Saudi Arabia
Centre for the
Fourth Industrial
Revolution

Quarterly Newsletter

Q1 2026

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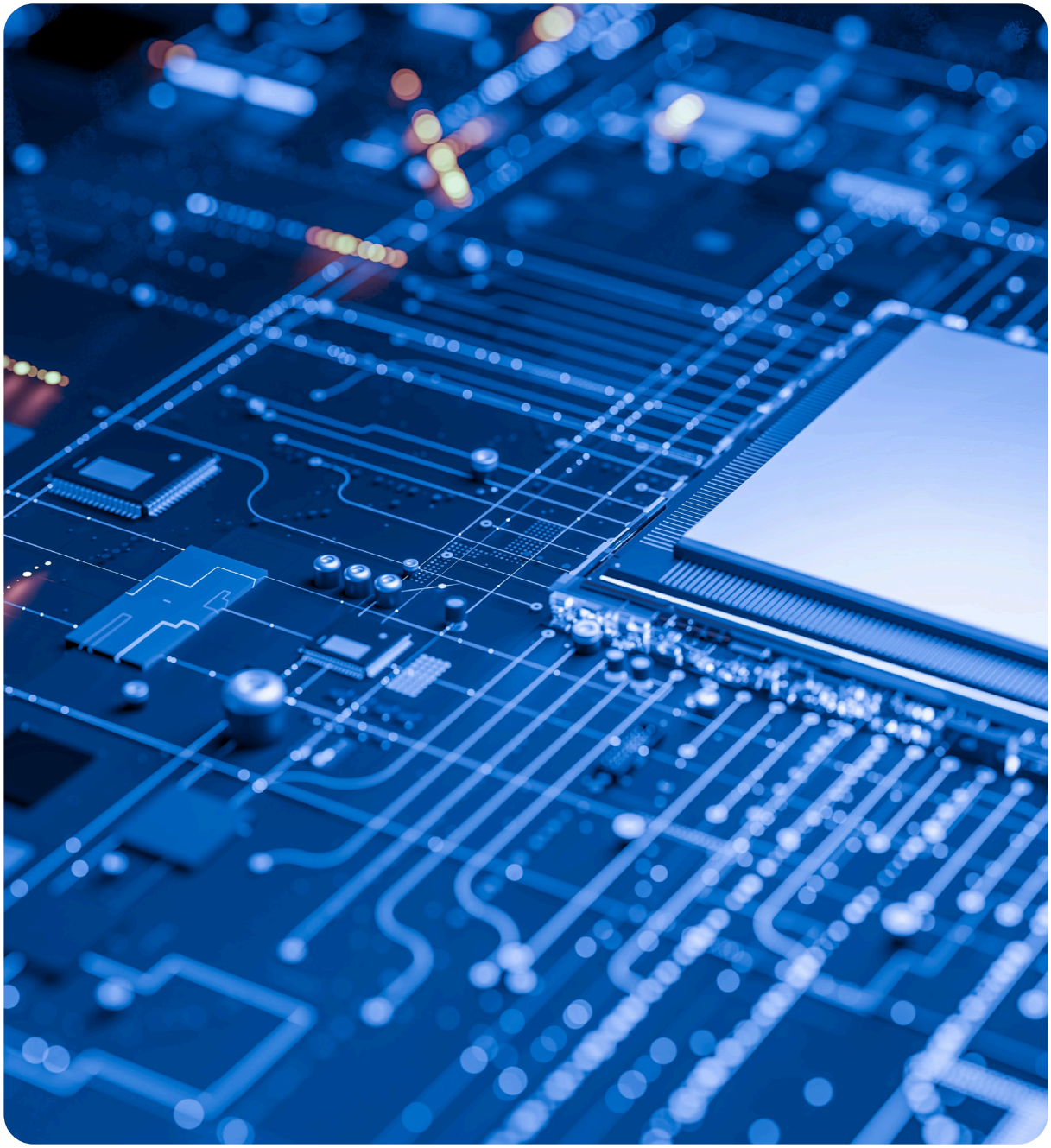


01 Welcome to the 4IR in Saudi Arabia

This year, C4IR Saudi Arabia, the Kingdom, and the wider world will navigate the challenges and opportunities of frontier 4IR technologies with ever greater urgency, focus, and speed.

Saudi Arabia has designated 2026 as the **Year of Artificial Intelligence**, making this already significant year even more vital to the Kingdom's rapidly advancing frontier technology ecosystem.

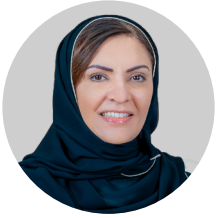
At C4IR Saudi Arabia, we began 2026 with purpose. Building on 2025's achievements, we hosted our annual gathering in January, where we reflected on the past year's activities and engagements as a team. In 2026, we'll continue to sustain that momentum further with sharpened priorities and impactful ongoing projects across the advanced and frontier technology sphere.

This year, we will host our first major event of 2026, World Quantum Day (WQD), under the theme "Shaping the Quantum Workforce." WQD 2026 will showcase Saudi Arabia's technological leadership as it marks 10 years since the launch of Vision 2030 in 2016 and, through an immersive experience, engage a new generation with the fundamentals of quantum science and its future impact. Just as Vision 2030's transformative strategy has empowered our leadership, integration, and exploration of 4IR technologies – **including quantum** – we are honored to support and be a part of Saudi Arabia's frontier technology ecosystem.

The next decade promises major breakthroughs in AI and quantum technology around the world. Everywhere we turn, discussions around the challenges and opportunities of frontier tech abound, from debates over responsible AI in education to the global supply of critical minerals, the impact of quantum encryption on cybersecurity, and the roles of SMEs and entrepreneurs in innovation and economic growth.

In short, global 4IR transformations continue to accelerate. Being ready, informed, and agile is more important than ever in ensuring the responsible, sustainable, and equitable adoption of frontier technologies. At C4IR Saudi Arabia, we are committed to sharing and promoting this knowledge as we work alongside our partners to ensure a future where frontier technologies serve human development, sustainability, and prosperity.

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 Frontiers of Technology

The Coming Decade of Quantum Breakthroughs

Abdullah AlSalman

Board Member and Executive Director of the Saudi Quantum Computing Association (SQCA)

As a digital strategy and transformation expert, Abdullah AlSalman serves as a key national advisor within Saudi Arabia's quantum technology ecosystem.

Dr. Basma AlBuhairan **recently noted** that, "We are entering a decade of change for quantum, where quantum is no longer confined to research laboratories."

At SQCA, we share this assessment. Quantum computing is shifting from being a research topic to an engineering and delivery discipline. The conversation is evolving from, "Can we demonstrate this phenomenon?" to, "How do we build dependable, scalable, and fault-tolerant systems and software around it?" This shift signals a different pace of progress, driven by repeatable methods, tooling, and clearer accountability for real-world outcomes.

The quantum ecosystem is also maturing alongside the technology itself. On one side, governments, universities, and industry are aligning on workforce development, testbeds, and early adoption programs. On the other side, demand is increasing, driven by the needs of AI, cryptography, and other data-intensive domains.

As these forces converge, different sectors face differing impacts. Cybersecurity faces particular challenges due to the slow process of upgrading traditional security systems to post-quantum (quantum-resistant) cryptography and building crypto-agile infrastructure.

Conversely, the financial services sector is often among the earliest to explore emerging technologies, seizing opportunities for improved optimization, risk management, and decision-making, that offer clear returns on investment.

Medicine and life sciences are another promising area, particularly for molecular simulation and discovery workflows. Here, early impacts will likely emerge through targeted pilots that complement classical high-performance computing, rather than replace it.

However, this acceleration brings challenges. Regulation, governance, and ethical fragmentation risk a patchwork of incompatible rules that slow adoption and increase systemic risks, but a single global regulator is unrealistic. Quantum's dual-use nature is a further complication, as the capabilities that strengthen security can also be used to undermine it. Standards leadership therefore becomes an important anchor, with bodies like the U.S. National Institute of Standards and Technology (NIST) leading the way on post-quantum cryptography. However, governance must extend to include ethics, verification, equitable access, and supply chain protection.

Practical applications are another challenge, as research breakthroughs do not automatically translate into useable products due to gaps in understanding between quantum physicists and industry and governance. This is where ecosystem institutions matter. Here in Saudi Arabia, SQCA plays a critical role in making quantum technologies legible and actionable beyond specialist circles, yet other countries and regions may not have access to similar bodies.

World Quantum Day 2026 presents a timely opportunity to support policymakers and help industry leaders move from curiosity to structured pilot application. Put simply, we must seize these opportunities because the signals are clear: the quantum decade has begun. Not all impacts will arrive at once, but the question can no longer be whether to prepare, but how deliberately and inclusively we choose to do so.

03 In Conversation with Purushottam Kaushik, C4IR India

Purushottam Kaushik

Head, Centre for Fourth Industrial Revolution India

As Head of C4IR India, Purushottam Kaushik leads initiatives focusing on emerging technologies in agriculture (AI4AI), healthcare, and urban transformation, bringing over 25 years of experience in Telecom and IT.

How would you summarise the current 4IR landscape in India?

India is at a pivotal moment in the 4IR, emerging as one of the world's fastest-growing major economies and a hub for digital innovation and start-ups. Our digital sector is currently valued at approximately $400 billion, while digital platforms including e-commerce, fintech, and app-based services add significant value. India's UPI system alone now accounts for nearly 50% of global real-time digital payments.

And what does 4IR technology adoption look like?

Digital tools are transforming all sectors, from agriculture to healthcare, retail, manufacturing, and beyond. According to the **AI Adoption Index 2.0 Report** by NASSCOM and Ernst & Young, 87% of Indian companies are in the middle stages of AI maturity, with 45% at expert level, and AI is projected to add $500 billion to India's economy by 2035. However, as in many countries, **SMEs face challenges in adopting new technologies**, with only 26% in India at AI maturity, potentially limiting their competitiveness and long-term growth potential.

What are some of the key opportunities and growth sectors?

Our 4IR trajectory aligns closely with the **Viksit Bharat** 2047 initiative to make India a $30 trillion economy by 2047. That vision is energizing opportunities in areas like AI systems for digital public infrastructure, healthcare, and India's five AI pillars – energy, semiconductors, cloud infrastructure, models, and applications. We're also seeing strong growth in the space economy with over 200 private sector start-ups supporting India's aim to secure 10% of the global space market. In addition, strides in advanced manufacturing have positioned India as the sixth-largest installer of industrial robots globally, with our global cost competitiveness driving a 13% compound annual growth rate in the sector.

What do you consider to be the Centre's most notable impacts and successes to date?

Over the past six years, C4IR India has directly impacted 1.25 million citizens through agricultural programs, healthcare solutions, and urban development initiatives, moving beyond pilots to deliver measurable, life-changing impact across multiple sectors. For example, the AI4AI Saagu Baagu agricultural program supported 55,000 farmers in achieving 21% yield improvement, a 9% reduction in pesticide and fertilizer use, 11% better prices, and approximately $800 higher profit per acre per crop cycle.

In healthcare, our FIRST Cancer Care initiative screened nearly 1 million people through 3,482 AI-enabled camps, and trained 685 paramedics, 72 medical officers, and 201 village health councils. Our Medicine from the Sky initiative also completed over 650 drone flights to deliver more than 10,000 medical products to over 100,000 people in remote areas.

What is the significance of the collaboration between C4IR India and C4IR Saudi Arabia?

Our joint **Building Communities for Impact report** is the first collaboration between two C4IR Centres to produce a practical, evidence-based global blueprint for responsible technology adoption across very different national contexts. Using India's AI4AI program and Saudi Arabia's SME Peer-to-Peer Sandbox as case studies, the report demonstrates that multistakeholder communities can deliver measurable impact, reduce regulatory and investment risk, and resolve ethical challenges through co-design. It positions tools like the "hourglass" model (think big, start small, scale fast) as proven open-source assets for the wider C4IR network, showing that emerging economies can lead in 4IR governance and implementation globally.

Looking ahead, what are C4IR India's core priorities and flagship projects for 2026?

C4IR India is transitioning from proving concepts to scaling successes by pioneering new frontiers across AI, with our projects including AI for Agricultural Innovation (AI4AI), AI for India 2030, and National AI Leadership, alongside contributing to the development of autonomous systems, the space economy, and the digital health transformation. Our ultimate ambition is to positively impact 10 million citizens over the next five years by **harnessing emerging technologies** to serve as a cornerstone for economic growth, environmental sustainability, and social equity.

Looking ahead, India is evolving into a lighthouse centre, drawing on the C4IR network's unique ability to neutrally bridge policy, innovation, and implementation, while facilitating genuine cross-regional learning. We want to demonstrate that developing economies can lead in both adopting new technologies and in shaping the course of the 4IR.

04 Delivering Impact Across the Ecosystem

C4IR Saudi Arabia drove impact across the 4IR ecosystem in the first quarter of 2026 by convening and collaborating with key stakeholders at major events and advancing knowledge on the equitable, responsible, and sustainable adoption of frontier technologies.

Major Events

WORLD ECONOMIC FORUM | Annual Meeting Davos 2026

19-23 January, Davos, Switzerland
World Economic Forum Annual Meeting 2026

C4IR Saudi Arabia actively contributed to global conversations on the future of economies and societies at the World Economic Forum's Annual Meeting, alongside over 3,000 leaders from 130+ countries including 400+ political leaders and 830 CEOs.

As part of the 20+ events hosted at the official Saudi House pavilion, organized by Saudi Arabia's Ministry of Economy and Planning, C4IR Saudi Arabia organized a high-level, World Economic Forum-accredited panel, "The Longevity Dividend: Rethinking Capability in an Aging World." This session brought together international experts to discuss longevity as a driver of economic and societal value, examining how increased life expectancy is reshaping labor markets, healthcare systems, and productivity models. Speakers emphasized that extending health span, supported by lifelong learning and inclusive design, enables longer workforce participation and greater individual autonomy. The discussion further highlighted the need for policy innovation and age-inclusive environments to translate demographic change into resilient and inclusive growth.

Watch the **discussion online** to learn more.

The Longevity Dividend

Moderator

- **Magdalena Skipper,** Editor-in-Chief, Nature

Speakers

- **Haleh Nazeri,** Lead, Longevity Economy, World Economic Forum
- **Dr. Heidi Gardener,** Distinguished Fellow, Harvard Law School
- **Elisabeth Staudinger,** Member of the Managing Board, Siemens Healthineers

C4IR Saudi Arabia also participated in several sessions hosted by fellow 4IR and future economy stakeholders at the Annual Meeting, reinforcing the Centre's focus on human-centric innovation, resilient systems, and coordinated global collaboration:

- **HCL**, a global IT services company, hosted a discussion, "Intelligent Services, Not Static Software," exploring the shift from static tools to intelligent services.
- The non-profit **AI House** hosted a session, "Inclusive Intelligence: Empowering Societies to Shape AI," which emphasized inclusion as a strategic imperative in AI design.
- Saudi Arabia's MISK Foundation led discussions reframing youth as architects of future systems with a session titled, "Youth as System Builders: The Future Economy."
- The SuperSymmetry Institute examined how cities enhance competitiveness through aligned policy and technology in a session, "Driving Urban Advantage in the Next Economy."
- Capgemini highlighted the bioeconomy's transition from experimentation to scalable impact in a discussion, "Bioeconomy Breakthroughs: Real Stories."

Other Events and Meetings

January

27 January, Saudi Arabia

C4IR Saudi Arabia hosted a seminar, Introducing the "Industry 5.0 Index: Shaping Human-Centric and Resilient Industrial Futures," in collaboration with Oliver Wyman. The session brought together 20 onsite experts and 30 virtual participants to explore the Industry 5.0 Index, emphasizing human-centricity, resilience, and sustainability as essential evolutions beyond traditional digitalization.

29 January, Saudi Arabia

The C4IR Saudi Arabia Annual Gathering served as a vital platform for team building, fostering departmental synergy, and understanding our future roadmap. The event concluded with an award ceremony honoring those colleagues who particularly embodied the Centre's values.

February

11 February, Saudi Arabia

C4IR Saudi Arabia celebrated International Day of Women and Girls in Science by convening an event under the theme 'Synergizing AI, Social Science, STEM, and Finance: Building Inclusive Futures for Women and Girls,' in partnership with KACST, ilmi, Academy32, and the Ibn Khaldoun Fellowship. Convening over 50 stakeholders, including researchers, STEM professionals, and students, the program featured 13 expert speakers across four dedicated sessions—including keynote and fireside discussions—focused on fostering inclusive pathways for women in scientific fields.

12 February, Saudi Arabia

Dr. Ibrahim Alshunaifi, SMEs Project Lead at C4IR Saudi Arabia, participated in the panel discussion "AI-Driven Smart Manufacturing – Transforming the Future of Industry" at the Future Industry Summit 2026 (31st Edition). Dr. Alshunaifi examined the deployment of IoT, AI, and digital twin platforms, focusing on the critical shift from experimental pilots to the large-scale implementation of smart factory frameworks.

16 February, Online

C4IR Saudi Arabia hosted a virtual workshop on, "Sector Pathways for Quantum Technology: Use Case Evaluation."

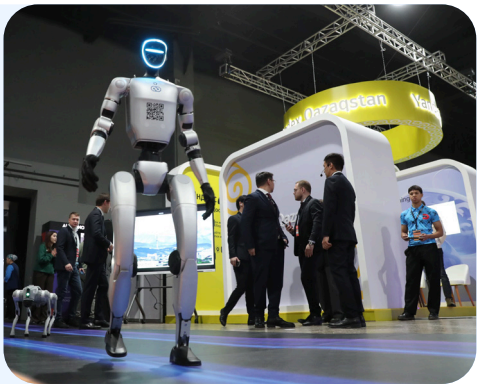
March

25 March, Online

C4IR Saudi Arabia, in collaboration with the World Economic Forum Centre for Advanced Manufacturing and Supply Chains, organized a webinar on "End-to-End Transformation and Sustainability: Practical Insights for SMEs." The session introduced the Lighthouse Operating System as a global capability-building framework, offering practical guidance on embedding sustainability into operations and strategy for long-term growth, and highlighted PeerLink as a collaboration platform for SME manufacturers.

25 March, China

C4IR Saudi Arabia delivered a video keynote address to the China BRICS Forum on the Development of New Productive Forces. Alongside insights from Chinese and international leaders from government, academia, and industry on investment into emerging technologies. The event also saw the inauguration of China-BRICS Research Center for New Productive Forces.



Thought Leadership and Impact: Insights from C4IR Saudi Arabia and the World Economic Forum

C4IR Saudi Arabia Annual Report
2025

Read the report

Rethinking AI Sovereignty:
Pathways to Competitiveness through Strategic Investments (Contributor)

Read the paper

Global Value Chains Outlook 2026:
Orchestrating Corporate and National Agility (Contributor)

Read the report

Showcased the innovative work of Terraxy – a King Abdullah University of Science and Technology (KAUST) start-up transforming organic waste into arid land soil solutions

Watch the video

05 Looking Ahead

World Quantum Day (WQD) 2026 – Shaping the Quantum Workforce

C4IR Saudi Arabia, in strategic partnership with King Abdulaziz City for Science and Technology (KACST), King Salman Science Oasis (KSSO), the Institute for Advance Studies and Cooperation (IASC), and ICB Labs will lead the Kingdom's celebration of World Quantum Day 2026. Hosted at KSSO, this initiative is designed to foster public engagement and accelerate the Kingdom's readiness for the quantum era by targeting a diverse audience of students and young innovators.

WQD 2026 Presents:

Quantum Journey Exhibition

An immersive quantum journey from the 7th to the 16th of April for youth and students aged 14 years old and above

Quantum Forum 2026:

High-level keynote and panel discussions on the 30th of August that will convene policymakers, industry leaders, researchers, and innovators from across the global quantum ecosystem

WQD 2026 Objectives

Advance
Awareness of quantum technologies through interactive exhibitions and hands-on learning experiences

Introduce
Core concepts and link them to real-world applications and future opportunities in emerging technologies

Translate
Global quantum discourse into nationally relevant insights aligned with Vision 2030

Our 2026 event builds on the success of World Quantum Day 2025, which brought together policymakers, industry leaders, and researchers from around the world to share their insights on guiding national and global quantum transformation through strategic governance, education, and investment.

23 Speakers

11 Expert-led speeches and discussions

338 Guests

362K Online audience

The event also served as the platform for the conclusion of the **Quantum for Society UpLink Challenge**, connecting global innovators with partners and resources to scale impact. Watch our documentary on the challenge **here.**

C4IR Saudi Arabia Webinar Series - Industry 5.0

Building on the success of the Quantum Nexus webinar series held through 2025, C4IR Saudi Arabia's comprehensive nine-part webinar series is enabling education to advance frontier technology readiness in the Kingdom. Structured around three key pillars focused on talent, sustainability, and resilience, the webinar series will give participants access to expert speakers with insights into 4IR technologies and issues ranging from AI and cybersecurity to human augmentation and ensuring societal value.

Sessions:

Pillar 1

Talent: Technology Innovation in Industry 5.0

- April – Human Augmentation in Industry 5.0
- May – Human-Centric Policy Foundations
- June – Skills, Education, and Workforce Readiness for Industry 5.0

Pillar 2

Sustainability: Policy and Governance for Responsible Innovation

- July – Sustainability in Industry 5.0: Technologies Shaping a Regenerative Future
- August – Industry 5.0 in the End of Cost-Only Procurement Toward Societal Value
- September – Intelligent Healthcare Systems in the Industry 5.0 Era

Pillar 3

Resilience: Market Dynamics and Value Creation in Industry 5.0

- October – How Industry 5.0 Redefines Economic Competitiveness
- November – Building Supply Chains in the Age of Geopolitics and AI
- December – Digital Resilience Under Pressure: Cybersecurity, AI, and the New Threat Landscape

2026 – The Year of Artificial Intelligence

In March, Saudi Arabia designated **2026 as its Year of Artificial Intelligence**, reflecting a commitment to taking a lead in advancing the responsible adoption of frontier technologies, as the Kingdom places AI at the center of its economic and governance transformation under Vision 2030. Saudi Arabia is currently ranked 14th globally in the **2025 Global AI Index** and has become the first Arab nation to join the **Global Partnership on AI (GPAI).**

Saudi Arabia is making rapid strides in AI development, with companies in the Kingdom already having secured roughly ﷼ 34 billion ($9.1 billion) in funding. **HUMAIN**, the Kingdom's first full-stack AI company, is driving innovation through Arabic-language LLMs, a national AI operating system, and wide-ranging investment in data centers and other compute infrastructure.

Saudi Arabia also hosts the UNESCO-sponsored **International Center for Artificial Intelligence Research and Ethics (ICAIRE)**, reflecting the Kingdom's scientific, cultural, and humanitarian commitment to deploying these technologies in service of humanity.

At C4IR Saudi Arabia, we are proud to be taking a role in informing these strides through thought leadership, research, and our membership in international organizations and partnerships. These include the **World Economic Forum's AI Governance Alliance**, through which we contribute to the development of practical governance frameworks that promote transparent, inclusive, and responsible AI adoption both nationally and globally; and our partnership with C4IR India on the **AI for Agricultural Innovation (AI4AI) project**.

As the Year of AI unfolds, C4IR Saudi Arabia will collaborate closely with our long-term partner, the **Saudi Data and Artificial Intelligence Authority (SDAIA)**, alongside local and global stakeholders, as we fulfil our mission to advance the responsible, equitable, and sustainable adoption of AI and other frontier technologies.

Emerging Trends Shaping the Fourth Industrial Revolution

The evolution of the 4IR in 2026 is expected to be shaped by key issues around technological convergence and governance, as the transformation of our societies and economies continues to accelerate. Here are the key trends shaping the ecosystem.

World Economic Forum expands global 4IR network

Five new 4IR centres were launched at the World Economic Forum's 2026 Annual Meeting to convene governments, industry, and experts to accelerate and promote advanced and frontier technologies.

These include:

- The European Centre for AI Excellence (France), launched in partnership with VivaTech, will accelerate responsible AI innovation and adoption to strengthen cross-sector AI collaboration.
- The Centre for AI-Driven Innovation (UK), hosted by Imperial College London, will focus on advancing AI deployment across key sectors.
- The Centre for Intelligent Future (UAE), hosted by MBZUAI will strengthen global AI capabilities
- The Centre for Frontier Technologies (UAE), hosted by the Technology Innovation Institute, will advance innovation in quantum technologies, robotics, and space.
- The Centre for Energy and Cyber Resilience (India), established in partnership with the Government of Andhra Pradesh, will promote innovation-led approaches to the energy transition while strengthening cyber resilience.

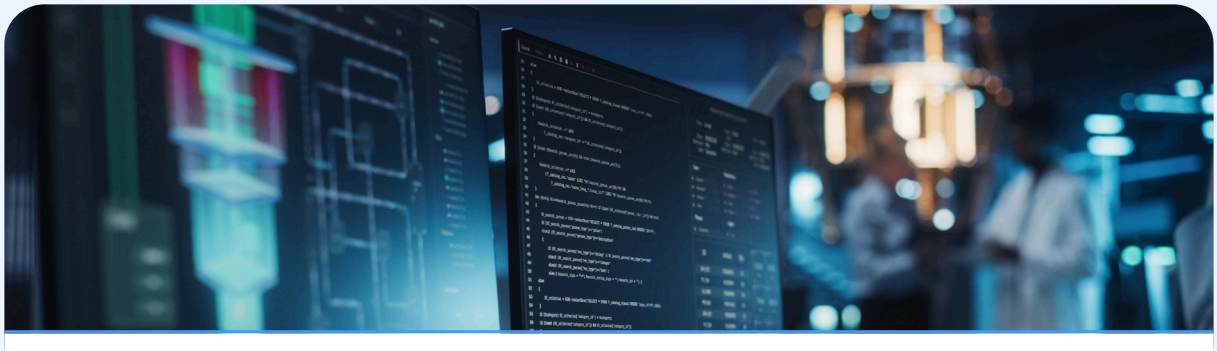
Learn more here

From Digital to Intelligent Systems

AI and data-driven systems are becoming core infrastructure across government, industry, and cities as the focus shifts from theoretical experimentation to practical, scaled deployment.

Read more:

- **Deloitte – The State of AI in the Enterprise**
- **WEF – Proof over Promise: Insights on Real-World AI Adoption from 2025 MINDS Organizations**

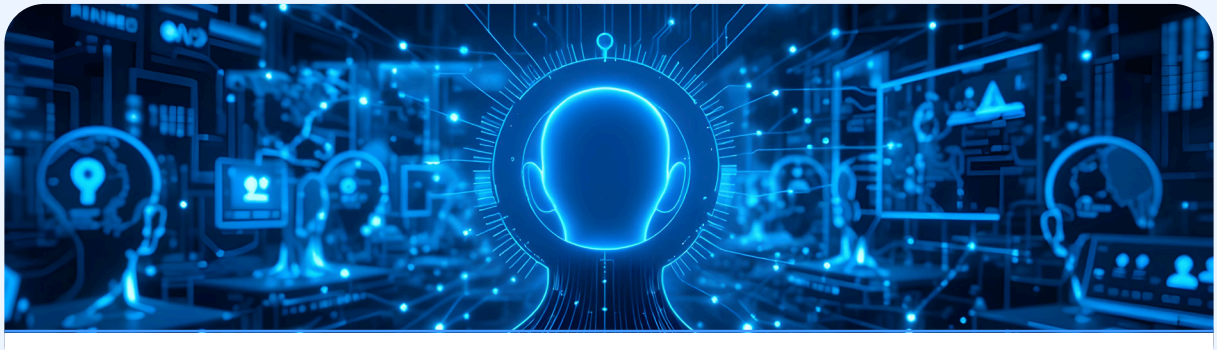


Cybersecurity, AI-Driven Defense, and Quantum-Safe Strategies

Cyber threats continue to evolve with AI-assisted attacks and autonomous threat actors, but preparations for post-quantum encryption and resilient security architectures are accelerating.

Read more:

- WEF - Global Cybersecurity Outlook 2026
- Thales - AI, Quantum, and the New Threat Frontier: What Will Define Cybersecurity in 2026?
- IBM – 2026 X-Force Threat Intelligence Index
- SecurityWeek - Cyber Insights 2026



Technology Convergence Accelerates

AI, quantum, robotics, energy, and biotech are increasingly converging, unlocking new value. This convergence raises new governance and societal considerations.

Read more:

- Springer Nature - Governing the AI–biotech convergence
- Stanford University – Stanford Emerging Technology Review
- IBM – The trends that will shape AI and tech in 2026
- WEF – Agile AI governance: How can we ensure regulation catches up with the technology

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