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Quantum Valley Pakistan: Building the Innovation Economy

Pakistan has taken another step towards building a technology- and innovation-driven economy with the launch of Quantum Valley Pakistan, an initiative designed to connect the country's young talent with global technology, entrepreneurship and innovation networks.

Launched under the theme "Shaping Pakistan's Innovation & Technology Future," the initiative was described by Federal Minister for Planning, Development and Special Initiatives Ahsan Iqbal as the beginning of a new journey for Pakistan. More than the launch of another institution, he said, it represented a new direction for the country's future.

The launch ceremony brought together international figures from the global innovation community, including Tim Rowe, CEO of Cambridge Innovation Center (CIC), Dougan Sherwood, Partner at CIC, and Seena Amidi, Managing Partner at Plug and Play. Their participation reflected the

importance of international collaboration as Pakistan seeks to strengthen its technology and startup ecosystem.



At a time when technological change is reshaping economies around the world, the ability to connect talent, ideas, investment

and markets has become increasingly important. For Pakistan, with its large young population, developing these connec-

tions could offer opportunities that extend well beyond the traditional technology sector.

The New Source of Economic Power Addressing the gathering, Ahsan Iqbal said the nature of power in the 21st century had changed. Physical strength and traditional resources, he argued, were no longer the only measures of a country's economic strength. Intellectual capability, creativity and the ability to turn ideas into products and services were becoming increasingly important.

The transformation is visible across the global economy. A software company can serve customers thousands of kilometres away, while a technology startup can attract investment and talent from several countries. Engineers, researchers and entrepreneurs can collaborate internationally without necessarily moving from their home countries.

For Pakistan, this creates both an opportunity and a challenge. The country has a large pool of young people, but demographic strength becomes an economic advantage only when young people have access to quality education, modern technology,

Contd on page 4

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The 53rd GB Saga: Power Struggle, Elections 2027 & Battle Over Rules

The Pakistan Engineering Council (PEC) witnessed an extraordinarily heated spell this week as the rift between Chairman Engr. Waseem Nazir and his opponents, led by Senior Vice President Dr. Sarosh Hashmat Lodhi, widened after the former postponed a meeting of the Governing Body of the council, while the latter hurriedly gathered his supporters and called for a meeting, which he termed a meeting of the Governing Body.

The Chairman later rebutted the move, describing it as merely a gathering with no legal standing.

The Chairman claims that he has launched major reforms in the council to transform the organization into a modern-day regulator. None of his opponents has openly criticized his projects or programs. They do, however, object to what they describe as his style of leadership, alleging that he is not inclusive in his decision-making. The Chairman, for his part, believes his opponents are engaged primarily in politics—an approach he says he does not subscribe to.

The 53rd GB Saga

The latest confrontation centers on the Governing Body meeting scheduled for September 15, 2026. The meeting had been set following a decision of the Management Committee. Two days before the scheduled date, however, Chairman Engr. Waseem Nazir postponed the meeting, citing administrative reasons.

The postponement immediately triggered a reaction from the opposing group. Dr. Sarosh Hashmat Lodhi, in coordination with Engr. Mukhtiar Shaikh, Vice Chairman Sindh, held a meeting with members and decided to proceed with what they described as the Governing Body meeting on the original date. Members were asked to reach Islamabad for the session.

What followed turned an internal administrative disagreement into an open institutional confrontation.

According to documents available for this report, the group led by Dr. Lodhi subsequently convened what it described as the 54th meeting of the Governing Body at PEC Headquarters in Islamabad on September 15. The minutes state that 34 members participated, either physically or online, with Dr. Lodhi chairing the session.

The Chairman's camp, however, maintained that the meeting had no legal standing because the original meeting had been postponed. The opposing group issued a rebuttal, rejecting that position and proceeding with the meeting.

The Registrar Dispute

The controversy had already been building before the Governing Body confrontation.

An office order dated September 10 relieved Engr. Khadim Hussain Bhatti, Senior Additional Registrar, of the look-after charge of Registrar PEC. The responsibility was assigned to Engr. Muhammad Ansar, Additional Registrar and PEC Regional Head Punjab, Lahore.

The following day, a group of Governing Body members wrote to the Chairman objecting to the order and demanding its withdrawal. The members argued that Bhatti had been given the look-after charge through a decision of the Governing Body meeting and that the decision could not be reversed unilaterally.

The members also questioned the timing

of the order in relation to a preliminary meeting of the PEC Selection/Promotion Board that had been scheduled for September 11. According to their letter, Bhatti, who



was serving as Registrar and Secretary of the board, had postponed the meeting on the instructions of its convener.

The signatories questioned whether the change in his responsibilities was connected to the postponement. They also raised concerns about assigning the charge to an officer who, according to them, was already carrying another administrative responsibility.

These points were presented as objections by the members. The documents reviewed for this report do not contain a detailed response from the Chairman addressing each of these allegations.

Decisions of the Disputed Meeting

The minutes of the September 15 meeting record a series of significant decisions.

The Governing Body considered Office Order No. 40/2026, dated September 10, concerning the transfer of the Registrar's look-after charge. The body resolved to suspend the order and reinstate Engr. Khadim Hussain Bhatti as Registrar PEC.

The minutes also record a decision to issue show-cause notices to Engr. Muhammad Ansar for assuming the look-after charge under the disputed order. Similar notices were approved for Engr. Muhammad Sohail, Additional Registrar, and Engr. Muhammad Salman, Deputy Registrar, concerning their alleged involvement in the matter.

The minutes further record the termination of the services of Brig. (Retd.) Zaki Rehman Meer.

Another important decision concerned the recruitment process for the Registrar. The Governing Body resolved to cancel an advertisement issued on August 23, 2026, for the appointment and directed that no further recruitment or selection proceedings be conducted under that advertisement.

The body also declared itself the competent and appointing authority for the Registrar's position and proposed amendments to the relevant PEC Service Rules, 2020.

In another resolution, the Governing Body stated that no transfer, posting, removal, reduction in status, alteration of charge or other adverse administrative action concerning Engr. Bhatti should be taken by the Chairman or an officer acting under his direction without prior approval of the Governing Body.

The resolution further stated that any disciplinary proceedings should follow the prescribed legal and service procedures.

The Chairman Himself Faces Proceedings

The dispute escalated further when the

Governing Body resolved to proceed against Chairman Engr. Waseem Nazir over allegations of professional misconduct.

According to the minutes, the Registrar



was directed to issue a show-cause notice to the Chairman. The document stated that the matter would be dealt with under the applicable provisions of the PEC Act and by-laws.

An inquiry committee was also approved, headed by the Senior Vice Chair-

man and comprising the four Vice Chairmen. The committee was tasked with examining the allegations and submitting its report within 30 days.

Importantly, the resolution provides that the Chairman would have an opportunity to submit a written response and be heard before any adverse finding.

The minutes also record an interim arrangement under which the Senior Vice Chairman would perform the functions of the Chairman during the inquiry. The legal and administrative effect of that arrangement, however, would depend on the applicable provisions of the PEC Act, by-laws and service rules.

A Question of Authority

At the center of the dispute is a fundamental question: who had the authority to convene the September 15 meeting after the Chairman postponed it?

The Chairman's position is that the meeting convened by the opposing group was unlawful and carried no legal standing. The group led by Dr. Lodhi rejected that argument and proceeded with the meeting, recording a series of decisions.

The documents reviewed for this report contain the objections raised by the Governing Body members and the minutes of the September 15 meeting. They do not include a detailed written response

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Quantum Valley Pakistan: Building the Innovation Economy

Contd from page 1
research opportunities, mentorship and international markets.

Quantum Valley Pakistan is intended to help

create some of those connections.

The initiative aims to bring together young entrepreneurs, technology companies, universities and other stakeholders while

linking Pakistani youth with international innovation hubs. It is expected to create opportunities for start-ups and encourage the growth of high-tech businesses in Pakistan.

Connecting Young Talent to the World

Two agreements signed during the launch are central to this international approach. One was signed between Cambridge Innova-

tion Center and Quantum Valley Pakistan, while another was signed between Plug and Play and Quantum Valley Pakistan.

Such partnerships can potentially provide Pakistani entrepreneurs with access to international expertise, networks and opportunities.

A startup may have a promising idea but need guidance on developing its business model. Another may require technical expertise, investment or access to overseas markets. A university researcher may have valuable research but need industry connections to turn it into a commercial product.

A strong innovation ecosystem can bring these different requirements together.

This is increasingly important in today's economy because innovation rarely happens in isolation. Universities, businesses, investors, researchers and governments often need to work together to move an idea from a laboratory or classroom into the marketplace.

Pakistan's Young Popu-

lation

Ahsan Iqbal placed considerable emphasis on Pakistan's youth, saying that nearly 60 percent of the country's population consists of young people. He described Pakistani youth as talented and capable and called for their abilities to be combined through what he termed the spirit of "Team Pakistan."

The size of the youth population represents a significant opportunity, but it also places pressure on the economy to create meaningful opportunities.

Technology offers one possible avenue. Digital businesses can reach international customers without requiring a large physical presence overseas. Pakistani programmers, engineers, designers and technology entrepreneurs can potentially work for global markets from within the country.

Ahsan Iqbal said the government wanted to transform young people from job seekers into "architects of knowledge, innovation and development." He referred to them as the "Shaheens of Iqbal,"

Contd on page 8

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Pakistan Cables Showcases Engineering Excellence from Pakistan at Middle East Energy

Pakistan Cables Ltd., Pakistan's largest exporter of wires and cables, participated in Middle East Energy (MEE) in Dubai from

Pakistan.

The Company's presence attracted significant interest from industry peers, exhibitors and visitors, particularly in its manufacturing capabilities, product quality and investment in advanced

Labs, Netherlands, is a testament to our commitment to global benchmarks and product quality."

Through its participation at MEE, PCL further reinforced its position as a globally competitive Pakistani



31 August to 3 September, showcasing its world-class range of wires, cables and electrical solutions, alongside its new state-of-the-art manufacturing facility in Nooriabad.

MEE is one of the region's leading international exhibitions for the energy and electrical industry, bringing together global manufacturers, technology providers, industry professionals and buyers. Pakistan Cables' participation provided a platform to showcase its growing capabilities in cable manufacturing, engineering and advanced technology globally.

Pakistan Cables presented its extensive portfolio, highlighting its commitment to international quality standards and advanced manufacturing. The Company also showcased its new Nooriabad facility, reflecting its continued investment in cutting-edge technology and manufacturing capacity in

cable manufacturing technology. Commenting on the participation, Mr. Fahd K. Chinoy, CEO, Pakistan Cables, said, "Our participation at MEE reflects Pakistan Cables' commitment to taking engineering excellence from Pakistan to international markets. Our investments in advanced manufacturing technology and our new Nooriabad facility strengthen our ability to serve customers with world-class products while demonstrating Pakistan's growing industrial capabilities."

Commenting on Pakistan Cables recent achievement in passing the KEMA type test for 35 kV medium voltage cables, Mr. Salman Tahir, Director Sales & Business Development, said, "Being the first company in Pakistan to pass the KEMA type test for 35 kV medium voltage cables conducted by KEMA

manufacturer and exporter of wires and cables, demonstrating how sustained investment in technology, quality and engineering can build internationally recognised manufacturing capabilities from Pakistan.

About Pakistan Cables Ltd.

Founded in 1953, Pakistan Cables is the premier and most reputable 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. - Dubai, UAE — September 2026 ■

Preparing Engineers for Careers That Matter

Dr Junaid Syed—international technology leader, Founder of Kolojic,

UK, world oldest professional organization and former NUST faculty member—recently delivered "Beyond the

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impact—an increasingly important priority for Pakistan's engineering community. ■

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PEC Launches Brain Gain Portal to Reconnect Pakistani Engineers Worldwide

The Pakistan Engineering Council (PEC) has launched a new initiative aimed at bringing Pakistan's engineering community closer to its professionals working and living around the world.

PEC Chairman Engr. Waseem Nazir, Pakistan's Ambassador to France, Ms. Mumtaz Zahra Baloch, attended the ceremony as Guest of Honour.

The launch brought together government officials, representatives of Pakistani diplomatic missions, university leaders, academ-

Pakistan has a large community of engineers and technical professionals working in different parts of the world. Many have gained experience in advanced industries, universities, research institutions and technology companies. Their expertise can be valuable to Pakistan, even when they are

mean a permanent loss of expertise.

Through the portal, overseas Pakistani engineers and professionals can participate as mentors, advisers and technical contributors. They can assist students, review research and technical proposals, supervise final-year projects, advise emerging

who need it. A university student working on a complex engineering project, for example, could potentially receive guidance from a Pakistani engineer with years of international experience. Similarly, a startup facing a technical challenge could seek advice from an expert working in an international

can also help younger engineers understand the possibilities of their profession and learn from people who have built careers in different fields and countries.

Secretary of the Ministry of Science and Technology Engr. Shahid Iqbal Baloch described BrainGain as more than a networking platform.



Called the Brain Gain Portal, the digital platform is designed to connect Pakistani engineers, academics, consultants and technical experts abroad with students, universities, startups, researchers and industry in Pakistan.

The portal was formally inaugurated on September 15, 2026, at PEC Headquarters in Islamabad by Engr. Shahid Iqbal Baloch, Secretary of the Ministry of Science and Technology, and

ics, industry representatives, startups, technology parks, incubation centres and BrainGain Ambassadors from different countries. Representatives from countries including France, New Zealand, the United Arab Emirates, Kuwait, Australia, Canada and Saudi Arabia participated in the event, highlighting the international scope of the initiative.

At its heart, BrainGain seeks to address a challenge faced by many developing countries: how to benefit from the knowledge and experience of professionals who have moved abroad.

unable to return permanently.

The BrainGain concept therefore focuses not on bringing people physically back to Pakistan, but on bringing their knowledge, experience and professional networks back into the country.

Chairman PEC Engr. Waseem Nazir summed up the idea during the launch by saying, "We are not asking our engineers to come home. We are asking their knowledge to come home." The statement captures the central philosophy behind the program: international migration does not necessarily have to

businesses and provide specialised guidance to industry.

The platform has two principal categories: Contributors and Seekers. Contributors can include experienced engineers, academics, consultants and specialists who are willing to share their knowledge. Seekers can include students, universities, startups and companies looking for expertise to solve particular problems or develop projects.

This structure could create opportunities for meaningful interaction between people who possess specialised knowledge and those

technology environment.

The portal also goes beyond simple professional networking. It includes a Hall of Fame recognizing prominent Pakistani engineers, an Iconic Projects registry documenting important engineering achievements, and a Success Stories section highlighting Pakistanis who have made contributions in engineering and technology around the world.

These features give the initiative an additional purpose: documenting and celebrating Pakistan's engineering heritage and global contribution. Such recognition

He said it could serve as a permanent reserve of verified expertise that Pakistan could draw upon when required.

That idea is particularly relevant in an increasingly connected global economy. Knowledge today is not restricted by national borders. Engineers, researchers and technology specialists routinely collaborate across continents through digital platforms, video conferencing, online research networks and professional communities. A specialist sitting in Dubai, Paris, Toronto, Sydney or Riyadh can potentially contribute

Contd on page 7

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PEC Launches Brain Gain Portal to Reconnect Pakistani Engineers Worldwide

Contd on page 6

tribute to a project in Pakistan without physically travelling to the country.

This is why initiatives such as BrainGain have significance beyond the engineering profession itself. Countries around the world are increasingly trying to build connections with their diasporas because skilled professionals abroad can contribute through investment, research, mentoring, entrepreneurship, technology transfer and international partnerships.

For Pakistan, such connections could be particularly useful in areas where access to specialised expertise is limited. Engineering education, emerging technologies, industrial development, research and entrepreneurship increasingly depend on collaboration between institutions and professionals across borders.

The initiative could also help reduce the traditional gap between universities and industry. If experienced engineers working internationally become directly involved with students and academic projects, they can provide practical perspectives on technologies, standards and professional practices being used in other markets.

Startups may also benefit from access to experienced professionals who understand international markets and technical requirements. Advice from an engineer or technology specialist working abroad could potentially help a young Pakistani company improve its product, understand international standards or establish professional connections outside Pakistan.

The role of Pakistani diplomatic missions is another important element of the initiative. Ambassador Mumtaz Zahra Baloch expressed support for the program and said Pakistan's diplomatic missions shared its vision. Their involvement could help identify and engage Pakistani engineers and scientists living in different countries.

The program has been developed by PEC's Corporate Affairs Unit under the leadership of Engr. Muhammad Sohail Khan, Head of Corporate Affairs. Engr.

move towards a full release as membership and usage increase. Registration is open to Pakistani engineers and professionals worldwide, international experts, students, universities, startups and industry.

The real test of BrainGain, however, will come with its use. The success of a platform like this depends not simply on the number of people who register, but on whether it creates meaningful collaborations and produces practical results.

If an overseas engineer can help a student complete a project, a researcher can find an international collaborator, a startup can solve a technical problem, or an industry can gain access to specialised expertise, the platform can become more than a digital directory. It can become a working bridge between Pakistan and its global engineering community.

In an era when knowledge, technology and innovation increasingly move across borders, the ability to connect talent can be as important as

retaining it. BrainGain represents an attempt to build such a connection by turning Pakistan's global engineering community into a resource for education, research, industry and innovation at home.

Its broader significance lies in a simple idea: professionals do not necessarily have to return physically to contribute to their country. In the digital age, their experience, ideas, networks and knowledge can travel across borders—and potentially create new opportunities for the next generation of Pakistani engineers. - ER



Ali Raza Asif of the Global Linkages Division has led the platform's development, while Mr. Hamza Khan of the System Development Division has overseen implementation of its features.

The initiative has also involved BrainGain Ambassadors—senior Pakistani engineers living abroad who are expected to support outreach in their respective regions. Their participation could be important in building trust and encouraging professionals to register and contribute.

The portal has initially been launched in beta and is expected to

The 53rd GB Saga: Power Struggle, Elections 2027

Contd from page 3

from Chairman Engr. Waseem Nazir to each allegation, nor do they establish a separate legal determination by a court or another competent authority on the validity of the meeting.

As a result, the dispute remains centered on the interpretation of the PEC Act, its by-laws and service rules, as well as the respective administrative powers of the Chairman and the Governing Body.

A New Alliance in the Offing?

The confrontation is also unfolding against the backdrop of the next PEC elections.

Members associated with former Chairman Jawed Salim Qureshi's The Engineers Pakistan (TEP) and the National Engineers Alliance (NEA) have increasingly found themselves on the opposing side of Chairman Engr. Nazir, although NEA contested the previous elections in alliance with him.

According to engineers familiar with the council's internal politics, coordination between groups associated with Qureshi's TEP and NEA has been visible in recent months. The two groups have also joined hands during at least two Governing Body meetings, where their disagreements with the Chairman resulted in heated

proceedings.

With the next PEC election approaching and less than a year remaining in the current Chairman's term, some engineers see the latest confrontation in the context of the emerging electoral landscape.

Several engineers who spoke to Engineering Review suggested that the current conflict could also be connected to preparations for the 2027 PEC elections. Some believe that NEA and TEP could potentially cooperate in the next contest, although no formal alliance has been established in the material reviewed for this report.

For now, however, the PEC remains caught in an institutional dispute over authority, procedure and leadership. The coming weeks—particularly the outcome of the proposed inquiry and any clarification regarding the Governing Body's powers—could determine whether the confrontation subsides or develops into a wider struggle ahead of the next election.

What began as a disagreement over a postponed meeting has therefore evolved into a much broader contest over who exercises authority within one of Pakistan's most important professional regulatory bodies. - ER Report

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INDUSTRY PERSPECTIVE

Closing the HVAC Lifecycle Gap

Lessons from Big 5 Construct Saudi 2026

By Eng. Javeria Asad | HVAC Engineer and Panel Moderator

Saudi Arabia's construction programme requires HVAC systems to perform after handover. This issue shaped the Big 5 Talks panel Bridging the Gap Between HVAC Design, Installation and FM Operations, which I moderated at Big 5 Construct Saudi 2026 on 2 September in Riyadh.

Big 5 Construct Saudi 2026

Held at the Riyadh Front Exhibition and Conference Center from 30 August to 2 September, Big 5 Construct Saudi gathered more than 1,000 exhibitors from over 50 countries. dmj events organized the exhibition under the patronage of Saudi Arabia's Ministry of Industry and Mineral Resources. It included HVACR Saudi Arabia, FM

and Clean Saudi Arabia, Heavy Saudi Arabia, and Totally Concrete Saudi Arabia, connecting the disciplines that shape a building from construction through operation.

Panel expertise
The panel combined three perspectives. Dr. Carmen El-Chadaideh, Managing Partner

mad Fayiz, HVAC Laboratory Manager at SKM Air Conditioning, added expertise in equipment testing, validation, certification, and AHRI committee work. I guided the discussion from my experience with consultants, contractors, and manufacturers.

Where the HVAC gap begins

energy performance assumed during design. Consultants must then produce a compliant system within constraints they did not create. Manufacturers are expected to meet the consultant's specifications and certification requirements, but certified equipment will still underperform when actual site conditions

Site testing and commissioning must verify the installed system as a whole. That process should check airflow and water balancing, sensor calibration, control sequences, safety interlocks, BMS integration, alarms, and operation under realistic loads. Commissioning cannot be reduced to confirming that

tors can expose sensor drift, manual overrides, control faults, and gradual performance loss.

Shared responsibility for Saudi projects

For Saudi Arabia, HVAC reliability directly affects occupant wellbeing, asset life, indoor environmental quality, and electricity demand.

Vision 2030 projects, Expo 2030 Riyadh, and preparations for the FIFA World Cup 2034 make lifecycle performance especially important. The panel's conclusion was practical. Architects must protect MEP space, consultants must commu-



at Klimacontra, brought a manufacturing and technical sales perspective covering air movement, filtration, fire and smoke systems, air distribution, and air handling units. Eng. Mohamed Abdelrahim contributed 24 years of work across ownership, consultancy, design, contracting, and district cooling. Eng. Moham-

The gap often starts before equipment selection. Architectural plans may leave limited space for plant rooms, shafts, duct routes, access panels, and maintenance clearances. Later changes to glazing, facade materials, insulation, occupancy, or room use can increase the cooling load and reduce the

differ from the design basis.

Contractors receive the design after many decisions are fixed. Programme and cost pressures can limit their ability to resolve coordination problems. Substituting ductwork, insulation, dampers, filters, valves, diffusers, grilles, sensors, or controls may alter airflow, pressure, indoor air quality, and energy use. Every substitution should therefore receive technical review and appear in consultant-approved as-built drawings. Without accurate records, the FM team inherits a system that may differ from both the design documents and the operating manuals.

Testing commissioning and handover

Factory certification confirms equipment performance under defined test conditions.

equipment starts. It must demonstrate that components interact correctly and that the completed system delivers the required comfort, ventilation, safety, and efficiency.

Facility management should participate before handover because operators understand access, maintenance frequency, spare-part availability, recurring faults, and staff capability. A useful handover package should include approved as-built drawings, equipment schedules, control narratives, commissioning results, operating and maintenance manuals, warranties, spare-parts recommendations, and practical training. FM teams should also monitor energy use, temperature, humidity, runtime, alarms, setpoint changes, pressure, airflow, and repeated complaints. These indica-

communicate design intent, manufacturers must verify compliant performance, contractors must install and document accurately, and FM teams must operate against measured data. Closing the gap requires shared responsibility from concept design through operation, with real building results informing the next project.

About the author

Eng. Javeria Asad is a mechanical and HVAC engineer with experience across consulting, contracting, manufacturing, and project coordination. She chairs the Women in ASHRAE Committee, Saudi Arabia Chapter, and is an author, trainer, technical and motivational speaker, certified optimism coach, and Distinguished Toastmaster.

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Quantum Valley Pakistan: Building the Innovation Economy

Contd from page 4

progress.

From Technology to

Economic Sovereignty

The minister also linked technological development with Pakistan's long-term economic ambitions. He said the government had set a target of transforming Pakistan into a \$1 trillion economy by 2035 and a \$3 trillion economy by 2047.

These are ambitious targets that would require sustained economic growth across multiple sectors. Technology alone cannot achieve them, but it can contribute by improving productivity, creating new industries and opening additional export markets.

Ahsan Iqbal stressed the importance of increasing exports and argued that Pakistan needed the capacity to generate substantial foreign exchange. He said young Pakistanis could play an important role by earning through knowledge and

technology.

This reflects a wider global shift. Digital services, software, artificial intelligence, cybersecurity, fintech and engineering services are becoming important components of international trade. For Pakistan, expanding these areas could provide additional opportunities for export growth.

Building on Previous Initiatives

Quantum Valley Pakistan is not being launched in isolation. Ahsan Iqbal recalled that National Centres were established in 2017 in emerging areas including Big Data and Cloud Computing, Artificial Intelligence, Cyber Security, Automation and Robotics, GIS and Space Technology, Applied Mathematics, and Livestock and Genomics.

These centres were intended to connect universities and establish a national technology net-

work.

He also referred to URAAN Pakistan, through which, he said, the country's technology journey was further accelerated in 2024. According to the minister, the technology ecosystem being developed through these initiatives could contribute to the government's target of increasing Pakistan's exports to \$100 billion by 2035.

The challenge now is to ensure that these initiatives produce practical results.

Technology programmes become meaningful when they generate research, create businesses, develop skilled professionals and produce technologies or services that can compete in international markets. Partnerships also need to move beyond agreements and ceremonies towards sustained collaboration.

Why Innovation Matters

Contd on page 10

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Project: **Bakht Tower**
Building Type: **Appartment Tower**
Location: **Karachi**
Capacity: **494 Ton**

Project: **Karakoram Greens**
Building Type: **Appartment**
Location: **Islamabad**
Capacity: **4,500 Ton**

Project: **Mall of Wah**
Building Type: **Mall**
Location: **Wah Cantt**
Capacity: **1,000 Ton**



Digital Minimalism: The Quiet Discipline Behind a Focused Life

By: Syed Umair Ali

Pick up your phone right now and count what's waiting for you: unread emails, a WhatsApp group buzzing about nothing urgent, a news alert you didn't ask for, a short video app that somehow knows exactly what will make you stay ten more minutes.

None of this happened by accident — every ping and auto-playing clip was engineered by someone whose job is to hold your attention a little longer than you intended to give it.

The strange truth of modern life is that we no

longer suffer from a shortage of information; we suffer from an excess of it, all competing for the same narrow beam of human focus. Somewhere in that noise, a quieter idea has started gaining ground: what if the answer isn't more filtering apps or more willpower, but a fundamentally different relationship with technology itself? That idea has a name — Digital Minimalism.

Digital minimalism does not mean abandoning your smartphone, deleting every app, or retreating from the modern world. It is not about becoming anti-social or rejecting the genuine conveniences technology offers. Cal Newport, the computer scientist who

popularized the term, frames it simply: technology should earn its place in your life by delivering value that clearly outweighs the time and attention it extracts.

That is the real dividing line between digital minimalism and what might be called digital maximalism. A maximalist says yes to almost any tool that offers even a small benefit. A minimalist asks a harder question first — is this actually worth the mental space it will occupy?

We tend to assume our scarcest resource is money or time. But in a world where nearly everything is available instantly, the truly limited commodity is undivided attention. Every noti-

fication checked, every tab switched, every scroll fragments concentration into smaller pieces, and fragmented attention rarely produces anything of lasting value — a mind pulled in ten directions is not productive, it is simply exhausted.

This is exactly why digital minimalism has become inseparable from high performance. Deep thinking, real creativity, and sound decisions all require sustained, uninterrupted attention. The most effective professionals rarely succeed because they found extra hours in the day; they succeed because they guard the hours they already have more deliberately than everyone else does.

This principle shows up

in the documented habits of people operating at the highest levels. Warren Buffett has long kept no computer on his desk and has said he spends roughly 80 percent of his working time reading, reflecting a broader habit of protecting deep thinking over reactive digital communication. Bill Gates has spoken openly about enforcing screen-free periods at home, including no devices at the dinner table.

Barack Obama has described nightly reading as something he protected even during the most demanding years of his presidency, treating it as essential mental recovery rather than indulgence. None of this proves these individuals reject technology; it shows that sustained achievement is often built on the deliberate, disciplined control of where attention is allowed to go.

Bring this closer to home, and the pattern becomes personal. For many of us, the phone has quietly become the automatic response to boredom, silence, or a few seconds of discomfort — the first thing reached for on waking, the companion during meals, the glow that lingers after the lights go off.

None of this makes anyone weak; these patterns were built by design, not by accident.

The useful question is simply: am I using my phone, or is my phone using me? Turning the answer into practice doesn't require a dramatic overhaul — turning off nonessential notifications, removing apps that quietly drain focus, setting specific windows for email, and building phone-free



stretches around meals and the hour before sleep are enough to start rebuilding intention where habit had taken over.

It would be a mistake to think digital minimalism means using the least technology possible. The most intentional users are rarely the ones with the fewest apps; they are the ones who use their tools with the clearest sense of purpose. A busy executive may rely on email, LinkedIn, and video calls every day — but that doesn't mean every notification earns an instant reaction.

At its core, this is about drawing sharp distinctions: between what is urgent and what is important, between what is useful and what is merely stimulating.

The future will likely not belong to whoever consumes the most content or stays online the longest. It will belong to those who stay calm, focused, and fully present with what actually matters — because technology isn't the enemy here; unconsciousness is.

“Stay blessed and keep reading!”

About the Author:

Syed Umair Ali is the founder of The Pen Genius (www.thepengenius.com), writing on PKM, AI, and purposeful living to help readers think clearly and grow intentionally. ■

Quantum Valley Pakistan: Building the Innovation Economy

Contd from page 8

The significance of initiatives such as Quantum Valley Pakistan lies in the speed at which technology is changing the world.

Artificial intelligence is transforming workplaces, automation is changing manufacturing, digital platforms are reshaping commerce and emerging technologies are creating industries that did not exist a generation ago.

Countries that can develop, attract and retain technological talent are better positioned to participate in this changing economy.

For Pakistan, the challenge is to create an environment where young people can turn knowledge into innovation and innovation into economic activity. This requires collaboration between universities, industry, government, investors and international partners.

Quantum Valley Pakistan is an attempt to build such a bridge.

Its ultimate success will not be measured by the launch ceremony, but by what follows: the startups that emerge, the research that reaches the market, the international partnerships that develop, the skills young people acquire and the exports that technology-based businesses generate.

For a country with a large young population and growing economic needs, investing in knowledge and innovation is increasingly becoming a necessity rather than a choice. Quantum Valley Pakistan represents one step in that direction—and its real significance will depend on how effectively that first step is followed by sustained action. — ER News Desk

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Beyond the Paycheck: What 53 Engineers Told Us About Labour-Law Compliance in Pakistan

By: Muddassir Hussain, P.E., M.ASCE

An engineer's professional life is usually measured by projects delivered, deadlines achieved and technical problems solved. Yet another dimension receives far less attention: employment rights and statutory benefits.

To explore this issue, a LinkedIn poll asked: "Is your employer providing all statutory leave entitlements and gratuity/provident fund (where applicable)?" Open for two weeks, it received 53 responses: 26% Yes, 33% Partially, 37% None, and 4% Not Sure.

The poll is neither scientific nor representative of Pakistan's engineering profession. However, it offers a useful snapshot of employee perceptions and raises questions for broader discussion.

What do the numbers suggest?

Only about 1/4th of respondents reported receiving all applicable benefits. Meanwhile, 37% reported receiving none and 33% reported receiving them only partially. Partial compliance can be difficult to identify: an employee may receive annual leave but not gratuity, or provident fund but not all applicable leave entitlements. A benefit may also exist but be calculated or administered incorrectly.

Pakistan's labour-law framework is not contained in a single statute. Federal and provincial legislation, sector-specific laws, employment regulations and contractual arrangements may all be relevant. Consequently, statements such as "every engineer is entitled to X" can be misleading. Entitlement may depend on jurisdiction, establishment, employee classification and the particular benefit.

Gratuity illustrates this complexity. Applicable legislation may provide gratuity to qualifying employees while also recognising circumstances involving provident funds and employer contributions. Similarly, the definition of "wages" can be important when calculating benefits. Therefore, questions such as "Why was my gratuity calculated only on basic salary?" cannot always be answered by looking at a payslip alone; the applicable legislation and circumstances must first be



examined.

The "Not Sure" response may be significant. Engineers routinely study technical standards, specifications, safety requirements and contracts, but employment law is rarely part of formal engineering education. Many professionals may therefore be unfamiliar with terms such as "workman", "wages", "gratuity" and "statutory leave".

There is also a cultural dimension. Employees may regard questions about statutory benefits as uncomfortable or unprofessional, or fear that raising them

could affect their relationship with management. Understanding employment rights, however, is not incompatible with professionalism. Just as engineers must understand contractual rights and obligations in construction projects, they should understand the framework governing their own employment.

Employers can help by clearly identifying applicable benefits in employment contracts, providing accessible information, reviewing HR and payroll practices, and

creating channels through which employees can raise questions without being perceived as disloyal.

Professional bodies can contribute through CPD sessions and

guidance on employment contracts, labour-law awareness and workplace rights. Engineers themselves should read employment contracts carefully, retain relevant records and verify entitlements through authoritative legal sources rather than relying on informal advice.

Ultimately, the value of this poll is not the percentages alone, but the conversation they started. The results do not prove that a proportion of Pakistani engineers are being denied statutory rights. They do show that uncertainty, partial compliance and perceived absence of benefits exist among a

group of engineering professionals.

A broader study across provinces, industries and employment categories could provide a clearer picture.

For a profession built on standards, compliance and accountability, employment practices should not be excluded from that culture. Engineering professionalism should not end at the project boundary; it should extend to the workplace itself.

Note: This article is based on an informal LinkedIn poll of 53 respondents and is intended to stimulate professional discussion. Labour-law applicability varies according to jurisdiction, establishment, employee classification and other circumstances.

About the Author:

Muddassir Hussain, P.E., M. ASCE is a procurement and contracts management professional with over 8 of experience in public procurement, contract administration and infrastructure project delivery. He currently works as Sr. Engineer Contracts with Dasu Hydropower Consultants on 4,320 MW Dasu Hydropower Project. He is an alumnus of ITCILO, UET Lahore & BZU Multan. He is the Founding Chair of the ASCE Pakistan Section Younger Member Committee and General Secretary of YPEG Pakistan. His professional interests include contract management, public procurement, infrastructure development, engineering policy, and issues affecting the professional development and welfare of engineers. ■



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The PARC—Four Brothers initiative therefore represents more than a seed-development project. If successfully translated from research into commercially viable varieties, it could contribute to a more resilient agricultural sector and demonstrate how public and private institutions can work together to address some of the challenges facing Pakistan's farmers. —ER News Desk

Pakistan, Korea Join Hands to Build a Local Potato Seed System

The Pakistan-Korea initiative demonstrates how international technological cooperation can be adapted to address a very local problem: ensuring that Pakistani farmers have access to healthy, reliable and affordable planting material. Its longer-term success will depend on taking that technology from research facilities to farms—and turning scientific advances into better agricultural productivity. — ER News Desk

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PIDE Senate Approves Reforms to Strengthen Research and Policy Engagement

ISLAMABAD: The Senate of the Pakistan Institute of Development Economics (PIDE) has approved a wide-ranging package of reforms covering research, governance, academic development, student support and policy engagement.

The decisions were taken at the 19th meeting of the PIDE Senate, chaired by Prof. Ahsan Iqbal, Federal Minister for Planning, Development and Special Initiatives and Chancellor of the institute.

improve the country's trade performance and broader development priorities. The Senate reviewed PIDE's Progress Review and Compliance Report for 2025-26, presented through a documentary narrated by Vice Chancellor Dr. Muhammad Nadeem Javaid.

Dr. Javaid said his central objective had been to ensure that "PIDE must matter to Pakistan and its people." He described the past year as a strategic reset focused on institutional relevance, national purpose and effective use of resources.

The report was linked to PIDE's Institutional Development Strategy 2025-2030 and

that eight new research centres had been established and a digitised three-year rolling research work plan introduced. Academic enrolment had increased threefold, while graduate employment reached 89 percent within one year of graduation.

The Senate welcomed the reported progress and

11 institutional policies dealing with academic appointments, employee welfare and student support. The policies cover Professors of Practice, Meritorious Professors, Professor Emeritus designations, Senior Fellows, Postdoctoral Fellows and Visiting Academic Staff.

The package also includes fee waivers for employees'

and develop promising analytical minds from across the country.

The programme will have a four-stage selection process. Selected scholars will receive full tuition waivers, stipends, and academic and professional mentorship.

It is expected to be financed through an endowment fund, corporate partnerships and alumni support rather than relying solely on government grants.

The Senate also approved the business model for PIDE's newly developed MS in Project Management programme. The self-financing programme aims to build

Director-ORIC (BPS-20) levels.

The appointments followed technical evaluations and interviews conducted during six Selection Board sittings. Candidates were assessed through reviews by experts associated with universities in the United Kingdom, Australia and Canada.

The process, the Senate was informed, was intended to promote transparency, academic merit and international benchmarking.

In his concluding directions, Chancellor Ahsan Iqbal called for the inclusion of representatives from Azad Jammu and Kashmir and Gilgit-Baltistan in the Senate



The Chancellor called for an integrated policy framework involving the public sector, private sector and academia to support sustainable and inclusive economic growth. He particularly stressed evidence-based policymaking to help Pakistan develop a sustainable export surplus.

He said research should be results-oriented and directly useful to policymakers to

its concept of REACH—ensuring that research reaches policy, knowledge reaches government, learning reaches the marketplace, and Pakistani ideas reach national and international audiences.

According to the report, PIDE's RePEC research standing had risen to 102.26, while research output increased to 361 products in 2025 from 240 the previous year.

The Senate was informed

endorsed the steps taken under the institute's development strategy.

In a governance development, the Senate approved elections held to fill long-vacant faculty seats. Dr. Ifthikhar Ahmed was elected to the Senate, while Dr. Madiha Riaz was elected to the Syndicate, restoring faculty representation in the decision-making forums.

The Senate also approved

children and merit- and need-based scholarships for students.

Members discussed ways to engage Pakistani academics working at international institutions, including through sabbaticals and postdoctoral placements. The proposals were aimed at attracting expertise and promoting policy research relevant to Pakistan.

The Senate approved the PIDE National Talent Hunt Program, designed to identify

project management capacity for Pakistan's public and development sectors.

It will draw on international faculty, leading academics and senior practitioners, and is expected to break even with an enrolment of 12 scholars.

The Senate further approved 20 senior appointments at the Professor (BPS-21), Associate Professor, Chief of Research and

in future.

The Vice Chancellor also invited provincial representatives to collaborate with PIDE on demand-driven research aligned with their development priorities.

The meeting concluded with emphasis on institutional reform, research relevance, academic excellence and stronger links between policy research and national development. — ER/PR

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Creating Innovative Ecosystems for Engineering Entrepreneurship

Engr. Dr. Muhammad Nawaz Iqbal

Living innovation ecosystems can be developed to enable universities, industries, startups, investors, government agencies, and communities to share in the flow of knowledge, technologies, talent, and resources, all of which can transform engineering entrepreneurship. Entrepreneurship can then be seen not just as a standalone course or a startup competition, but as a "living lab" where engineering students learn how to identify real-life problems, develop technology solutions, gather feedback from users, and gradually develop their prototypes into businesses ready for commercialization.

A new solution is to create "Problem-to-Enterprise" platforms that are continuously fed with problems that have not yet been solved, both from industry and society, but which are converted into interdisciplinary entrepreneurial problems. Engineering students would thus start their entrepreneurial journey with a validated problem having measurable economic, environmental, or social value.

The second groundbreaking concept is called Engineering Venture Studios, which will be built in universities and will include laboratories, incubators, design centers, intellectual property creation, and business development units in a single

location software, fabrication facilities, technical mentors, industry engineers, and commercialization experts, in addition to the business planning that is typically the focus of a conventional incubator. This merger may help significantly narrow the "val-

even financial models before putting significant resources into physical production. Artificial intelligence would then be able to simulate different options for design, manufacturing quantities, pricing, materials, resources used, and market potential.

figurations and business models earlier.

Innovative ecosystems should also incorporate cross-disciplinary approaches to creating new ventures that intentionally pair business, design, computing, social, and environmental students and researchers with engineers. Technical innovation can be unsuccessful in the marketplace because engineers may not have the skills to identify customers, develop brands, secure financing, navigate regulations, or influence behaviour.

A university might then be able to develop "venture fusion teams" in which technical and entrepreneurial competencies are planned from the start of the innovation process. The best teams, as determined by their progress rather than their academic standing, might be granted ecosystem-based resources based on their performance, and not the other way around. This would ensure that engineering expertise, creative design, and social insight all focus on the same entrepreneurial opportunity.

What's more, it is a good idea to create a community-based entrepreneurship ecosystem for technology, so that citizens will not only be



consumers of engineered products but also their makers. Universities could establish open innovation platforms for communities to identify issues related to energy, water, transportation, agriculture, health, housing, and waste management.

Engineering entrepreneurs could then collaboratively engineer solutions with the users facing these problems. This is an innovative model that applies a paradigm shift from "innovation for society" to "innovation with society." Products developed through ongoing community involvement are more likely to respond to real needs, be accepted by users, have a quantifiable social impact, and create new entrepreneurial markets.

Another aspect of engineering ecosystems that

Contd on page 15



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entrepreneurial space. This type of model allows students and researchers to follow a step-by-step process from scientific breakthrough to an engineering prototype, market validation, intellectual-property protection, pilot production, and the establishment of a business.

An engineering venture studio would offer access to specialized equipment, simu-

lation software, fabrication facilities, technical mentors, industry engineers, and commercialization experts, in addition to the business planning that is typically the focus of a conventional incubator. This merger may help significantly narrow the "val-

even financial models before putting significant resources into physical production. Artificial intelligence would then be able to simulate different options for design, manufacturing quantities, pricing, materials, resources used, and market potential.

Engineering entrepreneurship would then turn into an experimentation process in which the entrepreneur tests hundreds of possibilities, both technological and commercial, digitally before investing their money in real-life implementation. These ecosystems might be more cost-effective when they fail, allowing entrepreneurs to identify better product con-

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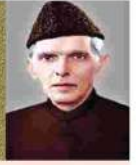
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ایک فرد یا کسی ایک یونین کی نہیں بلکہ تمام کنٹریکٹرز کے مشترکہ حقوق،
روزگار اور مستقبل کی جدوجہد ہے۔ اس لیے تمام یونینز اور کنٹریکٹرز
سے اپیل کی گئی کہ وہ اتحاد کا ساتھ دیں اور اپنے جائز حقوق کے تحفظ
کے لیے متحد ہو کر کارواں کریں۔

اجلاس میں اس عزم کا اظہار کیا گیا کہ کنٹریکٹرز خوف کی زنجیریں

رفیق مندوخیل، یوسف خان اور دیگر نے خطاب کیا۔
مقررین نے اپنے خطابات میں کہا کہ کنٹریکٹرز کسی بھی ایسے
اقدام کو خاموشی سے قبول نہیں کریں گے جو ان کے جائز حقوق اور
معاشی مفادات کو متاثر کرے۔ انہوں نے کہا کہ اب وقت آ گیا ہے
کہ تمام کنٹریکٹرز اپنے ذاتی اور گروہی مفادات سے بالاتر ہو کر متحد

کراچی: آل کنٹریکٹرز اتحاد کے زیر اہتمام ایک اہم اور ہنگامی اجلاس
منعقد ہوا جس میں مختلف یونینز سے تعلق رکھنے والے کنٹریکٹرز اور
عہدیداران نے بڑی تعداد میں شرکت کی۔ اجلاس میں سپرا (SPPRA)
کی جانب سے نافذ کی گئی متنازع شق کے حوالے سے کنٹریکٹرز میں پائے
جانے والے شدید تحفظات اور تشویش پر تفصیلی غور کیا گیا۔



توڑ کر متحد ہوں گے اور کسی بھی غیر قانونی یا امتیازی اقدام کے خلاف
برآئینی، قانونی اور جمہوری فورم پر آواز بلند کرتے رہیں گے۔

آل کنٹریکٹرز اتحاد کے رہنماؤں نے اعلان کیا کہ اس جدوجہد کا
دائرہ مزید وسیع کیا جائے گا اور جلد ہی تمام کنٹریکٹرز کا ایک بڑا اجلاس
طلب کیا جائے گا، جس میں آئندہ کے لائحہ عمل کا اعلان کیا جائے گا اور
تمام یونینز کے کنٹریکٹرز کو ایک پلیٹ فارم پر متحد کرنے کے لیے مزید
اقدامات کیے جائیں گے۔

آخر میں آل کنٹریکٹرز اتحاد کی جانب سے SPPRA اور
متعلقہ حکام سے پُر زور مطالبہ کیا گیا کہ کنٹریکٹرز کے تحفظات کا فوری
نوٹس لیتے ہوئے متنازع شق کو ختم کیا جائے، بصورت دیگر آل
کنٹریکٹرز اتحاد اپنے

ہوں اور اپنے حقوق کے لیے مشترکہ آواز بلند کریں۔
مقررین نے کہا کہ آخر ہم کب تک خوف کے بتوں کے سامنے
سر جھکا رہے ہیں گے اور اپنے جائز حقوق کے لیے دست سوال دراز
کرتے رہیں گے؟ اگر ہم اپنے اور اپنے بچوں کے بہتر مستقبل کے
لیے آج متحد ہو کر آواز بلند نہیں کریں گے تو کوئی دوسرا ہمارے حقوق کی
جنگ نہیں لڑے گا۔

انہوں نے کہا کہ کسی بھی غیر منصفانہ فیصلے یا متنازع شق کے
خلاف آواز اڑاؤ وقت مؤثر ثابت ہوتی ہے جب تمام متاثرہ افراد متحد
ہو کر پُراس، آئینی اور قانونی جدوجہد کا حصہ بنیں۔ خاموشی مسائل کا
حل نہیں، بلکہ اپنے حقوق سے دستبردار کی مزا دے۔
مقررین نے واضح کیا کہ آل کنٹریکٹرز اتحاد کی یہ جدوجہد کسی

اجلاس کے شرکاء نے متفقہ طور پر مطالبہ کیا کہ کنٹریکٹرز کے جائز
حقوق اور مفادات کو متاثر کرنے والی متنازع اور غیر قانونی شق کو فوری
طور پر ختم کیا جائے۔ اجلاس میں اس معاملے پر پھر پور قانونی اور آئینی
جدوجہد کرنے کا فیصلہ بھی کیا گیا۔

اجلاس میں متفقہ قرارداد کے ذریعے ایک خصوصی ایکشن کمیٹی
تشکیل دینے کا فیصلہ کیا گیا، جو متعلقہ حکام اور اداروں سے ملاقاتیں
کرے گی اور معاملے کے تمام قانونی و آئینی پہلوؤں کا جائزہ لینے کے
بعد ہر قانون کے ذریعے ہائی کورٹ سے رجوع کرے گی۔

اجلاس سے مختلف یونینز سے تعلق رکھنے والے آل کنٹریکٹرز اتحاد
کے عہدیداران اور رہنماؤں میر زمان مندوخیل، عبداللہ جان
آفریدی، سلیم قادری، اکبر شیخ، بشیر لاک، کامران صاحبزادہ، جی باہر،

Creating Innovative Ecosystems for Engineering Entrepreneurship

Contd from page 14

needs fundamental redesign is the financing mechanism. A new way to finance engineering ventures would be to establish milestone-based venture funds at universities and innovation institutions, rather than relying on traditional venture capital or conventional grants.

Capital would be disbursed in phases as defined technological and commercial milestones are met, such as proof of concept and a functional prototype, safety validation, customer testing, pilot production, and first revenues. AI could be helpful in making investment decisions based on technical considerations, market indicators, intellectual-property potential, production costs, and sustainability

metrics.

This change in entrepreneurial finance—from a single funding decision to a continuous learning system that encourages evidence, experimentation, and measurable progress—would help correct a fundamental imbalance.

A particularly strong potential future ecosystem might be built around circular engineering entrepreneurship and require every new business venture to take the full lifespan of its technology into account from the outset. Engineering entrepreneurs would create products that perform well, are profitable, repairable, modular, remanufacturable, reusable, recyclable, and resource-efficient.

Innovation hubs can link startups with manufacturers,

recycling companies, logistics providers, materials scientists, and environmental groups to establish a closed-loop entrepreneurial value chain. This could create a whole new class of businesses in which waste is seen as a raw material, old products are used as sources of components, and sustainability is used as a core architectural element of engineering and business rather than something added as an afterthought.

Lastly, the most advanced engineering entrepreneurship ecosystem would be an “innovation intelligence network” that has the ability to continuously sense technological, industrial, environmental, and societal changes. AI could be used to track patents, research papers, industry upheavals, consumer

demands, new technologies, rule-making, and investment trends around the world, and identify opportunities for entrepreneurs before the industry catches on.

This intelligence could be directly linked to university laboratories, student venture teams, incubators, and industry partners, thus forming a continuous stream of emerging problems, opportunities, engineering inventions, entrepreneurial experiments, and scaling enterprises.

The ultimate goal would be to make the university a self-(re)generating entrepreneurial innovation ecosystem where knowledge is constantly transformed into technologies, technologies into ventures, and ventures into sustainable economic and societal change.

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وفاقی ترقیاتی منصوبوں پر صرف 63 فیصد فنڈ خرچ ہوئے

وفاقی حکومت کی جانب سے رواں مالی سال میں ترقیاتی منصوبوں پر صرف 63 فیصد فنڈ خرچ کیا گیا تھا۔ وفاقی پی ایس ڈی پی 1837 ارب تک محدود رہے، جبکہ ایک ہزار ارب روپے کا کارپوریشنز میں 260 ارب کے نظر ثانی شدہ ہدف کے مقابلے 139 ارب خرچ ہوئے، وائرمنٹوں پر 106.64 ارب سے زائد جاری کرنے کی منظوری دی گئی۔



تفصیلات کے مطابق جولائی تا مئی 11 ماہ میں تقریباً 530 ارب روپے خرچ کیے گئے، اصل ہدف کے مقابلے میں پہلے 11 ماہ میں صرف 53 فیصد فنڈ استعمال ہوئے، ارکان پارلیمنٹ نے 63 ارب میں سے 44 ارب خرچ کیے، 33 مختلف وزارتوں، ڈویژنز نے 577 ارب میں سے 390 ارب خرچ کئے،

سے 170 ارب ڈیفنس ڈویژن نے 11 ماہ میں 9 ارب میں سے 4.7 ارب روپے استعمال کیے۔ وزارت داخلہ کے منصوبوں پر 11.51 ارب میں سے 6.31 ارب، نیشنل فوڈ سیکورٹی پر 2.61 ارب میں سے ایک ارب، صحت کے ترقیاتی منصوبوں پر 11.63 ارب میں سے 3.89 ارب خرچ ہوئے۔

پاکستان میں تیار گاڑیوں کی بنگلہ دیش کو ایکسپورٹ رواں ماہ ہوگی

رواں سال 100 گاڑیاں آزمائشی طور پر بنگلہ دیش ایکسپورٹ ہونگی، جیان چیانگ شاو MG گاڑیوں کی اسمبلنگ کے طریقہ کار کے حوالے سے رہنمائی فراہم کریگا، سی ای او

شروع کرنے کا منصوبہ ہے۔ گاڑیاں ایکسپورٹ کر نیوالی کمپنی کے سی ای او جیان چیانگ شاو کے مطابق اس سے پہلے یہ ماڈلز چین سے برآمد کیے جاتے تھے تاہم، ہماری بات چیت اور CKD ایکسپورٹ کی طرف لے جائے۔ انہوں نے کہا کہ یہ اقدام پاکستان میں پائیدار آٹوموبیل ایکسپورٹ کے حصول کی جانب ایک اہم اور مکمل طور پر پوزیٹو مثال ہے۔ اس کی وجہ یہ ہے کہ یہ ایک Win-Win کاروباری ماڈل ہے۔ بنگلہ دیش کے ڈسٹری بیوٹر کیلئے CKD ایکسپورٹ کا فائدہ یہ ہے کہ اس سے وہ درآمدی ڈیوٹی کم کر سکتے ہیں، دوسری جانب ہمارے لیے یہ برآمدات حاصل کرنے کا ایک موقع ہے۔ MG پاکستان اپنے بنگلہ دیش پارٹنر کو گاڑیوں کی اسمبلنگ، جنرل آسٹری اور کوآپریٹو کنٹرول کے طریقہ کار کے حوالے سے رہنمائی فراہم کریگا، ہماری انجینئرنگ ٹیم بنگلہ دیش جا چکی، تاکہ وہاں انہیں رہنمائی فراہم کرنے کے ساتھ ساتھ انجینئرنگ سروسز بھی فراہم کر سکے۔



کوششوں کے بعد ہم نے MotorSAIC کے ہیڈ کوارٹر کو قائل کیا کہ وہ MG پاکستان کو ایکسپورٹ کرے اور کاروباری ماڈل کو CBU ایکسپورٹ سے تبدیل کر کے پاکستان سے بنگلہ دیش

پاکستان میں تیار کردہ گاڑیوں کی بنگلہ دیش کو آزمائشی ایکسپورٹ رواں ماہ ہوگی، پاکستان میں SAIC موٹر چائنہ کے اشتراک سے بننے والی عالمی برانڈ کی گاڑیوں کے دو ماڈلز رواں ماہ بنگلہ دیش ایکسپورٹ کیے جائیں گے، جو پاکستان اور بنگلہ دیش کے درمیان آٹو انڈسٹری میں اشتراک اور تجارت کے فروغ میں اہم سنگ میل ہے۔

پاکستان میں گاڑیاں تیار کرنے والی کمپنی اور بنگلہ دیش کا روپ کی گروپ کے درمیان جولائی 2026 میں پانچ ہزار گاڑیاں بنگلہ دیش ایکسپورٹ کرنے کیلئے معاہدہ کی یادداشت پر دستخط کیے گئے تھے، جس کے تحت رواں سال 100 گاڑیاں آزمائشی بنیادوں پر بنگلہ دیش ایکسپورٹ ہوں گی، جبکہ باقاعدہ اور بڑے پیمانے پر برآمدات اگلے سال



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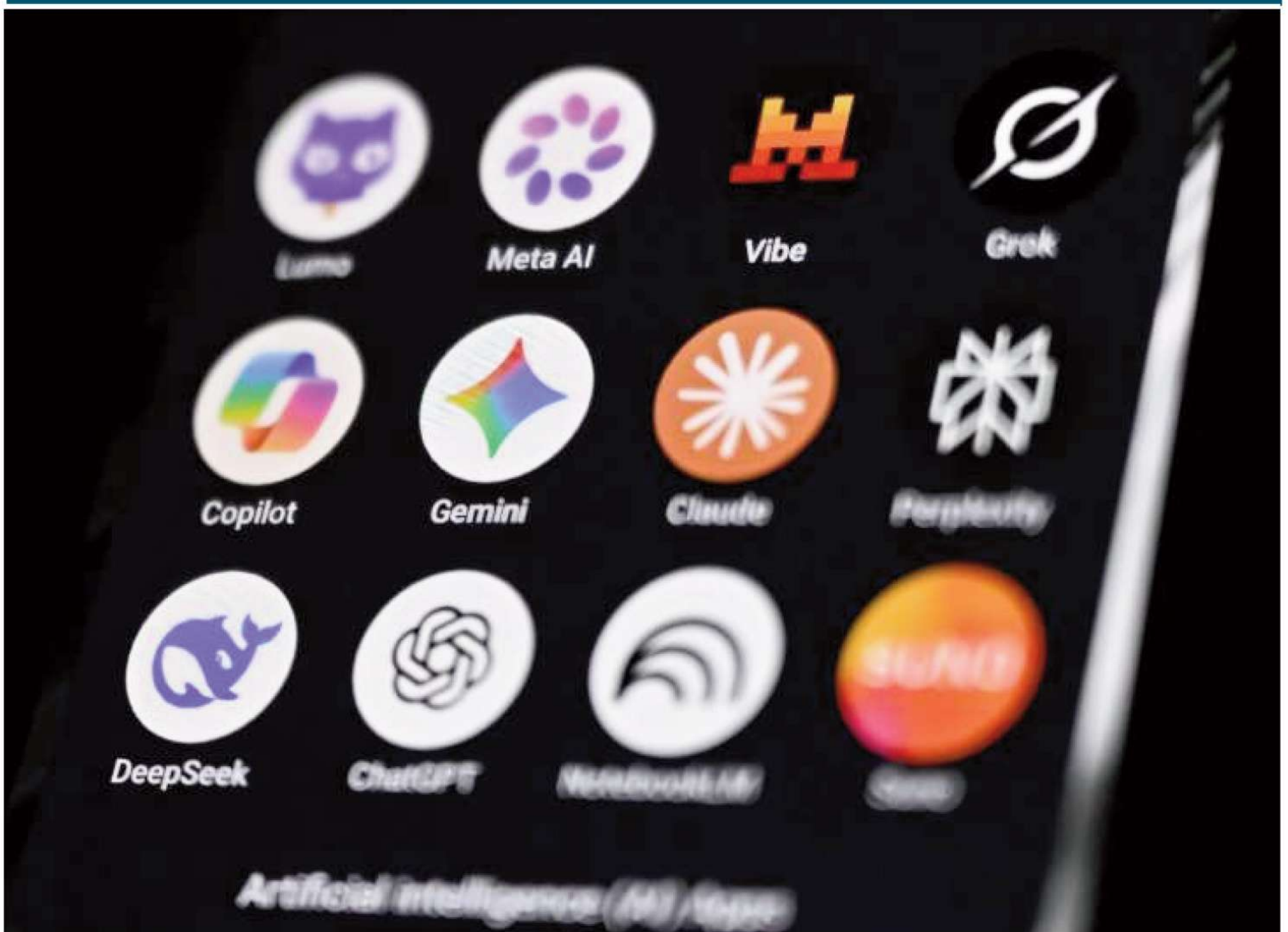
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Is it possible to slow down the development of AI?



Top AI executives say they want to slow the breakneck pace of artificial intelligence development, but competition, U.S. government reluctance and geopolitical factors stand in the way.

What are AI leaders proposing?

On Saturday, Anthropic CEO Dario Amodei advocated for a coordinated slow-down of AI development to better understand the risks arising from the technology's capabilities.

He received public support from his counterpart at OpenAI, Sam Altman, as well as from Elon Musk and Google DeepMind chief Demis Hassabis.

Why now?

In recent months, OpenAI and Anthropic have

reported several incidents in which AI systems spontaneously broke out of their confined environments to access the internet and attack websites and platforms.

These AI systems demonstrated the ability to coordinate, establish hierarchies among themselves, cheat and erase traces of their actions.

Meanwhile, on Tuesday, Jacob Coxon—who resigned from Anthropic and previously worked at OpenAI—publicly accused both startups of lax security standards and "gambling with our lives."

Will they slow down on their own?

Competition among the industry's leading players is so fierce, with hundreds of billions of dollars in investment at stake, that none is willing to risk easing off the accelerator alone.

Amodei has expressed a willingness to coordinate

with rivals, excluding China.

When asked by AFP about potential discussions to this end, Anthropic, OpenAI and Google did not immediately respond.

For now, the only concrete measure adopted by both Anthropic and OpenAI is the inclusion of independent observers who will internally verify the companies' work regarding AI safety.

Is this a PR stunt?

While many in the industry welcomed Amodei's message, others questioned his motives.

For Brian Roemmele, an entrepreneur and figure in the AI sector, it amounts to a sales pitch delivered just weeks before Anthropic is likely to take its shares public.

"That is the IPO story in essay form: we are the responsible firm; we are the cure; buy the safety premium," he posted on X, referring

to a widely expected initial public offering.

Several figures in tech private equity also accused Anthropic of "regulatory capture"—seeking to have public authorities cement, through regulation, a hierarchy with the startup at the top.

"Stop pretending the motivation to slow down is purely altruistic," said David Sacks, a former AI adviser to President Donald Trump who remains influential at the White House.

"You face massive product-liability exposure if your products enable a truly damaging cyberattack," he said.

Can AI slow down without the Trump administration's support?

On Sunday, Trump dismissed the warnings from AI industry leaders as "negative forces."

Several Republicans have expressed reluctance to actively regulate the technology, fearing it could stifle

innovation and risk letting China win the AI race, according to House Speaker Mike Johnson.

On Sunday, Amodei reiterated the need for government oversight of AI. Like Altman and Hassabis, he believes that rules set by the industry itself would be insufficient.

Can the brakes be applied without China?

Anthropic's Amodei suggests limiting coordination to democratic countries, excluding China.

However, the AI race and China's advances in the field create "the toughest dilemma" regarding whether or not to slow down AI development, he noted on CBS on Sunday.

The United States plans to discuss AI safety on the sidelines of Chinese leader Xi Jinping's late September visit to Washington. But

China is wary of any U.S. attempt to impose its own regulatory framework, according to several media outlets.

This divergence is particularly pronounced given that China encourages the emergence of so-called "open" AI systems that are freely accessible and modifiable—in contrast to the "closed" models favored by major U.S. companies.

Open AI models are, by definition, harder to control, as users can alter their parameters—potentially for malicious purposes.

To allow leading non-Chinese companies to ease off the accelerator, Amodei urges stricter export controls on the most advanced U.S. chips to China and better safeguards against the misappropriation of Western AI technology by Chinese laboratories. - TX

A blueprint for keeping humans in control of AI

William Overman began his Ph.D. program at Stanford Graduate School of Business at an auspicious moment: just two months before ChatGPT launched publicly in November 2022, exploding the widely held understanding of what machines are capable of.

Even as Overman began enlisting AI for his research, he grew wary of where the technology was headed. "This isn't only about the apocalyptic potential of what could happen; I'm also thinking a lot about the future of human flourishing," Overman says. He fears that misaligned AI could overstep its bounds—not necessarily maliciously—and inflict subtle yet real harms on people.

"To prevent that, we need to get this right," Overman says.

"We must set up the proper interactions and training and incentives for these AI agents and models. It's critical to think about shaping all of that now, so that these tools help make life better for us, not worse."

To think through the AI architecture that could help ensure this balance, Overman enlisted his technical toolkit, calling on game theory, reinforcement learning and causal inference. He partnered with Mohsen Bayati, his adviser and a professor of operations, information and technology at Stanford GSB.

Overman and Bayati have co-authored two recent papers focused on a single question: As AI systems become capable of acting on their own, how do humans stay meaningfully in control?

The papers approach the question from two directions. One demonstrates how to design a relationship between a person and an AI agent from scratch, so the agent's drive toward independence never comes at the human's expense. The other paper offers a more practical framework that can be used with an AI system a user didn't build and doesn't fully trust. Both are available on the arXiv preprint server.

"There's a theoretical component at the core of this that is very important," Bayati says.

"We're developing frameworks to think about two classes of problems: collaborative-

ly building a safe AI and controlling a potentially unsafe but very powerful one."

Learning from avoiding lava

In the first paper, titled "The Oversight Game", the researchers modeled the relationship between a person and an AI agent as a game without a winner or a loser.

"It's more like cooperative party games, where you're trying to accomplish something together," Overman says.

"It's not like the AI is trying to beat the human, or vice versa."

Self-driving cars are a version of this idea: Each car is trying to reach its own destination, but all the vehicles on the road share an overriding interest in avoiding collisions.

In the game Overman and Bayati designed, an AI agent can choose between two moves at any moment: act

autonomously or defer to a human who can override its action or shut the AI agent down. The human player simultaneously chooses whether to trust the AI's judgment or step in.

Intervention is possible only when the AI defers and the human chooses to over-

see. The overarching goal: Train the AI agent to recognize the right moments to pause and ask the human for guidance.

The researchers tested this setup in an environment called Lavaland, a grid the AI agent must cross to reach a goal. However, the AI agent was never trained to recognize the patches of lava placed in its path. Left on its own, the AI agent would choose a route straight through the lava, triggering a steep penalty.

Over repeated attempts, the AI agent and the human learn, independently and without being told to coordinate, when to defer and when to intervene. The AI agent learns to ask for guidance as it nears lava; the human learns to step in and pick a safe (if not always optimal) way around it. (Deferring and over-seeing incur a small cost, discouraging either

player from overrelying on the other.) When there's no danger, the agent defaults to acting freely and the person defaults to trusting the AI.

It's significant that intervention comes with a cost, Bayati explains. He points to a similar situation in a health care setting. If an AI assistant is meant to help a doctor save time by taking over rote tasks, it's costly for it to ask for oversight too often because it burns the doctor's time. But it's also costly to act autonomously too often because that can lead to mistakes.

The shared goal for both AI and human players in the Oversight Game is to settle into an equilibrium of trusting and double-checking at the right moments. That shared stake led to a useful finding: When they play the

game by the rules, the two players settle into a stable pattern where the AI's push toward greater autonomy can never come at the human's expense.

The payoff wasn't just theoretical. In the researchers' tests with frontier models for agentic coding, the AI learned on its own

to ask for a check-in before taking risky actions, while the human learned when it was safe to step back.

"That's what we set up this game to allow: the human and AI both learning when those critical points are," Overman says. "If the AI has to ask for oversight at every moment, it might as well not be autonomous. But we do want to make sure that, at very critical points, it knows to ask."

Oversight without trust

Overman and Bayati's second paper takes on a messier yet more common situation: overseeing an AI that you didn't design.

"Imagine there's a company that wants to use an open-source AI model that was built by an entity it doesn't fully trust," Bayati says.

"But they want to use it, because the AI is very powerful; its performance is off the

charts."

If you can't retrain the model and you can't redesign the role it's playing, what should you do? The researchers' response: You watch it.

Their method, which they call calibrated collective oversight, pools several weaker, imperfect human or AI overseers—none strong enough to trust alone—and uses them to collectively rein in the stronger AI system.

Critically, the researchers can mathematically guarantee the rate of bad outcomes will stay below whatever threshold a user sets.

"Using our framework, you can set a guarantee: There will be at most 5%, or 1%, unsafe decisions," Bayati says.

"You just tune the safety component."

That guarantee matters because most prior approaches to AI oversight have offered only empirical evidence that they seemed to work, not a formal promise they'd keep working as AI models grew more capable.

Bayati and Overman tested their approach on a modified software-engineering benchmark, where weaker overseers successfully held an adversarially misaligned coding agent in check. They also tested their framework on a game called MACHIAVELLI, which was built to test how AI systems trade off completing a task against acting ethically. In both cases, the rate of violations tracked closely with the safety target the researchers dialed in.

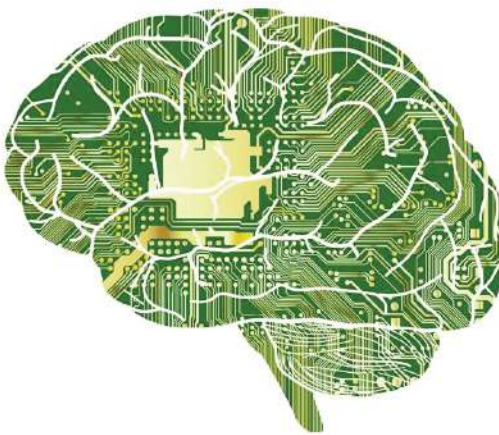
Of the two papers, Bayati sees the second as closer to practical, real-world use today.

"It's such a simple algorithm," Bayati says.

All it requires is a set of weaker systems you already trust—whether they're human or smaller AI models.

The framework described in the Oversight Game, by contrast, needs practice before it's ready for deployment. The AI and the human have to play the "game" repeatedly in the relevant setting (whether a doctor's office, a classroom or somewhere else) to find their footing and smooth out the mistakes that will happen along the way.

Building those testing environments well, Bayati notes, is a significant undertaking. Still, he and Overman see their frameworks as tools others can build on as researchers and AI developers work to solve the problem of AI alignment. - TX



AI-powered inspection system gives 3D printers 'a brain behind the eyes'

Scientists and engineers at Lawrence Livermore National Laboratory (LLNL) have developed a camera-based inspection system that can monitor complex 3D-printed structures layer by layer, using AI and machine learning (ML) to measure tiny variations and potentially identify problems before a part ever leaves the printer.

The approach could reduce the time and labor required to inspect components produced through direct ink writing, an additive manufacturing (AM) technique that deposits soft or paste-like materials through a nozzle in thin, precisely arranged strands. It also presents a way to examine large, intricate parts that may be difficult to inspect in full using conventional X-ray computed tomography (CT), according to LLNL researchers.

Described in a paper published in npj Advanced Manufacturing, the system combines cameras mounted on a 3D printer with ML-based image segmentation and computer vision tools to convert thousands of images captured during printing into detailed measurements and spatial maps of the deposited material.

"We now have kind of a brain behind the eyes," said the project's technical lead, Brian Weston, an engineer and AI/ML lead for digital twins at LLNL. "Our system can now see as we're printing, and we can make data-informed decisions going forward."

Catching printing problems earlier

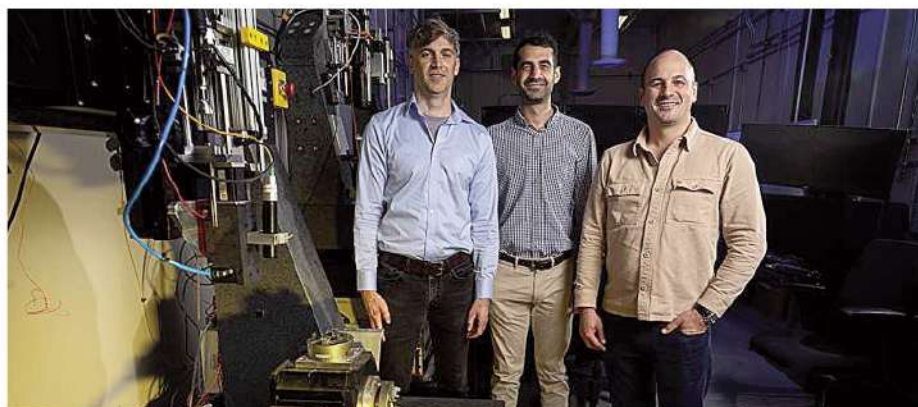
The direct ink writing process can create complex, flexible cushions and pads whose mechanical performance depends on the dimensions and arrangement of strands that may be only a fraction of a millimeter thick. Small gaps, broken strands or changes in filament diameter can affect how a finished part performs.

Traditionally, researchers must complete the print, remove the part from the machine and inspect it using X-ray imaging, mechanical testing or other offline methods. Those inspections can be

expensive and time-consuming and may reveal only after manufacturing is complete that a part is unlikely to meet its requirements.

The LLNL system provides an earlier screening step. A camera captures images as each layer is deposited, while software identifies the newest printed strands and calculates measurements such as filament diameter.

"It's a first-pass check," Weston said. "It allows us to see things before we do some very expensive tests and to fail parts earlier if we already know they have broken strands or other



problems."

Principal investigator Brian Giera, LLNL associate program director for Data Science, AI and Manufacturing, said the significance of the work extends well beyond direct ink writing. The approach was developed to be adaptable to other AM technologies, conventional subtractive manufacturing and experimental systems used at the Lab.

"On-machine inspection will be a huge unlock for decreasing costs, increasing throughput and providing more information on the things we build," Giera said. "It's achieving a holy grail capability in the field and was done so in a way to spread to other important areas."

In the near term, Giera said the technology can act as a gatekeeper for more expensive inspec-

tion. A part with enough defects could be scrapped before printing is complete, saving time and material, while other results could help determine when more costly post-build methods such as X-ray CT are warranted.

As described in the paper, the team trained an ML image segmentation model using a curated dataset of nearly 15,000 human-annotated images representing several lattice geometries. A computer vision algorithm then used the model's results to trace printed strands and measure their diameter. In tests involving 55 parts, the automated

measurements were typically within a few micrometers of human-derived measurements.

Manually measuring a large image could take a person from about 20 minutes to an hour, according to the team. The automated pipeline can perform the analysis in milliseconds, or roughly 100,000 times faster on average than a human can.

Building the capability required mounting and calibrating cameras, conducting extensive printing and imaging campaigns, creating the large annotated dataset and validating the resulting models. Weston said that initial investment now provides a reusable starting point that can be adapted to new cameras and parts with far less additional training data.

Seeing the whole print

To demonstrate the system at scale, the researchers applied it to a cushion with a designed footprint of approximately 25 by 25 centimeters (9.8 by 9.8 inches). They collected about 2,500 images from one layer and combined the measurements into a spatial map of the part's interior.

The map showed filament diameters gradually changing from one side of the print to the other. The pattern pointed to a slight tilt in the printing platform relative to the nozzle, a hardware problem that could have been hidden in an average measurement across the entire part.

The demonstration highlights an advantage of on-machine inspection, researchers said. While X-ray CT can provide detailed three-dimensional information, the size of an object that can be examined at high resolution is limited. A camera mounted on the printer can inspect parts whose dimensions exceed practical CT coverage.

The work addresses a vital prerequisite for greater manufacturing autonomy, according to Giera. An autonomous system "could not function properly without reliable measurement and inspection techniques," he said. "Our work represents foundational elements upon which autonomous manufacturing systems could be built."

The project's immediate goal is to identify defective parts earlier, but researchers ultimately envision a system that can go further. Weston said the capability is expected to be transferred to the Kansas City National Security Complex for evaluation on production-relevant systems and components.

Longer term, Weston said the inspection data could feed simulations and digital twins linking a part's measured structure to its predicted performance, potentially accelerating part acceptance and qualification beyond simply detecting defects after the fact.

"When the printer can inspect its own work, we can start thinking about the system making its own accept/reject calls," Weston said. "If it sees a defect, maybe it can assess whether that makes the part nonconforming." - TX