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How can the GCC region position itself as an AI leader?

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Contents

GCC as a leader of global AI development

Artificial intelligence (AI) is transforming our world, revolutionizing industries, and societies on a global scale. The countries that are able to leverage the potential of AI while adeptly navigating its intricate challenges will not only pioneer AI development but also shape international standards in this rapidly evolving field.

With ambitious national development plans, bustling innovation ecosystems and the relative advantage of not being hindered by legacy systems, GCC countries have a distinct opportunity to harness AI's transformative power and lead its advancement. This proactive stance on innovation has already shifted the global perception based on inputs from our experts across the world. Through focused and sustained efforts, GCC countries have made significant progress in effectively narrowing the innovation gap[1] and appear to be rapidly approaching the benchmark set by global frontrunners like Singapore, the United States (US), and the United Kingdom (UK).

However, embracing AI is fraught with complexities. It is not just about adopting new technologies; it is about integrating them in a way that aligns with national values, and balancing immediate and long-term needs. Based on our experience in the region, the dynamic landscape of recently launched digital initiatives, along with other challenges such as complex governance, talent attraction, and regulatory flexibility, etc.

To understand how to best adopt AI, one needs to first understand what AI really is, the different approaches to AI in other countries, and the key objectives for the GCC region. This article provides key considerations on how to best adapt to the age of AI, delving into relevant areas to provide an understanding and insights for stakeholders interested in AI or currently navigating the sector.

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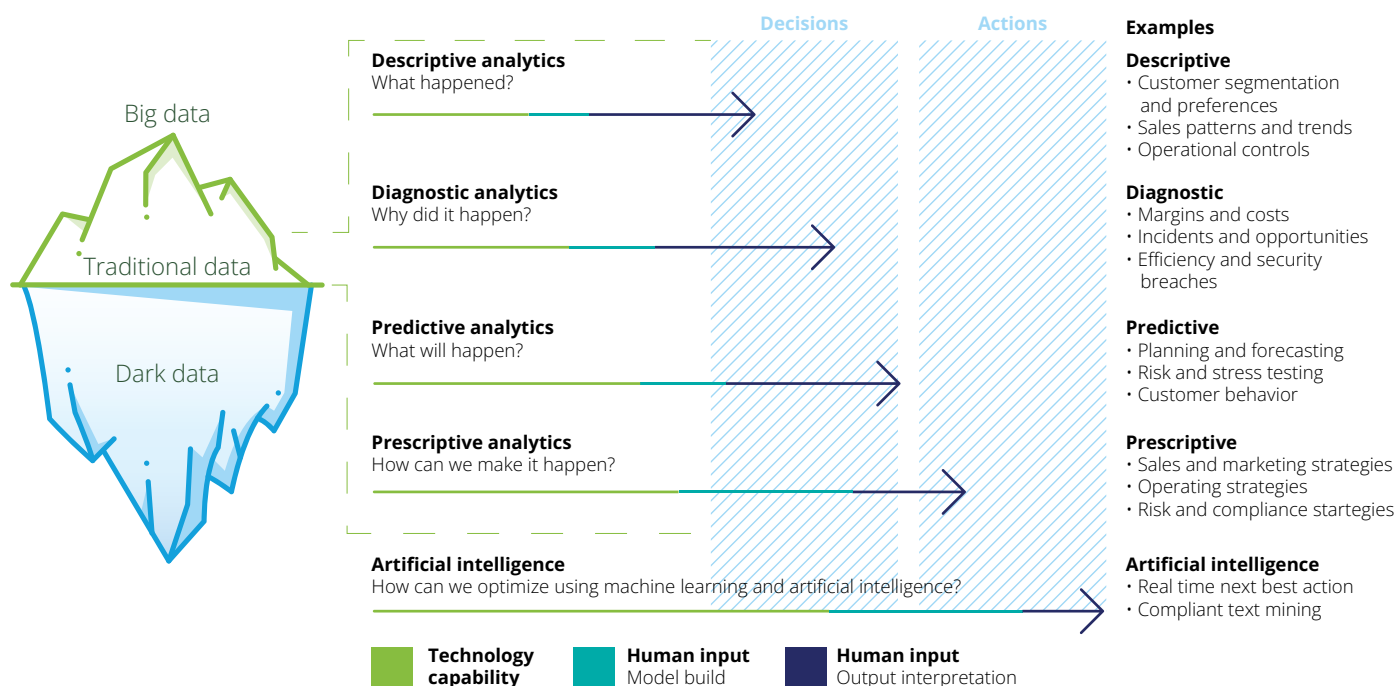
Difference between Analytics and AI

AI, gaining prominence through tools such as ChatGPT, Perplexity, and Gemini, has the potential to be a transformational technological force. AI's objective is to mimic human intelligence, automating tasks that once required human input. AI pushes the boundaries of traditional analytics - advancing from diagnostic and predictive analytics towards being fully autonomous decision-making and problem-solving. Typically, mainstream analytics relies on structured data and predefined models for insight generation. Going beyond these techniques, AI leverages advanced algorithms, large language models, and machine learning methodologies. These allow for processing complex, unstructured data, like images or natural language, and continual improvement through learning. Such processing essentially mimics the manner in which humans process information and allows for autonomous and intelligent solutions.

AI and Analytics: AI pushes the boundaries of traditional analytics, driving decisions and actions with limited to no human input

Big data

Traditional data

Dark data

Decisions **Actions** **Examples**

Descriptive analytics
What happened?

Diagnostic analytics
Why did it happen?

Predictive analytics
What will happen?

Prescriptive analytics
How can we make it happen?

Artificial intelligence
How can we optimize using machine learning and artificial intelligence?

Descriptive
· Customer segmentation and preferences
· Sales patterns and trends
· Operational controls

Diagnostic
· Margins and costs
· Incidents and opportunities
· Efficiency and security breaches

Predictive
· Planning and forecasting
· Risk and stress testing
· Customer behavior

Prescriptive
· Sales and marketing strategies
· Operating strategies
· Risk and compliance startegies

Artificial intelligence
· Real time next best action
· Compliant text mining

Technology capability	**Human input** Model build	**Human input** Output interpretation

What should GCC countries be doing?

GCC countries have set ambitious goals to transform and diversify their economies, beyond fossil fuels. To meet these ambitious goals with the support of AI, GCC countries might benefit from adopting best practices and innovative strategies from nations that have already made significant advancements in the field of AI.

Focus areas of leading global benchmarks

Like the GCC region, leading countries and regions globally have recognized the potential of AI and are capitalizing on distinct areas based on their existing strengths. Singapore, in it's first ~US$370M[2] National AI strategy launched in 2019, has focused on talent attraction and private sector growth resulting in 150 teams working on research and development, and 900 startups exploring new ideas with AI. Based on the tangible impact of the National AI strategy, Singapore has launched National AI Strategy 2.0 (NAIS 2.0) with an increased budget of ~US$743M[3] over the next five years focusing on AI compute, talent, and industry development.

The European Union has been a pioneer in drafting regulations for emerging technologies, and the AI Act[4] is a landmark initiative in this regard. The AI Act sets clear requirements and obligations for AI developers, particularly regarding high-risk AI systems, while reducing administrative and financial burdens for businesses. The AI Act is part of a wider package of policy measures, including the AI Innovation Package and the Coordinated Plan on AI, to support the development of trustworthy AI that respects fundamental rights, safety, and ethical principles.

AI Publications against GDP per Capita: China and USA are leading the AI race, with India pushing within emerging economies
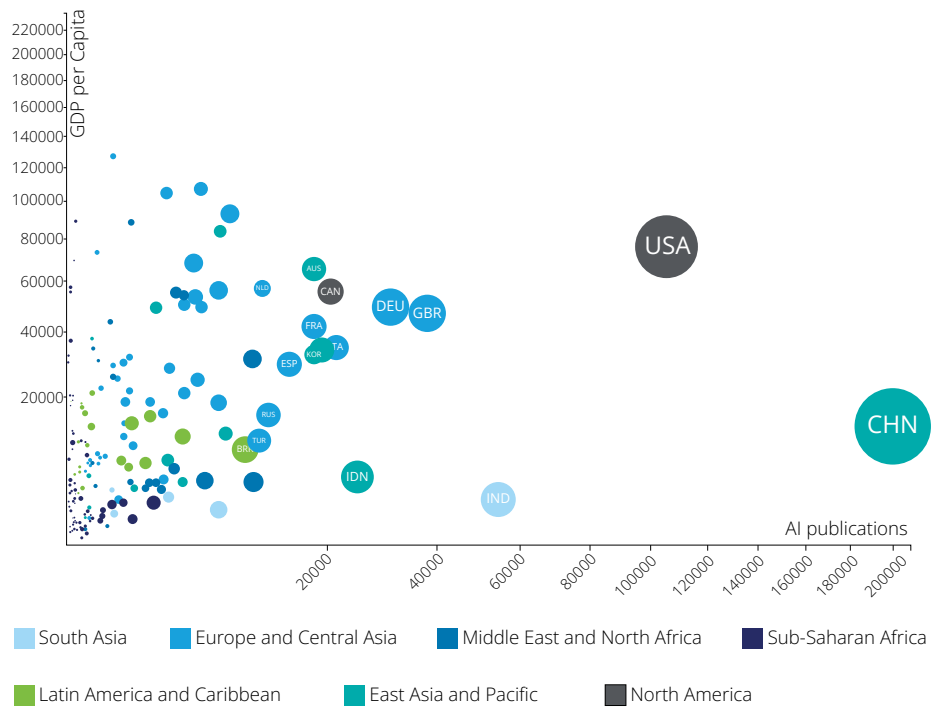

Figure 1: Number of AI publications vs GDP per capita; OECD

The US has relied on its world-leading research and development ecosystem. Its federal government has allocated $2.9B[5] towards AI R&D in 2022, further increasing this investment to US$2.95 billion[5] in 2023. Such substantial funding underscores the government's recognition of AI as a pivotal catalyst for national R&D initiatives. Notably, 60%[6] of globally acknowledged top-tier researchers are based in universities in the US. This concentration of intellectual capital fosters a world-leading AI research ecosystem, as evidenced by the high number of AI publications by GDP per capita compared to other countries, continually attracting top talent in the field to the US.

Like the GCC region, leading countries globally have recognized the potential of AI and are capitalizing on distinct areas based on their existing strengths

The other country leading R&D in AI is China. China has incorporated an AI strategy that focuses on investment in core infrastructural and R&D enablers of AI development. The investment in the National Engineering Laboratory of Deep Learning Technology, among other initiatives like AI City[7], has enabled core infrastructural development.

While the US and China may not serve as benchmarks for GCC countries due to their high level of current maturity, their development trajectories can offer valuable insights and guidance for GCC countries' own path forward. Whether through strategic talent acquisition or substantial investments in research and development, a shared characteristic among leading countries is their well-defined AI strategies, which clearly outline their ambitions and investment priorities.

Governments across the GCC have already demonstrated their interest in designing and implementing AI strategies to support ambitious national goals. Government initiatives are in place, for example, the United Arab Emirates (UAE) has launched the UAE Strategy for Artificial Intelligence 2031, which aims to position the country as a global leader in AI across various sectors. Additionally, the region is focusing on creating pivotal AI research centers, with key establishments like the Kingdom of Saudi Arabia (KSA)'s SDAIA-KAUST Center of Excellence in Data Science and AI, Qatar's QCAI, and UAE's Mohamed bin Zayed University of Artificial Intelligence, underscoring this strategic commitment.

Reviewing the efforts on AI across the region and the globe, we identify key objectives for GCC countries to firmly establish themselves as frontrunners in the AI domain:

1. Alignment of AI initiatives with national aspirations and strengths

2. Training, attraction, and retention of talent

3. Fostering an innovative ecosystem

4. Establishment of appropriate governance and a synergistic culture

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Key objectives for GCC countries

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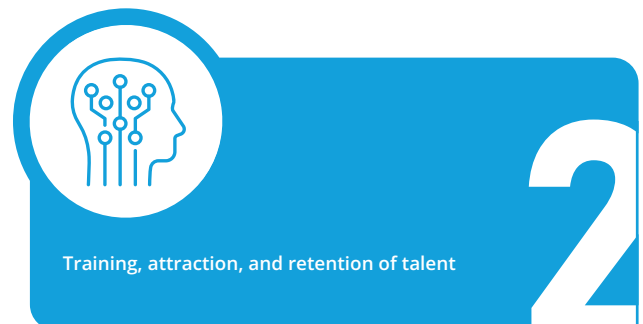
How should GCC countries achieve these objectives?

1. Positioning AI as an 'Enabler' and a 'Tool' to achieve national aspirations

AI is projected to add US$200 billion to the GDP of KSA[8], and US$96 billion to the GDP for the UAE[8] by 2030. Given the potential impact of AI and the focus of economic diversification in GCC countries, it is imperative that AI is positioned as a powerful catalyst within the national development frameworks of GCC countries, acting as an integral component of a comprehensive strategic vision. This approach positions AI as a key enabler and a tool for accelerating the development and implementation of a wide range of initiatives. For example, China's national AI strategy frames AI as a national strategic priority, underscoring AI's pivotal role in economic and social development across healthcare, education, and environmental protection.

Over the past decade, a surge in advancement efforts has led to a multitude of strategies and initiatives across the GCC region. This has resulted in a complex and interconnected landscape that creates an ideal environment for the development and adoption of fast-paced technology such as AI. However, these efforts also result in few common challenges such as overlapping mandates and organizational silos.

To address the issue of overlapping mandates and organizational silos, it is imperative to take a cohesive approach in the development of a national AI strategy, which has the buy-in from the country's leadership and drives alignment with all the other relevant initiatives in the country. For example, Singapore's Smart Nation Group, which is responsible for developing the National AI strategy and the Smart Country program, is part of the Prime Minister Office, exemplifying the holistic integration of AI across various sectors, including urban planning, transportation, finance, and healthcare, thereby showcasing the transformative impact of AI on national development.

2. Cultivating talent: Train, attract, and retain

Demand for AI talent is expected to further grow in the region evidenced by the 2023 World Economic Forum's Future of Jobs report, with a projected 29%[9] rise in Saudi Arabia and a 39%[9] surge in the UAE over the next five years.

Cultivating human capital has emerged as a cornerstone for GCC countries over the past decade, highlighting the importance of empowering individuals with the skills and knowledge necessary to navigate the evolving technological landscape. Due to the focus on training talent, it is no surprise that GCC countries have been at the forefront, integrating AI-centric curricula across schools and universities, recognizing the crucial role of education in laying the foundation for AI proficiency.

K–12 AI curricula, endorsed and implemented by governments

Country	Curriculum title	Curriculum developer	Education level			Status
			Primary	Middle	High	
Kuwait	Standards curriculum	Curricula technical guidance experts and teachers	✓	✓		Endorsed and implemented
Qatar	Computing and information technology	Binary logic, Ministry of Education and higher-education	✓	✓	✓	Endorsed and implemented
	Computing and information technology (High Tech Track)				✓	Endorsed and implemented
UAE	AI curriculum embedded under the technology subject framework	Ministry of Education	✓	✓	✓	Endorsed and implemented
KSA	Digital skills	Ministry of Education	✓	✓	✓	In development

Source: Monitor Deloitte Analysis, UNESCO: K-12 AI curricula, 2022; https://unesdoc.unesco.org/ark:/48223/pf0000380602

The focus on talent is also evidenced through the AI program at King Abdullah University of Science and Technology in Saudi Arabia and the Mohamed bin Zayed University of Artificial Intelligence (MBZUAI) in Abu Dhabi, the world's first AI-focused school. Input from relevant individuals note that the vast majority of the MBZUAI's graduates remain in the area to pursue employment with regional companies and laboratories[10].

While GCC countries have made strides in developing the education curriculum, a special need is observed to train government officials for the AI-linked initiatives to be adopted and 'championed' in and across entities breaking organizational silos.

In regard to attracting talent, amongst G20 countries, KSA has illustrated a net positive migration of AI skills. This influx of talent is crucial and emphasizes the imperative nature of cultivating human capital for AI strategy implementation.

In terms of hiring AI talent, UAE serves as a beacon in the GCC region, marking its presence as the 5th global[11] rank holder in the relative AI Hiring Index for 2022. The relative AI Hiring Index measures the degree to which the hiring of AI talent is changing, more specifically whether hiring AI talent is growing faster than, equal to, or more slowly than the overall hiring in a particular geographic region.

A strategic balance between an enticing value proposition such as UAE's Golden Visa, well-defined career paths, a fast-paced innovation ecosystem and offshore services can further accelerate AI strategies for GCC countries and leverage international talent.

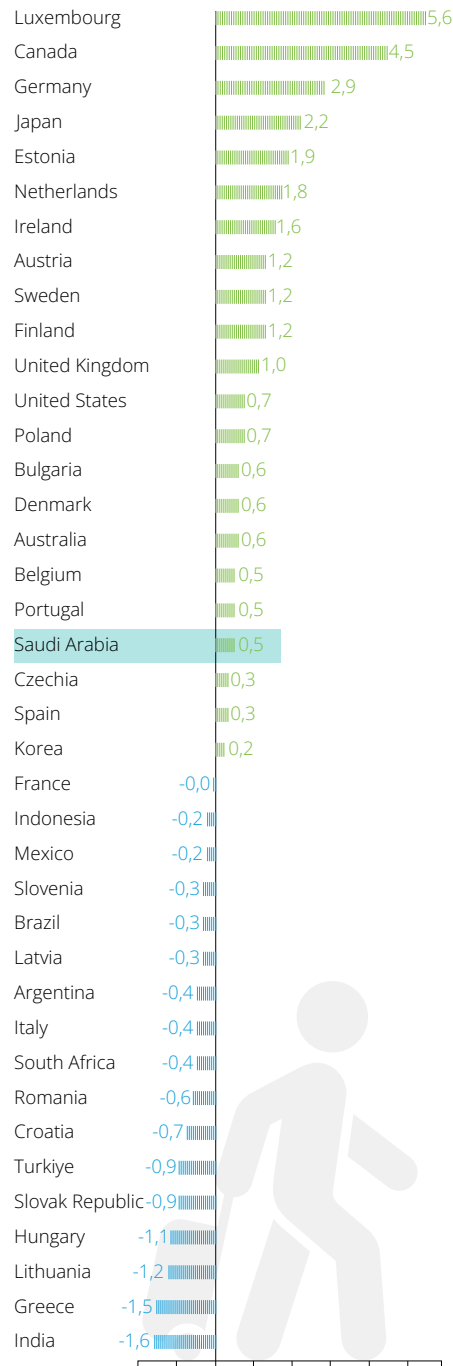| Country	Value
Luxembourg	5,6
Canada	4,5
Germany	2,9
Japan	2,2
Estonia	1,9
Netherlands	1,8
Ireland	1,6
Austria	1,2
Sweden	1,2
Finland	1,2
United Kingdom	1,0
United States	0,7
Poland	0,7
Bulgaria	0,6
Denmark	0,6
Australia	0,6
Belgium	0,5
Portugal	0,5
Saudi Arabia	0,5
Czechia	0,3
Spain	0,3
Korea	0,2
France	-0,0
Indonesia	-0,2
Mexico	-0,2
Slovenia	-0,3
Brazil	-0,3
Latvia	-0,3
Argentina	-0,4
Italy	-0,4
South Africa	-0,4
Romania	-0,6
Croatia	-0,7
Turkiye	-0,9
Slovak Republic	-0,9
Hungary	-1,1
Lithuania	-1,2
Greece	-1,5
India	-1,6

Figure 2: OECD AI skills migration (per 10,000 LinkedIn members)

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3. Developing and fostering an innovative ecosystem

To cultivate a vibrant and fast-paced innovative ecosystem, it is crucial to nurture a dynamic interplay between research, human capital, financial capital, and supporting elements like infrastructure, regulation, and a culture of openness and collaboration.

In terms of funding, GCC countries have assigned ambitious targets for investments in AI and Data. For instance, KSA, as part of the National Strategy for Data & AI, aims to to locally invest ~US$12 billion in the sector by 2030[12]. The venture capital (VC) industry is still in the nascent stages in the region, as evidenced by the sum of investments in AI and data startups by VC in the region, government funding is expected to take the lead in providing the required financial capital to build the infrastructure and attract talent.
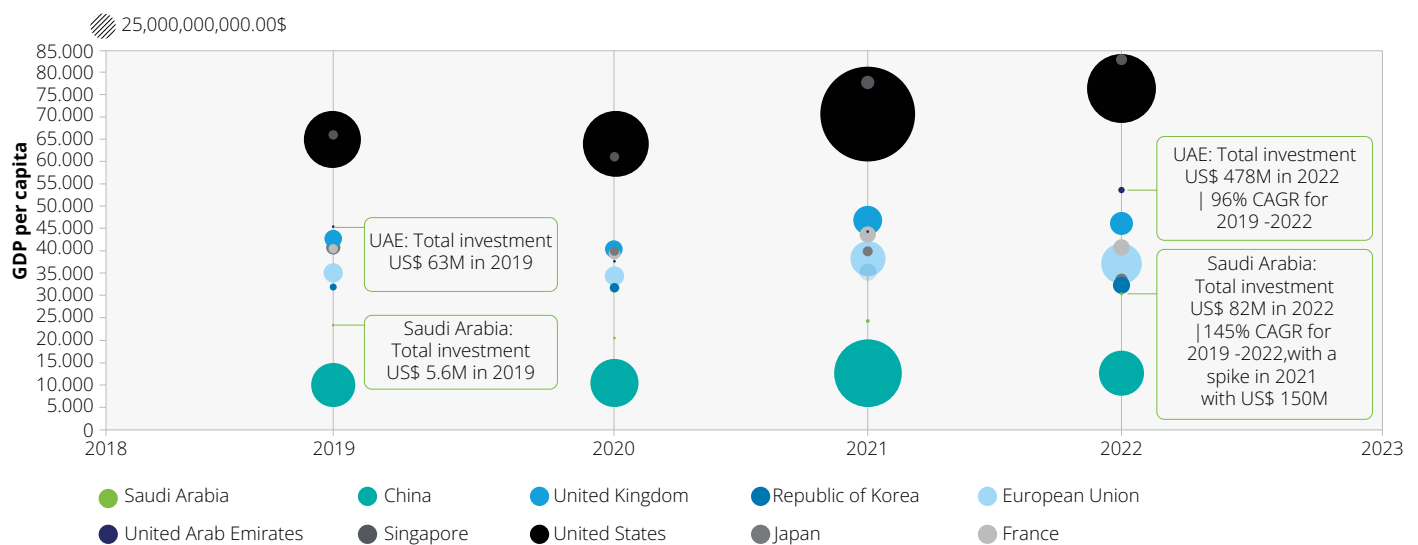
Source: Monitor Deloitte Analysis, OECD, World Development Indicators

Figure 3: Total VC Investments in AI and GDP per capita

These strategic national investments have already seen commitments realized and tangible results for developing the required infrastructure. Saudi Arabia is in the process of securing 3,000 NVIDIA's H100 chips[13], while the UAE has already trained and developed a large-language-model, called Falcon 180B, that contains 180 billion parameters and is trained on 3.5 trillion tokens. Based on the MMLU (Massive Multitask Language Understanding) benchmark[14], Falcon 180B outperforms GPT 3.5 developed by OpenAI and LLaMA2 developed by Meta. The commitment to acquire high-performance chips and the development of Falcon 180B and other models like Jais reflect the region's focused efforts to contribute to the global AI ecosystem, particularly by addressing the underrepresentation of the Arabic language in AI applications.

In order to further develop the required enablers for the ecosystem, the region can consider developing AI-specific legislations to further provide support to the private sector. For example, the UK has drafted specific guidelines for procurement of AI services and infrastructure[15].

Regulatory policies are an important enabler required for the development of AI. Dubai's AI Principles and the European Union's AI policies both aim to guide the ethical use of artificial intelligence (AI). Dubai's AI Principles, launched in 2019, are non-statutory and non-audited guidelines focusing on ethics, security, humanity, and inclusiveness. They provide a self-assessment tool for developers to assess their platforms. On the other hand, the EU's approach is more regulatory. The EU has proposed the AI Act, the world's first comprehensive AI law, which regulates the use of AI in the EU, ensuring safety, transparency, traceability, non-discrimination, and environmental friendliness. Given the fast-pace of AI development and the number of AI incidents increasing 1000+% y-o-y[16], there is an urgency for GCC countries to take a stronger regulatory approach to AI policies.

We believe that by implementing the appropriate incentives and establishing the necessary supportive mechanisms, GCC countries can cultivate an ecosystem that not only propels the growth of startups but also fosters a culture of innovation and advancement.

4. Establishing governance and synergistic culture

For effective AI advancement, government entities must lead through a robust collaboration and transparency framework. Establishing a clear and empowered interaction model is critical for defining precise roles, fostering stakeholder collaboration, and promoting data openness. Key to this is developing an AI Committee and clarifying its role to align the governance model with strategic initiatives, and securing senior leadership support within government entities. Incentivizing AI initiative adoption is crucial for realizing the AI strategy vision.

A prime example is the UAE Artificial Intelligence Minister's role, acting as a custodian and orchestrator, setting a standard for AI governance. This position exemplifies the necessary structure, driving, owning, and leading AI development with relevant stakeholders.

Leadership commitment at all levels is vital, integrating AI advocacy into speeches, activities, and policymaking. This top-down and bottom-up synergy cultivates an AI-innovative culture, a shared vision across government and industry sectors.

Conclusion

There is a widely accepted consensus that innovation and technology stand as pivotal harbingers of transformation in the global landscape, alongside other drivers like trade, economic output, and education. Historically, nations leading in technology have reaped substantial benefits, catalyzing cycles of economic and societal advancement. As GCC leaders set ambitious blueprints for economic and societal elevation, pioneering in the development and adaptation of artificial intelligence can potentially create a flywheel of ecosystem development by attracting top-tier talent, enhancing private sector productivity, and fostering innovations. In this respect, embracing AI can serve as a catalyst, projecting the GCC's presence prominently in the global technological arena, driving economic diversification, and reinforcing social infrastructures, allowing the region to carve a distinctive niche in the evolving world order.

As GCC leaders set ambitious blueprints for economic and societal elevation, pioneering in the development and adaptation of artificial intelligence can potentially create a flywheel of ecosystem development by attracting top-tier talent, enhancing private sector productivity, and fostering innovations

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16. OECD AI Incidents Monitor (AIM)

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