



Saudi Arabia
Centre for the
Fourth Industrial
Revolution

Quarterly Newsletter

Q4 2025

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01

Welcome to the 4IR in Saudi Arabia

Welcome to our final newsletter of 2025 – a moment to reflect on the past year's achievements, examine the outcomes of our work, consider the lessons learned, and map the path ahead for 2026 and beyond.

This past year has been one of transformation for C4IR Saudi Arabia. Our collaborative projects and initiatives have delivered tangible results, strengthened our role as a trusted source of thought leadership, and deepened our contribution to national and global 4IR priorities.

A standout example is our [P2P Sandbox project](#). This was initiated in Q1 2025 and has continued to empower SMEs – the backbone of economic growth and diversification – to embrace advanced technologies, ensuring that technological transformation becomes an enabler, not a barrier. With more than 50 SMEs engaged throughout its lifecycle, [the project](#) culminated in the launch of PeerLink in October 2025, which is our collaborative platform designed to scale SMEs' resilience and readiness.

Our experiences launching this project have informed [articles](#), [papers](#), and [panel discussions](#), and sparked valuable insights from our ecosystem that will guide our next steps on this and other projects. Similar momentum can be seen across our portfolio: from the [AVIATE Saudi Arabia](#) project's contributions to our [October white paper](#) with the World Economic Forum, to our smart cities [white paper](#), and joint publications with [stc](#) and [Aramco](#), we showcased the cross-sector, real-world applications of advanced and frontier technologies, highlighting Saudi Arabia's growing leadership in this space.

Sharing knowledge and strengthening collaboration has remained central to our mission. In 2025, we had the honor of hosting two major national platforms – Saudi Arabia's [World Quantum Day \(WQD\) 2025](#) celebrations and the [3rd Saudi Forum for 4IR 2025: Frontiers of Global Technology](#) – alongside participating in global events convened by our partners, King Abdulaziz City for Science and Technology (KACST) and the World Economic Forum, and other leading organizations around the world. Together, these engagements reached thousands across the Kingdom and worldwide, forging new partnerships and expanding the global 4IR community.

As we look ahead to 2026, we are focused on scaling our impact even further – shaping future strategies, accelerating innovation, and working together with stakeholders and partners to collaborate, convene, and catalyze initiatives toward the sustainable, responsible, and equitable adoption of advanced and frontier technologies.

Sincerely,

Basma AlBuhairan, PhD

Managing Director, C4IR Saudi Arabia

To engage with us and be part of C4IR Saudi Arabia's future activities, follow the links below:



02

Thoughts from the Frontier of Technology



Dr. Ibrahim Alshunaifi

P2P Sandbox for SMEs Project Lead,
C4IR Saudi Arabia

As emerging technologies reshape productivity, competitiveness, and economic growth, industries worldwide are undergoing rapid digital transformation. In this global shift, small and medium-sized enterprises (SMEs), which make up 90% of businesses globally and 50% of GDP in high-income countries, are vital to national economic resilience. Yet SMEs often face systemic barriers that limit their ability to adopt the advanced technologies essential for growth in the Fourth Industrial Revolution (4IR). Without targeted support, SMEs could fall further behind, deepening the global digital divide, weakening supply chains, and hindering economic growth and job creation.

Navigating technologies such as AI, IoT, and quantum systems requires supportive governance models and accessible innovation ecosystems to ensure inclusive and responsible adoption. As technological inequality is one of the core global 4IR challenges, equipping SMEs with the tools, skills, and networks necessary is an urgent requirement to enable a sustainable, equitable, and responsible digital transformation. Where is the project today and what are its next milestones?

Systemic Challenges

SMEs continue to face systemic hurdles when integrating advanced and frontier technologies. Many operate in fragmented networks, limiting their ability to connect with peers, mentors, and innovation ecosystems that accelerate adoption. Access to cutting-edge tools and infrastructure is often constrained by high upfront investment costs, a fragmented digital solutions market with too many vendors and complex, expensive technologies creating confusion, as well as uncertainty around the return on those investments. At the same time, limited hands-on expertise means that even when SMEs do experiment with new technologies, pilots frequently remain small or stalled – preventing impact from scaling.

An Effective Solution

Peer-to-peer (P2P) learning is an effective solution to these challenges, emerging from global best practices and reinforced by C4IR and WEF initiatives. Unlike traditional training, a peer-to-peer approach enables SMEs to exchange real-world experiences, transforming abstract concepts into replicable workflows grounded in practical insights.

PeerLink, launched by C4IR Saudi Arabia, provides SMEs with a secure, controlled environment to explore and validate digital solutions before actual implementation. It allows companies to run experiments, test use cases, and evaluate performance and ROI without interrupting daily operations.

This initiative provides a safe Sandbox to reduce risk, speed up learning, and support informed technology decisions. It connects participants with peers and experts in a trusted environment that accelerates digital adoption and builds transformation confidence.

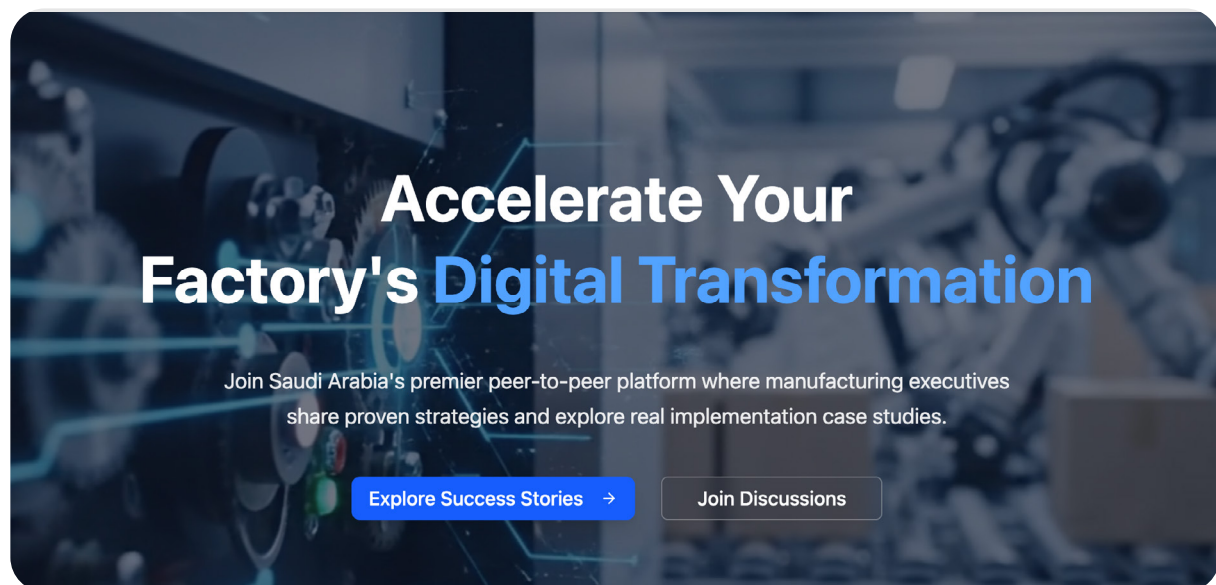
A Compelling Economic Rationale

Closing capability gaps through peer-to-peer knowledge-sharing helps reduce inefficiencies – from duplicated pilots to persistent skills and workforce shortages – while strengthening supply chain resilience and supporting sustainable industrial growth.

Saudi Arabia is uniquely positioned to lead this transformation. Accelerating digitalization across SMEs is central to Vision 2030, which aims to increase SME contributions to GDP from 20% to 35% and boost national competitiveness. C4IR Saudi Arabia's SME-focused initiatives, including the Digital Transformation for SMEs: Strategic Framework, co-developed with the World Economic Forum, provide a policy foundation for scaling P2P models like PeerLink nationwide.

Ultimately, by empowering SMEs through structured peer learning ecosystems, Saudi Arabia can accelerate innovation, diversify its economy, and strengthen its global leadership in shaping an inclusive, sustainable, and future-ready digital era.

PeerLink For SMEs



Accelerate Your Factory's Digital Transformation

Join Saudi Arabia's premier peer-to-peer platform where manufacturing executives share proven strategies and explore real implementation case studies.

[Explore Success Stories →](#) [Join Discussions](#)

03

In Conversation with Hazleen Ahmad, Neuropower

Unleashing SME Digital Transformation and Growth Through Peer-to-Peer Learning



Hazleen Ahmad

Founder of Neuropower (Singapore, Dubai,
Hong Kong, Philippines)

Hazleen's work sits at the intersection of neuroscience, inclusive leadership, and sustainable innovation. Over three decades, she has worked across mental health, workforce design, and human-centered systems to contribute practical strategies for inclusive cognition and social impact.

How would you describe the concept of the “brain economy” and why it matters for global competitiveness?

The brain economy reframes global competitiveness around cognitive capacity, emphasizing attention, emotional regulation, adaptability, and creativity as key drivers of innovation. The brain economy is about recognizing that cognitive capabilities – attention, emotional resilience, adaptability, creativity – drive modern innovation. As technology evolves, the brain economy is about designing systems that work with human diversity rather than against it, recognizing that inclusion is a strategic advantage.

Societies that invest in mental well-being, stress management, and lifelong learning enable individuals to navigate complex and evolving labor markets, with programs like

micro-credentials and reskilling supporting cognitive mobility in volatile industries. Organizations that embed diversity of thought, emotional intelligence, and psychological safety tend to show greater innovation and resilience.

How are organizations putting the brain economy into practice today?

Neurodiversity is not solely a welfare agenda; it is a performance advantage. Neurodivergent individuals often demonstrate strengths in systems thinking, deep focus, creativity, and pattern recognition skills, which are essential in AI-augmented and knowledge-driven economies. The potential lies not only in individual talent but also in system design. When workplaces adjust sensory environments, communication styles, and learning pathways, performance improves for everyone.

The Neurodesign initiative by the [Institute of Neurodiversity Singapore](#) and the “[Rethinking Urban Spaces: Designing Cities for Every Mind](#),” white paper that Neuropower contributed to illustrate how workplaces and even urban spaces can reduce cognitive load, improve emotional regulation, and foster belonging. These approaches highlight how inclusive cognitive design is becoming increasingly relevant in organizational strategy, though precise macroeconomic outcomes still require further study.

How can brain-healthy principles transform leadership and workplace culture?

Technology acts as a cognitive enhancer, influencing attention, memory, decision-making, and emotional regulation. Human-centered AI platforms, such as [Neuro-Ontology Outreach and Reality \(NOOR\)](#), my digital avatar, are being explored to translate neuroscience and organizational research into interactive, evidence-informed guidance. These systems aim to support learning, collaboration, and applied cognition at scale.

NOOR is the first governed AI presence that’s not a chatbot. NOOR combines rigorous reasoning, evidence-based knowledge, and humanized expression to create a trusted companion for research, dialogue, and learning, turning complexity into clarity, making knowledge readable, watchable, and actionable.

Complementing these tools, the [Ethical Inclusive Culture Data Commons \(EICDC\)](#) proposes governance for neurodiversity research, emphasizing ethics, inclusive culture, and participatory decision-making. While these systems are largely conceptual or internal, they represent emerging approaches to integrating technology and cognitive insights responsibly, strengthening human cognition and supporting more adaptive learning and organizational environments.

What barriers are still holding organizations back from tapping into neurodiverse talent?

Legacy design bias is the biggest barrier. Workplaces, hiring processes, evaluation systems, and social expectations still assume everyone thinks and communicates the same way. Globally, data illustrates that underemployment or unemployment rates among neurodivergent adults reach 80-90% in some regions (Gallup, 2024; AACSB, 2023). However, many neurodivergent individuals are excluded not because of capability, but because environments fail to accommodate their needs. Without systemic change, each excluded mind represents lost human potential – socially and economically. Unlocking human potential requires designing systems that fit minds, not forcing minds to fit systems – creating architecture where intelligence, resilience, and inclusion can flourish.



How can societies balance the benefits of AI, data-driven insights, and virtual diagnostics with the need to preserve the human element in learning, work, and wellbeing?

We need balance, and three priorities guide our work:



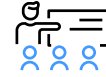
Brain health as essential infrastructure

Neurophysiological support and reducing cognitive overload, sensory strain, and burnout in workplaces and schools. Tools like NOOR and frameworks such as EICDC can support cognition without replacing human agency.



Education as capability design

Education should focus on teaching adaptability to pivot across roles and industries, metacognition to train learners to understand how they think and solve problems, and emotional regulation to improve resilience and social decision-making.



Leadership as neuro-enablement

Effective leadership creates psychologically safe, coherent environments by modeling calm and clarity, communicating clearly to reduce cognitive load, and fostering trust so people feel confident contributing new ideas - driving stronger engagement and innovation.

Saudi Arabia has invested heavily in digital and physical infrastructure; the next frontier is human architecture. Opportunities include:

- Inclusive education that fosters adaptability, metacognition, and emotional regulation
- Workforce strategies that value cognitive diversity as a performance asset
- Micro-credentialing and lifelong learning for adaptable careers
- Leadership that prioritizes clarity, psychological safety, and trust

Early programs such as the **Prince Faisal Bin Salman Autism Centre** and the **Digital Inclusion Program** are laying the foundations for a neuroinclusive ecosystem where diverse minds can thrive. These efforts reflect a shift toward valuing intelligence, creativity, and human adaptability alongside technological advancement.



04

Delivering Impact Across the Ecosystem

3rd Saudi Forum for 4IR 2025: Frontiers of Global Technology

Showcasing Saudi Arabia's leadership in global tech and innovation, the 3rd Saudi Forum for 4IR 2025 was a strong end to a tremendous year of achievements. Organized by C4IR Saudi Arabia in collaboration with the World Economic Forum and KACST, the Forum hosted insightful discussions, launched new projects and initiatives, and facilitated strategic partnerships between key players in the advanced and frontier technology field.



Scale



2
Days



6
Partner booths



26
Sessions



8
Strategic partnerships



Attendance



4
Excellencies



81
Speakers



2,333
Registered attendees from 48 countries



8
Sponsors



Impact



83.1M
News and social
media reach



656
Social media
mentions



87
Traditional media
mentions



Launch of PeerLink Platform

Launched during the Forum by H.E. Bandar Alkhorayef, Minister of Industry and Mineral Resources, H.E. Dr. Munir Eldesouki, President of KACST and Board Chairman of C4IR Saudi Arabia, and Jeremy Jurgens, Managing Director and Head of the Centre for Frontier Technologies and Innovation and Centre for Cybersecurity at the World Economic Forum.

8 Agreements Announced

In line with C4IR Saudi Arabia's role as a convenor and collaborator of global advanced and frontier stakeholders, the Forum featured the announcements of eight strategic partnerships.

- MoU between C4IR Saudi Arabia and Alfaisal University
- MoU between KACST and GlycanAge
- MoC between KACST, NIDL, and IIoT Solutions
- MoC between KACST, NIDL, and Middle East Cloud and Digital Transformation Company Ltd. (CNTXT)
- MoC Between KACST, NIDL, and Giza Arabia Systems
- MoU between Business Accuracy and NmoHub
- MoU between Innovative Metal Industries Company and Future Dimensions Company
- MoU between Ishraq Tic and NAFFCO

Further information on key discussions and announcements from the Forum is available in our [impact report](#).

Q4 2025 Milestones

As 2025 wrapped up, C4IR Saudi Arabia continued to convene and collaborate with stakeholders by participating in major events and publishing thought leadership that advances knowledge on the equitable, responsible, and sustainable adoption of advanced and frontier technologies.



Major Events

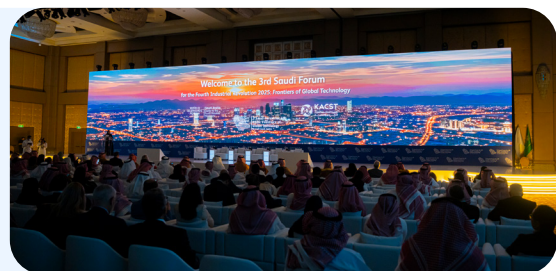


15 – 16 October, UAE

Annual Meeting of the Global Future Councils

29 – 30 October, Saudi Arabia

3rd Saudi Forum for 4IR 2025
(Hosted)





29 October, Saudi Arabia

World Economic Forum Quantum Economy Network Meeting 2025 (Hosted on the sidelines of the 3rd Saudi Forum)

6 November, Saudi Arabia

"Tech Night for Emerging Technology in Manufacturing," co-organized by the Ministry of Industry and Mineral Resources and KACST



13-14 November, Italy

"Roadmapping Twin Skills Development Strategies for the Twin Green & Digital Transition" panel at the World Manufacturing Forum

25-27 November, Vietnam

2025 Autumn Economic Forum



4 December, Saudi Arabia

"Enabling Innovation in Securing Minerals for the Energy Transition" Workshop (Hosted)

4 – 5 December, UAE

Milken Institute Middle East & Africa Summit 2025

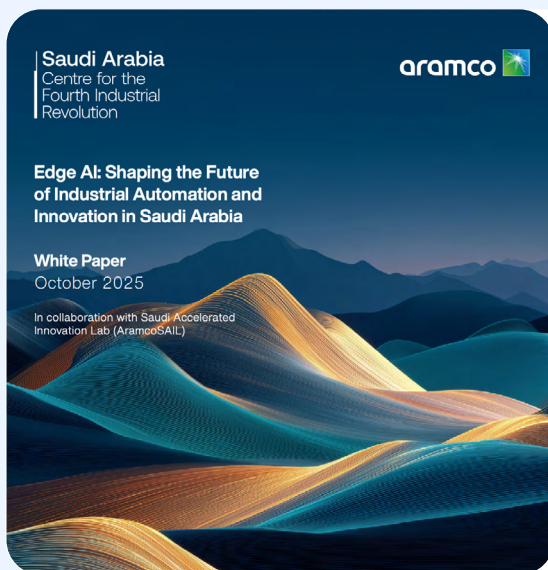


11 December, Saudi Arabia

Hong Kong University Saudi Economic Forum



Thought Leadership



Edge AI: Shaping the Future of Industrial Automation and Innovation in Saudi Arabia

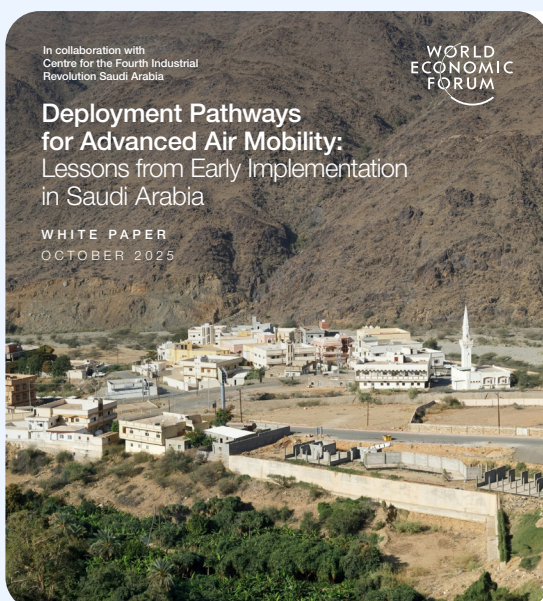
White paper in collaboration with Aramco's Saudi Accelerated Innovation Lab (AramcoSAIL)

[Read the paper](#)

How peer-to-peer learning can help SMEs embrace digital transformation

C4IR Saudi Arabia article published by the World Economic Forum

[Read the article](#)



Deployment Pathways for Advanced Air Mobility: Lessons from Early Implementation in Saudi Arabia

White paper in collaboration with World Economic Forum

[Read the paper](#)

Building Communities for Impact: Lessons from the Centres for the Fourth Industrial Revolution India and Saudi Arabia

Briefing paper in collaboration with C4IR India

[Read the paper](#)



UpLink video interview on quantum technology

In collaboration with the World
Economic Forum (WEF)

[Watch the video](#)

Unlocking Smart Cities Innovation A Procurement-Driven Approach

White paper published by C4IR Saudi Arabia

[Read the paper](#)



05 | Looking Ahead

Building on the momentum of 2025, C4IR Saudi Arabia will continue expanding its leadership in shaping the responsible adoption of frontier technologies. In 2026, the Centre will deepen its work across the quantum economy, the SME ecosystem, synthetic media, and critical minerals innovation.

As the global C4IR community continues to grow, partners, innovators, policymakers, and researchers will have new opportunities to engage – whether through co-developed projects, publications, strategic dialogues, or participation in global and national events. Together, this expanding ecosystem will drive forward an inclusive, sustainable, and future-ready technological landscape for the Kingdom and the world.



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