewable energy sources to reduce their dependence on Russian oil and gas. Portugal is home to Europe's biggest floating solar farm, which floats on the continent's biggest artificial lake — the Alqueva reservoir. This solar farm comprises 12,000 solar panels and supplies approximately one-third of the power neighboring towns require.

In Bangladesh, slowly but steadily

Bangladesh boasts one of the world's largest domestic solar power systems, providing electricity to approximately 14 percent of the population. According to Nasrul Hamid, the State Minister for Power, Energy, and Mineral Resources, over 20 million people in rural areas of the country have been brought under electricity coverage through installing over six million solar home systems. This progress aligns with the country's ongoing efforts to increase the share of renewable energy sources in its overall energy mix.

In 2019, the Power Cell, Bangladesh's regulatory agency under the Ministry of Power, Energy, and Mineral Resources, proposed a project to The Asian Development Bank (ADB) for a loan to construct a 50-megawatt floating power plant on the Kaptai Hydroelectric Project Lake. Regrettably, ADB declined to fund the project due to its potential negative social and environmental impacts.

Nonetheless, the same year, a local company named Solar EPC Development Ltd. accomplished a significant feat by installing a 10-kilowatt floating solar farm for the first time in Bangladesh at the water treatment site in the Mongla port municipality under the Bagerhat district.

In addition to the floating solar power plant at Mongla port, Bangladesh has



several other floating solar projects in the planning stages. Per a 2021 report published in the Financial Express, Solar EPC Development Ltd. Has inked a power purchase agreement with Khulna City Corporation to build a 1.0-megawatt grid-tied floating solar power plant in Shaheed Hadis Park Lake. The same source reported that ADB had identified three suitable locations for installing floating solar farms in Bangladesh that can generate 61-megawatt electricity.

The Barapukuria pit lakes in Dinajpur have been identified as a potential site for hosting a 45.9-megawatt plant, while Jhenidah's Joydia Baor (lake) and Jashore's Bukbhara Baor (lake) have been deemed suitable for 9.1-megawatt and 6.0-megawatt plants, respectively. Many local and international companies are already seeking state approval to install floating solar farms in these identified sites.

The advantages

Solar panels have long been touted as the most practical green solution to energy problems. Then why make them float? The answer lies in the fact that floating solar farms have the potential to solve several of the issues plaguing conventional solar energy.

Conventional solar farms often face criticism for the significant amount of land they occupy. Ground-mounted photovoltaic systems require an average of 200 square feet per megawatt hour of capacity, at least 40-50 times more than coal plants and 90-100 times more than gas plants.

In a densely populated country like Bangladesh, where there is intense competition for land for agriculture and housing, finding suitable space for large-scale solar plants is rather difficult, if not impossible. Hence, the floating solar panel is the answer here.

In addition to providing a solution to land scarcity, floating solar farms also address another challenge associated with conventional solar farms. The efficiency of solar panels decreases when they become too hot, leading to a decrease in voltage and electricity generation. However, the proximity to water in floating solar farms helps the panels operate more efficiently, increasing electricity production by up to 15 percent. This advantage stems from the cooling effect of water on the panels, which helps maintain their temperature and, in turn, their efficiency.

Floating solar panels can be installed at existing power plants also, particularly hydropower plants. They can deploy the existing cables that send electricity to the grid from the hydroelectric plant making the process

BANGLADESH HAS BROUGHT 20 MILLION PEOPLE IN RURAL AREAS UNDER ELECTRICITY COVERAGE BY INSTALLING OVER 6 MILLION SOLAR HOME SYSTEMS

cost-effective while expanding the capacity of existing power plants in Bangladesh and generating renewable energy.

The challenges

Despite their immense promise, floating solar farms make up less than 1% of the world's solar installations. This is partly because the initial setup cost for floating solar farms is 10 to 15 percent higher than that of ground-mounted panels. Making matters worse, the durability of the equipment may be reduced by corrosion, especially in waters with high salt levels, which can increase the cost of maintenance requirements. On top of these, floating solar farms still experience intermittency issues, with energy generation occurring only during sunlight hours.

It is also important to note that installations of floating solar panels on freshwater bodies can potentially disrupt aquatic wildlife and ecosystems by obstructing the sun's rays and releasing aluminum, copper, and cadmium.

The way forward

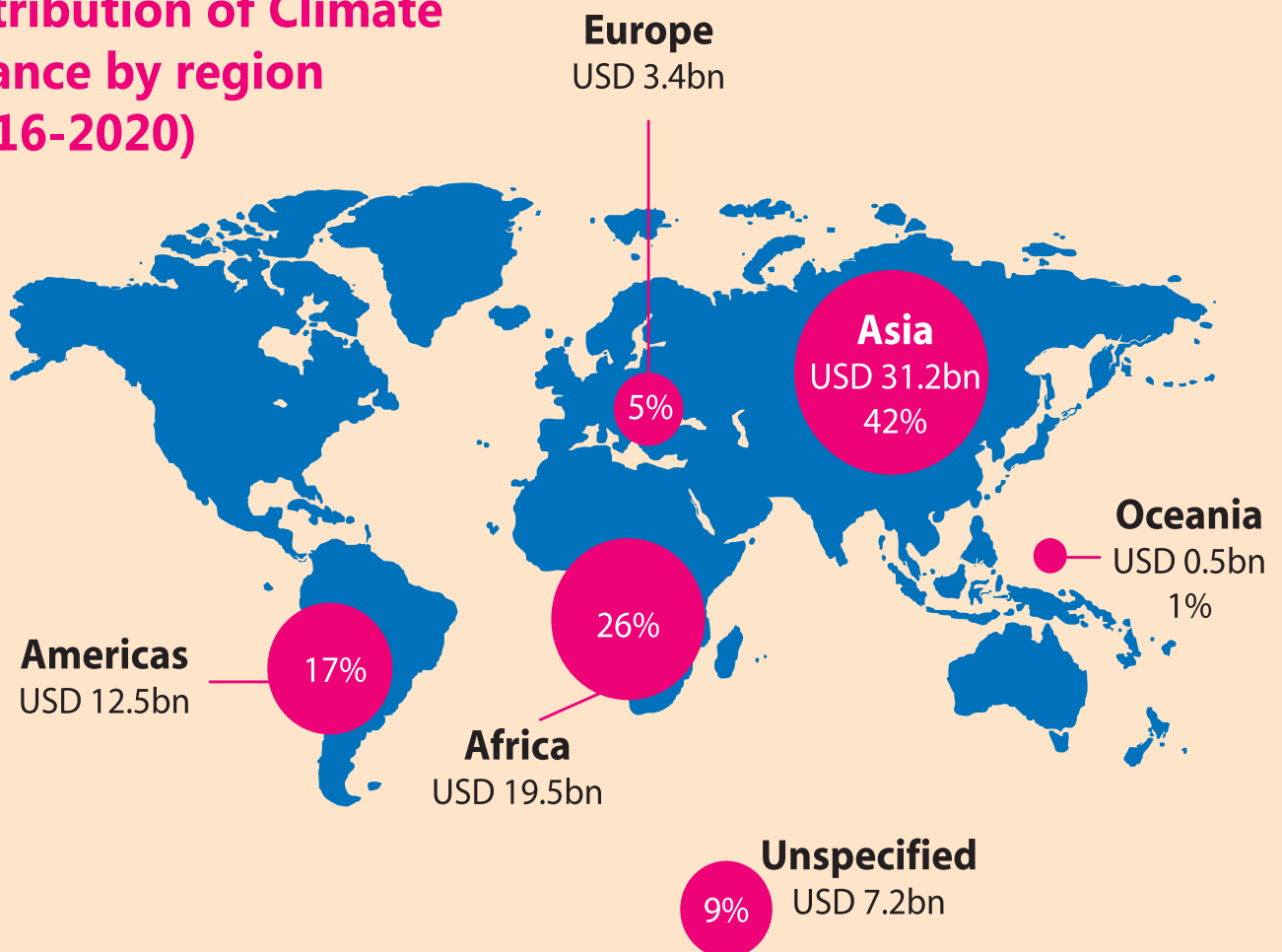
Bangladesh has set a lofty target of generating 4190 megawatts of electricity through renewable resources by the end of 2030. Floating solar can play a crucial role in achieving this goal. However, to fully capitalize on its immense potential, there must be an all-out effort to encourage research in this area. Establishing robust policy frameworks is also critical to attracting private and foreign investment to support the development of floating solar farms in Bangladesh.



Behind climate finance efforts falling flat

by **Sabit Ibtisam Anan**

Distribution of Climate Finance by region (2016-2020)



8%, THAT'S THE PERCENTAGE of climate funds allocated against the needed amount to mitigate the impacts and adapt to the changing climate in the developing world. And this 8%, too, is a hugely liberal estimate. Oxfam puts the amount at a mere 2%, whereas governments put

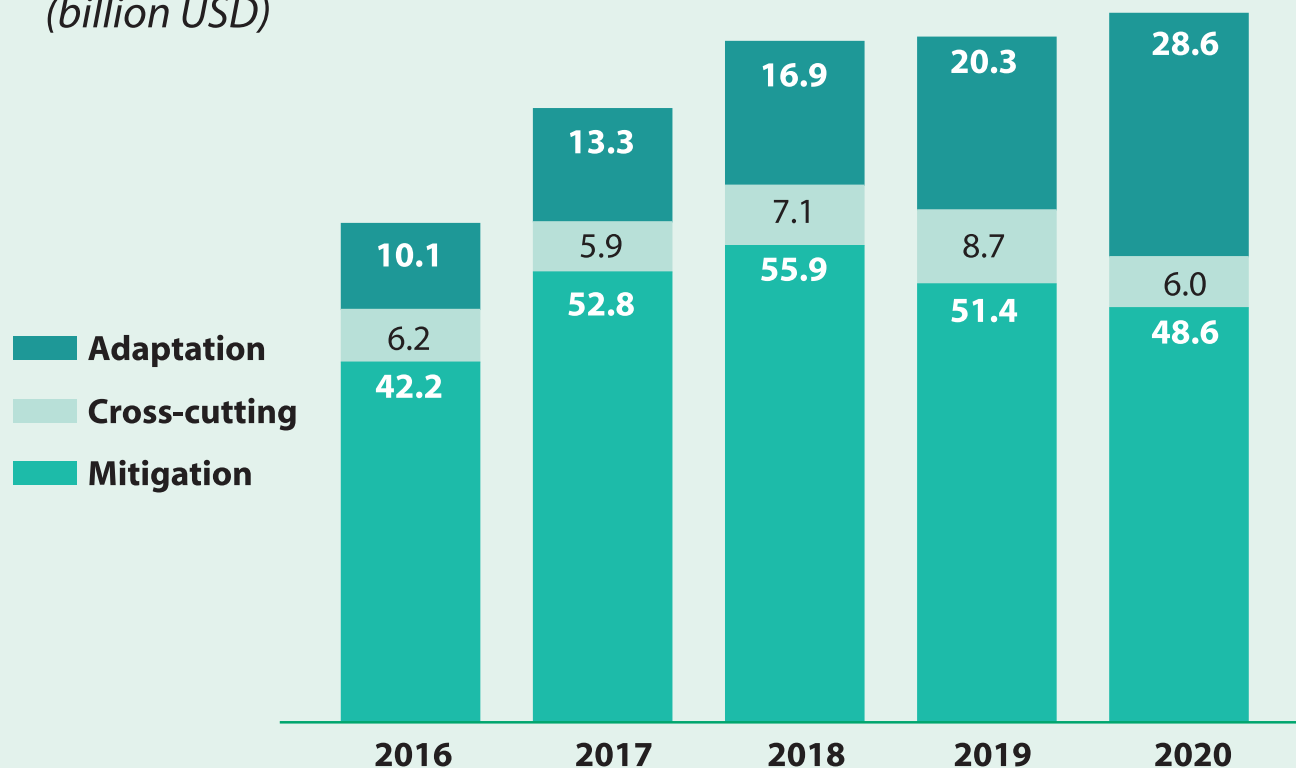
the number as low as 0.1%.

This begs the question, what goes on in the vastly intricate world of climate finance? Are rich countries paying enough reparations for the damage they have done? And why do the estimates vary so much? Well, the answer to all these, just like the sector, is convoluted.

Promise and action

The Sharm el-Sheikh Implementation Plan, as decided by Cop27, stated that a 'global transformation to a low-carbon economy' would cost USD 4-6 trillion a year. And the developing world needs at least USD 1 trillion every year to mitigate the impacts of Climate Change.

Distribution of Climate Finance by top 3 instrument category (billion USD)



Source: Biennial reports of UNFCCC and OECD

This, however, is a far-fetched goal since affluent countries have massively failed even to reach the USD 100 billion yearly pledge. This pledge, taken in 2009 in the Copenhagen accord, promised USD 100 billion yearly by 2020. But this fund saw slow development, reaching only up to USD 83.3 billion by the stipulated time. From 2013 to 2019, the yearly fund barely hung around the USD 50-80 billion mark, according to OECD.

But Oxfam puts the number much lower, at around USD 19-22.5 billion (2016-17). This discrepancy is primarily because a significant portion of those funds was loaned out at the standard market rate. So it shouldn't be counted as climate financing, they justified. We should note that the funds given as standard loans have to be paid back with interest, leaving little space for developing countries to implement projects that help with adaptation.

Much of the funds are also mischaracterized, with development funds going to the climate category. This is explained by the problematic use of the OECD 'Rio Markers,' which helps characterize whether a project is climate-focused. However, donors have often misused and misinterpreted these markers, citing irrelevant funds such as climate funds. This leads to the development and construction project being treated as Climate Fund, fully projected into OECD's estimates.

While mobilizing more funds is appreciable, there is no doubt that if the actual value isn't derived from those funds, then no amount of mobilization will be fruitful. Rather it will just make developing countries accumulate more debt, stressing their already volatile economy and balance of payment.

On the other hand, many developed countries haven't paid their fair share. Most notably, the USA, which is supposed to pay 40-47%, barely paid 8% annually. Australia, Canada, and Greece have also failed to reach the allocated goal. However, France, Japan, Norway, and Germany have reached the threshold. But much of these funds have been mischaracterized and misinterpreted, and they are not just grants. Most of them are loans, investments, insurance, etc.

Implementation

Mitigation and adaptation are the two main facets of fund allocation. Mitigation deals with reducing carbon emissions, introducing cleaner energy resources, and focusing on better technology and lifestyle to inhibit climate change. Adaptation refers to improvising with the already changing climate, ensuring basic rights and amenities while the current level of climate change takes its toll. Even though both are important, one for the future and the other for the present, many donors focus on mitigation projects discriminately.

According to the Adaption Gap Report by United Nations Environment Programme (UNEP), USD 300 billion by 2030 and USD 500 billion by 2050 will be needed by developing countries yearly to implement adaptation programs effectively. However, in 2020, only USD 28.6 billion went to developing countries. Infrastructure and Agriculture stand to be the most prominent receivers of adaptation funds. So why do donors prefer mitigation projects?

Because these projects offer tangible development, experts note that adaptation projects' progress and direct impact are hard to figure out. Furthermore, mitigation projects are often economic boosters and have a good return on investment since they deal with new technology and renewables like wind turbines, solar farms, and hydroelectricity. On the other hand, adaptation projects don't have the same feature since it's much more humanitarian in nature, directly assisting individuals ravaged by the impacts of climate change.

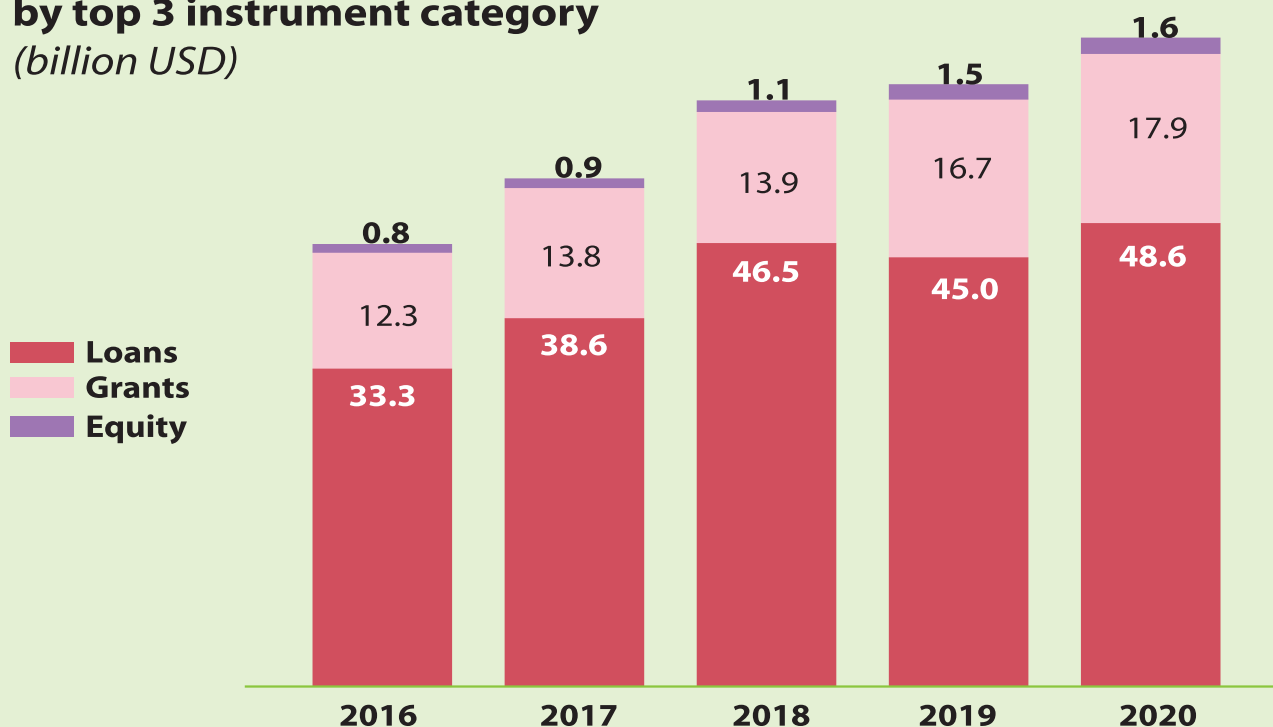
The damage

The vulnerable countries are the most exposed to climate change damages. Estimates put that the V20 countries have lost 20% of their wealth over the last two decades due to the changing climate, which amounts to USD 525 Billion in aggregate terms. The most vulnerable among them have lost as much as 51%.

Climate change's economic and social tolls are becoming increasingly evident. And without concentrated effort, and proper mobilization, this will only get much worse. The global economy can finance this transition, which is reflected in the enormous defense and services budgets. There's no denying that the steps taken are appreciable but also vastly insufficient.

Distribution of Climate Finance by top 3 instrument category

(billion USD)



Source: Biennial reports of UNFCCC and OECD

BANGLADESH, A COUNTRY IN South ASIA, is known for its natural beauty, rich culture, and hospitality. However, the hospitality industry in Bangladesh still has a long way to go regarding modernization and development. Bangladesh needs to focus on digitalization, contactless services, syndicate handling, and government monitoring, among other things.

Bangladesh's tourism and hospitality sector has shown resilience in the face of the Covid-19 pandemic, with promising signs of recovery. The industry is expected to significantly boost thanks to the proposed national budget for the fiscal year 2022-23, which allocated BDT 1,000 crore to the sector.

According to Shahidus Sadeque, director for marketing and business promotion of InterContinental Dhaka, their hotel's restaurant business has already reached pre-pandemic revenue figures. Although occupancy of guest rooms is slightly slower than before, Sadeque is optimistic that it will pick up as international travel gradually resumes. The hospitality sector in Bangladesh suffered losses of BDT 6,000 crore in 2020 due to the pandemic, as per a study by the Bangladesh Institute of Development Studies (BIDS).

The government has recognized the hospitality sector's importance and provided fiscal stimulus and liquidity support, including the allocation of BDT 1,000 crore in the latest budget. The industry has welcomed this. It

will help reduce the red tape and bureaucracy involved in getting licenses and revise taxation to help optimize revenue-generating streams to help rebuild the industry, which struggled in the last two years due to the pandemic.

The industry also needs skilled personnel to thrive. Senior officials at InterContinental Dhaka have proposed that existing courses and curricula in the hotel and tourism sector must be upgraded. Students should have hands-on training, in addition to theoretical knowledge, to meet the industry's requirements. Bangladesh can take inspiration from the hospitality and tourism industry of other countries like Malaysia, Indonesia, the Maldives, India, Vietnam, and Sri Lanka to help boost the national economy.

Nishan Moonesinghe, a Sri Lankan with vast experience in the hospitality sector, also highlighted the potential of the hospitality sector in Bangladesh.

"As hospitality professionals, we should create synergy among fellow hoteliers and work together, sharing information and following best practices from corporate entities. Sharing market segment information will help us manage pricing elasticity in the city and stabilize room rates, which are currently unstable. The potentials of the hospitality sector are immense, and with government support and industry collaboration, Bangladesh can achieve great success in this sector."

Digitalization is the future of the hospitality industry. In recent years, many top hospitality industries worldwide have embraced digitalization, and Bangladesh needs to

Envisioning a developed hospitality industry in Bangladesh

By Syed Raiyan Amir



Bangladesh can take inspiration from the hospitality and tourism industry of other countries like Malaysia, Indonesia, the Maldives, India, Vietnam, and Sri Lanka to help boost the national economy

do the same. This means investing in technology, such as online booking systems, digital menus, and automated check-in and check-out systems. By digitalizing the hospitality industry, Bangladesh can provide guests with a seamless experience that is both efficient and convenient.

Contactless services are becoming increasingly popular due to the COVID-19 pandemic. With social distancing measures in place, guests are looking for ways to avoid physical contact with staff and other guests. Contactless services, such as online check-in and check-out, mobile payments, and digital keys can help to reduce the risk of transmission and provide guests with peace of mind. By adopting these contactless services, Bangladesh can offer guests a safer and more convenient experience.

Syndicate handling is another important factor. Different sectors of the hospitality industry, such as hotels, restaurants, and tour operators, need to work together to provide a seamless experience for guests. For example, hotels can partner with tour operators to provide guests with package deals, including accommodation and tours. These different sectors can provide guests with a more comprehensive and satisfying experience by working together.

Government monitoring is also important for the development of the hospitality industry. The government can provide guidance and support to the industry and ensure that standards are being met. This can include monitoring the quality of hotels and restaurants, providing staff training, and enforcing regulations. By working closely with the government, the hospitality industry in Bangladesh can ensure that it meets guests' needs and provides a high-quality experience.

Bangladesh can draw inspiration from top hospitality industries worldwide to become a developed hospitality industry. For example, Singapore is known for its high-quality hospitality industry, focusing on digitalization and contactless services. The country has also invested heavily in training programs for staff, which has helped improve the industry's overall quality. Similarly, the hospitality industry in Thailand is known for its warm hospitality and attention to detail. The country has also focused on promoting sustainable tourism, which has helped to attract a wide range of guests.

In addition to the points mentioned above, Bangladesh can implement several other strategies to develop its hospitality industry.

Focus on Sustainable Tourism: Bangladesh can develop sustainable tourism by promoting eco-tourism and cultural tourism. It can attract tourists interested in experiencing the country's local culture and natural beauty. This will not only help preserve the country's natural and cultural heritage but also create a positive image of Bangladesh in the international market.

Develop Skilled Workforce: The hospitality industry heavily relies on its workforce. Therefore, developing a skilled workforce that can provide top-notch services to customers is essential. Bangladesh can invest in training programs and vocational courses that can enhance the local workforce's skills. This will improve the quality of services and create job opportunities for the local population.

Embrace Technology: Technology has become an integral part of the hospitality industry. By embracing technology, Bangladesh can provide contactless services, online bookings, and digital payments. This will not only improve the customer experience but also improve the efficiency of the services offered.

Improve Infrastructure: Developing world-class infrastructure is essential for the growth of the hospitality industry. Bangladesh can invest in developing state-of-the-art hotels, airports, and transportation facilities. This will attract more tourists and improve the customers' overall experience.

Promote Destination Branding: Bangladesh can promote destination branding by showcasing its unique culture, heritage, and natural beauty. It can collaborate with travel bloggers, influencers, and media houses to promote the country as a tourist destination.

There are many ways that Bangladesh can land into a developed hospitality industry. By focusing on digitalization, contactless services, syndicate handling, government monitoring, and drawing inspiration from top hospitality industries around the world, Bangladesh can provide guests with a high-quality and satisfying experience. With the right investments and support, Bangladesh can become a leading destination for tourists and business travellers alike.

Why does Bangladesh's sugar industry face loss - A Case Study

by **Saume Saptaparna Nath**

THE CURRENT SUGAR production in Bangladesh is only 5% of the total demand. In contrast, approximately 20% of demand is fulfilled by jaggery production, mainly sugarcane, and the remaining 75% comes from importation. The fundamental causes of lower sugar production in the industry incorporate less supply of sugarcane in the factory, growing demand for Carew and liberalization of import, poor sugar recovery, etc.

Against such a backdrop, it is important to shed light on why Bangladesh's Sugar Industry faces loss.

Firstly, the liberalization of sugar imports has exposed the struggling state-owned

sugar mills to unequal competition, putting them on the verge of bankruptcy, with six of the 15 public mills already closed. Bangladesh's sugar mills are uncompetitive due to high production costs, and the removal of prohibitions on the import of inexpensive sugar has exacerbated their situation, making their demise inevitable.

While a handful of private enterprises gained from the liberalization, thousands of sugar cane growers, sugar mill employees, and others who have based their lives on sugar mills have lost or will lose their jobs.

The liberalization has brought some clear benefits for importers, such as the easing of import taxes, progressively pushing the local sugar industry to the

brink of extinction, while successive administrations have done nothing to safeguard or restore the business. The importers were also required to help the government keep the market stable, but instead, they held the local mills under stress by selling sugar at a low price.

Making the highly inefficient, corruption-ridden local sugar industry compete with the highly efficient and skilled international sugar industries is like David facing the Goliath.

Since the sugar import was liberalized in 2002, the country's sugar cane cultivation acreage fell by 45% to slightly over 48,000 hectares in 2019 from more than 88,000 hectares in 2002, leading to over 66%





fall in production, shows the Bangladesh Sugar and Food Industries Corporation's (BSFIC) data. In 2019, the amount of sugar produced was about 69,000 tonnes, whereas it was 2,04000 tonnes in 2002. Thus, the production of sugar faced a sharp decline over the years.

Secondly, In the 18 years after sugar imports were liberalized, the BSFIC had only made a profit once, in 2005-06, when sugar mills had a decent production plus a significant import. State-owned sugar mills profited in ten of the first twelve years following Bangladesh's independence.

However, the BSFIC only made a profit twice in the 17 years after 1984-85. The local sugar industry's contribution to meeting the country's demand plummeted to less than 4% in 2019 from about 20% in 2002, when Bangladesh approved import liberalization. Following the deregulation, the difference between the production cost and the market price of sugar increased abnormally.

Thirdly, after Bangladesh's independence, in 51 years, the average cultivation of sugarcane is so low. The farmers these days are reluctant to cultivate sugarcane as they find it difficult to generate a steady stream of profit from the crops. The statistics show the production stood at 67.42 lakh tones in the FY of 2000-01,

but it faces a decline to 33.33 lakh tones in FY 2020-21, according to the Economic Review of Bangladesh 2022.

Besides, sugarcane farmers are undergoing backlashes ranging from low prices for sugar, lack of resources and fertilizers, high cost of inputs, and limited extension services. As sugar output in the country has decreased owing to a lack of sugarcane, the government has resorted to importing sugar to ensure that the distilleries operate on even more days each year.

For a long time, private sugar mills have imported sugar from Latin America to supply the country's high sugar demand. The company's sugar segment has lost around BDT 70 crore. The loss was created by failing to meet the sugar production objective and selling sugar at a lower price despite the high production costs.

Fourthly, alcohol and various types of spirits are made from sugarcane juice molasses, a byproduct of sugar manufacturing. After extracting sugarcane juice for sugar manufacturing, molasses, bagasse, and press mud are discovered. These three byproducts are used to make a variety of items. Molasses is the primary component in the creation of liquor or alcohol. Alcohol is produced by fermenting yeast with molasses. According

to Authority concerned, among the 15 sugar mills operated under the BSFIC, only Carew and Co is currently making a profit. Except for Carew & Co, 14 sugar mills lost roughly BDT 8,000 crore in the 2019-20 fiscal year.

Due to ongoing losses, the government has discontinued sugarcane threshing in six mills while keeping the remaining nine operational. One of the classic examples is the state-owned North Bengal Sugar Mills at Lalpur in Natore wants to set up a distillery to transform the loss-making company into a profitable one by capitalizing on the growing demand for liquor in the country.

Luckily, the demand for sugar in the local markets has been increasing due to an increase in tea consumers. BSRI has been researching tropical sugar beets to bring them into the country. Sugarcane planting in river basins, plain land, hilly places, and salty areas can significantly enhance sugarcane productivity. Furthermore, if the BSRI-recommended technologies are implemented correctly, sugarcane productivity, and hence sugar and jaggery production, will undoubtedly grow.

The writer is a Research Associate at the KRF Center for Bangladesh and Global Affairs.

		MACHINE CRITICALITY FACTOR									
		1	2	3	4	5	6	7	8	9	10
FAILURE OCCURRENCE FACTOR	1	1	2	3	4	5	6	7	8	9	10
	2	2	4	6	8	10	12	14	16	18	20
	3	3	6	9	12	15	18	21	24	27	30
	4	4	8	12	16	20	24	28	32	36	40
	5	5	10	15	20	25	30	35	40	45	50
	6	6	12	18	24	30	36	42	48	54	60
	7	7	14	21	28	35	42	49	56	63	70
	8	8	16	24	32	40	48	56	64	72	80
	9	9	18	27	36	45	54	63	72	81	90
	10	10	20	30	40	50	60	70	80	90	100

Strong reliability culture required for the industry to grow big

by **Tareq Ahmed Robin**

THE LABEL ‘MADE IN Bangladesh’ may have been seen on products purchased abroad, especially RMG products. A global effect is being made by various industries, not just the RMG (Ready Made Garment) manufacturing sector. Nonetheless, their local popularity hasn’t grown as many global brands like Zara, Gucci, or Armani.

From the world’s point of view, Bangladesh’s image is still limited to a nation that can make your products ready at a lower labor cost. And this is certainly not an ideal image. However, do we know Bangladesh can build brands of its own? Do we know how the country can make a journey from a mere order-maker to a game player?

On growth trajectory

Analyzing the exports year by year can give us a clear picture of how good the numbers are. Bangladesh’s total export earnings from July 2022 to February 2023 were above USD 37 million, compared to USD 33.8 million in the previous year, as per Export Promotion Bureau (EPB) data.

A similar kind of growth is seen in the country’s leather and leather products. From July to February FY22, Bangladesh earned USD 784.98 million from leather and leather products, which grew by 6.04% in FY23 to USD 832.38 million. Exporting commodities like cement, salt, stone, and petroleum, Bangladesh earned USD 36.14 billion in the same period in FY23, with a year-on-year growth of USD 4 billion.

Despite having challenges, the country is still performing well. The nation’s industrial culture must comply with international norms to entice more foreign firms to open operations here and increase its global market presence. Perhaps fostering a ‘Cultural of Reliability’ is one of the essential components.

Why practice the culture of reliability?

According to a research paper titled ‘Achieving Product Reliability: A Key to Business Success,’ Samsung recalled 2.5 million Galaxy Note 7 devices in September 2016 in response to allegations of numerous phones catching fire due to defective batteries. Investigations revealed that a mix of poor design and manufacturing defects was to blame.

This is an example of reliability failure. Although many other reliability failures go unnoticed and do not have catastrophic effects, they cause customers significant inconvenience. The preference for reliability conveys a clear message to manufacturers who want to build a customer base.

On the other hand, reliability has many crucial advantages, such as increased plant uptime (uninterrupted production time), optimal production that reduces production loss and ensures process, human, and environmental safety, and more maintainable, reliable, and available assets,

and lower maintenance and operation costs.

What is a reliability problem?

Both ‘failure avoidance’ and ‘quality through time’ are colloquial terms for reliability. When a product consistently fails to fulfill its intended purpose in the eyes of the customer, this is referred to as an eld reliability problem. Establishing a reliability culture can solve the problem above.

For industry insiders, practicing reliability and establishing a reliability culture may be the ideal way to meet those problems. Monitoring important equipment data and taking appropriate action might be a straightforward example of decreasing downtime through reliability.

Even in firms that placed a high priority on quality, reliability assurance used to be an afterthought often. It’s also known as the Design-Build-Test-Fix cycle -- meaning that producers worked to identify and address reliability issues through in-depth testing after the production.

Forward-thinking companies and industry leaders have realized the high cost of ensuring reliability through reactive tactics. A proactive ‘get it right the first time’ mindset has thus replaced the conventional Design-Build-Test-Fix approach. Receiving early warnings about high vibration, low or high differential pressure, high differential temperature, instability, clogged suction filters, and control vane defects will help prevent unexpected compressor outages in the case of a plant where the compressor is an essential component. Preventive maintenance measures will also help.

Developing a proactive reliability culture

A few straightforward initiatives can be used to develop a reliability-centered culture. Firstly ensure accountability

at the executive level and delegate it down. Determining the root cause of critical equipment failures and ensuring that fundamental preventative maintenance procedures are followed. Next, start detecting harmful elements (equipment that causes the repetitive breakdown of the production process). Also, improve equipment and process and consciousness of the workers.

More advanced reliability practices, such as evaluating equipment criticality, asset integrity management, strategic Enterprise Asset Management (EAM) plans, competency management plans, and so on, can be implemented once the organization has successfully implemented these first-tier initiatives. Other analytical techniques like FMECA (Failure Mode Effect and Criticality Analysis), FTA (Fault Tree Analysis), and RCM (Reliability Centered Maintenance) can be integrated.

A few decades ago, Vietnam, China, Malaysia, Indonesia and Thailand -- all experienced similar circumstances. But, these nations implemented the correct industrial and national policies at the right time, providing a trampoline for their success. Executives in our sector must foresee both the short- and long-term benefits of instilling a reliability-centric culture within their firms.

To deal with a world transitioning to Industry 5.0, the government should take steps to encourage industry adoption of a reliability culture and may initially give little incentives.

Tareq Ahmed Robin is an entrepreneur, industry enthusiast and technical writer for renowned dailies. He is determined to put his signature in Bangladesh’s journey to reshape the industrial landscape through his excellence, experience and initiatives.



How RMG sector can sustain through energy crisis

by **Adiba Isfara**

BEFORE THE WORLD economy could completely recover from the impacts of the COVID-19 pandemic, a new crisis arrived in the form of the Russia-Ukraine war. The war has sent shockwaves throughout Europe and beyond, with Bangladesh's vital readymade garment industry feeling the burn. With energy shortages and a sharp decline in apparel orders, the RMG industry faces a severe crisis. Adding to that the high inflation rates and fears of a looming recession, it's clear that consumer confidence in Bangladesh is at an all-time low. It's a challenging time for Bangladeshi exporters, but can they rise to the occasion and weather the storm?

Power crisis takes its toll

In 2022, as the Bangladesh government was scrambling to solve the country's energy crisis, citizens had to feel the effects in more ways than one. With malls and shops ordered to close by 8 pm every night and shut down of diesel-run power plants, it was clear that the crisis was taking a toll on daily life. Schools were ordered to close an extra day each week, and mosques were asked



to refrain from using air-conditioners outside prayer times.

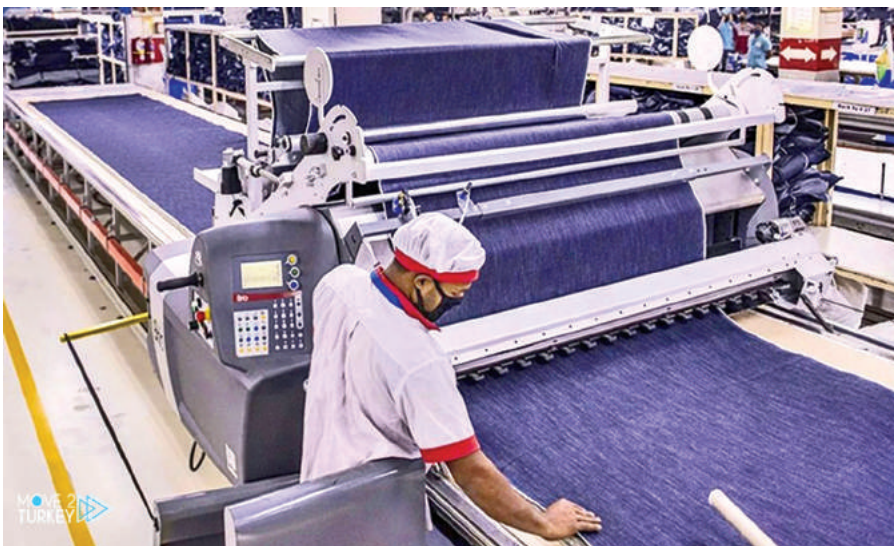
The government imposed these drastic measures as it depended on imported cheaper fuels from Russia, which has led to a doubling of fuel prices. This escalating Ukraine war further exacerbated the deeper problems in Bangladesh's power sector. With the country relying heavily on imports of fossil fuels and 63% of

its power coming from it, a power crisis was bound to happen following the dollar crisis. And power shortage has already noticeably affected the RMG sector. Industry insiders urged the government to take immediate action to address the crisis and support manufacturers as they struggled with dwindling export orders and negative export earnings growth.

Many industries were forced to minimize their working hours by announcing two days of holidays in a week in September 2022. This caused export earnings and remittance inflow to decrease, as foreign orders were canceled and buyers refrained from placing new orders in Bangladesh. It's still dire for the RMG sector and threatens to cripple the country's economy. But is there hope on the horizon?

In November 2022, the President of the Bangladesh Garment Manufacturers and Exporters Association (BGMEA), Faruque Hassan, claimed that no major power issues were affecting the RMG sector at a press conference and reassured that the situation had greatly alleviated.

As the sector moves through 2022,





many wonder how the industry is sustaining after such a crisis. As the energy crisis in Bangladesh continues to rage on, the RMG industry is fighting to keep its head above water. We sat down with Mr. Mahbubur Rahman, the Deputy General Manager of one of the leading global manufacturers of clothing and textiles based in Bangladesh, to better understand the current crisis.

“The energy crisis has decreased from what we have seen during September-November,” Mr. Rahman told us. “The Bangladeshi RMG industry has seen some improvement in the power crisis since the start of the Russia-Ukraine war. However, certain areas and factories are still facing blackouts due to power rationing. The energy crisis, which had previously been hindering the growth of the sector, has somewhat abated as a result of the war, but the issue is far from resolved.”

The government has been working to improve the power situation in the country, with plans to increase power generation capacity and improve the distribution system. However, as Mr. Rahman noted, implementing these plans is still in progress and will take time to see significant improvements.

Strategies to address the energy crisis

Renewable energy has been heavily discussed as a solution. “We have installed one of the largest rooftop solar power projects with a cumulative capacity of 40 megawatts (MW),” mentioned Mr.

The best solution is going back to nature by using solar and wind energy as alternatives to traditional power sources

Mahbubur Rahman. “Additionally, the company operates an Independent Power Plant (IPP) with a capacity of 20MW.”

Experts say that adopting eco-friendly practices and using renewable energy sources can reduce the industry’s environmental impact, save energy, and reduce costs. Companies are taking steps to reduce their power consumption, from installing solar power projects to using energy-efficient bulbs and fans.

“It’s never too late for industries to make changes to protect the environment,” said Mr. Mahbub. “The best solution is going back to nature by using solar and wind energy as alternatives to traditional power sources. Our company has been using power-saving equipment and automation to reduce energy consumption. Some RMGs are still lagging in this regard and need to take initiatives to adopt eco-friendly practices.”

As the RMG industry fights to survive in the face of the energy crisis, it’s clear that going green is no longer a luxury - it’s a necessity.

The RMG industry is the backbone of Bangladesh’s economy. Manufacturers and the government must work together to combat the crisis and keep the sector afloat. Riding on the back of the RMG industry, Bangladesh has become one of the fastest-growing economies in the world. A testing time for this industry is a challenge for the whole nation that must be handled collectively.



The future of precision medicine industry looks bright

by **Dr. Imtiaz Ahmed**

THE SOLE FOCUS OF THE healthcare industry is the patient and how to provide the best care possible to them. Traditionally, this is based on the foundation that the same disease usually has similar pathology and will respond to similar treatment for different patients. This one-size-fits-all approach has indeed been effective for the majority of patients. But we must remember the rest who do not conform to this approach.

What if we can improve the current standard of care for all?

This is where precision medicine comes in. It acknowledges that our health is shaped by genetic factors, lifestyle choices, and other behavioral traits interacting in a complex environmental ecosystem.

All these may affect the same disease differently for different patients. That is why tailored intervention, e.g., a unique intervention designed for each individual, is increasingly stressed. If implemented broadly, this can significantly change how the treatment is provided. The healthcare industry will then need to revise its strategy of emphasizing general disease and targeted therapy to the right drug for the right patient at the right time.

The science of making it to the point

The main idea of precision medicine is that the physician will assess each patient's genetic, behavioral, and environmental factors first. The data generated will help identify which treatment is more likely to be successful for that patient. We already use precision medicine in certain conditions like cancers and genetic diseases.

For example, breast cancer biomarkers can reveal whether a patient needs aggressive treatment or a more conservative approach. But the application could be much more, like genomic profiling of the patient to identify the risk of specific diseases, assessing the response to certain medications (pharmacogenomics), and so on.

Precision medicine is also used as a preventative tool. If someone has risk factors for breast cancer, the physician may ask her to start screening at an earlier age than recommended. This pertains to a broader application of this concept, known as precision health or precision public health. An example of its application could be the salmonella outbreak. Bacteria collected from the stool sample of the cases can be matched to find a cluster. Further information analysis could identify the infected source, e.g., a certain brand of egg contaminated with

the bacteria. Then a recall of the eggs could be implemented, avoiding further public health hazards.

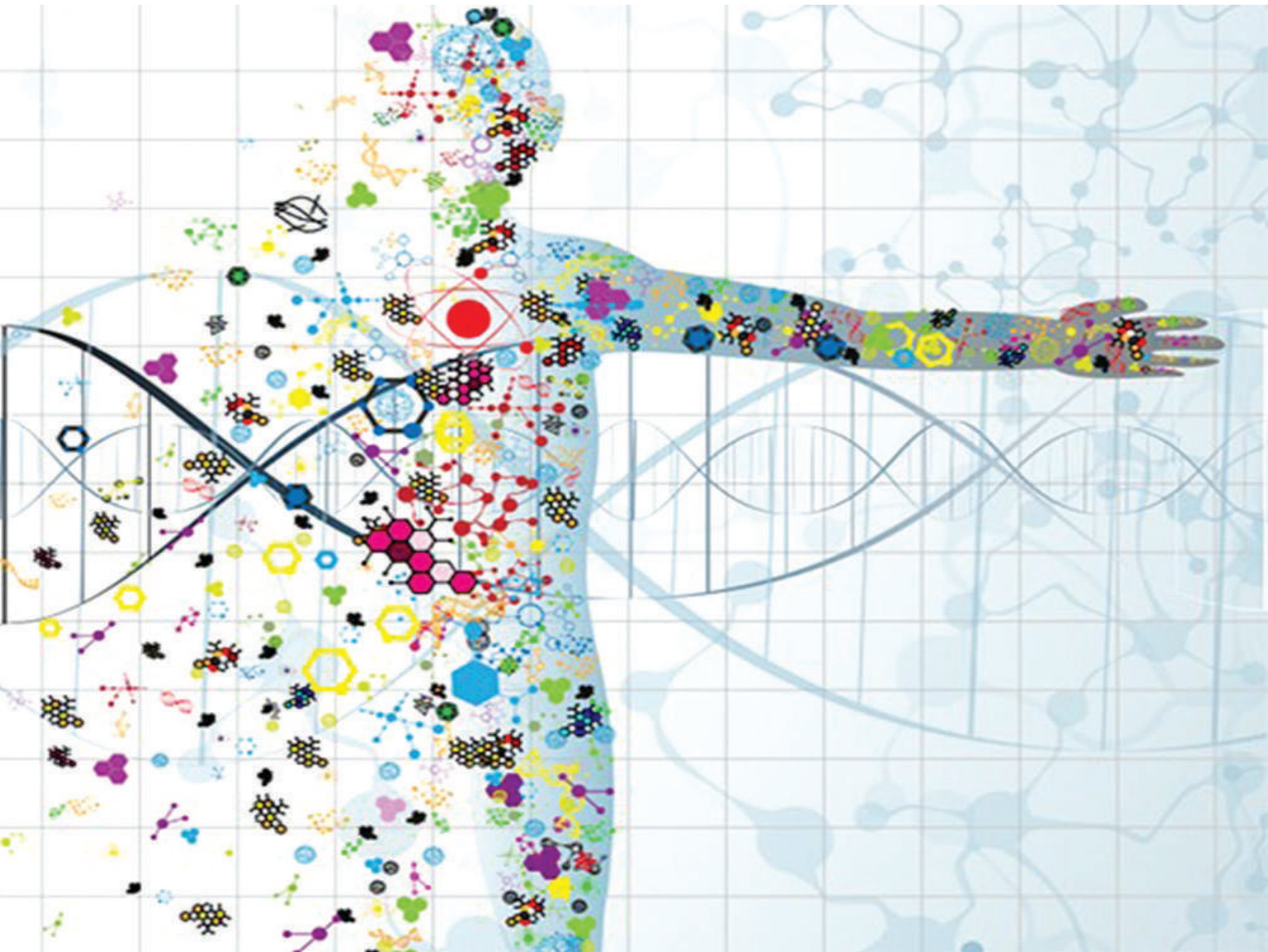
Impacts of personalized medicine

How does the application of personalized medicine affect the healthcare industry? Or, more specifically, the pharma industry?

There are both opportunities and challenges. Research-based pharmaceuticals are already investing in personalized treatment for specific areas, like cancer and neurology. The idea is this enhances the value proposition by enhancing the clinical effectiveness in high-risk populations as opposed to the low yield of more traditional approaches in those groups. In countries with a strong health insurance system, such an approach can also make reimbursement procedures easier. A big impact will be on drug development. Currently, it is a long process with a lot of hits and misses. Precision medicine can shorten the timeline by making drug designs and trials more specific.

Challenges

Drug development is an expensive process, and using new technology will add more to the cost initially, even though costs may come down in the long term. Also, applying precision medicine will



need new skills, expertise, methodologies, and techniques to be developed. All these are significant investments that only a few big pharmaceuticals can make. They will affect the initial pricing of the new molecules, which may prove to be unaffordable by the vast majority unless they have insurance or other support systems.

But the industry is not daunted by these, and already research-based companies are spending heavily to incorporate precision medicine in their strategy. According to Strategic Market Research, Precision Medicine Market accounted for US\$ 65.22 billion pharma market in 2021. This is expected to climb to about US\$ 176 billion by 2030. The major growth drivers are estimated to be cancer and biological therapies. Currently, in terms of revenue, the largest share comes from cancer and drug discovery. The Pharma companies have a significant market share in precision medicine, with 33% in 2020.

Prospects in Bangladesh

In countries like Bangladesh, precision medicine faces manifold challenges. We lack the population data that is essential for this. Financial constraints are also a major issue. But we have at least started. Biomarkers are being used to tailor treatment for certain cancers. Preventive strategies based on patient's individual risk factors are also gaining prominence. Many hospitals have already switched to electronic patient records, generating the blocs for big data.

But is it transforming the industry? Or how exactly is it affecting the pharma industry? The process has just started, and the results will not be visible for some years. The healthcare industry is still focused on providing treatment based on disease, not on individual characteristics, except for certain conditions. For chronic diseases like diabetes, asthma, and chronic obstructive pulmonary disease, the opportunity for

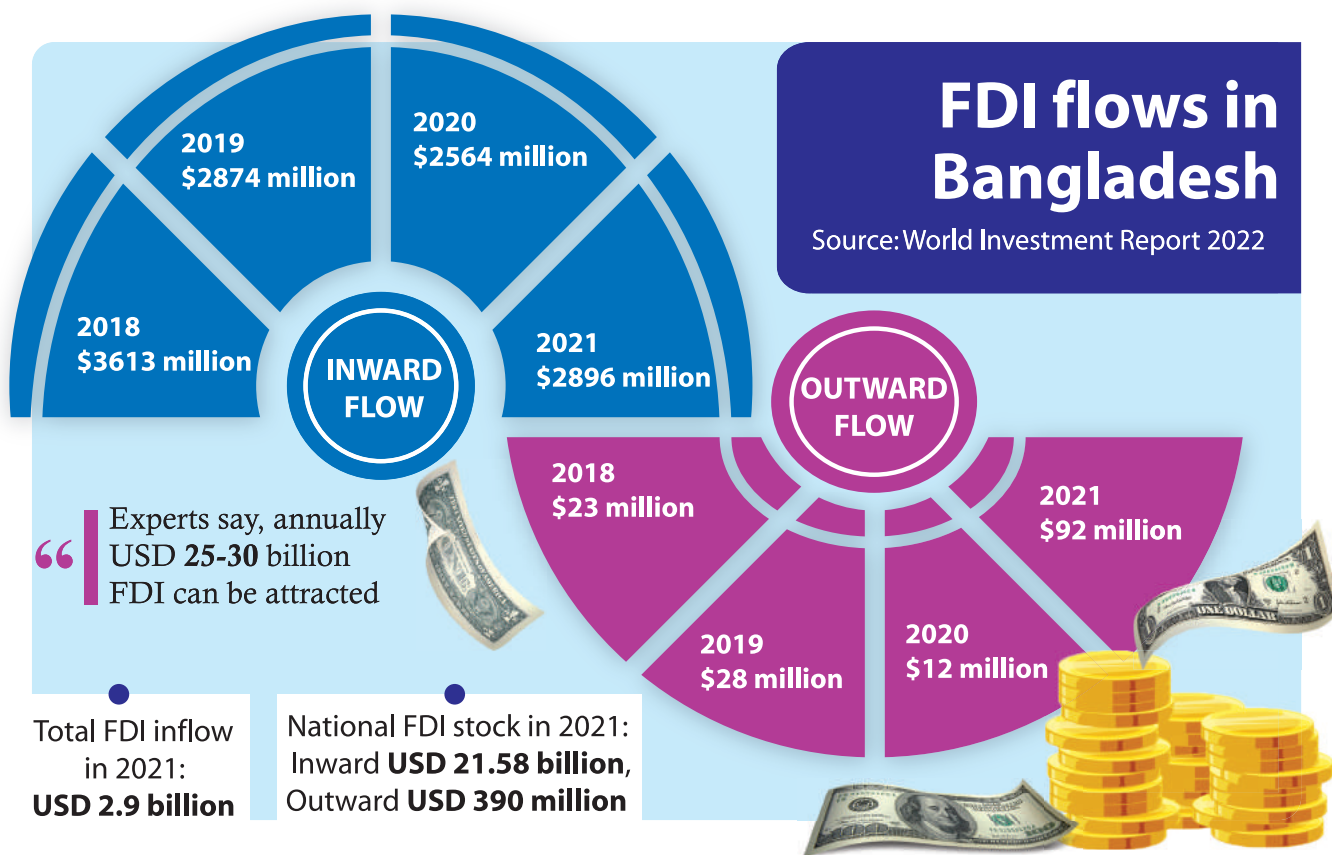
personalized treatment is not exploited. But some research-based companies operating in Bangladesh are working to facilitate the broader application of personalized medicine in cancer and neuroscience.

Way forward

It will require shifting the whole business strategy, from a group of patients to individual patients, from standard to personalized treatment. The private sector should come forward to popularize the concept, create a system to capture population-based data, and fund the analysis of the data set to identify where we can utilize precision medicine best. The industry can also collaborate with international partners for genomic profiling and pharmacogenomics. Sure, the initial investment will be huge, and the cost of the medicine will rise at first. But with proper planning, we can mitigate the price impact, and the eventual return should be worth it.

How can Bangladesh increase FDI inflow?

by **Saume Saptaparna Nath**



DESPITE THE SECOND wave of COVID-19's onslaught, Bangladesh's GDP grew by an astounding 6.94% in FY 2020–21. The final result is 1.51% higher than the first estimate (5.43%), and it is significantly higher than what the World Bank (5%), IMF (4.6%), and ADB (5.5%) had predicted.

The industrial sector's recovery, the uptick in exports, better revenue collection, and massive inward remittances are all responsible for the growth. Throughout the epidemic, the government maintained the economy's functionality and movement with the help of several stimulus packages.

The BBS reports that the industrial sectors thrived, and agriculture did well. Then came the Ukraine war, and the world economy

again got disrupted. But Bangladesh confronted the crisis in a feasible way, paving the way to a newer form of increasing FDI, investment and registered companies.

In comparison to the same period in FY 2020–21, Bangladesh's total merchandise export grew by 30.34%, from \$22.67 billion to \$29.54 billion. According to data from the EPB, total export revenues also came in 16.17% over budget. RMG generated \$23.98 billion, a 30.3% increase over the same time in the prior FY.

But to secure stability and sustainability and ensure diversity to confront situations like the war, Bangladesh must search for newer sources to increase FDI, investment and registered companies. The next sections will shed light on it.

The Bangladeshi government actively seeks foreign investment (GOB). Among the sectors having active foreign investment are agribusiness, apparel/textiles, leather/leather goods, light manufacturing, electricity and energy, electronics, light engineering, information and communications technology (ICT), plastic, healthcare, pharmaceuticals, shipbuilding, and infrastructure.

The GOB offers a variety of investment incentives under its industrial policy and export-oriented economic strategy, with few formal distinctions between foreign and domestic private investors. Bangladesh may also become the world's next outsourcing hub.

Improving the investment climate

The Bangladeshi government can foster a

positive business environment by decreasing corruption, streamlining laws, and enhancing the infrastructure for investors. This entails streamlining the company process, cutting red tape, and fostering a steady and predictable corporate climate. A welcoming investment environment will draw more capital and open up chances for regional firms to expand and prosper.

Diversifying the Economy

Bangladesh's economy has historically been driven by the textile, apparel, and agricultural industries, but in order to attract more foreign direct investment, the government should concentrate on diversifying the economy and promoting investment in other fields. This might apply to industries like technology, clean energy, medicine, and tourism. Bangladesh can use this to draw in new business ventures and investors as well as lessen its reliance on a particular industry.

Encouraging Investment in High-tech Industries

Because of its educated workforce and ability to market itself as a desirable location for high-tech businesses like medicines and information technology, this will not only draw in investment from international corporations but also contribute to the development of a more inventive and dynamic economy.

Fostering Partnerships with Other Countries

Bangladesh can collaborate with other nations to attract more investment from these nations. For instance, because of its strong ties to China, the nation may be able to entice Chinese businesses to invest there by providing tax breaks and other benefits. Bangladesh can also collaborate with other nations in the region, like Japan and India, to attract more foreign investment.

Improving Access to Financing

The government of Bangladesh may assist local enterprises and promote investment by enhancing access to financing, which is a crucial aspect in luring investment. This can be accomplished by creating a robust banking industry and investment-friendly regulations, such as tax breaks for foreign investors. To help enterprises find money, the government might also encourage the growth of regional capital markets like the stock exchange.

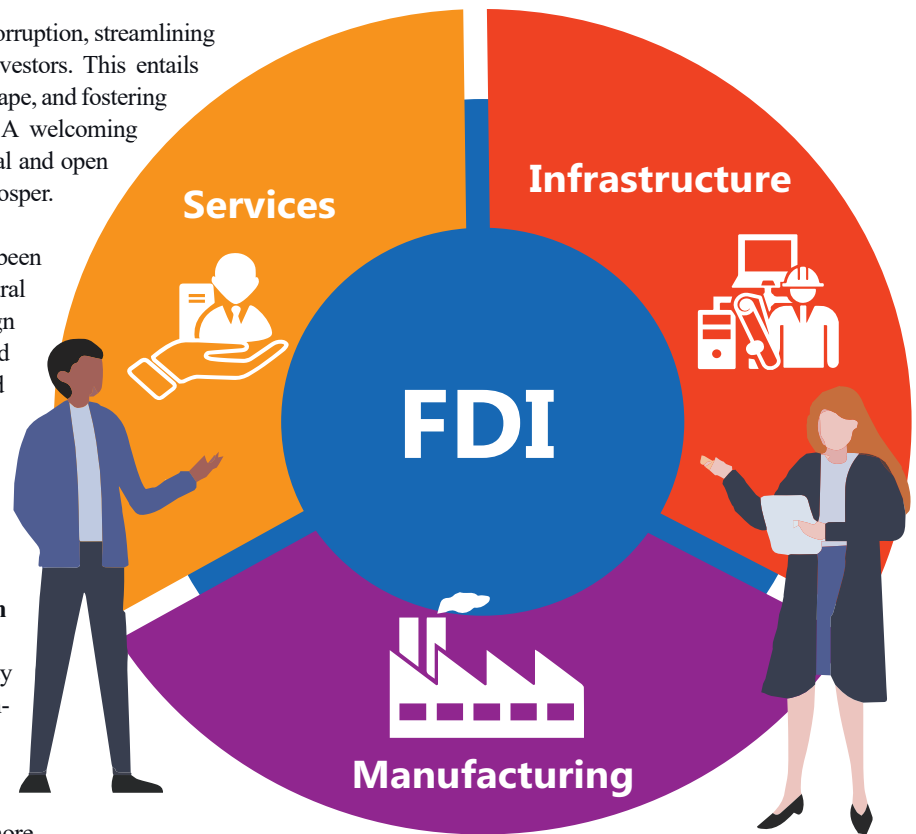
Providing Support to Local Businesses

The Bangladeshi government should concentrate on fostering local company growth and support in order to increase FDI. Giving people access to money, education, and other resources falls under this category. In doing so, the nation will become a more appealing location for investment and local enterprises will be better positioned to compete with foreign corporations.

Promoting the Country's Image

Bangladesh may attract more FDI by enhancing its reputation as a secure and desirable location for investment. This can be accomplished by emphasizing the nation's advantages, such as its expanding economy, educated workforce, and welcoming investment environment. To further boost the nation's reputation, the government can attempt to address issues like political stability.

Entrepreneurship Education



Bangladesh has a skilled labor force, but entrepreneurship education needs to be promoted to inspire more people to launch firms. To offer training and assistance to entrepreneurs, the government can collaborate with academic institutions and commercial organizations. As a result, there will be more registered corporations and current enterprises will be able to expand.

Encouraging Foreign Investment

Increases in foreign investment may be a major factor in the growth of registered businesses in Bangladesh. By providing tax breaks and other incentives to international investors, the government can promote foreign investment. Bangladesh can also collaborate with other nations in the region, like Japan and India, to attract more foreign investment.

Regulating the Business Environment

The business climate needs to be regulated in order to promote entrepreneurship and expand the number of registered businesses. The government can accomplish this by establishing just and open regulations and vigorously enforcing them. Businesses will benefit from a level playing field and more competition, which can spur innovation and growth.

Way Forward

All these cumulatively bring economic growth, entrepreneurship, foreign investment, employment opportunities, government revenue, and an improved business environment. Bangladesh can diversify its economy and ensure that there will be an upsurge of domestic organizations which promote FDI, investment and registered companies. It will give stability to the region also.

The writer is a Research Associate at the KRF Center for Bangladesh and Global Affairs.

Behind South Korea's economic miracle How a single industry shaped a nation's economy

by **Zanjabil Mashkura**

AMONG THE FOUR ASIAN TIGERS, South Korea's development strategies during their export-driven industrialization period (1962-80) stand out as a model case in which significant industrialization has been achieved through well-planned economic strategies and industrial policies.

The steel industry has played a significant role in Korea's economic growth by providing raw materials to inter-industries such as automobiles, shipbuilding, and construction. Currently, the steel industry makes up 1.5% of the entire industry and 4.9% of the manufacturing industry of Korea. The country is increasing self-sufficiency and improving the trade balance by raising exports.

to come a long way to achieve its current state. How did South Korea go from being one of the world's poorest nations amid a war to a rapidly rising nation aiming for higher standards today with world-class technological development and production?

From 1972 to 1982 steel production increased fourteen times. Korea reached maturity in steel production in 1990



South Korea represented a backward, isolated economy based on agriculture well into the 1960s. With all the difficulties facing a typical developing country, Korea had

Initially, South Korea started with the textiles and footwear industries, and then slowly, its manufacturing moved towards heavy and chemical industries. Initiatives such as the steel and ship industries began in the 1970s, while electronics and automobiles took off in the 1980s. During the Park Chung Hee regime (1961-1979), the industrialization process of South Korea took a bright turn. Authoritarian Park directed the economy toward heavy and chemical industries (HCI).

The Korean army government established Pohang Iron and Steel Company (POSCO) in 1968. POSCO received sufficient government support to be recognized as a renowned steel company. It continued to expand its production capacity and set itself up to be successful by the mid-1980s.

The steel industry's success resulted in an expansion of Korean steel production from 2.55 million tons in 1975 to 36.8 million tons in 1995, 43.1 million tons in 2000, and 48.5 million tons in 2006, making it the world's fifth largest steel producer. POSCO's domestic

The Korean steel industry gained an advantage in raw materials, technologies, and the production of other heavy items because of its high participation rate in the global economy

steel supply increased from 20 percent of consumption in the 1970s to more than 90 percent in 2000. It was such that the entire Korean economy could attain steady growth through the steel industry.

Korea started to welcome advanced foreign technologies and foreign investment in 1970. With the help of Japanese technology and supervision, an iron and steel mill was set up. Many foreign experts believed South Korea needed to prepare more to support a heavy industrial base like steel. Despite all the negativity, South Korea's plan was successful.

Even during the economically challenging period globally in 1970, the Korean economy grew by twice as much. Production of carbon steel began at the same time. The steel industry accelerated in the 1980s when an excess demand for steel was created. From 1972 to 1982, steel production increased fourteen times. Korea reached maturity in steel production in 1990. Excessive material facilities caused oversupply. So, Korea finally had the opportunity to focus on developing innovative technologies.

There are several reasons behind the rapid growth of the Korean steel industry compared with other southeast Asian countries. The Korean steel industry had a comparative advantage in steel production because it had an efficient production system and skilled, low-cost laborers. The increasing demand

for steel in the domestic market played a significant role in keeping the Korean steel industry steady.

Japanese steel producers Nippon Steel and Mitsubishi Heavy Industries suffered global overproduction, and with an unsuitable political climate, they decided to transfer heavily polluting industries out of Japan. At that moment, South Korea was an attractive alternative for them to set up a business.

Changes in the global economy created essential opportunities for the Korean steel industry. POSCO became one of the world's largest steel firms and a critical component of the global economy. The policies followed by POSCO were very effective, and they helped it achieve and maintain its position in international competition. The opportunities created under the shelter of Japan helped POSCO and the Korean state promote economic growth worldwide.

The Korean steel industry gained an advantage in raw materials, technologies, and the production of other heavy items because of its high participation rate in the global economy. The steelmakers of Korea had to diversify their raw material sources and make international joint investments to get to where they are now. Steel shaped South Korea's rise from a light industry base to a heavy and chemical-based industry.

The Korean government played an essential role in making the Korean economic miracle happen. Korea's place among the four Asian tigers was possible because of the development of the steel industry. Korea is now a world leader in electronics, automobiles, shipbuilding, and other advanced industries.



Embankment slope protection: Modern technologies edging past traditional methods

by **Sayem Sharif**



CONSTRUCTION OF EARTHEN embankments, their repairing and rebuilding for flood control, irrigation and drainage have been constant in the history of Bangladesh. Construction of embankments started with the creation of the 'East Pakistan Water and Power Development Authority' (EPWAPDA) in 1959. Since the independence of Bangladesh, the Bangladesh Water Development Board (BWDB) has been the main executive agency for this purpose to save lives and properties from natural disasters such as main river floods, flush floods in the east and north-east parts of the country, and saline intrusion in the Southeast part.

Over the decades, thousands of kilometers of earthen embankments have been constructed as they are cheap. River embankment or revetment protects lives and property from inundation during the monsoon. It safeguards against the intrusion of saline water and the devastation associat-

Total Embankments

139

Total Area

5810 KM

Damaged

60

Being rebuilt

10

New proposed

8

ed with repeated attacks of tidal surges and cyclonic storms. To minimize the impact of natural disasters and achieve the goals, sustainable and cost-effective operation in maintenance for these embankments is necessary.

However, Bangladesh's earthen embankments are overwhelmed with multi-faceted problems. These are unsuccessful in serving the purpose and create many other problems.

Usually, the earthen embankments are breached easily due to rainfall splash, animal actions and human interferences. Haor (north-eastern zone) and river embankments of the mainland are subjected to turbulent water currents and changes in the river courses. The problem is acute in offshore islands and coastal belts, where they are additionally exposed to erosion by sea waves and tidal fluctuation of the water levels.

In addition to the earthen embankments, concrete blocks and sand-filled geo-bags

have been used to mitigate these erosions and ensure slope stability. But the main problem with this method is proper design, execution of concrete blocks in places and erosion of back slope soil. For these reasons, concrete block placing methods require regular maintenance and rectification work. For Bangladesh, long-term maintenance is difficult for the Government due to political and socio-economic conditions. Eventually, long-term protection of these embankments fails.

Articulated Concrete Block Mattress is modern and worldwide used in prevention measures for waterfront infrastructures. It is generally a cable-reinforced concrete block mattress designed to resist erosive forces and ensure the stability of slope failures. It is often constructed where an embankment is exposed to river flow with high velocities, shear stresses and frontal attacks of tidal waves.

The articulated block fabric formworks comprise a series of compartments linked by an interwoven perimeter. Grout ducts are interconnected with the compartments, and high-strength revetment cables are pre-installed between and through the compartments and grout ducts. Once filled with fine aggregate concrete, the system becomes a mattress of rectangular concrete blocks with high hydraulic stability.

The advantages of articulated concrete block mattresses are:

Flexibility: it enables flexibility while maintaining a stable matrix of armor units. The interconnected block mattress poses an annular space designed to permit articulation.

Permeability: Its interwoven filtration points can incorporate either geotextile filter fabric to release water or geo-composite drainage layers to collect and release water.

Durability: It is resistant to damage due to rusting, vandalism, abrasion and weather impact.

Maintenance: High-strength revetment is absolutely maintenance-free compared to other revetment systems.

Cost impact: Despite its dependence on geo-condition, location and requirement of the project, the cost



Articulated Concrete Block Mattress is a cable-reinforced concrete block mattress designed to resist erosive forces and ensure the stability of slope failures

of embankment through this modern technology would be less than the conventional block method we are using now.

Recently this method of revetment has been getting implemented in a public project in the form of Techrevetment (Commercial name of articulating block concrete mattress).

This Sea wall protection has been constructed to resist Bay of Bengal tidal wave actions and embankment protection. Sirajganj Economic Zone is constructing a guide bund for Jamuna River Sub-channel protection work in Sirajganj.

This modern technology of embankment protection and revetment work in the haor zone and southern coastal area will reduce costs in the design and implementation process and ensure more safety, stability and protection of human life and property.

Sayem Sharif is a structural engineer and engaged with diversified infrastructures with different technologies across the country. He is also serving as the Chairman of YGEN Engineering Ltd, a reputed construction company of the country.



FED Rate Hikes: Economic ramifications on Bangladesh

By **Dr. Saim Amir Faisal**

AT THE PRESENT TIME OF writing, there is a substantial argumentative basis to the claim that the most powerful man on the face of this Earth is not the President of the United States of America, President Joe Biden, but the Chair of the Federal Reserve, Jerome Powell. Over the course of this article, I will try to demystify the Power of the Federal Reserve, and why the Central Bank of the United States of America has the power to make or break emerging market economies. Subsequently, policy prescriptions are proposed to mitigate the twin foreign reserve and inflationary crisis.

What caused the 1997 Asian Financial Crisis?

Let us revisit in time and decipher the causes of the Asian Financial Crisis of 1997. In no way shape or form does the author claim that the Federal Reserve manufactured the currency crisis, however, there is tangible economic reasoning to suggest that the Fed was integral to the crisis unfolding.

One of the key factors leading up to the Asian Financial Crisis was a surge of capital inflows into Asian economies, particularly in the form of foreign direct investment and portfolio investments. This capital influx led to a rapid expansion of credit and asset prices in these economies, which in turn fueled further investment and borrowing.

The Federal Reserve's monetary policy kept interest rates relatively low in the United States during the mid-to-late 1990s - this encouraged global investors and notable currency speculators to seek higher returns elsewhere, predominantly in Asian economies, where interest rates were significantly higher.

However, Federal Reserve's decision to hike interest rates in 1997 and 1998,

in response to concerns about inflation and the potential for overheating in the US economy, without a shadow of a doubt, exacerbated the crisis. This policy move made it more expensive for Asian borrowers to service their debts, contributing to the exodus of capital from Asian Tiger Economies, back to the United States.

The Thai baht was one of the first currencies to come under pressure, with speculators betting against the currency and pushing it to devalue in July 1997. The Thai government attempted to defend the baht by raising interest rates and intervening in the currency markets, but these measures were ultimately unsuccessful. The baht lost more than half of its value against the US dollar over the course of 1997.

The devaluation of the Thai baht triggered a wave of contagion, as investors began to flee other Asian currencies as well. The Malaysian Ringgit and the Indonesian Rupiah both saw sharp devaluations in the following months, and the South Korean Won also came under increased pressure by currency speculators.

The crisis also had ripple effects beyond Asia, as investors became increasingly concerned about the exposure of global financial institutions to Asian debt. This led to a wider sell-off of emerging market assets, including in Latin America and Russia.

The Russian Ruble, in particular, came under pressure in August 1998, as investors became concerned about the country's ability to service its debts. The Russian government eventually defaulted on its debt in August 1998, leading to a wave of bankruptcies and a severe economic contraction in the country.

In the latter part of 1997 and early 1998, the IMF provided \$36 billion to support reform programs in the three worst-

hit countries—Indonesia, Korea, and Thailand.

Ghosts of the Past

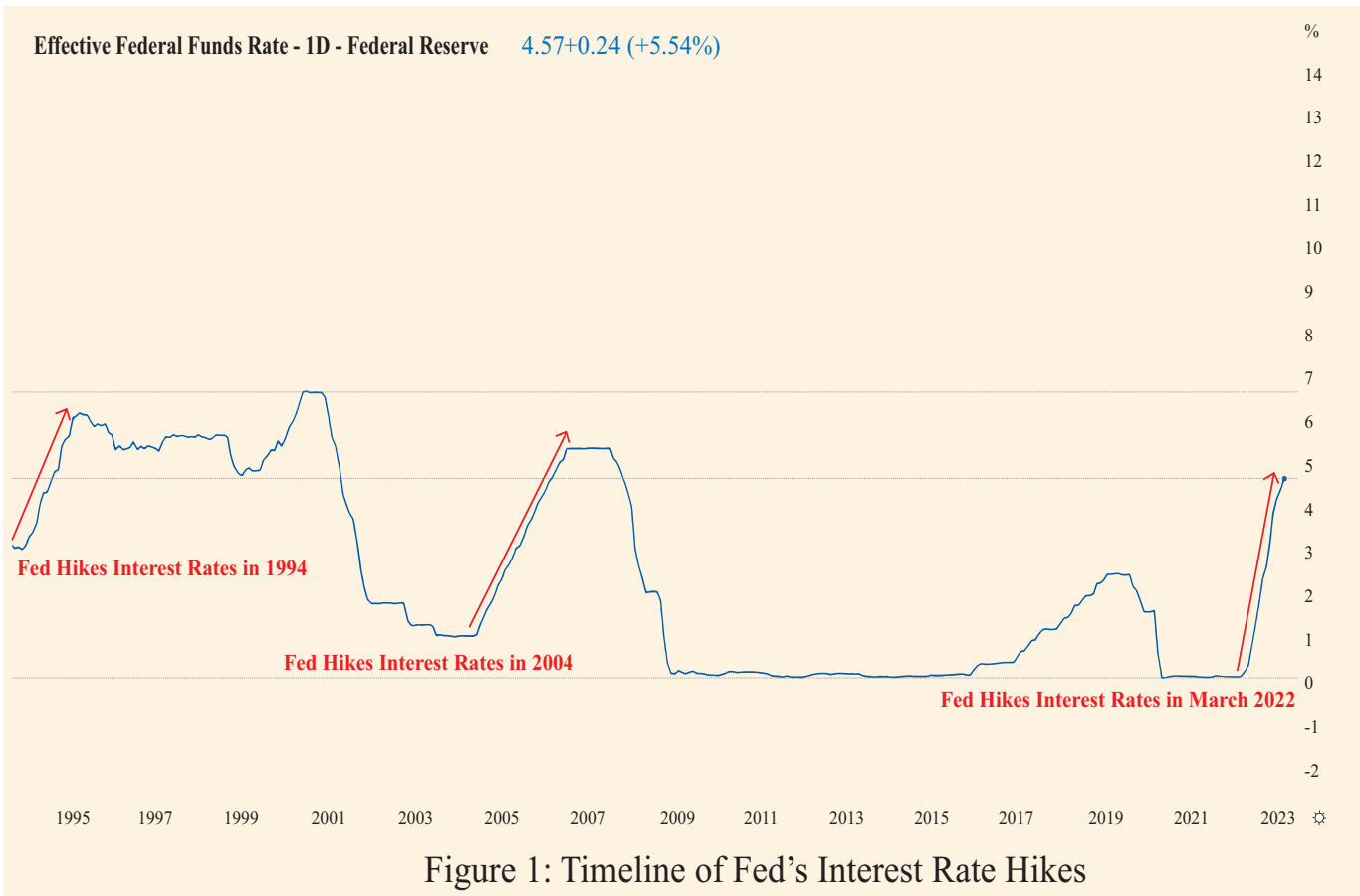
Fast forward to 2023, history is repeating itself. In March 2022, after a period of sustained Quantitative Easing, for well over a decade, the Federal Reserve started hiking rates – a stringent measure of Quantitative Tightening.

Refer to Figure 1 and you will observe that there are 3 instances in the past 30 years in which the Federal Reserve has hiked interest rates. The first Fed Rate hike in the 30-year horizon was initiated in Jan 1994. What ensues in the subsequent years is a catastrophic currency crisis in Asian emerging economies known as the Asian Financial Crisis of 1997. The second rate hike was initiated in June 2004. What followed in subsequent years is known as the Great Financial Recession. Finally, in March 2022, the Fed initiates a series of rate hikes after nearly a decade of low interest rates.

Since the Fed Rate hikes were initiated in March 2022, the Bangladeshi Taka has lost nearly 25% of value against the US dollar, foreign exchange reserves plummeting from \$48 bn to \$32 bn as import costs and debt-servicing becomes more expensive; inflation soaring.

Consider the example of Pakistan and Sri Lanka in the same time period. The Pakistani Rupee has lost nearly 45% of value against the US dollar, the economy is on the verge of a collapse, as inflation soars, and foreign reserves continue to plummet to record lows; foreign reserves as low as \$3bn. The Sri Lankan Rupee plummeted nearly 50%, ultimately bankrupting the economy, as dollar denominated debt could no longer be serviced due to the tremendous loss in value of the Sri Lankan Rupee, import bills could no longer be met.

There are 90 countries around the world



that are faced with a foreign reserve crisis, intertwined with high inflation, this is a remedy for a total economic and socio economic catastrophe.

Remedies of Exogenous Shocks: Fate of Bangladesh in 2024

There are undeniable structural fallacies within the fiscal and monetary institutions that govern Bangladesh. However, the present foreign reserve crisis is not one of Bangladesh's creation. There are tremendous economic and political implications with regards to how Bangladesh meanders the present twin foreign reserve and inflationary crisis. In order to preserve both the economic and political sovereignty of Bangladesh, policymakers must enact the following policy measures with immediate effect:

Bangladesh Central Bank Must Hike Interest Rates: The Bangladesh Central Bank must hike interest rates effective immediately. The rate hikes in Bangladesh should have been initiated from March 2022, at the onset of the Federal Reserve's Interest rate hikes, to go tête-à-tête with US monetary policy, and to preserve the value of the Bangladeshi Taka against the USD.

Note that the Bangladeshi Taka has already lost 25% of its value against the US Dollar, making debt servicing and import bills fundamentally more expensive; note that import bills rose due to the deprecation of the BDT against the USD, thereby inflating production costs, which subsequently causes a spurious effect on retail prices, which is ultimately borne by the consumer.

Curbing the Trade Deficit: The last fiscal year exhibited a growth in exports of around 33%, while imports grew 42% YOY. Exports stood at \$52 bn, whereas imports stood at \$82 bn. There is a notable trade deficit of \$30 bn that must be curbed at all costs. While understandably, due to soaring energy costs exacerbated by the Russia-Ukraine War, and due to the fact that Bangladesh cannot rely on domestic energy reserves, a bulk of the imports is attributed to ensuring domestic energy demands. However, there are other imported goods that have domestic substitutes, for instance, consumer products, that are readily imported from overseas nations. Without incentivizing domestic producers sufficiently, particularly in the form of levying taxes on foreign imports of

consumer goods, the consumer cannot be incentivized to purchase the locally made products. For an emerging growth hub like Bangladesh, it cannot thrive without establishing the Made in Bangladesh motto at the policy level.

Fulfilling Agrarian Self Sufficiency – Controlling the Agrarian Supply Chain: 45% of Bangladesh's workforce is affiliated with agriculture. It begs the question, why are Bangladeshi's still relying on overseas trading partners, for essential agricultural commodities? Faced with a twin foreign reserve and an inflationary crisis, prudent measures must be taken to ensure there is no reliance on imports to service the agrarian supply chain. For example, the notable rise in broiler chicken prices over the past year was predominantly due to the dependence on importing chicken feed from overseas countries. As the BDT lost value against the USD, imports became increasingly expensive; with increased production costs, the price of broiler chicken rose to record highs.

Remittance Tax: The aforementioned trade deficit signifies the importance of the Bangladeshi diaspora in bridging the



gap between imports and exports. Remittance, particularly in the onset of the foreign reserve crisis, has never been more important for the Bangladeshi economy. For instance, Bangladeshi workers residing in Malaysia have to pay a “remittance tax” equivalent to -6.25% when remitting funds to their families. Banking channels offer 24 BDT/MYR, whereas illegal channels are offering a far more lucrative rate, at 25.5 BDT/MYR. It deters remitters from using banking channels to remit funds back home, and consequentially, these funds are not added to our CB reserves. The Bangladeshi CB must not allow bureaucracy to shackle fluid transmission of funds, exchange rates must be adjusted to global competitive standards, on a daily basis.

Private Debt Bubble – Overhaul of the Banking Sector: In Bangladesh, there is a tendency to judge a business on the basis of turnover/revenue figures. The fundamental barometer in assessing the financial health of an institution is the free cash flow and the balance sheet. A glance at the DSE listed entities will show that there are over 120+ companies that are on the verge of bankruptcy. Without a shadow of a doubt, there is an underlying private sector debt bubble; growth that has predominantly driven by compounding of private sector debt, a phenomenon in economics known as the “snowball effect” – a direct result of lack of prudence in sanctioning of debt. These non-performing loans or bad loans sanctioned to overly leveraged entities has undeniably strained the state of a multitude of private and government owned banks. Note that Silicon Valley Bank had to be bailed out by the US Federal Reserve; it had deposits north of \$200 bn. The largest private bank in Bangladesh, Islami Bank, has deposits north of \$15 bn. It is to be understood that no bank in the world is immune to a collapse. The government must ensure all private and government banks are insulated through prudent regulatory measures. Furthermore, panic induced deposit withdrawals must be shackled at all costs, thereby investor and depositor confidence are both quintessential.

Singer in Bangladesh

by **Ipshita Maliat Rahman**

A WELL-KNOWN BRAND IN the consumer durables industry made famous by sewing machines, Singer Bangladesh Limited is a Multinational Company operating since 1905 in Bangladesh. The company has a long history dating back to 1851, when Isaac Singer invented the first practical sewing machine. It has the largest chain of retail stores branded as Singer Plus, Singer Mega, and Singer Pro, spread throughout the country's administrative divisions.

History

Singer in East Pakistan functioned as a branch of Singer Pakistan after the Indian subcontinent was divided in 1947. The East Pakistan Branch Office was promoted to a Country Office upon the liberation of Bangladesh. The Singer sewing machines were made available from various Singer overseas sources.

Singer Bangladesh Limited was incorporated as a Private Limited company on September 04, 1979. It was converted into a Public Limited Company in 1983 by offering shares to the public.

Although Singer had been popularly known for its sewing machine, with time, Singer began transitioning from a sewing machine firm with a single product to a multi-product consumer durable company in 1985 to support future growth and expansion.

The company produces a range of consumer durable goods, electronics, and kitchen appliances. The company's main products include refrigerators, air conditioners, television, washing machine, microwave oven, water purifiers, and kitchen appliances.

In 2019, Arçelik A. S., a Turkish home-appliance company that ranks among the Fortune 500 list, acquired 57% stakes in

Singer Bangladesh Limited. International Appliances Limited (IAL) is a subsidiary of SBL which was incorporated to carry on the manufacturing business and sell refrigerators with the brand 'Singer.' Now, under Arçelik, Singer has an even bigger vision to materialize in Bangladesh. This facilitates cross-border ties between Bangladesh and Turkey and shows potential channels of deeper collaboration between the two countries.

Singer in the society

Singer Bangladesh Limited is doing business with the slogan 'Embrace Life Now.' Singer has been operating in Bangladesh for over four decades and has established itself as one of the leading consumer durable brands in the country. The company has achieved this success through a combination of factors.

Its commitment to customer satisfaction and corporate social responsibility (CSR) activities have helped establish a strong brand image. A strong distribution network, wide range of products, a reputation for quality, reliability, durability, and excellent after-sales services have helped the cause.

Singer has been actively involved in CSR activities in Bangladesh by providing scholarships, setting up school computer labs, etc. The company has been providing underprivileged people with sewing machines, which help them to earn a livelihood.

Three hospitals in and around Dhaka received ventilators from Singer Bangladesh Limited as part of the 'Singer for Society' program for critically ill COVID-19 patients during the pandemic. They gave freezers, washing machines, and microwave ovens to several hospitals across Bangladesh.

SINGER[®]
Bangladesh Limited





International Appliances Limited (IAL) is a subsidiary of SBL which was incorporated to carry on the manufacturing business and sell refrigerators with the brand of 'Singer' for exclusive marketing by Singer Bangladesh Limited

Challenges

According to a UCB Asset Management report from 2021, Singer competes with Walton as the second-largest brand, holding 12% of the refrigerator market share and 11% of the television market share, respectively, to Walton's enormous 72% and 27% market shares in those two categories. Only in air conditioners does Singer trail General and Gree with a 13% market share, and with an 18% market share, it is attempting to catch Samsung in the washing machine market.

Indeed the pandemic dented the growth, and Singer Bangladesh Limited could not achieve the anticipated sales target, resulting in a loss of Tk 8.50 crore from July to September 2022. According to a company statement, the Russian-Ukraine war has dimmed the chances of a post-pandemic recovery. Economic activity remained subdued as the adverse effects of rising freight, energy, and food prices persisted. These have been exacerbated by the taka's sharp depreciation against the US dollar.

Looking forward

Singer has heavily invested in marketing and advertising campaigns to attract new customers and sponsored several cultural and sporting events. In the Bangladesh Special Economic Zone at Arahazar, Narayanganj, Singer has invested Tk 800 crore to begin building its cutting-edge manufacturing facility. The new facility will draw technology from Arçelik, one of the world's top cooling and white goods manufacturers.

Cemal Can Dinçer, Chief Commercial Officer of Arçelik, stated that Singer aims to manufacture 90% of its products domestically, up from the current rate of 52%. Additionally, the business would support the growth of regional suppliers for the electronics and home appliance sectors. The company is hopeful about getting back on the growth track soon.

Technologies transforming the construction industry

by **Safrina Kabir**

LIKE EVERY other industry, the construction industry is evolving into something completely new with the latest technologies being adopted. Due to climate change and the post-pandemic reality, the main targets of these technologies are sustainability, energy efficiency, and cost optimization.

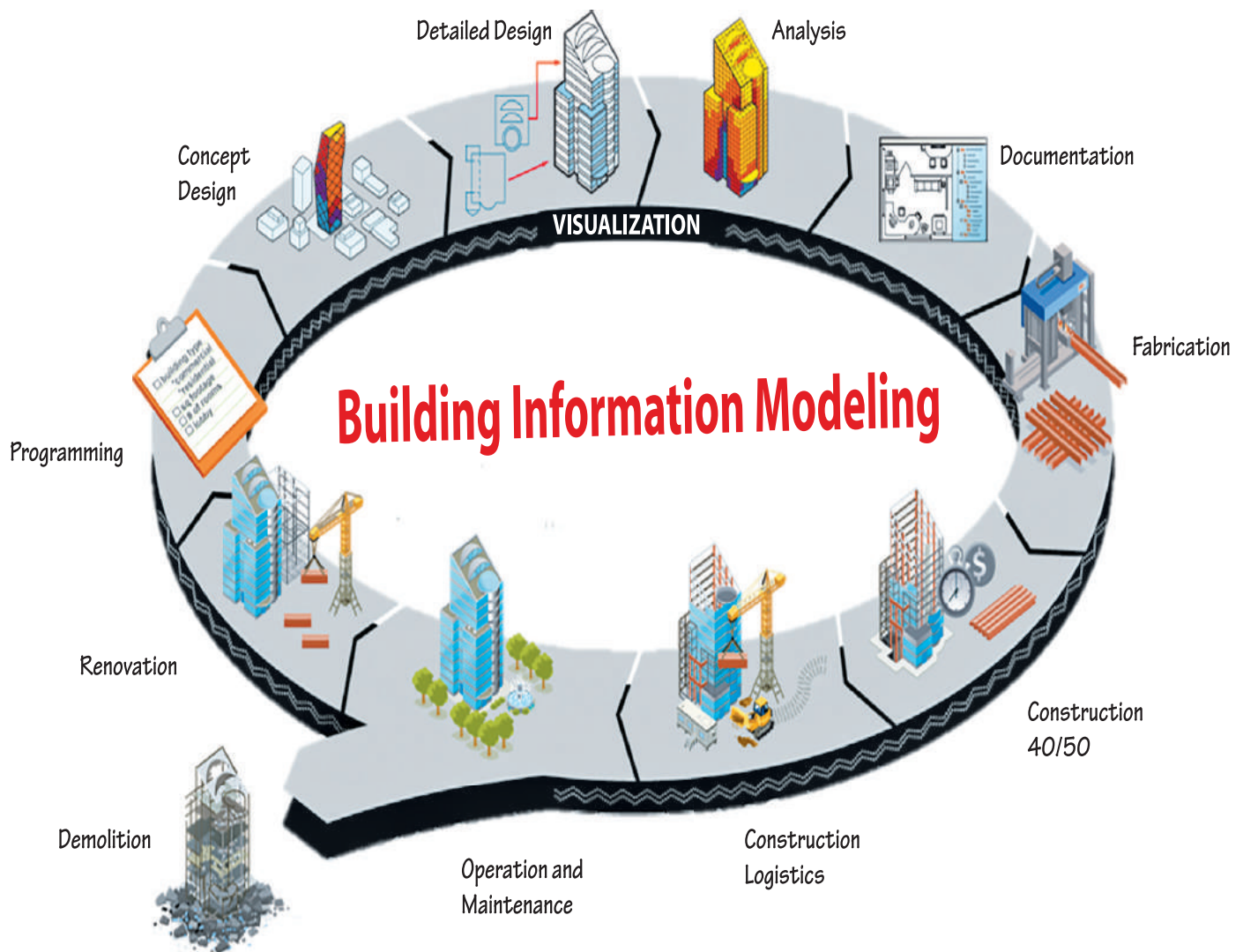
Here we will discuss some disruptive technologies that will lead the construction industry in the coming days.

Building Information Modeling (BIM)

Building Information Modeling (BIM) is a digital tool that allows the creation of a virtual model of a building. This model contains information about the building's physical and functional characteristics, size, layout, materials, and systems stored in it.

Different teams involved in the construction process (architects, engineers, and contractors) can use a shared model created by BIM. As a result, better coordination is possible, reducing the risk of errors and rework and saving cost.

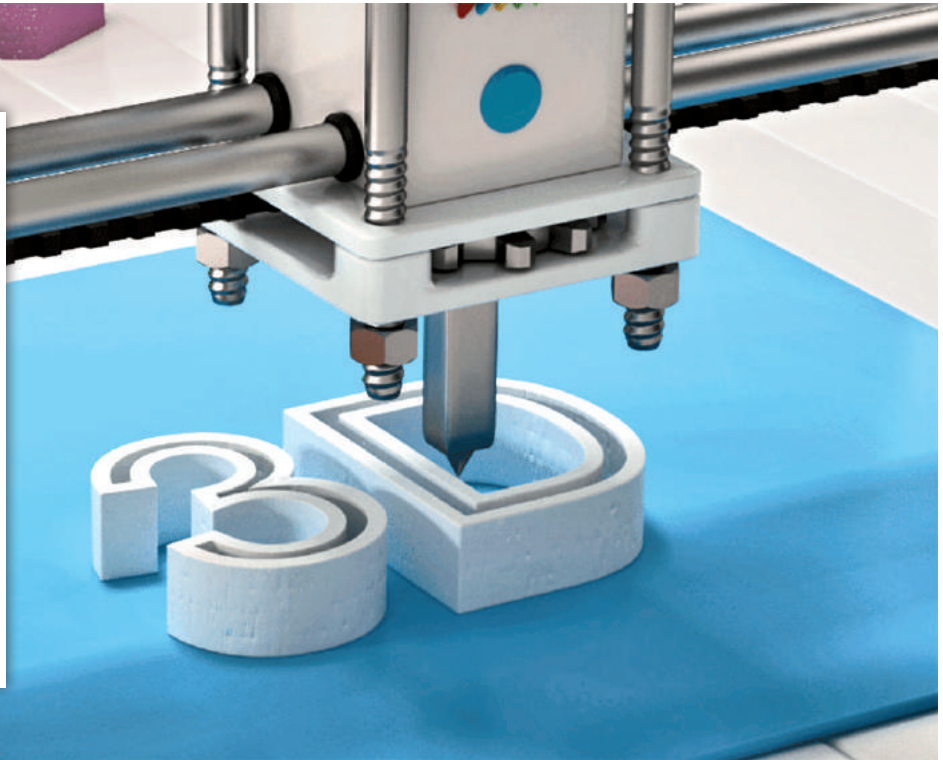
BIM also allows for better cost management during construction because it is easier to identify potential issues and make changes before construction begins.



3D Printing

3D printing is a technology that allows for the creation of physical objects by depositing materials layer by layer. In the construction industry, 3D printing is used to create small-scale prototypes and test components.

In the future, 3D printing could be used to create full-scale building components. It would significantly reduce the cost and time involved in traditional construction methods. It could also lead to new and innovative design possibilities.



Virtual Reality (VR)

Virtual Reality is a technology that allows for the creation of a computer-generated environment where users can experience it. In the construction industry, VR's introduction has made many things efficient, cost-effective, and flawless.

Virtual walkthroughs of building projects, allowing stakeholders to experience the building before it is constructed, and detecting potential issues help reduce the risk of rework and changes during construction.



IOT



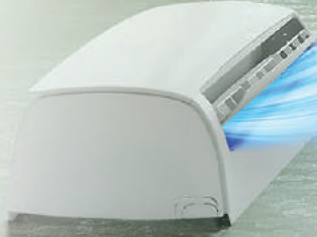
IoT

Internet of Things or IoT can be used in construction to monitor equipment, track inventory, and optimize energy usage, reducing costs and increasing efficiency. IoT bolsters security and performance and proactively assists in maintenance, concrete curing, structural monitoring, and waste management.

With numerous technologies coming into the picture daily, these four seem to be the most promising ones that will truly shape this industry in a new way.

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USA based project execution team



Experience

Over 40 years in the process industry



Support

Free USA based standard application support



Customer first

Over 1,000 successful USA installations



Reduce risk

Quality assurance working directly with our project team



Ownership

Engineering efficiencies with Siemens tools and technologies



Peace of mind

Following standardized and proven project work flows



Creating a better tomorrow for everyone

Approved Partner

Automation Drives

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