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Gul Plaza Fire: Tragedy Could Have Been Averted With Basic Safety Measures

By Manzoor Shaikh

The fire operation at Gul Plaza in Karachi's South District has been declared complete, with official figures confirming that 79 people lost their lives, either due to burns or suffocation.

Yet another deadly incident has added to the long list of urban tragedies in Pakistan's largest city—one marked by poor governance, weak regulatory enforcement, and chronic neglect of safety standards.

While the forensic report is still awaited, unofficial accounts circulating suggest that the fire may have been triggered by children playing with burnt matchsticks inside the building.

Authorities, however, have not yet confirmed the cause of ignition.

What is beyond dispute, according to fire safety and engineering experts, is that the scale of damage and loss of life could have been drastically reduced—or entirely prevented—had basic fire safety measures been implemented and followed.

A Building Without SafetyGul Plaza is one among thousands of buildings in Karachi that fail to meet even the minimum fire safety requirements. Experts point out that both commercial and residential occupants often remain indifferent to emergency preparedness, evacuation planning, and fire prevention—until disaster strikes.

"This incident has once again exposed the real state of our governance and regulatory systems," said one expert, noting that similar questions have arisen after every major fire

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Training 50,000 Engineers Without Industrial Growth: Promise or Policy Mismatch?

By Manzoor Shaikh

Federal Minister for Planning, Development and Special Initiatives Ahsan Iqbal has announced a five-year program under which 10,000 engineers will be trained annually on PSDP project sites for a year, with a monthly stipend of Rs50,000.

The initiative, part of the government's youth-focused program, aims to benefit 50,000 engineers in total, with funding drawn from development program contingencies.

The minister has compared the initiative to the house job system for doctors, arguing that it will improve employability, reduce unemployment, and discourage outward migration. While the announcement signals recognition of the engineering employment crisis, experts argue that training without economic restructuring risks becoming symbolic rather than transformational.

Pakistan's Economic Context: Why Numbers Matter

Any serious assessment of this program must begin with Pakistan's economic fundamentals, because engineering demand is not driven by population size alone but by industrial depth and GDP composition.

Pakistan is the world's

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S. M. Jaffer Launches Baudouin Power Solutions in Pakistan

In an impressive ceremony held in Karachi, S. M. Jaffer & Co formally launched Baudouin Power Solutions, adding a major international brand to its growing product portfolio.

Speaking to Engineering Review, Syed Sadaqat Hussain, Chief Executive Officer of S. M. Jaffer & Co, expressed confidence in the new offering. "It's a strong engine with matchless features and a very competitive price. I believe it will work wonders in the Pakistani market," he said.

The launch ceremony was attended by a large number of professionals from the industry and corporate sector. Talking to ER, Syed Sadaqat Hussain said he was thrilled to introduce such a significant brand to the company's portfolio. "I have been working on this for the last two weeks, and it is truly a great moment for us. The strong turnout at this event is very encouraging and reflects the quality and effort behind this product," he added.

Drawing on nearly four decades of experience in generator installations, he described Baudouin as a state-of-the-art solution. "I have worked with almost every engine over the past 38 years, but Baudouin stands out as a truly matchless machine," he remarked.

Founded in 1949, S. M. Jaffer & Co is a long-established Karachi-based power generation and machinery company, known for marketing and servicing diesel generators and power systems. The addition of Baudouin-powered solutions reflects the company's strategy to offer reliable, high-performance power solutions to industrial and commercial customers.

Baudouin generators are powered by engines manufactured by Moteurs Baudouin, a historic French company founded in 1918 in Marseille, specializing in diesel and gas engines for marine, industrial, and power-generation applications. In 2009, Baudouin was acquired by Weichai Power, a leading global Chinese machinery group, and now operates manufacturing facilities in France, China, and India. – ER Report

Gul Plaza Fire: Tragedy Could Have Been Averted With Basic Safety Measures

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tragedy in Karachi over the past 15 years: Why do so many people die in relatively small buildings?

Codes Exist, Compliance Does Not

Pakistan is not short of laws or technical guidance. The Pakistan Engineering Council (PEC) developed a comprehensive Building Code of Pakistan several years ago, which clearly outlines requirements for emergency exits, fire-resistant design, evacuation routes, and firefighting systems. The code applies across the federation.

In Sindh, additional provisions exist under the Occupational Safety and Health Act, which also incorporates building safety standards. However, experts say the problem lies in implementation and enforcement, not legislation.

Design engineers, they argue, must also ensure that approved drawings strictly follow these codes and that building control authorities enforce compliance without exception.

The First Three Minutes Matter

Fire safety specialists emphasize that the first three minutes of a fire are critical. If a fire is controlled during this window, a major catastrophe can often be avoided.

"There is a severe lack of awareness among the general public," said Jawed Akhtar, a fire safety expert. "In Gul Plaza, we saw panic, lack of coordination, no understanding of how to operate firefighting equipment, and no emergency response plan. Smoke disorients people—without training, they don't know where to go."

According to him, a functional emergency response plan alone could have saved every life. "There should have been immediate announcements, organized evacuation, and trained personnel guiding occupants towards emergency exits."

Awareness, Training, and Attitude Change

Ali Ashraf, another expert, stressed that engineering solutions already exist, but they are useless without awareness and training.

"Even if firefighting equipment is installed, it cannot be used effectively unless people are trained," he said. "Residents and workers in multi-storey buildings must understand fire types, extinguisher usage, and evacuation protocols. Missing the initial three minutes often means losing control entirely."

He added that people must also understand the five classes of fire and the fire triangle—oxygen, fuel, and heat—to respond appropriately.

Start Early, Educate Deeply

Aijaz ul Haq, Secretary, the Institution of Engineers Pakistan, Karachi emphasized the need for long-term sensitization, suggesting that fire safety concepts should be included in school curricula.

"If people learn about fire behavior, risks, and response from childhood, they become safer adults," he said. "We already have laws and regulations. Building associations should deploy trained volunteers at entry and exit points to guide occupants during emergencies."

Role of Engineering Bodies and Media

Engr. Ayaz Mirza, the organizer of OHSE Conference of the Institution of Engineers Pakistan highlighted the role of professional institutions such as the Institution of Engineers Pakistan (IEP), which regularly submits safety recommendations to government departments and conducts awareness activities.

"Not all recommendations are implemented, but some have been incorporated into law," he said, adding that pressure on authorities has continued for over a decade.

Experts unanimously stressed that the media must play a proactive role in spreading fire safety awareness. Collaboration between engineering bodies and media platforms could significantly improve public preparedness.

Survey of Unsafe Buildings Urgently Needed

Experts called on the Pakistan Engineering Council, in collaboration with builders' associations such as ABAD, to conduct an urgent survey of buildings in old and semi-old areas of Karachi.

They also pointed out that, according to existing laws, there should be at least one fire station for every 100,000 people—a requirement that is far from being met in many parts of the city.

A Preventable Loss

The Gul Plaza fire is not an isolated incident but a systemic failure of planning, enforcement, awareness, and accountability. Experts agree that unless building safety codes are enforced, emergency preparedness is institutionalized, and public awareness is taken seriously, such tragedies will continue to repeat themselves.

And each time, the question will remain the same: Why were lives lost when the solutions were already known? ■

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fifth most populous country, yet remains under-industrialized.

Manufacturing contributes only around 13 percent of GDP, while growth is largely driven by consumption, remittances, agriculture, and real estate, sectors that generate limited demand for engineers.

Pakistan at a glance

Indicator	Pakistan
Population	240 million
GDP (nominal)	$US 340–360 billion
Average GDP growth	3–4 percent
Manufacturing share of GDP	13 percent
Engineering exports	Negligible

This context explains why engineering unemployment persists despite a steady output of graduates.

Engineering Density: How Pakistan Compares Regionally

One commonly used global benchmark is engineers per 10,000 population, which reflects how deeply engineering is embedded in an economy. Countries with strong manufacturing, technology, and export sectors consistently show higher engineering density.

Pakistan's ratio remains significantly lower than its regional peers—not because it produces fewer graduates, but because industry does not absorb them.

Engineers per 10,000 population:

Country	Engineers / 10,000
Malaysia	45–50
India	25–30
Pakistan	8–10

This gap reflects differences in economic structure, not education systems.

Pakistan, India, and Malaysia: Similar Size, Very Different Outcomes

A comparison with India and Malaysia further highlights the structural issue. Malaysia's economy is only modestly larger than Pakistan's in nominal terms, yet it sustains a far higher number of engineers due to export-led industrialization and technology-intensive growth.

Macro comparison:

Indicator	Pakistan	India	Malaysia
Population	240m	1.43bn	34m
GDP (nominal)	$US 350bn	$US 3.7tn	$US 440bn
Manufacturing (% of GDP)	13 percent	17–18 percent	23–25 percent
Engineering exports	Negligible	$US 100bn+	$US 40bn+
Engineers per 10,000	8–10	25–30	45–50

The lesson is clear: engineering employment follows industrialization, not training programs alone.

GDP Growth Quality: Why Engineers Remain Underutilized

Experts stress that not all GDP growth creates engineering jobs. Growth driven by agriculture, consumption, or remittances produces limited technical demand, whereas growth driven by manufacturing, infrastructure, energy, and technology is engineering-intensive.

This distinction explains why Pakistan experiences periods of GDP growth without corresponding improvements in engineering employment.

The Engineer–GDP Demand Relationship

Planners often use an Engineering Intensity Factor (EIF) to estimate how many engineers an economy can realistically absorb per $US 1 billion of GDP.

Engineering Intensity Factor benchmarks:

Economy Type	Engineers per $US 1 bn GDP
Low-industrial	700–900
Mid-industrial	1,200–1,500
Export-led / high-tech	1,600–2,000

Applying this framework to Pakistan

GDP $US 350 billion

Current EIF 700

Estimated demand 245,000 engineers

This figure closely matches the number of engineers currently absorbed in core sectors, explaining why additional graduates face underemployment.

Sectoral Distribution: Where Engineers Actually Work

Another revealing comparison is how engineers are distributed across sectors. In Pakistan, most engineers are confined to execution-heavy construction roles, while design, automation, R&D, and technology remain underdeveloped.

Share of engineers by sector:

Sector	Pakistan	India	Malaysia
Manufacturing	25 Percent	40 Percent	45 Percent
Construction & infrastructure	35 Percent	25 Percent	20 Percent
Energy & utilities	15 Percent	15 Percent	15 Percent
Technology & automation	5 Percent	15 Percent	20 Percent
R&D & design	2 Percent	10 Percent	1 Percent

This imbalance limits productivity, innovation, and export potential.

Why the "House Job" Analogy Is Problematic

Experts argue that equating the proposed program with doctors' house jobs overlooks key differences:

Medical house jobs operate within a regulated national healthcare system

Engineering projects are contractor-driven, often lump-sum, cost-focused, and short-term

Engineering competence develops through long-term industrial engagement, not brief site exposure

Without permanent roles, six-month/one year placements risk becoming stopgap measures rather than career pathways.

Persistent Concerns Raised by the Engineering Community

Key concerns include:

Political motivation and past failures of similar program

Lack of transparency and merit-based selection

Temporary nature with no guaranteed absorption

Absence of credible national data on engineering unemployment

Ignoring private-sector contracting practices

Global mobility of engineers cannot be restricted

Rapid disruption from AI and emerging technologies

Weak linkage between economic growth and engineering demand

The Core Issue Remains Economic Structure

The central conclusion emerging from expert analysis is unequivocal:

Pakistan does not have too many engineers—it has too little engineering-driven growth.

Until manufacturing rises toward 20 Percent of GDP, engineering exports expand meaningfully, and growth becomes industry-and technology-led, training initiatives alone will not resolve unemployment.

Necessary, But Not Sufficient

The government's training program may offer short-term exposure and financial relief, but without structural economic reform, it risks joining a long list of well-intentioned but ineffective interventions.

As global experience shows, skills follow growth, not the other way around. For Pakistan's engineers, sustainable employment will come not from temporary placements, but from an economy that finally begins to grow through engineering itself. ■

Pakistan Cables signs MoU with PEC for Graduate Engineer Trainee Placement Program

Pakistan Cables Ltd. has signed a Memorandum of Understanding (MoU) with the Pakistan Engineering Council (PEC) for the Graduate Engineer Trainee (GET) Placement Program on 9th January 2026, at PC Hotel. GET is an initiative designed to bridge the gap between academic learning and professional practice by placing fresh engineering graduates with industry partners for five months of structured training. As part of this program, Pakistan Cables will intake 15 Graduate Engineer Trainees, to be shortlisted by PEC from within Sindh in line with the Company's operational requirements and location.

This reflects the Company's continued commitment to supporting STEAM education and youth empowerment in Pakistan.

About Pakistan Cables Ltd.

Founded in 1953, Pakistan Cables is the premier and most reputable wires and cables manufacturer in Pakistan. Being the first and oldest wires and cables manufacturer listed on the PSX since 1955, it has the largest geographical footprint in Pakistan, with presence in over 200 cities and towns. It is also a member company of the Amir S. Chinoy group. It is ISO 9001:2015, ISO 14001:2015, and ISO 45001:2018 certified, and various cables type tested by KEMA, Netherlands. The Company's science-based emission reduction targets are validated and approved by SBTi. It is also a signatory of the UN Global Compact and net-zero commitment. To learn more about Pakistan Cables Ltd.■

ARYtech, Lucky Cement partner to introduce AI-led innovation in construction

ARYtech has announced a strategic collaboration with Lucky Cement Limited to launch a joint product journey aimed at introducing AI-led innovation in Pakistan's construction industry.

The partnership marks a significant step toward integrating artificial intelligence, data-driven insights, and automation into modern construction practices.

According to a statement, the collaboration is focused on reimagining how intelligence and digital technologies can enhance efficiency, strengthen decision-making, and enable scalable solutions across construction ecosystems. The initiative seeks to address real-world industry challenges while developing ConstructionTech solutions with potential global relevance.

The joint effort is being led by Athar Sultan, Senior Vice President Technology at ARYtech, along with Salman Ul Haque from Lucky Cement, highlighting a shared commitment to translating vision into practical, technology-driven execution. Both organizations emphasized that the partnership goes beyond adopting new tools and instead aims to embed intelligence into construction workflows to create measurable impact.

Industry observers see the collaboration as part of a growing trend toward digital transformation in Pakistan's construction sector, where automation and AI are increasingly being explored to improve productivity, optimize resource utilization, and enhance project outcomes.

The partners stated that this initiative represents a convergence of construction and artificial intelligence, opening new possibilities for innovation and long-term value creation in the sector.

Company profiles

ARYtech is a technology-driven organization focused on delivering advanced digital, AI, and data-centric solutions across multiple industries. With a strong emphasis on innovation and scalable technology platforms, ARYtech works to enable intelligent transformation by aligning emerging technologies with practical business needs.

Lucky Cement Limited is Pakistan's largest cement manufacturer and a leading name in the country's industrial landscape. A flagship company of the Yunus Brothers Group, Lucky Cement has a strong local and international presence, with operations spanning cement manufacturing, power generation, and other diversified businesses. The company is known for its focus on sustainability, operational excellence, and continuous innovation. – ER News Desk

Bijli Ghar

Systemair Days – Karachi 2026, organised in partnership with Welkin Solutions, concludes with strong industry participation

Systemair, a leading global Swedish ventilation provider, and Welkin Solutions, a leading distributor of HVAC and cleanroom solutions in Pakistan, successfully concluded "Systemair Days – Karachi ," industry event on 21 January 2026 at the Marriott Hotel in Karachi, Pakistan.

The event highlighted Systemair's long-term commitment to the Pakistani market and brought together a high-level line-up of senior HVACR market stakeholders, members of Systemair's global leadership team, and key customers shaping Pakistan's evolving built environment sector. The afternoon featured in-depth technical presentations covering public affairs, certification developments, and the latest HVAC technologies. Systemair places great emphasis on offering energy-efficient products to increase indoor quality, illustrating how advanced ventilation solutions can support the country's sustainable growth ambitions.

Olle Glassel, Vice President of Sales, Systemair Group, said: "We are very pleased to organise this event alongside our esteemed distributor, Welkin Solutions. Pakistan is an important growth market for Systemair, and we are proud to be here to share our experience and technical expertise. This knowledge-sharing platform reflects our commitment to uniting organisational strengths across borders to deliver excellence in ventilation product solutions, ensuring customer satisfaction globally."

Amjad Iqbal, Chief Executive Officer, Welkin Solutions, added: "As the official Systemair distributor in Pakistan, we are proud to welcome the global leadership team and reaffirm our shared commitment to raising HVAC standards in Pakistan. At Welkin Solutions, we champion sound design practices and internationally recognised certifications such as Eurovent and AMCA to ensure performance, reliability, and efficiency. By promoting certified HVAC solutions and informed decision-making, we support the adoption of industry best practices and deliver sustainable, high-quality systems tailored to our market's evolving needs."

Concluding with formal dinner, the event underscored the growing importance of sustainable ventilation and high-performance HVAC solutions as Pakistan continues its rapid urban and infrastructure development. It marked another step forward in Systemair and Welkin Solutions' joint mission to support healthier, more energy-efficient buildings across the country.

Systemair in brief

Systemair (SYSR) is a leading ventilation Group that helps improve the indoor climate through energy-efficient products and solutions. The Systemair Group is conducting business in 51 countries in Europe, North America, the Middle East, Asia, Australia and Africa. The Group's products are mainly marketed under the Systemair, Frico, Fantech, and Menerga brands. In the 2024/25 financial year, the Systemair Group employed approximately 6,700 people and had sales of SEK 12.3 billion. Systemair has reported an operating profit ever since it was founded in 1974, and over the past 10 years growth averaged 7.9%. Systemair is listed on Nasdaq Stockholm Large Cap. ■

1st Int'l Conference on Sustainable Green Energy, Environment & Digital Innovations Begins at KU

The inaugural session of the 1st International Conference on Sustainable Green Energy, Environment & Digital Innovations (ICSGEEDI-2026) commenced at the Dr. A.Q. Khan Institute of Biotechnology & Genetic Engineering Auditorium, University of Karachi.

The prestigious event, organized jointly by the Department of Chemical Engineering, University of Karachi, and The Institution of Engineers Pakistan (IEP), Karachi Centre, was inaugurated with the recitation from the Holy Quran and the national anthem.

With the theme "Sustainable Solutions for Green Energy, Environment and Digital Innovation Industries," the conference aims to foster dialogue and collaboration on critical global challenges. The hybrid mode event, allowing both physical and virtual participation via Zoom, saw a gathering of esteemed academics, industry leaders, and engineering professionals.

The opening session featured a series of addresses from key figures. Prof. Dr. Shagufta Ishteyaque, Chairperson of the Department of Chemical Engineering and Conference Chair, delivered the welcome address. Engr. M. Farooq Arbi, Chairman of IEP Karachi Centre, and Prof. Dr. Bilquees Gul, Dean of the Faculty of Science & Engineering and Conference Patron, also shared their insights.

International perspectives were highlighted in keynote speeches by Prof. Dr. Athila Evcin from Afyon Kocatepe University, Turkey, and Prof. Dr. Iqbal Mohammad Mojtaba from the University of Bradford, UK, focusing on material sciences and chemical engineering applications for sustainability.

The session was graced by the presence of Prof. Dr. Khalid Mehmood Iraqi, Vice Chancellor of the University of Karachi and Patron-in-Chief of the conference, and Engr. Prof. Dr. Samreen Hussain, Vice Chancellor of DUET Karachi, as the Guest of Honour.

Following the morning inaugural session, the conference continued with an afternoon technical session chaired by a panel of experts, featuring keynote speeches, invited talks, and presentations from national and international researchers and industry experts from institutions like QUEST Nawabshah, Novatex Limited, and various departments of the University of Karachi.

The conference serves as a significant platform for sharing cutting-edge research, innovative practices, and fostering partnerships to advance the goals of sustainable energy, environmental protection, and digital transformation. The event concluded with shield distributions, group photos, and a high tea. - ER Report

Legrand Enters Pakistan, Launches Operations with PowerHouse as Exclusive Partner

Legrand, the global leader in switches and wiring devices, has officially launched its operations in Pakistan, partnering with PowerHouse as its exclusive partner in the country.

This landmark entry signifies a major step toward introducing international standards of innovation, safety, and design to Pakistan's electrical and smart living market.

The inaugural launch event took place on January 19, 2026, at the Mövenpick Hotel in Karachi and was met with an overwhelming response from industry professionals, business leaders, architects, consultants, and key stakeholders. The event showcased Legrand's cutting-edge solutions in electrical infrastructure and smart living, setting a powerful foundation for the brand's journey in Pakistan.

Following the successful Karachi launch, Legrand was formally launched at PC Lahore and Islamabad through dedicated events, further strengthening its national presence. These launches received unexpectedly strong exposure, with participation from prominent industry figures, senior professionals, and influential decision-makers, reflecting the high level of interest and confidence in the brand.

"Legrand's entry into Pakistan reflects our long-term commitment to delivering world-class electrical and smart living solutions," said a spokesperson from PowerHouse. "The remarkable response across Karachi, Lahore, and Islamabad reinforces our belief in the market's potential. We are proud to bring Legrand's innovative portfolio to Pakistan and look forward to expanding our footprint nationwide."

Legrand offers a comprehensive range of advanced solutions in electrical and smart living, tailored to meet the evolving demands of residential, commercial, and industrial sectors. With a focus on innovation, sustainability, and reliability, Legrand aims to redefine electrical standards across Pakistan. - PR

NED UET Expands Global Academic Footprint with Malaysian Universities

Karachi's NED University of Engineering and Technology (NED UET) has further strengthened its international academic and research presence by formalising collaboration frameworks with two leading Malaysian institutions—the University of Malaysia Pahang Al-Sultan Abdullah (UMPSA) and Universiti Malaysia Perlis (UniMAP)—during an official visit to Malaysia in January 2025.

On 21 January 2025, NED UET signed a Memorandum of Understanding (MoU) with UMPSA to enhance international academic and research cooperation. The MoU was signed by Professor Dr. Muhammad Tufail, Vice Chancellor NED UET, and Professor Ts. Dr. Yatimah Alias, Vice Chancellor UMPSA, at a ceremony held at the UMPSA campus. The agreement is an outcome of the ongoing Erasmus-funded project "GetInnovative4Impact" and focuses on joint research and publications in Mechanical Engineering and allied disciplines, co-supervision of postgraduate students, faculty and student mobility, and joint applications for international research grants.

Continuing its engagement in Malaysia, NED UET on 23 January 2026 exchanged a Letter of Intent (LoI) with Universiti Malaysia Perlis (UniMAP) at Arau. The LoI was exchanged between Prof. Dr. Muhammad Tufail, Vice Chancellor NED UET, and Dato' Prof. Ts. Dr. Zaliman Sauli, Vice-Chancellor UniMAP, reflecting a shared commitment to advance academic and research collaboration. This initiative also builds upon the Erasmus+ project GetInnovative4Impact and serves as a precursor to a future formal MoU or MoA.

NED UET acknowledged the contributions of Prof. Dr. Noorhafiza binti Muhammad (UniMAP), Dr. Tariq Jamil, Associate Professor NED UET, and Prof. Muhammad Wasif, NED UET, as key facilitators of the collaboration. The ceremony was also witnessed by Prof. Dr. Amir Iqbal, Dean, Faculty of Mechanical and Manufacturing Engineering, NED UET, along with other members of the Erasmus+ project team.■

Public–Private Partnership Model Can Work Wonders

No Progress Without Governance Reforms and Karachi's Development: Abul Islam

In an interview with Engineering Review, Abul Islam heading AI Engineers, a US-based company emphasized that Pakistan's economic growth—particularly Karachi's development—depends on governance reform, regulatory streamlining, and effective public–private partnerships. He noted that despite abundant engineering talent, overregulation and weak infrastructure hinder job creation. Highlighting the global post-Covid technology boom, he warned Pakistan risks missing opportunities without upgrading energy and digital infrastructure.

Abul Islam stressed that training programmes alone cannot solve engineers' unemployment unless growth becomes industry- and export-led. Citing his own US–Pakistan engineering experience, he said Pakistan's skilled workforce can deliver globally if supported by transparent policies and reform-driven governance.

Mother of Revolutions

The technological acceleration we are witnessing after Covid-19 is unprecedented. Until about twenty years ago, computing largely meant personal computers. Even by 2010, digitization was progressing at a steady pace, but nothing like what we are seeing today.

What fundamentally changed is computing power, particularly the availability of advanced, high-capacity chips. These are no longer limited or experimental; they are now highly sophisticated, complex, and widely deployed. As a result, computing has expanded rapidly across the world, especially in the United States, in the form of massive data centers.

These data centres are being built on an extraordinary scale, covering one to two million square feet. Cities are increasingly concerned about the resulting surge in electricity demand, higher energy costs, and stress on power infrastructure. Even a small query on platforms like ChatGPT consumes a measurable amount of electricity. Whether for corporations or technology companies, data centers have become essential infrastructure worldwide.

At the same time, artificial intelligence is advancing at rocket speed, and this growth is only accelerating.

Against this backdrop, discussions have begun about establishing data centers in Pakistan as well. However, Pakistan faces deep-rooted economic challenges. It is a country of around 260 million people, rich in resources and talent, yet constrained by capital shortages and persistent fiscal deficits.

The key question is: how can Pakistan generate capital to expand infrastructure, whether through public or private means?

Even a modest improvement in Karachi's infrastructure could raise Pakistan's GDP by 1 to 1.5 percent. Yet basic issues remain unresolved—water supply, roads, and coordination among agencies. Karachi is a megacity of nearly 25–30 million people, and it is painful to see its condition.

At the heart of the problem lies overregulation. Businesses face countless hurdles. Until government regulations are automated and streamlined, attracting investment will remain extremely difficult. Despite this, many Pakistanis who have lived abroad still want to return, start businesses, and create jobs because ultimately, the real crisis is job creation.

This also ties directly to the quality of education. Engineers continue to graduate, but nearly 60 percent of Pakistan's population is under 22 years of age, and there are insufficient opportunities for this youth bulge. This should be a moment of serious reflection for the country's elites.

Technology, Transparency, and Governance

Around the world, technology has demonstrably improved governance. India is a clear example, and similar progress is visible globally. Pakistan is also moving in this direction, but slowly.

Without infrastructure, development is impossible. International financial institutions will invest cautiously, and other countries will not move quickly either. That is why transparency is critical, especially for the younger generation. Preparation is particularly necessary in rural areas, where the future workforce is already in the pipeline but lacks pathways forward.

How Can Pakistan's Industry and Engineers Benefit From the Regional Boom?

At its core, this is an attitude problem within the bureaucracy. As a nation, we have remained divided since the British Raj, and bureaucratic arrogance has largely remained unchanged.

Political reform is beginning, but much more needs to be done, especially to improve youth employability. The size of the bureaucracy must be reduced. Even in the United States, government agencies had grown excessively large; reforms were undertaken to bring them back to scale.

When bureaucracy becomes oversized, whether at the provincial or federal level and lacks checks and balances, very little actually gets done. People stop seeking work, and progress stalls. Without reform, job creation and economic development will remain impossible.

Two actions are essential:

1. Bureaucratic reform
2. Encouragement of the private sector

Investors focus on profit. For example, in our US entity, we are projecting $US 90 million in pre-tax revenue this year. Our profit margin target is only around 6 percent, which is considered healthy in the US industry, where margins typically range from 6–10 percent.

In Pakistan, however, even when companies earn 6–10 percent on government projects, it is seen as excessive, while 1 percent margins make survival impossible, especially for engineers. This inversion has created a system where talented professionals—the very people who build everything—are undervalued and underpaid.

Corruption exists everywhere in the world, but development still occurs. In Pakistan, the problem is its scale and institutionalization. Government agencies must be streamlined. We, as Pakistanis who left and now ask why infrastructure is not developing, have the right to demand answers. Politics has dominated for too long; now it must recede.

An Instant Recipe

One immediate step is collective action. Just as stock market participants form groups to share information, general contractors and consultants should form organised associations.

ABAD exists, but it is heavily politicized. What is needed are professional contractor–consultant groups that engage the government with a clear agenda. Karachi needs a united business voice. In the US, over 15 such organizations are working collectively. Karachi, a city of this scale, should have the same.

These would function as civil society organizations of professionals and companies.

Bottlenecks in Forming Civil Society

This may be partly psychological. People are so constrained by systemic pressures that they struggle to find a way out. Hierarchy is deeply ingrained in society, making the idea of civil society difficult to operationalize.

People are entangled in complex laws, which erode confidence and weaken their ability to collectively solve problems. Karachi requires focused attention—so much is possible here.

Institutions like NED University, with over 100 years of history, have contributed significantly. The government should actively support companies in participating in the Middle East infrastructure boom. If federal and provincial governments facilitate access to markets like Saudi Arabia and the UAE, doors will open, and employment will improve.

Pakistan has lost valuable time. GDP has stabilized, but this must be sustained. The IMF formula alone does not drive growth. Government must provide vision, and the private sector will respond.

Public–Private Partnership: The Way Forward

Public–private partnerships must be pursued seriously. The government does not need to provide capital; instead, it should offer tax concessions and regulatory facilitation. Large projects related to water, sanitation, and roads can be developed this way, even in collaboration with foreign partners.

A pilot project worth USD 1–10 million with the Sindh government could serve as a startup model. Once proven, it becomes scalable.

The government lacks capital for infrastructure, but private entities can deliver—provided their profits are respected. The culture of extracting value from private partners through flawed systems must end.

IA Engineers Pakistan: Practical Experience

From our own experience, I am satisfied. Pakistan does not offer very high margins, but the biggest gain has been improving the profitability of our US entity by transferring work over the last two years.

We have invested a few million dollars in supercomputers and servers, enabling us to execute American projects from Pakistan. This increases profitability while allowing talented graduates from NED University to work on global projects.

Wage differentials are significant—about one-sixth in dollar terms, creating a competitive advantage. Over the last six years, I have seen extraordinary talent in Pakistan that simply lacks opportunity.

I am deeply hopeful about Pakistan's future. If this raw talent is developed, it will benefit both the country and businesses. New ventures often only break even in the early years—that is normal. With patience and growth, profitability will follow.

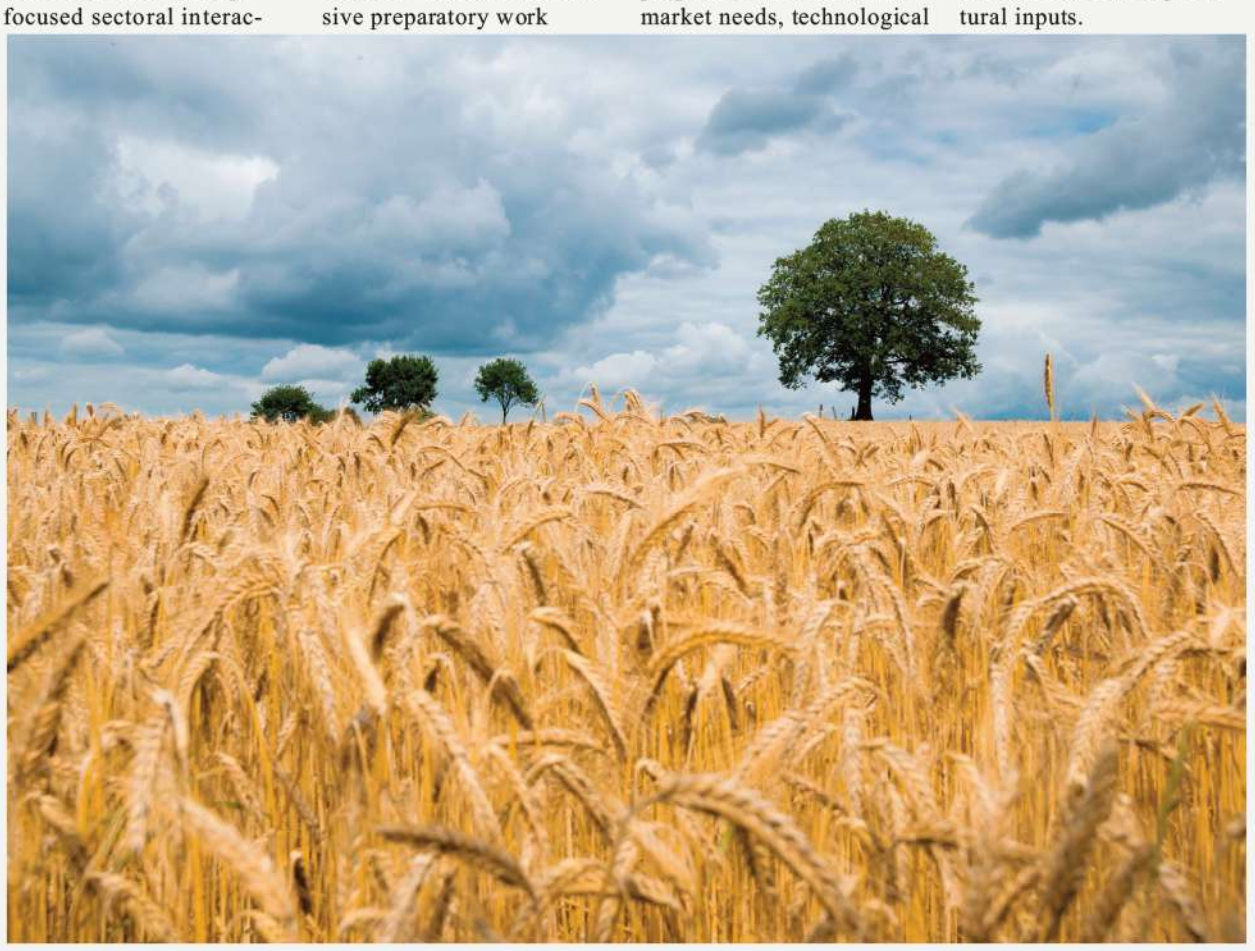
Insha'Allah, the future can be far better—if we choose to build it. ***By Manzoor Shaikh***

Agriculture Review

Pakistan–China Agri Investment Conference Yields 79 MoUs Worth USD 4.5 Billion

Federal Minister for National Food Security and Research Rana Tanveer Hussain has announced that the Pakistan–China Agri Investment Conference, held on 19 January 2026, resulted in the signing of 79 Memoranda of Understanding (MoUs) between Pakistani and Chinese companies, with an estimated investment value of USD 4.5 billion. He said the agreements reflect strong and growing confidence of Chinese investors in Pakistan's agriculture and food sectors.

Speaking to the media, the minister said the scale and diversity of the MoUs marked a clear transition from consultative dialogue to investment-driven collaboration. He noted that the conference was designed to deliver practical outcomes through structured business-to-business matchmaking, focused sectoral interactions and project-oriented facilitation.



Rana Tanveer Hussain said the Ministry of National Food Security and Research carried out extensive preparatory work ahead of the event, including consultations with Pakistani industry stakeholders and Chinese enterprises. This process helped align proposed investments with market needs, technological gaps and national development priorities. As a result, MoUs were signed across ten key agricultural and allied sub-sectors, including food processing and value addition, agri-technology, seeds and plant protection, livestock and dairy, meat and poultry, fruits and vegetables, fisheries and aquaculture, animal feed, post-harvest infrastructure and agricultural inputs.

He said the planned investments are expected to modernize agricultural value chains, introduce advanced technologies and improve overall productivity. According to the minister, the initiatives are likely to create significant employment opportunities, particularly in rural areas, strengthen farm-to-market linkages and reduce post-harvest losses, contributing to higher farmer incomes.

Highlighting broader economic impacts, the minister said the investments would support GDP growth, expand agriculture-linked industrial activity and promote export-oriented production of value-added food products. He added that improved processing capacity and supply chains would also contribute to national food security and price stability.

Rana Tanveer Hussain said the conference outcomes are in line with the objectives of CPEC Phase II, which focuses on industrial cooperation, technology transfer and sustainable development. He reaffirmed the government's commitment to ensuring effective follow-up so that the signed MoUs are converted into operational projects through coordinated institutional support and continued facilitation for investors.

He said the conference has laid a solid foundation for long-term Pakistan–China cooperation in agriculture and reinforced Pakistan's position as an investment-ready destination in the agri-food sector. –

ER News Desk

Mirpurkhas Sugar Mills Appoints New Chairman, CEO

Mirpurkhas Sugar Mills Limited has announced key leadership appointments following the recent election of its Board of Directors held on January 21, 2026.

In a circular resolution, the newly elected Board approved the appointment of Mr. Arif Dino Faruque as Chairman of the Board of Directors, while Mr. Aslam Faruque has been appointed as Chief Executive Officer of the company.

The appointments are effective immediately and are aimed at strengthening the company's governance structure and executive leadership. The management expressed confidence that the new leadership will contribute to strategic direction, operational efficiency, and sustainable growth of Mirpurkhas Sugar Mills Limited.

The company further stated that these decisions reflect the Board's commitment to ensuring strong oversight and effective management in line with corporate governance best practices. – ER News Desk

Pakistan, Australia Explore Expanded Cooperation in Agriculture and Livestock

On the directives of the Prime Minister of Pakistan, Federal Minister for National Food Security and Research Rana Tanveer Hussain chaired a high-level meeting with the Australian High Commissioner to Pakistan, H.E. Mr. Timothy Kane, to explore avenues for enhancing bilateral cooperation in agriculture and livestock.

The meeting was attended by Special Assistant to the Prime Minister Haroon Akhtar, the Livestock Commissioner, and senior officials from relevant departments.

The discussions focused on improving agricultural and livestock productivity, addressing market access and biosecurity challenges, and expanding technical collaboration. The Federal Minister noted that Pakistan and Australia have enjoyed cordial relations since 1948 and, as Commonwealth members, share common values and interests. He expressed confidence that the Australian High Commissioner's tenure in Pakistan would further strengthen bilateral engagement.

Highlighting the importance of agriculture to Pakistan's economy, Rana Tanveer Hussain stated that approximately 65 percent of the population is directly or indirectly linked to the sector, which accounts for 36 percent of total employment. He added that livestock contributes nearly 60 percent of the agricultural economy, yet productivity remains low. Key challenges identified included the establishment of Foot and Mouth Disease (FMD)–free zones and improving animal weight and yield to ensure farmers' profitability.

The Minister informed the meeting that the government has allocated Rs 7.35 billion over two years to control FMD, initiated the establishment of disease-free compartments, and begun importing vaccines from Russia and China. He also pointed out that Pakistan's average crop yield stands at around 30 maunds per acre, compared to 45 maunds per acre in India, and expressed Pakistan's interest in leveraging Australian expertise to enhance productivity amid growing global food security concerns.

Turning to horticulture, the Minister said Pakistan aims to expand mango exports to Australia. While Australia has shown willingness to import greater quantities, certain technical and regulatory requirements remain to be addressed. He assured that Pakistan is ready to resolve all outstanding issues promptly. He further noted that the Ministry of National Food Security and Research has shifted from reactive correspondence to proactive international engagement, announcing the formation of a dedicated working group under his leadership to ensure effective follow-up and implementation. Both sides will nominate focal persons and hold two to three meetings annually to sustain momentum.

Australian High Commissioner Timothy Kane reaffirmed Australia's strong commitment to its relationship with Pakistan and acknowledged the country's fertile land and agricultural potential. He shared that Australia is digitizing phytosanitary and regulatory processes and will welcome Pakistani officials for technical exchanges and training. Drawing on his previous experience in Brazil, he cited Brazil's food security and production model as a relevant example.

Special Assistant to the Prime Minister Haroon Akhtar highlighted Australia's success in achieving high agricultural yields with efficient water usage, noting that Pakistan could benefit from this experience. He informed the meeting that reforms, including deregulation in the sugar sector, are underway. Emphasizing Pakistan's large livestock population, he stressed the need for improved breeds, certified slaughterhouses, and value addition to enhance competitiveness in global markets. He proposed a Pakistani delegation's visit to Australia to observe modern livestock and meat export facilities, given Australia's status as a leading global meat exporter.

The Livestock Commissioner briefed participants on ongoing Australian-supported initiatives in Pakistan, including projects in dairy development, breed improvement, rangeland management, and capacity building. He noted that closer collaboration could significantly boost livestock productivity and export potential.

At the conclusion of the meeting, both sides agreed to deepen cooperation through enhanced technical collaboration, improved market access, regular engagement, and capacity building, with the shared goal of mutual benefit and strengthened regional food security.■

Zarea Limited Signs USD 2 M Strategic MoU with Chinese Agri-Tech Firm

Zarea Limited has announced the signing of a Strategic Memorandum of Understanding (MoU) valued at USD 2 million in the initial phase of a long-term collaboration with Wang Chuang Xi Jun Chang Agri Ltd., a leading Chinese agri-platform company.

The MoU was signed on the sidelines of the Pak–China Investment Conference held in Islamabad.

According to the company, the strategic partnership aims to explore growth opportunities in Pakistan's agriculture sector by leveraging Wang Chuang Xi Jun Chang Agri Ltd.'s integrated and technology-driven agricultural model. The collaboration will assess the introduction of advanced seed technologies, technology-enabled agronomic and farm services, structured labor and grower management systems, scalable production models, and enhanced agricultural trade between Pakistan and China.

Zarea Limited stated that the partnership is designed to improve agricultural productivity, strengthen supply chain efficiency, and enhance traceability across the agri-value chain. The initiative is also expected to support the transfer of technical expertise, provide international market exposure, and create potential export linkages for local growers and agribusiness stakeholders in both countries.

The company added that the collaboration aligns with its long-term strategy of developing a technology-enabled, integrated agricultural ecosystem and is expected to further strengthen Zarea Limited's position in the agri-commodities segment. – ER Report

Creating Technology Business Models with Scalability in Mind

Engr. Dr. Muhammad Nawaz Iqbal

The shift to exponential logic of value creation, rather than the linear growth assumption, in the context of engineering-based markets, is necessary to develop technology business models that are scalable.

Engineering markets are more based on modularity, interoperability, and repeatability as opposed to traditional industries. Scalable technology business model thus starts with engineering solutions that do not take the form of excessively customized but as flexible platforms. Firms can achieve this by ensuring growth does not proportionally raise cost or complexity, either by designing systems to be scalable (e.g., by designing software architecture or hardware interfaces, or system protocols) or by designing hardware to be scalable (e.g., by designing processor architecture or mainboard assembly).

The need to engineer markets further requires business models that are decoupled between innovation and physical constraints. Simulation-driven design and cloud-based engineering tools, as well as digital twins, have allowed companies to increase intellectual output without increasing physical resources. A scalable model uses such technologies to digitalize engineering knowledge into scalable industry and geography digital products and services that can be reproduced. This would enable companies to transition to recurrent revenues as opposed to project-based revenues, which will establish financial sustainability in the long term without compromising on the engineering quality.

The creation of data-centric value has emerged as a foundational block of scalable technology business models in an engineering context. There are now engineering systems that produce large volumes of operation and performance data and this data can be monetized by the analytics, predictive maintenance, and optimization services. An expansive business model leverages information as a strategic asset and develops a feedback mechanism that will continuously optimize the performance of the products and also generate new sources of revenue at the same time. This not only enhances customer lock-in but has the benefit of making the firm a long-term innovation partner instead of a one-time solution provider.

Standardization is very important in the provision of scalability in engineering markets. Proprietary, closed-based business models tend to be constrained in their growth since they are difficult to integrate. Conversely, open standards and API-driven architectures allow ecosystems in which the developers and suppliers of three parties, as well as customers, co-create value. Scalability is not so much an outcome of internal expansion but rather the capability to coordinate a network of engineering stakeholders extending the core offering in different ways, in unforeseen ways.

Scalable business logic has been redefined with the integration of artificial intelligence into the engineering processes. The design automation, quality assurance, and optimization that are made possible by AI minimize reliance on engineering activities that are highly dependent on human beings. A scalable business model does not only incorporate AI as a tool but as a multiplier of value, enabling the firm to serve more and more markets without necessarily doubling the amount of engineering manpower. This is especially effective in industries like manufacturing, construction, and energy where the complexity of engineering is traditionally used to constrain scale.

Engineering markets are highly reliable and precise, and trust is a determining aspect in scalability. The business models of technology need to have the elements of validation, certification, and compliance as part of the value proposition. Once trust is built into the business model, namely with clear performance indicators, regulatory fit, and effective testing infrastructure, the customers will be more likely to implement the solution on a large scale, which will allow reaching a much faster market penetration without spending too much on marketing effort.

Strategic abstraction is also required in creating a scalable technology business model in the engineering markets. When firms abstract the complex engineering processes into user-friendly interfaces and services, firms are able to increase its customer base to include non-expert users. Such democratization of engineering expertise enables non-expert companies to obtain high-tech, greatly increasing the number of markets to be served without compromising the sound engineering base.

Another important aspect of the scalability of a technology-driven engineering firm is supply chain integration. Digital integration of suppliers, manufacturers, and distributors through business models alleviate friction and improve responsiveness. Scalable models take advantage of real-time data exchange and automation to coordinate engineering design to production and logistics, and can scale extremely fast without sacrificing quality or delivery schedules.

The shift to the solution-based business model that replaces the product-based business model increases scalability in the engineering market. Scalable firms do not sell discrete engineering products, but propose integrated solutions that are a combination of hardware, software, and services. The hybrid model establishes numerous points of revenue and customer lifetime value, and it can be incrementally scaled due to service features, feature additions, and performance-based pricing.

Scalability also needs alignment of the organization between the engineering and business strategy. A technology business model does not scale in cases where engineering innovation velocity exceeds commercialization ability. A scalable approach would make sure that engineering roadmaps are directly tied to the market demand, pricing strategies, and customer adoption pathways. Such alignment saves time-to-market and makes sure that technical sophistication is converted into commercial success.

Geographic scalability is becoming a strategic requirement of engineering markets, which are becoming more global. Business models on technology have to be programmed to work in the various regulatory, cultural, and infrastructural differences. Online delivery systems, regional layers of customization, and area-independent core platforms allow companies to expand internationally without subdividing their engineering foundation or replicating product development activities.

Cybersecurity and resilience have come into being as being non-negotiable aspects of scalable business models of engineering. With the increase in the scale of technology solutions, they become more desirable targets of cyber threats. Including security-by-design within engineering-based solutions to security does not only help secure the assets but also builds credibility in the market. A robust business model foresees failure situations and adds redundancy, such that it can continue to scale even in stressful situations.

Scalability that is based on partnership is especially efficient in high capital-intensive engineering markets. Intel and Informatics Strategic alliances enable the companies to scale innovation without the full cost of research and development by collaborating with universities, research laboratories, and industrial partners. These

partnerships turn the business model into an innovation ecosystem, which increases technological progress but remains financially scalable.

One of the untapped scalability in the engineering of markets is customer co-creation. Through using customers in the iterative design, testing, and optimization, firms can scale relevance and scale of operations. This strategy mitigates the chances of misplaced innovations and makes scaled solutions based on actual engineering challenges that enhance adoption and retention.

In engineering markets, systems thinking is required to create technology business models that are designed to be scaled. Scalability cannot be realized by means of growth but as a result of clever coordination of technology, data, alliances, and credibility. Companies that architect scalability into both their technological systems and their business models have an overwhelming advantage, and they will find themselves not only as technology vendors but as scalable vendors of industrial transformation.■

آوازِ اقبال

اقبال کا ترانہ بانگِ درا ہے گویا
ہوتا ہے جادہ پیما پھر کارواں ہمارا

آہ! یہ دست جو اے گل رنگیں نہیں
کس طرح تجھ کو یہ سمجھاؤں کہ میں گل چیں نہیں
کام مجھ کو دیدۂ حکمت کے الجھیڑوں سے کیا
دیدۂ بلبل سے میں کرتا ہوں نظارہ تر
تو شناسائے خراش عقدۂ مشکل نہیں
اے گل رنگیں ترے پہلو میں شاید دل نہیں
زیب محفل ہے شریک شورش محفل نہیں
یہ فراغت بزم ہستی میں مجھے حاصل نہیں
اس چمن میں ' میں سراپا سوز و ساز آرزو
اور تیری زندگانی بے گداز آرزو
توڑ لینا شاخ سے تجھ کو مرا آئیں نہیں
یہ نظر غیر از نگاہ چشم صورت میں نہیں

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Strengthening ICT Capacity for Climate Action

EU CBHE ACTIVE Project Review Meeting at MUET

Mehran University of Engineering & Technology (MUET), Jamshoro, successfully organized a Review Meeting of the EU-funded Erasmus+ Capacity Building in Higher Education (CBHE) project ACTIVE, bringing together partner institutions to review project progress and plan upcoming activities.

The meeting focused on discussing the remaining project deliverables and finalizing arrangements for hands-on training on newly procured laboratory equipment, aimed at developing practical ICT-based solutions for climate action, environmental monitoring, and smart agriculture applications.

Participants engaged in productive deliberations on how to effectively utilize ICT tools and sensor-based systems for climate and weather monitoring, pollution and air quality assessment, and smart agricultural practices.

The availability of modern facilities at the ICT Applications for Climate Action Centre, MUET, was highly appreciated by the participants, who acknowledged its readiness to support advanced training, research, and capacity-building activities under the ACTIVE project representatives from Higher Education Institutions (HEIs) partners, including MUET, NUTECH, BUITEMS, and SSUET, reflecting strong inter-institutional collaboration. The partners reaffirmed their commitment to the timely completion of deliverables and the successful conduct of upcoming training programs, reinforcing the project's overarching goal of strengthening institutional capacity and promoting sustainable, ICT-driven solutions for climate resilience in Pakistan.■

Sales Blog for Young Engineers and Entrepreneurs

From Pastures to Prophets: Why God Trained Leaders as Shepherds

Muhammad Tariq Haq | www.eslpk.com

Leadership in the modern world is often learned in classrooms, boardrooms, and through management theory. In the prophetic tradition, leadership was learned very differently.

Many prophets of God began their working lives as shepherds. This was not accidental, nor was it merely due to the economic conditions of ancient societies.

Shepherding was a deliberate and deeply effective form of leadership training.

This article explores which prophets were shepherds, why shepherding—especially of goats—was chosen, what leadership qualities this work developed, and what lessons modern corporate leaders can learn from this divine model of training.

Prophets Who Worked as Shepherds

Islamic tradition, supported by Biblical accounts, records that many prophets tended animals before assuming leadership roles in society.

These include:

Adam
Abel (Hābīl)
Abraham (Ibrāhīm)
Isaac (Isḥāq)
Jacob (Yaʿqūb)
Moses (Mūsā)
David (Dāwūd)
Muhammad ﷺ

Prophet Muhammad ﷺ clearly stated that every prophet sent by God had worked as a shepherd. This establishes shepherding as a shared and intentional stage in prophetic development.

Why Shepherding Was Chosen

Shepherding places a person in full responsibility for living beings that are vulnerable, dependent, and easily harmed. The shepherd must protect them from danger, guide them to food and water, and account for every loss.

This work develops leadership in silence and isolation, without applause, authority, or status. It trains a person to care deeply while expecting no recognition. Such conditions are ideal for shaping character before granting power.

Human societies behave far more like goats than sheep. People think independently, resist authority, and differ in motivation. Training prophets with goats prepared them to lead real communities with wisdom rather than domination.

Leadership Qualities Developed Through Shepherding

Shepherding develops leadership traits that cannot be taught through theory alone.

Why Goats Were Especially Significant

Goats are among the most difficult animals to herd. Unlike sheep, cow and camel, they are independent, curious, and resistant to control. They wander easily and do not naturally move as a group.

Leading goats requires:

Patience instead of force

Consistent attention instead of commands

Familiarity instead of fear

Patience

Progress is slow, repetitive, and uncertain. Anger achieves nothing.

Responsibility

The shepherd is accountable for every animal, especially the weak and vulnerable.

Awareness

Constant attention to environment, danger, and change is required.

Humility

The shepherd walks behind the flock, serving rather than commanding.

Trustworthiness

The animals belong to the owner, not the shepherd. Leadership is a trust, not ownership.

These qualities later defined prophetic leadership in family life, social reform, justice, and governance.

God's Philosophy of Leadership

The prophetic model shows that leadership is not control over people, but care for them. Authority exists to protect, guide, and serve, not to dominate.

This philosophy emphasizes:

Custodianship rather than possession

Guidance rather than coercion

Long-term well-being rather than short-term success

Respect for individuals within a community

Shepherding made these values part of a leader's character long before public responsibility began.

Lessons for Corporate and Organizational Leaders

Modern corporate leadership often prioritizes speed, targets, and scale. The shepherding model offers a corrective that remains highly relevant.

Practical Insights for Executives

Leadership is proven by retention and trust, not control

Presence matters more than authority

Employees are a responsibility, not a resource

Correction should begin with care, not punishment

Independent people need guidance, not suppression

Why This Training Came Before Authority

Prophets were trained in obscurity before being given visibility. Shepherding removed ego, built resilience, and taught service without reward. Only those who could lead without recognition were trusted to lead with power.

Conclusion

Shepherding was not a coincidence of ancient life. It was a divinely chosen system for forming ethical, patient, and people-centered leaders. Goats, with their independence and difficulty, prepared prophets to lead complex and imperfect societies.

For modern leaders, especially in corporate settings, this model offers a timeless lesson:

true leadership begins with care, humility, and responsibility long before titles and authority are granted.■

پندرہ روزہ

انجینئرنگ ریویو

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پاکستان اور ایشیائی ترقیاتی بینک کے درمیان 73 کروڑ ڈالر کے 2 منصوبوں پر دستخط

33 ملین ڈالر کا سیکنڈ پاور ٹرانسمیشن پراجیکٹ اور ایس اوایز کی ٹرانسفارمیشن کا 400 ملین ڈالر کا پروگرام شامل

ایشیائی ترقیاتی بینک پاور سیکٹر اور ریاستی ملکیتی اداروں کی ٹرانسفارمیشن پر مشتمل 2 منصوبوں کیلیے پاکستان کو 73 کروڑ ڈالر فراہم کرے گا جس کیلیے پاکستان اور ایشیائی ترقیاتی بینک کے درمیان 730 ملین ڈالر کے 2 منصوبوں پر دستخط ہوگئے۔ ان میں 330 ملین ڈالر کا سیکنڈ پاور ٹرانسمیشن پراجیکٹ اور ایس او ایز کی ٹرانسفارمیشن کا 400 ملین ڈالر کا پروگرام شامل ہیں۔

سیکریٹری اقتصادی امور حمیر کریم نے ایشیائی ترقیاتی بینک کے قابل اعتماد ترقیاتی شراکت دار کے طور پر کردار کو سراہا اور کہا ٹرانسمیشن منصوبہ آنے والے پن بجلی کے منصوبوں سے 2,300 میگاواٹ بجلی کی قابل اعتماد ترسیل کو ممکن بنائے گا، موجودہ ٹرانسمیشن لائنوں پر اضافی بوجھ کو کم کرے گا، ایس اوایز کا ٹرانسفارمیشن پروگرام موثر عملدرآمد کو مضبوط بنائے گا۔

نیشنل ہائی وے اتھارٹی پر توجہ دیتے ہوئے کارکردگی میں بہتری لائے گا، دونوں اقدامات انقلابی ہیں، ٹرانسمیشن منصوبہ قومی گرڈ کی ریڑھ کی ہڈی کو مضبوط بنا کر پاکستان کے توانائی کے مستقبل کو محفوظ بنائے گا۔ اے ڈی بی کی کنٹری ڈائریکٹر ایما فان نے توانائی کے بنیادی ڈھانچے کو مضبوط بنانے میں ٹرانسمیشن منصوبے کی اہمیت پر زور دیا۔■

ریلوے پہلی بار 1 کھرب آمدن کا سنگ میل عبور کرنیکے قریب

یہ حفاظتی اصلاحات، معیار میں بہتری اور اثاثہ جاتی نظم ونسق میں اصلاحات کا نتیجہ

ٹرینوں میں بھی کیمرے لگانے کا فیصلہ، قابضین سے تمام اراضی واگزار ہوگی، حنیف عباسی

وفاقی وزیر برائے ریلوے محمد حنیف عباسی نے کہا ہے کہ پاکستان ریلوے کے مالی سال 26-2025 میں 100 ارب روپے آمدن حاصل کرنے کا امکان ہے کیونکہ ادارہ مالی سال کے پہلے 6 ماہ میں ہی 50 ارب روپے آمدن کی توقع کر رہا ہے۔ ان کے مطابق یہ نمایاں بہتری حفاظتی اصلاحات، سروس کے معیار میں بہتری، ڈیجیٹائزیشن اور اثاثہ جاتی نظم ونسق میں اصلاحات کا نتیجہ ہے۔ وزیر نے کہا کہ جو ادارہ برسوں مالی دباؤ کا شکار رہا، وہ اب انتظامی اور عملی اقدامات کے باعث مالی استحکام کی جانب بڑھ رہا ہے۔

انھوں نے بتایا کہ سال 2025 کے دوران پاکستان ریلوے نے 93 ارب روپے سے زائد آمدن حاصل کی، جو گزشتہ برسوں کے مقابلے میں نمایاں بحالی کو ظاہر کرتی ہے۔ ان کے مطابق مالی سال 26-2025 کے پہلے 6 ماہ میں متوقع 50 ارب روپے کی آمدن اس بات کا ثبوت ہے کہ ادارہ نہ صرف اپنے سالانہ ہدف کے قریب ہے بلکہ ممکنہ طور پر اسے عبور بھی کر سکتا ہے۔ حنیف عباسی نے کہا کہ مالی سال 26-2025 کے لیے پاکستان ریلوے کا آمدنی ہدف تقریباً 100 ارب روپے مقرر کیا گیا تھا، جو موجودہ کارکردگی کے رجحان کو دیکھتے ہوئے قابل حصول نظر آتا ہے۔ انھوں نے اعتراف کیا کہ مسافر سلامتی کے حوالے سے سال 2025 ریلوے کے لیے اچھا ثابت نہیں ہوا، کیونکہ مسافر اور مال بردار ٹرینوں کے پٹڑی سے اترنے کے واقعات معمول بنتے رہے، جو خستہ حال ریلوے انفرااسٹرکچر کی فوری مرمت اور بڑے پیمانے پر اوور ہال کی ضرورت کی نشاندہی کرتے ہیں۔

وزیر نے کہا کہ 2025 میں ایک اہم سنگ میل اس وقت حاصل ہوا جب راولپنڈی کو ملک کا پہلا اسمارٹ ریلوے اسٹیشن بنایا گیا، جہاں جدید کیمرے اور جدید سیکورٹی نظام نصب کیا گیا ہے۔ انہوں نے بتایا کہ 2026 میں دیگر بڑے اسٹیشنوں کو بھی اسی طرز پر اپ گریڈ کیا جائے گا۔ اس کے علاوہ مسافروں کی سلامتی اور نگرانی کو مزید بہتر بنانے کے لیے ٹرینوں کے اندر کیمرے نصب کرنے کا فیصلہ بھی کیا گیا ہے۔

سروس میں بہتری کے حوالے سے حنیف عباسی نے کہا کہ صرف آٹھ ماہ میں آٹھ ٹرین ریکس اپ گریڈ کیے گئے، جن میں شالیمار، پاک بزنس اور فیض احمد فیض ٹرینیں شامل ہیں۔ ان اپ گریڈیشنز سے مسافروں کے آرام میں اضافہ ہوا اور مزید لوگ دوبارہ ریلوے کا رخ کرنے لگے۔

انہوں نے بتایا کہ لاہور، کراچی، راولپنڈی اور فیصل آباد کے اسٹیشنز کو بھی اپ گریڈ کیا گیا ہے، جبکہ دسمبر 2026 تک تمام ٹرینوں کو مکمل طور پر اپ گریڈ کرنے کا منصوبہ ہے۔ ریلوے اراضی پر تجاوزات طویل عرصے سے مالی نقصان کا باعث بن رہی تھیں، تاہم اب اس مسئلے کو سنجیدگی سے حل کیا جا رہا ہے۔ صرف 2025 کے دوران 1394 ایکڑ ریلوے اراضی تجاوزات سے واگزار کرائی گئی۔ آؤٹ سورسنگ کے اقدامات بھی بہتر نظم ونسق میں معاون ثابت ہوئے ہیں۔ ریلوے کو ڈیجیٹائز کر دیا، تمام کام ای فائلنگ پر منتقل ہو چکا، بڑے سٹیشنوں پر اے ٹی ایم، ڈی وی ایم اور پی او ایس مشینیں موجود ہیں، حاضری بھی کمپیوٹرائز کر دی، دسمبر 2026 تک قابضین سے ریلوے کی تمام اراضی واگزار کروالیں گے، گیارہ مزید ٹرینیں آؤٹ سورس ہو رہی ہیں، کھانے کا معیار بہتر کر دیا۔

دوسری جانب ریلوے کے لیے سال 2025 خوفناک رہا، دہشتگردی، سیلاب اور گاڑیوں کے پٹری سے اترنے کے حادثات نے ریلوے کو ہلا کر رکھ دیا۔ مسافروں کو سفری سہولیات تو فراہم نہ ہوسکیں البتہ ویٹنگ رومز کو حسین ضرور بنا دیا گیا، لاہور سمیت کسی بھی اسٹیشن سے کوئی ریل گاڑی اپنے مقررہ وقت پر روانہ نہ ہوسکی۔ 2025 بھی ٹرینوں کے حادثات کے حوالے سے خوفناک ثابت ہوا، مختلف نوعیت کے 95 حادثے ہوئے، ٹرینوں کے پٹریوں سے اترنے کے 46 حادثات ہوئے، ریلوے کے انفرااسٹرکچر کو کروڑوں روپے کا نقصان پہنچا۔■

پاکستان کا ایران سے گیس لائن کے لیے 10 سالہ توسیع کا مطالبہ

پاکستان کا ایران سے آئی پی گیس لائن کے لیے 10 سالہ توسیع کا مطالبہ، اسلام آباد 18 ارب کے ممکنہ جرمانے سے بچنے کے لیے سفارتی اور قانونی راستے اپنانے پر غور کر رہا ہے، امریکی پابندیاں منصوبے میں رکاوٹ، ایران کے متعدد بار قانونی نوٹس، ثالثی عدالت میں مقدمہ دائر کر دیا۔

اسلام آباد عالمی ثالثی عدالت میں 18 ارب ڈالر کے ممکنہ جرمانے کے خطرے کے پیش نظر تہران سے ایران پاکستان (IP) گیس پائپ لائن کے لیے 2035 تک 10 سالہ توسیع کی درخواست کر رہا ہے۔ پاکستان کا

موقف ہے کہ امریکی پابندیوں کی وجہ سے منصوبے کی تکمیل ممکن نہیں تھی، جبکہ ایران نے اس دلیل کو مسترد کرتے ہوئے کہا ہے کہ عراق، ترکی اور بھارت کو امریکی چھوٹ دی گئی ہے اور وہ ایرانی گیس درآمد کر رہے ہیں۔ پاکستان اور ایران کے درمیان یہ مقدمہ پیرس میں قائم فرانسیسی قانون کے تحت ثالثی عدالت میں زیر سماعت ہے، جہاں ایران نے الزام عائد کیا ہے کہ پاکستان نے اپنی جانب کی پائپ لائن نہ بنانے کی وجہ سے متعدد مقررہ تاریخوں کی خلاف ورزی کی اور 18 ارب ڈالر کے جرمانے کا مطالبہ کیا۔■

Pakistan, China Sign LoI to Strengthen TVET and Youth Skills Development

A meeting was held at the Prime Minister's Office, Islamabad, marking the signing of a Letter of Intent (LoI) to strengthen China–Pakistan cooperation in Technical and Vocational Education and Training (TVET) and youth skill development. The LoI was signed between China–Pakistan TVET Cooperation, the Prime Minister's Youth Program (PMYP), Government of Pakistan, and TANG Chinese Education & Technology (Pvt.) Ltd., Pakistan. The initiative aims to enhance employability, promote digital transformation in education, and foster long-term collaboration in skills development aligned with emerging global market needs.

The LoI signing ceremony was witnessed by Chairman Prime Minister's Youth Program (PMYP) Rana Mashhood Ahmad Khan. The ceremony was attended by senior representatives from both sides, including Li Jinsong, President and Founder of TANG Chinese Education & Technology Ltd., and Ms. Xanib Abdul Rehman, Section Officer, Prime Minister's Youth Program, along with their respective delegations.

The agreement reflects a shared commitment to empowering Pakistani youth through modern, demand-driven vocational and digital skills. The collaboration envisions the development of advanced training standards, joint certification mechanisms, and institutional linkages between Pakistan and China to improve the quality and relevance of technical education.

Under the initiative, large-scale capacity-building efforts will be undertaken, including the training of approximately 2,000 master trainers and cascading skills training for over 50,000 youth over a five-year period. The Program will also focus on emerging sectors such as digital technologies, e-commerce, fintech, artificial intelligence, media, tourism, and entrepreneurship.

The cooperation further aims to establish multiple smart digital training centres, promote international exposure through digital skills competitions, and create pathways for productive employment in Pakistan and abroad. Special emphasis will be placed on innovation, entrepreneurship, and SME development to support sustainable economic growth.

Symmetry's Subsidiary Iris Digital Selected as Preferred Bidder for Jazz Creative Mandate

Symmetry Group Limited has informed that its wholly owned subsidiary, Iris Digital (Private) Limited, has been selected as the preferred bidder following the completion of commercial and technical evaluations for JazzCash Digital Creative, Jazz Digital Creative, and Jazz Creative Agency scopes.

According to the company, Jazz has formally communicated the selection in writing, and the definitive agreements will be executed in due course. The appointment will be for a three-year period, covering 2026, 2027, and 2028.

The management described the development as a milestone achievement and a strong endorsement of the Group's capabilities across integrated digital, creative, and technology-driven marketing services. Owing to the substantially expanded scope of work compared to previous years, Symmetry Group has initiated capacity expansion across Karachi, Lahore, and Islamabad.

The company stated that the expanded mandate is expected to significantly enhance revenues, reinforcing Symmetry Group's growth trajectory. The Group reiterated its commitment to continuous improvement and delivering long-term value to its shareholders.■

FIEDMC Records Major Industrial Growth with 147 Factories Operational and Under Development

Federal Minister for the Board of Investment Qaiser Ahmed Sheikh visited the Faisalabad Industrial Estate Development and Management Company (FIEDMC) to review the progress of Special Economic Zones (SEZs) and assess issues related to their development and industrial population.

During the visit, the minister described FIEDMC as a key hub of Pakistan's industrial development and reaffirmed the government's commitment, under the leadership of Prime Minister Muhammad Shehbaz Sharif, to addressing challenges faced by the industrial community with seriousness and resolve.

He stated that existing bottlenecks at FIEDMC would be resolved to make the estate more functional, stable, and attractive for both local and foreign investors. Referring to his association with Chiniot, internationally known for its furniture industry, the minister said he fully understood the operational challenges faced by industrialists.

The minister emphasized that investment promotion remains a top government priority, as industrial growth is essential for strengthening the national economy. Coming from an industrial background, he said business community concerns are viewed as practical, on-ground issues rather than mere paperwork.

Acknowledging challenges on both sides, Sheikh stressed the need for collective efforts to move the country forward. He pointed to recent economic improvements, including rising foreign exchange reserves, and said the finance minister has been directed to maintain continuous engagement with stakeholders to ensure timely resolution of industrial issues.

Earlier, Chairman FIEDMC Rana Azhar Waqar briefed the minister on the progress of SEZs, stating that 90 factories were established by 2025, with 26 additional factories already operational and 31 currently under development. The briefing was attended by Additional Secretary BoI Arfa, CEO FIEDMC Qurratul Ain, and other senior officials.

The minister later met with Faisalabad Chamber of Commerce and Industry (FCCI) President Farooq Yousaf Sheikh, Vice President Asim Munir, and other members, who highlighted key challenges facing the industrial sector. The FCCI leadership informed that due to security concerns and policy-related issues, more than 150 industrial units had shut down, leading to unemployment for nearly 150,000 workers, while several industrialists had relocated their operations abroad.

Terming the concerns genuine, the minister assured the business community that their issues would not be ignored and reiterated the government's commitment to strengthening FIEDMC and other industrial zones nationwide.

Later, the minister visited the factory of prominent industrialist Mian Mansha, where discussions were held on direct container transportation from Karachi Port to FIEDMC, reduction in logistics costs, rail-based freight solutions, and improved railway connectivity linking Faisalabad and Chiniot with major trade corridors. Mr. Mansha offered to prepare feasibility studies and extend cooperation in funding and financing to expedite these initiatives, stressing the importance of fully developing Pakistan's largest industrial zone for sustainable economic growth.

Concluding the visit, the minister reaffirmed that the Board of Investment remains fully committed to facilitating industrialists, strengthening SEZs, and ensuring a business-friendly investment climate across Pakistan through close coordination with all stakeholders.

Islamabad International Airport has become Pakistan's first fully digital and cashless Smart Airport. Through a strategic collaboration between Zindigi (powered by JS Bank) and the Pakistan Airports Authority (PAA), the airport has been fully digitized using Zindigi Raast QR, enabling seamless digital payments across all airport services.
This milestone advances the vision of Cashless Islamabad and Digital Pakistan, strengthening smart aviation infrastructure, enhancing transparency, and significantly improving the passenger experience.— ERMD

Pakistan, SciTech DiploHub Agree to Develop Climate Collaboration Roadmap

Federal Minister for Climate Change and Environmental Coordination Dr. Musadik Malik held a meeting with Mr. Alexis Roig, Chief Executive Officer of SciTech DiploHub, to explore ways to strengthen the integration of science diplomacy into Pakistan's climate action framework.

During the meeting, the minister commended Mr. Roig and SciTech DiploHub for their pioneering efforts in bridging science and diplomacy. He noted that such integration has become an urgent global necessity and is particularly critical for Pakistan, given the economic and social challenges posed by climate change.

The discussions focused on leveraging Pakistan's local scientific expertise and research capacity, while emphasizing the need for evidence-based and science-driven policymaking. Both sides also explored the development of structured training and fellowship programmes, including mechanisms to embed scientists within government ministries to support effective policy formulation and implementation.

It was agreed to jointly develop a detailed roadmap within one week, outlining priority areas for collaboration. The proposed roadmap will focus on mobilising the Advisory Group on Climate (AGC) and approximately 100 PhD-level climate scientists, enhancing access to climate finance, and establishing sustainable scientific advisory frameworks.

The meeting was attended by representatives from the Higher Education Commission (HEC), the Global Change Impact Studies Centre (GCISC), leading universities, national research institutions, and the Ministry of Foreign Affairs, reflecting a multi-stakeholder approach to advancing climate action through science diplomacy. – ERMD

Avanceon Secures USD 9 Million Worth of Automation Projects in Pakistan

Avanceon Limited has announced the acquisition of high-value projects worth USD 9 million across Pakistan's energy, infrastructure, and hospitality sectors, reinforcing its position as a leading automation and digitalization solutions provider.

According to the company, projects worth USD 5.7 million have been secured in the energy sector, with Letters of Intent (LOIs) already received. These assignments include terminal automation and digital transformation initiatives incorporating solar-powered control systems, resilient communication networks, centralized SCADA integration, and IEC 62443-compliant cybersecurity frameworks. The projects aim to enhance operational efficiency, system resilience, and regulatory compliance across critical energy infrastructure.

In addition, Avanceon has secured USD 3.3 million in new projects within the hospitality, retail, and real estate sectors. These include the delivery of advanced ELV, Building Management Systems (BMS), Fire Alarm Systems, Guest Room Management Systems, and IT network solutions, designed to optimize energy use, improve operational efficiency, and enable centralized asset management.

The development marks Avanceon's formal entry into the hospitality automation market, supporting its long-term growth strategy in smart buildings and digital infrastructure.

Avanceon stated that its strong project references, proven track record, and partnerships with leading OEMs were instrumental in securing these projects. All implementations will follow HAZOP studies and ISO 9001-certified QA/QC protocols, ensuring compliance with international quality and safety standards.

Due to client confidentiality, specific customer names and project details have not been disclosed.

Karachi: ER Report

IEEEP Nawabshah, QUEST to Host 8th PLUGIN Projects & Posters Competition on World Engineering Day 2026

The IEEEP Nawabshah Centre, in collaboration with the Department of Electrical Engineering, Quaid-e-Awam University of Engineering, Science and Technology (QUEST) Nawabshah, and Engineering Review Magazine, will celebrate World Engineering Day (WED) 2026 by organizing the 8th PLUGIN Projects and Posters Competition, a flagship national-level event promoting innovation, creativity, and engineering excellence.

Scheduled to be held on Wednesday, April 8, 2026, at the Department of Electrical Engineering, QUEST Nawabshah, the event will take place under the patronage of Prof. Dr. Saleem Raza Samo, Vice Chancellor, QUEST. The competition will be organized by Prof. Dr. Abdul Sattar Saand, Chief Organizer, Head of the Department of Electrical Engineering, and Chairman, IEEEP Nawabshah Centre.

The partnership with Engineering Review Magazine, a leading publication in engineering and technology, is expected to enhance the national outreach and visibility of the event, positioning PLUGIN as a prominent platform for academic excellence and innovation.

The competition is open to undergraduate students of engineering, science, and technology from across Pakistan, providing them an opportunity to showcase innovative projects and posters addressing real-world challenges in line with the United Nations Sustainable Development Goals (SDGs).

Registrations for the event are now open. The organizers have invited students nationwide to participate in the celebration of World Engineering Day and contribute to shaping the future of engineering through innovation, responsibility, and excellence. - ER Report

Meet the soft humanoid robot that can grow, shrink, fly and walk on water

Humanoid robots look impressive and have enormous potential to change our daily lives, but they still have a reputation for being clunky. They're also heavy and stiff, and if they fall, they can easily break and injure people around them.

But that could be about to change. Researchers at the Southern University of Science and Technology (SUST) in Shenzhen have unveiled a soft humanoid robot that can change its size, squeeze through spaces, and even walk on water. The key to this outstanding flexibility is a system the team developed called GrowHR. The research, published in Science Advances, describes how the robot was inspired by the way human bones develop.

Borrowing from biology

When bones develop and grow, they use nutrients from the body to expand in size while staying incredibly strong and lightweight. The team mimicked this by building "bones" for their robot out of soft airtight chambers wrapped in a tough fabric skin.

When they pump air into these chambers, the robot's limbs can stretch to over three times their original length. This allows them to be stiff enough to walk and carry loads, yet soft enough to absorb an impact.

To keep these growable parts stable, the researchers linked them together with tension cables, small motors, and carbon-fiber guides.

This unique design allows the robot to adapt its body to numerous situations. When researchers let air out of the limb chambers, the robot can shrink to 36% of its height and 61% of its width, allowing it to squeeze through narrow gaps and under low furniture.

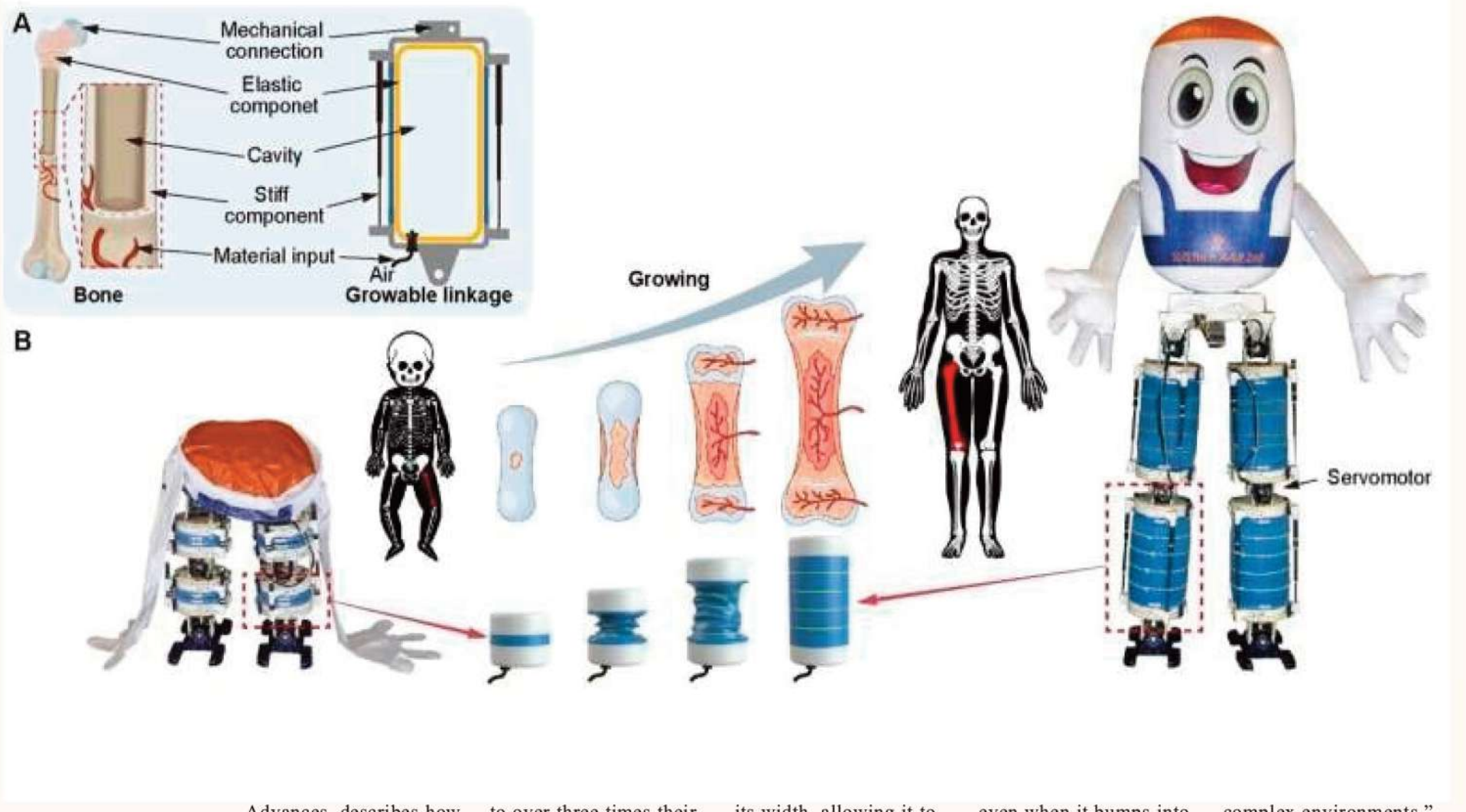
Because it is so light (weighing about 4.5 kilograms), it can easily float, swim, and walk on water. Add some small fans, and it can fly away too. This humanoid robot has also been designed with safety in mind. As the body is soft and elastic, it can accidentally bump into someone without causing injury.

"GrowHR is intrinsically safe for users, the environment, and itself, even when it bumps into surroundings or experiences strong impacts," commented the researchers in their paper.

What's next for GrowHR?

GrowHR is still a lab prototype and has a few limitations to overcome, such as the waterproof skin affecting its movement in water. But even so, the team sees huge potential for their technology. "This work pioneers a growable, multifunctional robotic design approach for dynamic, complex environments."

This includes squeezing through rubble during search-and-rescue missions, flying to remote locations to drop off medicines and supplies, and, of course, helping out around the home. - TX



All-powerful AI isn't an existential threat, according to new research

Now is a great time for anyone who's shopping for a used car to consider an electric vehicle, according to new research from the University of Michigan.

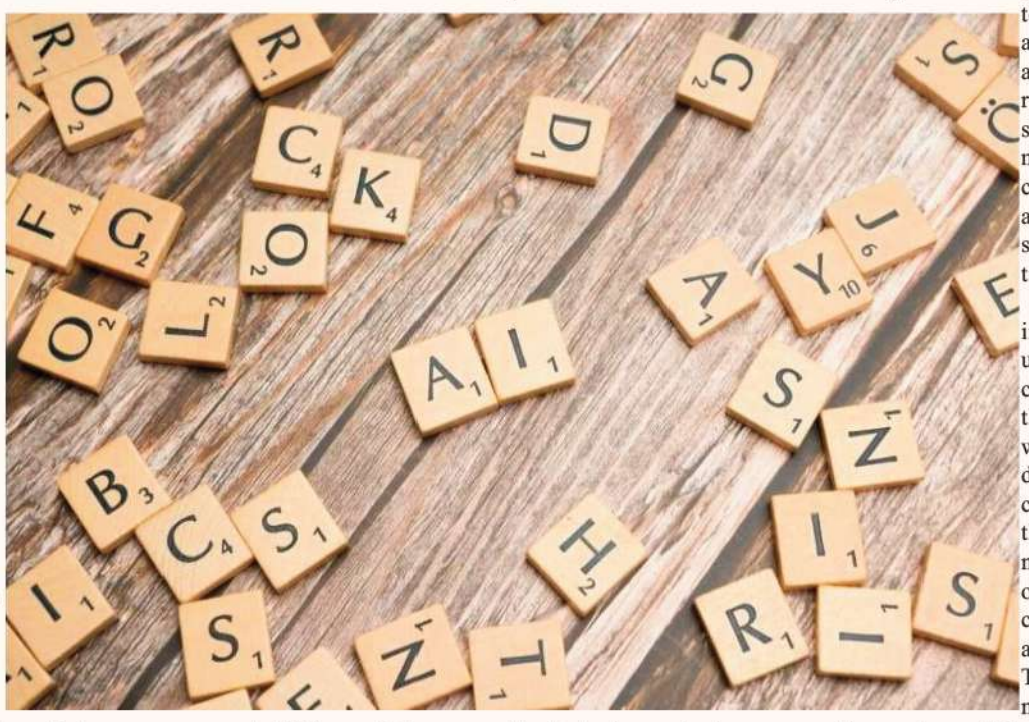
In assessing the lifetime ownership costs of used vehicles with different body styles and powertrains, the researchers found that completely electrified candidates offered the greatest savings.

For example, compared with a new midsized SUV with an internal combustion engine, a three-year-old used EV version offered a lifetime savings of $13,000, according to the study published in Environmental Research Letters. Meanwhile, compared with that same new vehicle, a used internal combustion engine vehicle, or ICEV, would offer a lifetime savings of only $3,000.

"Transportation is the second-largest portion of the average household's budget and, in the new vehicle market, EVs are usually more expensive," said Maxwell Woody, the lead author of the study. Woody is a research assistant at the U-M Center for Sustainable Systems, or CSS, and the School for Environment and Sustainability, or SEAS. "But 70% of all vehicle purchases are used, and used EVs have the lowest cost of ownership across vehicle classes."

Kicking the virtual tires

To analyze lifetime ownership costs, the team used virtual vehicle models from Argonne National Laboratory, monthly gas and electricity prices from 17 U.S. cities, and data from Craigslist ads for used cars posted in 2024. Sabina Tomkins, assistant professor at the U-M School of Information, led the team's cohort that gathered the Craigslist data, which included 260,000 listings after screening 4 million raw data points.



Combining the real-world information with Argonne's models enabled the researchers to assess the purchase price of a vehicle. The total cost of ownership was then determined by combining purchase and depreciation data with data gathered for recurring costs including fees, repairs, insurance, maintenance and fueling or charging in different parts of the country.

"I was surprised by how consistent the result was. I expected EVs would be cheaper in some scenarios, for some cities or vehicle types," Woody said. "But their costs were consistently lower across all vehicle classes and in almost all the cities."

Although the comparatively high cost of new EVs has limited their adoption in the U.S., this study could help more drivers choose used vehicles with lower carbon emissions, said senior author Greg Keoleian.

"Encouraging more adoption of EVs is key to decarbonizing the transportation sector and cost is a big factor in purchasing decisions," said Keoleian, a professor at SEAS and co-director of the CSS. "So this is positive news, I think, for helping encourage consumers to buy EVs."

The study's authors also included Antara Green and Christian Hitt at CSS and Sally Yin and Alexander Liu at the School of Information. The study was supported by the Responsible Battery Coalition.

Appreciating depreciation

While EV's low cost of ownership is the take-home message of the study, the team's analysis also revealed some notable caveats and considerations.

For instance, used EVs cut costs the most when drivers can do the majority of their charging at home. That means drivers who can't install a home charger or who need to charge a lot on the road won't save as much. The team also found that EVs' lifetime cost of ownership could creep above ICEVs and hybrids in two cities, Boston and San Francisco, because of their high electricity costs.

The team also acknowledged concerns about the battery performance of a used EV, which won't match a new EV's in terms of capacity and range. Thus, used EVs may not be a fit for long-haul drivers, but can offer thousands in lifetime savings for drivers who largely stay local. And that advantage is primarily fueled by how quickly EVs currently lose value compared with other powertrains.

"Electric vehicles have lower maintenance and repair costs than other powertrains, but the initial depreciation of the vehicle is really what drives the savings," Woody said.

As EV adoption becomes more common, the depreciation gap would shrink and the playing field would become more level across powertrains. But, for now, depreciation is creating a bargain for anyone considering a used EV.

"It's not the most positive news if you're in the market for a new EV, knowing that your resale value may be impacted by the faster depreciation," Keoleian said. "But if you're in the market for a used vehicle, it's very positive news."

The researchers have already started monitoring resale data for 2026 to keep an eye on this trend moving forward. - TX

Used EVs currently offer car buyers lowest lifetime cost of ownership, study shows

Now is a great time for anyone who's shopping for a used car to consider an electric vehicle, according to new research from the University of Michigan.

In assessing the lifetime ownership costs of used vehicles with different body styles and powertrains, the researchers found that completely electrified candidates offered the greatest savings.

For example, compared with a new midsized SUV with an internal combustion engine, a three-year-old used EV version offered a lifetime savings of $13,000, according to the study published in Environmental Research Letters. Meanwhile, compared with that same new vehicle, a used internal combustion engine vehicle, or ICEV, would offer a lifetime savings of only $3,000.

"Transportation is the second-largest portion of the average household's budget and, in the new vehicle market, EVs are usually more expensive," said Maxwell Woody, the lead author of the study. Woody is a research assistant at the U-M Center for Sustainable Systems, or CSS, and the School for Environment and Sustainability, or SEAS. "But 70% of all vehicle purchases are used, and used EVs have the lowest cost of ownership across vehicle classes."

Kicking the virtual tires

To analyze lifetime ownership costs, the team used virtual vehicle models from Argonne National Laboratory, monthly gas and electricity prices from 17 U.S. cities, and data from Craigslist ads for used cars posted in 2024. Sabina Tomkins, assistant professor at the U-M School of Information, led the team's cohort that gathered the Craigslist data, which included 260,000 listings after screening 4 million raw data points.

Combining the real-world information with Argonne's models enabled the researchers to assess the purchase price of a vehicle. The total cost of ownership was then determined by combining purchase and depreciation data with data gathered for recurring costs including fees, repairs, insurance, maintenance and fueling or charging in different parts of the country.

"I was surprised by how consistent the result was. I expected EVs would be cheaper in some scenarios, for some cities or vehicle types," Woody said. "But their costs were consistently lower across all vehicle classes and in almost all the cities."

Although the comparatively high cost of new EVs has limited their adoption in the U.S., this study could help more drivers choose used vehicles with lower carbon emissions, said senior author Greg Keoleian.

"Encouraging more adoption of EVs is key to decarbonizing the transportation sector and cost is a big factor in purchasing decisions," said Keoleian, a professor at SEAS and co-director of the CSS. "So this is positive news, I think, for helping encourage consumers to buy EVs."

The study's authors also included Antara Green and Christian Hitt at CSS and Sally Yin and Alexander Liu at the School of Information. The study was supported by the Responsible Battery Coalition.

Appreciating depreciation

While EV's low cost of ownership is the take-home message of the study, the team's analysis also revealed some notable caveats and considerations.

For instance, used EVs cut costs the most when drivers can do the majority of their charging at home. That means drivers who can't install a home charger or who need to charge a lot on the road won't save as much. The team also found that EVs' lifetime cost of ownership could creep above ICEVs and hybrids in two cities, Boston and San Francisco, because of their high electricity costs.

The team also acknowledged concerns about the battery performance of a used EV, which won't match a new EV's in terms of capacity and range. Thus, used EVs may not be a fit for long-haul drivers, but can offer thousands in lifetime savings for drivers who largely stay local. And that advantage is primarily fueled by how quickly EVs currently lose value compared with other powertrains.

"Electric vehicles have lower maintenance and repair costs than other powertrains, but the initial depreciation of the vehicle is really what drives the savings," Woody said.

As EV adoption becomes more common, the depreciation gap would shrink and the playing field would become more level across powertrains. But, for now, depreciation is creating a bargain for anyone considering a used EV.

"It's not the most positive news if you're in the market for a new EV, knowing that your resale value may be impacted by the faster depreciation," Keoleian said. "But if you're in the market for a used vehicle, it's very positive news."

The researchers have already started monitoring resale data for 2026 to keep an eye on this trend moving forward. - TX