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The Globalization of Artificial Intelligence and Regional Integration in West Asia

Marzieh Javadi Arjmand^{1*}  | Rahim Afsharian² 

1. Corresponding Author, Assistant Professor, Faculty of World Studies, University of Tehran, Iran. Email: mz.javadi@ut.ac.ir

2. PhD Student of Regional Studies, University of Tehran. Email: afsharianrahim@ut.ac.ir

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ABSTRACT

Artificial Intelligence, as a leading technology in the 21st century, has had widespread impacts on various political, economic, and social aspects globally. The present paper tries to answer the question of how this technology can be used as a tool to facilitate regional cooperation in West Asia and strengthen convergence among the countries in the region. The neo-functionalism theory, emphasizing the role of technical cooperation in creating mutual dependence among states, provides an appropriate framework for analyzing this issue. Based on this theory, cooperation in technical domains can lead to cooperation in other areas and bring about the convergence of countries in the region. The research method employed in this research is practical, aiming to connect two different domains: "technical issues" and "regional integration," in a developmental approach. It is hypothesized that artificial intelligence, as an interdisciplinary technology, can help create cooperation networks among countries. The findings show that these networks not only promote knowledge and technology exchange but also have the potential to increase mutual trust among nations. Since West Asia stands at the crossroads of AI globalization, current choices will significantly influence its socio-economic trajectory and cultural resilience in the coming years. AI-driven integration in West Asia presents a dual narrative of technological ambition and continuous fragmentation. While Persian Gulf countries demonstrate AI's potential to transcend traditional economic boundaries through smart infrastructure and digital services, broader regional integration requires addressing critical gaps in governance capacity, cultural adaptation, and sustainable implementation. The emergence of Arabic-language AI systems offers unprecedented opportunities for knowledge sharing among Arab countries, but concurrent risks such as algorithmic bias and excessive energy consumption call for proactive policy responses.

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1. Introduction

Artificial Intelligence is not a new topic in the world of technology. For years, computer experts have been discussing AI-related theories and methods at academic levels. Since 2020, with the surge of COVID-19 and later, in late 2022, when OpenAI unveiled the ChatGPT AI robot, the topic suddenly became ubiquitous. It seemed as though a new phenomenon had entered the scene, and the rapid pace of developments became so overtaking that even the creators of new AI tools could hardly predict this trajectory. Over time, this process became a subject of interest across scientific, economic, political, social, and even legal and ethical circles worldwide. Given this context, it is likely that many social interactions cannot be imagined outside the influence of AI, and the globalization of AI has become an accepted fact. Alongside global developments, some countries in West Asia, through large-scale investments and collaborations with leading international companies, have taken significant steps toward growth and progress. By exploring the process of AI globalization and the proximity of West Asian countries to this phenomenon, this paper tries to show how the globalization of AI can lead to integration among West Asian countries. It seems that, based on the assumptions of neo-functionalism theory and starting from a technical domain—which, coincidentally, has deep and extensive connections with national policies—the groundwork for regional integration can be laid.

As one of the transformative technologies of the 21st century, AI is reshaping the world. The globalization of AI means the expansion and integration of this technology across geographical, cultural, and economic borders. This phenomenon not only impacts businesses but also societies, governments, and daily life. Technical collaborations in AI lead to economic convergence between countries. When countries become economically interconnected, mutual understanding becomes easier. People tend to prioritize profit compared to power, security, and status. In recent years, efforts—though often unsuccessful—have been made to foster integration in West Asia. Facilitating the growth of new technologies and expanding their reach to nations, then governments, provides a platform for re-evaluating regional integration from this perspective.

2. Literature Review

For the purpose of this research, the literature will be provided on the topics of Globalization of Artificial Intelligence, Developments in Artificial Intelligence in West Asia, and Regional Integration in the Framework of Neo-functionalism.

2-1. The globalization of AI

A. Korinek and J. E. Stiglitz (2021) analyze the economic forces behind AI developments and describe economic policies that would mitigate the adverse effects on developing and emerging economies while leveraging the potential gains from technological advances. E. Igbinenikaro and A. O. Adewusi (2024) outline policy recommendations aimed at facilitating the seamless incorporation of AI technologies into the framework of global trade agreements, highlighting both the existing challenges and opportunities for leveraging AI to drive economic growth and sustainable development. A study conducted by M. Sari et al. (2024) examines the impact of AI on developing countries, revealing a potential reversal of economic gains due to labor and resource savings, and proposes economic policies to mitigate negative effects. Another study explores the transformative potential of AI on employment, organizational competitiveness, community development, and national economic policies. Findings suggest that AI integration significantly boosts organizational competitiveness, improves socioeconomic outcomes, and influences workforce dynamics (Adigwe et al., 2024).

According to S. Ghavamipour Sarsheke and M. Mahmoudi (2024), in 2020, with the publication of various models, AI is expected to play an active role in business processes. This technology, like past industrial revolutions, will have a wide financial impact on social life.

Although AI has not yet reached the complexity of human intelligence, its current successes show that it has the capacity to influence organizations.

2-2. Artificial Intelligence Developments in West Asia

A 2018 study argued that AI is a priority for the government of United Arab Emirates, and since 2017, it has been seriously pursued through the "AI Strategy." This commitment has led to developments such as the elimination of government paper correspondence by 2021, resulting in significant savings in time and costs. The country, by appointing the world's first Minister of AI in 2017, actively promotes AI (Elsaadani et al., 2018). Another research indicates that Saudi Arabia has also organized and established the Saudi Data & Artificial Intelligence Authority (SDAIA), along with a national strategy for data and AI. Royal Decree No. 292 of the Council of Ministers, dated December 24, 2019, states in Clause 1, Article 10, that this organization is responsible for developing policies, governance mechanisms, standards, and controls related to data and AI. Additionally, the goal is for Saudi Arabia to compete as a leading economy in the use and export of data and AI by 2030 (Memish et al., 2021: 2). S. Naueihed (2024) also believes that West Asia's move toward AI dominance is not merely a technological race but a battleground of geopolitical interests where alliances are formed. At the core of these strategic calculations are the United States and China, both seeking dominance in AI, viewing it not only as a technological frontier but also as a matter of national security.

M. S. Akhoirshieda et al (2024) show that AI is being used more in the United Arab Emirates (UAE's) public sector to improve efficiency, cost savings, decision-making, and service delivery. W. Dafri (2023) delves into the UAE's pioneering strategies for implementing artificial intelligence (AI) within its government institutions, with a specific emphasis on its adoption of the 2031 National Artificial Intelligence Strategy. By prioritizing infrastructure development, fostering collaboration, investing in talent, ensuring data security, and supporting ongoing evaluation, the UAE demonstrates its dedication to harnessing AI's potential to elevate public services.

2-3. Regional Integration in the Framework of Neo-Functionalism

S. Shahbazi, H. Masoudnia and M. Goodarzi (2019) believe that just as a united Europe emerged from the ashes of World War II, West Asia can also achieve economic integration by overcoming the current situation within the framework of neo-functionalism theory, addressing challenges, and taking advantage of opportunities. This integration, centered on Turkey, should be extended to various sectors of cooperation with the assistance of Iran and Saudi Arabia. S. Zamanian Dehkordi, S. Abtahi, and A. Taheri (2021) emphasize the necessity of unity to preserve and sustain a political entity, advocating resistance against imposed divergence by foreign governments and regional convergence within the context of neo-functionalism as the solution to achieve this goal. They argue that Saudi Arabia, as one of the main obstacles to regional integration, seeks to halt this process using political, economic, and ideological tools.

B. Ahmadi (2022) also examines the potential of information and communication technology, especially cyberspace, in creating geopolitics of cooperation in the unstable Persian Gulf region. Emphasizing neo-functionalism, he asserts that digital transformation should not be seen as a threat but as an opportunity for regional collaboration. The core idea of the paper is to present a constructive and opportunity-driven perspective on cyberspace, which is often regarded as a threat in geopolitical discussions. The article proposes that Iran can present this idea as an official peace plan to regional countries and work towards implementing it.

Y. Karimipour and others (2017) emphasize the role of governments and regional institutions in facilitating economic cooperation and convergence in the Caspian Sea region. Given the diversity of actors and interests in this area, establishing cooperation mechanisms based on shared interests is crucial. Economic cooperation, especially in transportation, can serve as a

catalyst for increased interaction and tension reduction. M. Mokhtari and A. Adami (2017) also note that Iran's economic relations with –Persian- Gulf Cooperation Council (GCC), particularly Oman, despite potential capabilities, are not at an optimal level. The lack of economic complementary relationships between Iran and its neighbors has turned the interaction space into competition or even conflict rather than cooperation. Economic cooperation can act as a catalyst for extending collaboration into political and security domains, creating mutual dependencies, and fostering greater convergence while reducing regional tensions.

F. Shayan and M. A. Basiri (2022) also believe that the transfer of gas from Turkmenistan to European markets via Iran and Turkey faces multiple structural and geopolitical challenges. On one hand, Iran's geopolitical position as a bridge between Central Asia and Europe provides unique opportunities for energy cooperation with Turkmenistan and Turkey; on the other hand, economic sanctions against Iran and fierce competition with Russia in the European energy market pose serious obstacles. They conclude that energy cooperation among these three countries could lead to the creation of a new corridor in Eurasia, benefiting all parties. However, to realize this goal, it is necessary to remove existing barriers and establish a comprehensive, sustainable framework for technical cooperation.

West Asia presents a complex case for neo-functionalism due to its diverse political, economic, and cultural landscapes. While the region has seen some success in economic integration, such as the GCC's efforts to create a common market, political and security challenges have often hindered deeper cooperation. For example, the Arab Spring and ongoing conflicts in Syria, Yemen, and Libya have disrupted regional initiatives and highlighted the limitations of neo-functionalist approaches in highly fragmented environments (Barnett & Solingen, 2007: 265).

3. Theoretical Framework: Neo-functionalism and Regional Integration

After World War II in 1945, regional cooperation and convergence emerged as a prominent feature in international relations, and this trend was strengthened following the collapse of the Soviet Union in 1992 (Dehghani-Firoozabadi, 2009: 107). Intra-regional relation patterns, influenced by globalization, have also become common in developing regions. Theories of regionalism have evolved in tandem with these developments, especially by modeling after European convergence. In recent decades, the analysis of the concept of region and regionalism has increasingly focused on economic approaches. Countries have created new economic and trade arrangements, shaping specific economic zones that often lack geographic or human cohesion. Politically, a region is a spatial structure formed through alliances and coalitions of states within regional organizations. These alliances are typically established for social, economic, political, and military objectives and may or may not have geographical continuity.

Neo-functionalism is one of the significant theories in studying the processes of regional integration, developed by Ernst Haas and colleagues during the 1950s and 1960s. This theory serves as an analytical framework for understanding how transnational cooperation in Europe and other regions is formed and sustained. Neo-functionalism based on the idea that regional integration begins gradually through technical and economic cooperation and, over time, progresses toward higher levels of political and institutional integration (Haas, 1958: 16). Its goal is to create a political union at the international level through this process of integration, which occurs gradually using functional tools. While functionalists believe that tasks determine the shape and goals of organizations, neo-functionalists focus on the role and influence of international organizations and independent stakeholder groups (Koolaei, Sazmand, and Rezaei, 2023: 108). Unlike functionalism, which does not limit integration to specific sectors, neo-functionalism concentrates on particular fields. Contrary to D. Mitrany's view that public

support is the main driver of change, neo-functionalists regard elite perspectives and their transformations as crucial (Schmitter & Niemann, 2009: 46-47). Haas added a utilitarian dimension to functionalism, emphasizing the benefits derived from interactions, and presented neo-functionalism as a theory relevant to empirical studies of European unity. The process of convergence begins with cooperation in non-sensitive areas and evolves into functional integration (Moshirzadeh, 2015: 62).

The core concept of neo-functionalism is spillover. This concept states that cooperation in one sector (e.g., AI) can extend to other areas such as politics, security, etc. (Haas, 1964: 48). In other words, success in one domain creates pressure for increased cooperation in related sectors (Lindberg, 1963: 283). Economic convergence enhances interactions among actors within a converging region, and transnational institutions seek to deepen integration across various fields to increase regional benefits and gains (Rosamond, 2000).

Spillover was first used in two distinct ways: (1) as a shorthand to describe greater integration; (2) to identify the driving force and inherent logic of convergence through increasing functional/economic dependencies. Haas (1958: 383) refers to the logic of "spillover of sectoral integration," where integration in one sector exerts "technical" pressures to push governments toward integrating other sectors. This idea suggests that some sectors are so interconnected that separating them from others is impossible. Therefore, sectoral integration at the regional level is only feasible in conjunction with convergence in other sectors because problems arising from functional task integration can only be addressed through further task amalgamation. Haas (1958: 297) believed that sectoral integration motivates spillover into the entire economy. For example, the vitality of coal and steel cooperation would weaken unless related sectors such as transportation policy also adopted similar patterns to ensure the smooth movement of raw materials.

Neo-functionalists emphasize on the central role of political, economic, and administrative elites in the process of integration. These elites, by understanding their own interests in cross-border cooperation, seek to advance common goals and support transnational institutions (Schmitter, 1970: 88). Additionally, transnational institutions play a very important role in the integration process. By creating mechanisms for joint decision-making and implementing coordinated policies, they help strengthen cooperation and reduce friction among states (Keohane & Nye, 1977: 45).

One of the main aims of the integration process is the transfer of loyalties from nation-states to transnational institutions. As the importance and effectiveness of transnational institutions increase, citizens and elites gradually shift their loyalty toward these institutions (Deutsch et al., 1957: 5). This theory argues that transnational institutions seek to increase their power and influence. By establishing new laws and regulations, they lay the groundwork for further integration (Lindberg, 1963: 72). Social learning in neo-functionalism refers to a process whereby political and economic actors, through ongoing interactions, change their attitudes and behaviors, gradually moving toward the acceptance of shared identities and interests (Schmitter, 1969: 163).

Haas (1964) and Lindberg (1963) show notable sympathy toward the European integration project in their writings; although Haas argued that the goal of his theory was merely to describe, explain, and predict (Haas, 1970: 627-8), it was also considered as a basis for prescription (Tranholm-Mikkelsen, 1991: 4). He defines integration as:

Political integration is the process whereby political actors in several distinct national settings are persuaded to shift their loyalties, expectations and political activities toward a new center, whose institutions possess or demand jurisdiction over the pre-existing national states. The end result of a process of political integration is a new political community, superimposed over the pre-existing ones (Haas, 1958: 16).

However, Lindberg's definition of integration is somewhat different:

(1) A process in which nations abandon the desire and ability to independently conduct foreign and domestic policies and instead seek to adopt joint decision-making or delegate decision processes to new central authorities.

(2) A process in which political actors in several distinct environments are persuaded to shift their expectations and political activities toward a new center (Lindberg, 1963: 6).

Despite its extensive use, neo-functionalism has also faced numerous criticisms. Some critics believe that this theory overemphasizes the role of elites and transnational institutions, neglecting the roles of nation-states and political factors (Moravcsik, 1993, p. 480), and pays little attention to factors such as culture, identity, and national interests (Hoffmann, 1966: 86). Additionally, some argue that neo-functionalism is unable to fully explain integration processes in other regions of the world, such as Asia and Africa (Hurrell, 1995: 337). Recent economic and political crises, like the Euro crisis, have shown that national interests still play a crucial role in shaping state policies and can hinder the progress of integration. On the other hand, neo-functionalism does not clearly specify under what conditions expanded cooperation occurs; nor does it explain why states cannot intervene when cooperation shifts from economics to politics (Koolae, Sazmand, and Rezaei, 2023: 110). However, some scholars implicitly—or even explicitly—recognize the value of neo-functionalism, suggesting that this approach still includes certain useful building blocks for contemporary theorizing (e.g., Keohane and Hoffmann, 1991; Marks et al., 1996; Pierson, 1996).

4. Methodology

This research is development-oriented and an effort to connect two different fields: technical issues and regional integration. The purpose of this applied research is to identify principles and rules that can be applied in real-world situations and help improve the product and efficiency of operational methods. Applied research aims to find solutions to existing problems and improve conditions in areas facing challenges (Habibi & Moradi, 2011: 28).

In addition, developmental research involves preparing programs, plans, and similar initiatives, where an initial undefined and specific situation is identified, and based on the research findings, a tailored plan or program is developed and produced (Sarmad, Bazargan, and Hejazi, 2003: 79).

The nature of the data in this research is qualitative, and the method of data collection is non-experimental (descriptive), consisting of documentary analysis and case studies. Qualitative data are primarily conceptual and are often collected through observation and interviews (Mansouriān, 2019: 87). On the other hand, non-experimental research deals with the "how" of matters rather than the "why." In this type of research, the researcher attempts to report what exists without any intervention or inference, aiming to present the objective results of the situation (Jahantab, 2007: 54-55). Such research focuses on understanding a phenomenon or situation, documenting and ultimately describing it without manipulating variables, and seeks to provide a clear picture through characteristics, behaviors, and procedures of the subject in question. Causal relationships do not play a role in this approach.

Document analysis is a method that uncovers relationships among writings on a specific subject. This process, in turn, leads to discovering relationships among authors and scholars of that topic, who have likely influenced each other's writings in scientific texts (Alizadeh, 2017: 243). Research documents often include books and academic journals. The term "case" (both single-case and comparative cases) refers to events that happen in real-life contexts, and data analysis in this context is conducted qualitatively (Dale & Håk, 2011: 13). It is noteworthy that qualitative data include non-numeric data and qualitative analysis is interpretive and non-quantitative in nature (Mansouriān, 2019: 131).

5. Globalization of AI

Globalization is a complex and multidimensional process that refers to increased interactions and interdependence among countries in economic, political, social, and cultural spheres (Robertson, 1992). In this process, geographic and cultural boundaries become less significant, and international interactions increase. This phenomenon signifies "the growing mutual dependence of global societies" (Giddens, 1990: 64). It has led countries and cultures to become increasingly dependent on each other. Recent decades have seen technological advances, especially in communications and transportation, playing a key role in accelerating this process (Friedman, 2005). AI, as one of the newest and most powerful technologies, has the capacity to induce fundamental changes in the course of globalization. It can perform tasks such as learning, reasoning, and problem-solving—functions traditionally requiring human intelligence (Russell & Norvig, 2020: 3). Moreover, globalization has influenced the development of AI itself. Increased international collaboration in research and development in this field has sped up the progress of AI. Joint research projects between universities and multinational corporations, such as the collaboration between Stanford University and Google, exemplify this cooperation (LeCun et al., 2015: 12).

As a driver of economic growth, AI helps countries increase productivity and develop new industries. According to a report by the McKinsey Global Institute, AI could add approximately \$13 trillion to the global economy by 2030 (Lund, 2021: 56). By automating processes and enhancing decision-making, this technology enables companies and governments to operate more efficiently. Automation and AI are transforming traditional jobs and increasing the demand for new skills. According to the ILO's (2020: 5) research, about 20 to 50 percent of jobs in different countries may be affected by automation. These changes necessitate retraining the workforce and implementing supportive policies.

On the other hand, globalization, as a multidimensional process, has transcended national borders, and AI—being a driving technology—has heightened its speed and depth. Deep learning algorithms facilitate cross-border data analysis and shift policy decision-making from the national level to the global arena (Mahmoudi & Bahr-Kazemi, 2024: 242). The reciprocal impact of globalization and AI occurs mainly through three channels:

- **Cross-Border Information Flows:** Advanced natural language processing (NLP) systems such as GPT-4 reduce language barriers and facilitate cooperation among international organizations. However, at the same time, these technologies may distort the understanding of international realities by creating "information bubbles" (Kirelkina & Karouchkin, 2025: 544-545).
- **Intelligent Supply Chains:** The integration of AI into global logistics increases economic efficiency but also amplifies system vulnerabilities to cyberattacks. For example, 67% of supply chain disruptions in 2024 are attributed to cybersecurity breaches in AI-based systems (SecurityScorecard, 2024).
- **Algorithmic Diplomacy:** Algorithms have the potential to transform the tools available to diplomats and influence both the issues on diplomatic agendas and the environment in which diplomacy takes place (Gavrilovic, 2018).

To examine the reciprocal impacts of these two fields, four categories are analyzed: "Businesses and Jobs," "Global Data Governance," "Participation in R&D," and "International Trade."

5-1. Technological Changes in Businesses and Jobs

Automation of processes through AI can lead to job losses, especially for low-skill work, and exacerbate economic inequalities (Acemoglu & Restrepo, 2018, 104). Many studies have predicted the potential for AI to replace certain jobs. In many cases, AI is likely to complement human labor rather than fully replacing it. Approximately 40% of global employment is at risk

from AI. Historically, automation and information technology have impacted routine tasks, but what distinguishes AI is its ability to influence high-skilled jobs. Consequently, advanced economies face more risks from AI compared to emerging markets and developing economies, but also have greater opportunities to harness its benefits (Cazzaniga et al., 2024: 8).

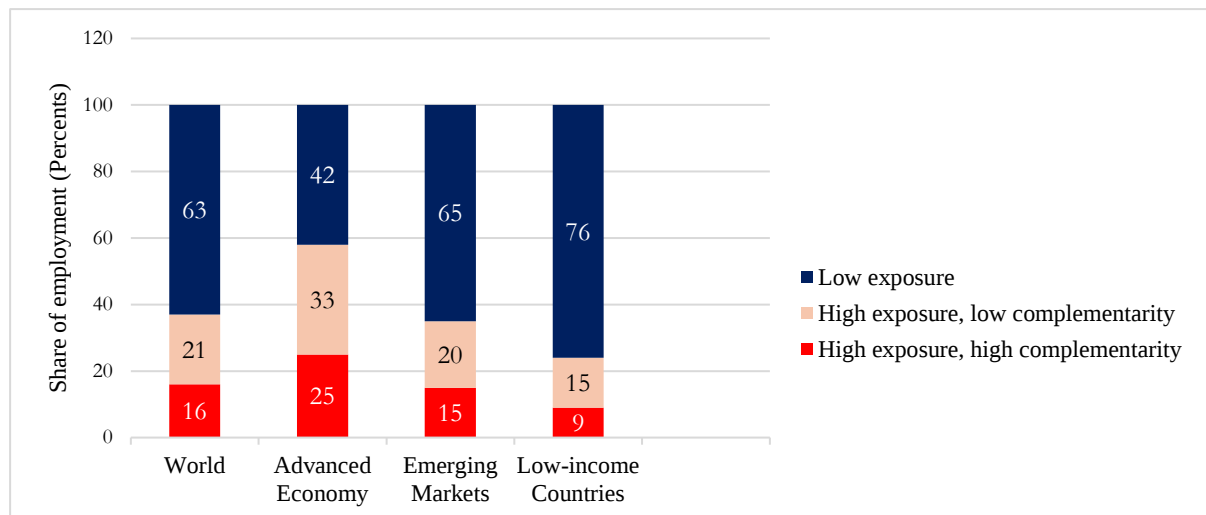


Fig. 1. Employment shares by AI exposure and complementarity
(Source: Cazzaniga and et al., 2024: 8)

Estimates from the World Economic Forum indicate that about 60% of employers expect that increased digital access will transform their businesses more than any other trend. This expanding digital connectivity is a key factor in converting new technologies into labor market shifts. Of the nine technologies examined, three are highlighted as likely to have the greatest impact: AI-driven robotics and automation systems are expected to revolutionize 58% of employers' activities, with AI and data processing technologies having the most significant influence in this ground (Figure2).

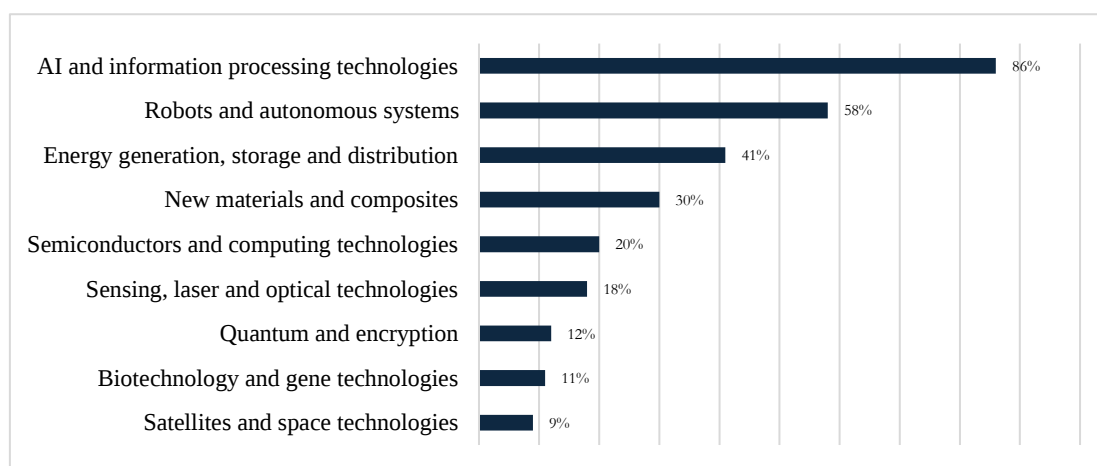


Fig. 2. Technology trends driving business transformation, 2025-2-30
(Source: WEF, 2025: 11)

5-2. Global Data Governance with AI

Contemporary globalization is distinguished from previous eras by its reliance on data as a key factor of production. It was predicted that the total volume of global data would reach 175 zettabytes by 2025, and AI systems would process 92% of cross-border data flow (Coughlin, 2018).

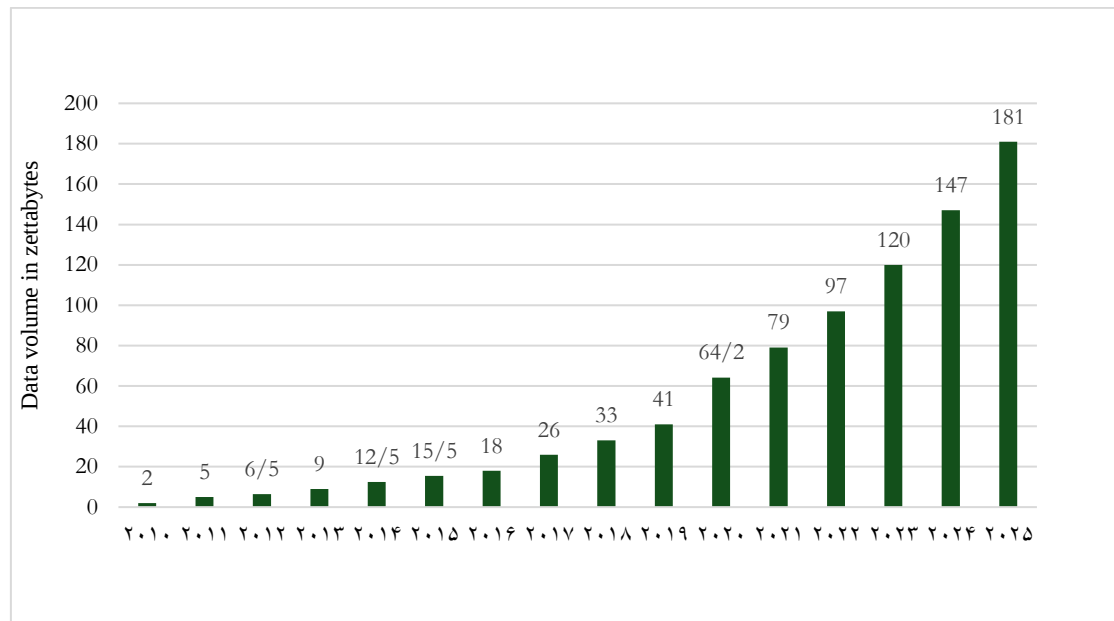


Fig. 3. Volume of data/information created, captured, copied, and consumed worldwide from 2010 to 2030, with forecasts from 2024 to 2025
(Source: Taylor, 2024)

This data-driven globalization offers both opportunities for economic leapfrogging and risks of permanent dependency on technology, particularly for the Global South. AI governance needs to be adaptable, proactively addressing challenges such as bias and fairness, and should be based on principles that are not only independent of a global model but also responsive to rapid social and technological changes. Key principles include:

- **Adopting a Multi-Stakeholder Approach:** Decision-makers should involve various stakeholders, including industry representatives, civil society, and academia, to ensure the inclusiveness and comprehensiveness of AI governance frameworks, as well as their alignment with ethical standards (Demos Helsinki, 2022).
- **Regulating Oversight Mechanisms:** Countries should consider the maturity of their AI ecosystems, existing legal and regulatory frameworks, and available resources when identifying appropriate oversight mechanisms. "One-size-fits-all" approach is unlikely to be effective, given the diversity of AI applications and related risks (Appaya & Ng, 2024: 89).
- **Sector-Specific Considerations and Regulatory Heritage:** Governance frameworks for AI should be tailored to the sectors they affect. These frameworks need to account for the regulatory legacy of different countries and ensure that existing legal structures, sector-specific regulations, and data protection laws are incorporated into new AI governance models (Warraich et al., 2025: 243).

5-3. Participation in Global R&D Projects

Differences in national interests and legal approaches can pose barriers to international collaboration in AI development. Ethical, regulatory, and risk-related discussions require practical frameworks since these issues are highly context-dependent. As a result, AI policy development has shifted toward concrete and actionable solutions. For instance, the EU moved from general legislation on AI impacts in 2019 to focusing on high-risk sectors and applications in subsequent regulations (EU, 2021). Similarly, the White House transitioned from comprehensive issue analysis in 2016 to establishing oversight guidelines in 2020, emphasizing risk management by regulatory bodies (Vought, 2020).

The priorities of GPAI¹ have evolved from early projects that primarily addressed broad AI concerns to more targeted efforts emphasizing "specific and unique use cases," with a positive outlook on "ambitious projects," as reflected in 2022 (GPAI, 2021).

Fostering further dialogue among policymakers and experts is crucial, alongside developing key proposals for joint international research and development involving multiple governments and multilateral organizations, including GPAI. Such initiatives could draw inspiration from large-scale scientific collaborations like CERN, the Human Genome Project, and the International Space Station. One notable example is an initiative launched by the International Telecommunication Union (ITU) and UN-affiliated organizations in partnership with the XPRIZE Foundation, which led to the organization of the global summit titled "AI for Good" (ITU, 2021). Additionally, private companies such as Google, IBM, Huawei, and Microsoft have programs under this theme, leveraging AI resources to address social challenges and collaborating with universities and civil society.

Confederation of Laboratories for Artificial Intelligence in Europe (CLAIRE) encompasses research groups and independent researchers and proposes a model similar to the creation of a pan-European research network and center akin to CERN. This center would focus on the application of AI in Earth observation for climate change monitoring and has received €50 million from the European Commission (Delponte, 2018: 31). While conceived as a mechanism to foster AI development in Europe, the concept can also be adapted to a global scale.

5-4. International Trade

Artificial intelligence has become the "new currency of global power," transforming traditional concepts of national competition (Lukianenko & Simakhova, 2024: 57). The PwC analysis (2017), utilizing the global trade analysis database, employs a large-scale dynamic economic model to depict the global economy. Its results provide an accurate view of 57 economic sectors across 140 countries and illustrate how they interact and trade through complex supply chains. The study also indicates that by 2030, 45% of total economic gains will arise from product improvements that stimulate consumer demand; this is because AI increases product diversity over time by enhancing personalization, attractiveness, and cost-effectiveness.

AI can assist international trade through three main pathways:

1. **Machine Translation:** Demonstrates the ability to reduce language barriers in trade, notably increasing exports among online sellers.
2. **Logistics Efficiency:** AI enhances logistical operations, particularly through intelligent warehouse management with more precise forecasts and improved coordination of internal warehouse activities.
3. **Financial Services:** The financial sector benefits from AI in areas such as facilitating access to credit, better risk assessment, compliance with anti-money laundering regulations, and providing personalized banking services (Ferencz, González & García, 2022: 27-28).

1. GPAI was established in 2018 by the G-7 as a multistakeholder, government-led initiative. Now, 18 countries and the EU have joined. It is considered the most comprehensive effort to develop a shared understanding and approach to artificial intelligence. GPAI's mission is to provide practical solutions for the "responsible use of artificial intelligence to address global challenges," with activities focused on four working groups: responsible AI governance, data governance, innovation and commercialization, and the future of work. In 2022, the GPAI council identified three main priorities: combating climate change, health and life sciences, and the impact of AI on human rights, gender equality, and inclusivity (Kerry et al., 2021: 37).



Fig. 4. Which regions will gain the most from AI?
(Source: PwC, 2017: 7)

6. AI Developments in West Asia

West Asia is undergoing a significant transformation driven by AI. What once seemed a futuristic concept has now become a powerful force reshaping economies, industries, and their daily life. As AI accelerates across the region, its potential to change various sectors becomes increasingly evident. IDC forecasts that AI-related investments in West Asia will grow at a compound annual rate of 29.7%, reaching \$6.4 billion by 2026. McKinsey estimates that AI could generate up to \$150 billion in value for GCC countries, contributing over 9% to their GDP (The Future, 2025).

Various countries in the region have integrated AI into their national strategies. The UAE and Saudi Arabia are particularly aiming for regional leadership with global ambitions. Both countries are not only investing heavily in AI but are also rapidly building native data centers. By the end of 2023, the UAE had a total data center capacity of 235 MW, and Saudi Arabia 123 MW, still trailing Western Europe (for example, Germany's capacity is 1,060 MW) (Carchidi & Soliman, 2024: 21).

The UAE leads in this domain, with initiatives such as the National AI Strategy 2031 and the Abu Dhabi Advanced Technology Research Council, aiming to become the first fully AI-based government. The Stanford University's global AI index for 2024 ranks the UAE among the world's leading countries for developing national AI strategies (Perrault & Clark, 2024: 232).

Furthermore, Saudi Arabia's Vision 2030 and the diverse AI projects in Abu Dhabi and Dubai are helping to redefine urban infrastructure and services, such as autonomous transportation programs and healthcare solutions, leading to smarter, more efficient, and sustainable cities. To support its technological ambitions, foster local talent, and forge strategic partnerships with global technology companies, the country is investing heavily in AI and other emerging technologies. Saudi Arabia's multi-pillar approach includes research and development, infrastructure development, and creating a supportive business environment for startups and tech entrepreneurs. By collaborating with global tech giants, Saudi Arabia is advancing its tech sector and has announced investments of \$13.4 billion at LEAP 2024, aiming to position the kingdom as the leading digital market in the MENA region (Kashyap, 2024).

Saudi Arabia integrates advanced technologies like AI through public-private partnerships in key sectors, thereby strengthening its economic transformation. The Public Investment Fund (PIF) has established a \$40 billion AI fund to attract global talent and investment, positioning the kingdom as a pioneer in AI innovation (Soliman, 2024). Major projects such as The Line and Oxagon demonstrate how these collaborations create sustainable, technology-driven urban environments. Additionally, Saudi Arabia's strategic regulatory frameworks and incentives, including financial grants and tax exemptions, foster a supportive environment for startups and international investors.

Viewing AI as a catalyst for economic diversification, substantial budgets have been allocated to AI projects in the region. GCC governments are investing significant funds to establish networks of innovation centers and accelerators across the region, along with special visas to attract AI talent (Al-Waary, 2025). According to UnaFinancial analysis, FinTech is expected to contribute approximately \$506.7 per person to GDP in these countries by 2030, mainly through collaboration with banks (Nasir, 2024).

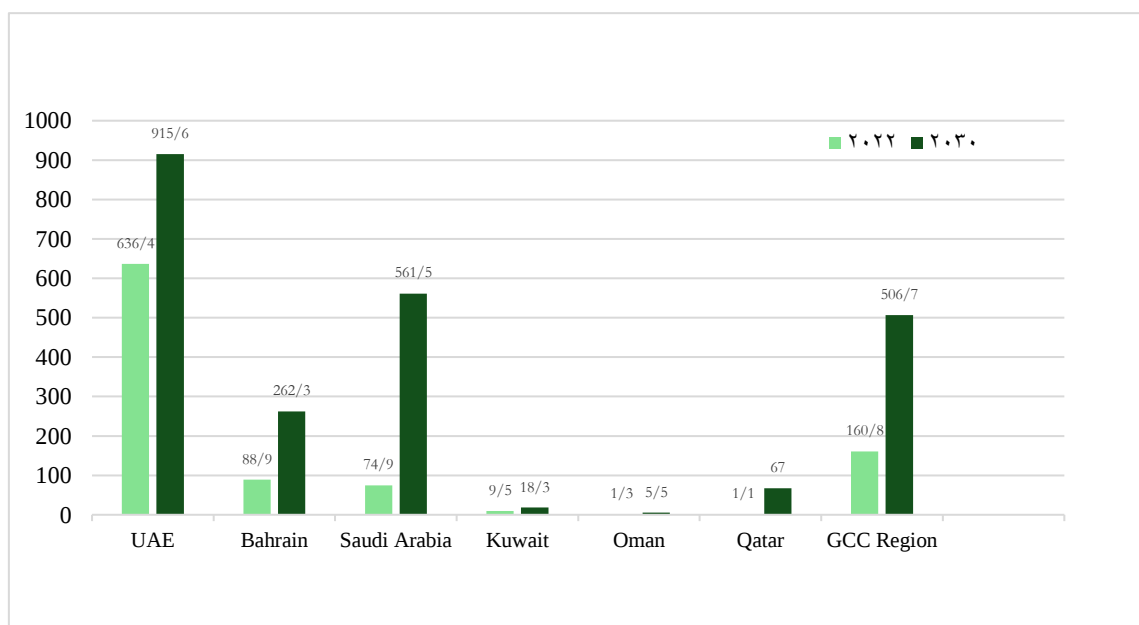


Fig. 5. Impact on GDP per capita 2022-2030, USD
(Source:Nasir, 2024)

In addition to the Mohamed bin Zayed University of AI and Dubai Future Foundation, the UAE has launched several other initiatives. Its national AI strategy includes projects like the AI Laboratory, which focuses on developing AI solutions for government services, and AI Ventures, which provides funding and support for AI startups (Minister of State for AI, 2018: 29). The UAE has also established the Fourth Industrial Revolution Center in partnership with the World Economic Forum to explore AI and other emerging technologies' impact on society and business (Jurgens & Buckup, 2025: 41).

Qatar has also invested in AI development, emphasizing education and research. The Qatar Computing Research Institute (QCRI), part of Hamad Bin Khalifa University, conducts research in Arabic language technologies, data analytics, and cybersecurity (Elmagarmid & Saoudi, 2021: 2). Qatar has developed a National AI Strategy outlining the country's vision for AI development, including initiatives like the creation of an AI Park to support startups and establishing an AI consortium to foster collaboration between industry, academia, and government (Ministry of Transport and Communication of Qatar, 2019).

Bahrain has launched the Gulf Fintech Hub, providing a platform for startups, financial institutions, and tech companies to collaborate and develop AI-based solutions for the finance sector (Humaidan, 2022). Bahrain also established the Bahrain AI Society to promote awareness and adoption of AI across various sectors, including healthcare, education, and transportation (Nasruddin & Struckman, 2024).

Oman meanwhile has launched the Oman ICT Group, which includes a dedicated AI unit developing AI applications for government services and industries such as oil and gas, tourism, and logistics (Muscat Arab Digital Capital, 2022). The country has also partnered with companies like Microsoft to establish an AI excellence center that provides training and support for AI professionals and startups.

The Turkish government has released its National AI Strategy 2024-2025, an operational plan aimed at transforming Turkey into a key player in AI and integrating it as a strategic component of its economy. The plan includes 71 specific initiatives, such as developing national standards for AI, creating a directory of AI-focused companies, and establishing guidelines for trustworthy AI applications. This strategy emphasizes training AI specialists, enhancing research and data access, and forming international partnerships to promote the integration of AI into various industries. The government's support includes a commitment to invest \$30 billion in advanced technology sectors to accelerate growth and competitiveness (Sozer et al., 2024). Thanks to government support, strong international relationships, and a young workforce, Turkey's AI market is projected to reach \$7.37 billion by 2030. The country has the potential to position itself as a strategic hub between Europe and Asia in the field of AI (Deputy Chief of Iran's Economic Diplomacy, 2024).

Researchers working on AI applications in Turkey have achieved many successful projects. For example, AI algorithms developed at Bilkent University are used for Parkinson's disease detection. Additionally, AI applications created at Sabancı University are employed by security agencies for identifying and apprehending criminals (Yalvaç, 2023). Turkey boasts over 710 active fintech startups and has introduced new regulations in digital banking and cryptocurrencies, establishing itself as a major fintech hub in the region. Besides fintech, 720 startups in AI demonstrate rapid industry growth. Significant investments have been made in fintech startups such as Colendi, DGPays, Midas, and Sipay (Unsal, 2024: 12).

Regarding AI developer capacity, Iran ranks second in the region after Turkey. In recent years, with the increasing involvement of Iranian engineers, development of high-quality AI projects has augmented (Mir-Emadi et al., 2024: 36). This sector is one of Iran's key advantages in global AI competition. As of early 2025, Iran's AI application in business was approximately seven years behind the global average. Currently, the adoption of AI in Iranian businesses is estimated at around 17%, which is significantly below the global average—serving as a key indicator of AI's potential economic impact in each country. Financial statistics of Iranian AI companies indicate that since 2017, this market has slightly contracted when adjusted for annual inflation, signaling a serious warning for the AI ecosystem. The market share of small and medium-sized enterprises has significantly decreased compared to large firms (Mir-Emadi et al., 2024: 109).

Iran's investments in all three key elements of AI—data, infrastructure, and human resources—are approximately \$10 million, which is lower than other regional countries. In comparison, Saudi Arabia has invested around \$20 billion, the UAE about \$1.5 billion, and Turkey approximately \$200 million. Consequently, there is a noticeable gap between Iran's AI investments and those of regional peers (Mir-Emadi et al., 2024: 115). Iran's timely and rapid access to AI-related processing power remains well below the global average, limiting its capacity to support large-scale scientific and industrial projects worldwide. A shortage of skilled personnel and inadequate infrastructure are two critical factors hindering the

development of AI within Iranian enterprises. Among the key reasons for the limited AI development in Iran's enterprises, government financial support ranks outside the top ten reasons; instead, the lack of financial resources and investment holds the third place. Nevertheless, Iran's First Vice President believes that:

We are in a region where, due to our shared civilizational domain, we can have a significant influence on neighboring and friendly countries. Influence means enhancing the security margin; we can naturally create security for our country and neighbors through advanced technologies. These technologies are multidimensional, not only fostering growth in scientific, technological, and economic aspects, but at the core, they also contribute to increasing security. We should look at them holistically. We can assure the countries of the region and Muslim countries that, as brothers and with shared culture, we can help them leverage emerging technologies in all areas, including enhancing security, which is not possible in their relations with the West (Aref, 2025).

7. AI and Regional Integration in West Asia

AI, as a transformative technology, holds significant potential to facilitate regional cooperation in West Asia. This process can assist countries in security and defense domains to better manage common threats such as terrorism and smuggling. AI systems can analyze security data and help nations predict and prevent terrorist attacks. The region faces specific challenges in this equation: on one hand, its numerous security issues could benefit from increased problem-solving efficiency; on the other hand, ethical and legal considerations carry particular weight in an area largely governed by authoritarian regimes with weak rule of law. These conditions hinder full AI governance and the necessary safeguards to prevent authoritarian misuse of the abundant opportunities AI provides (Kausch, 2022: 8).

West Asia's rich energy resources can position it as a key player in the AI revolution, given that this technology relies heavily on large data centers that require substantial electricity (Benny, 2024). The region is blessed with oil and sunlight. The International Energy Agency forecasts that data center electricity consumption may more than double by 2026, reaching over 1,000 terawatt-hours, up from 460 TWh in 2022 (IEA, 2024: 31).

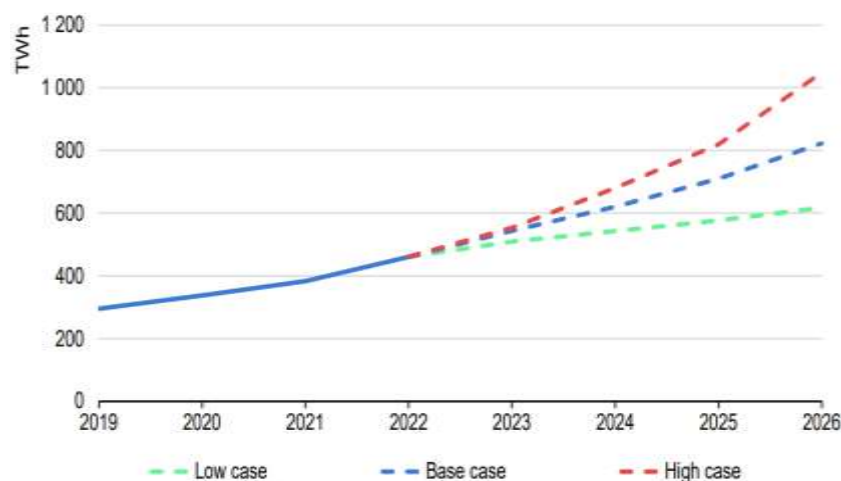


Fig. 6. Global electricity demand from data centers, AI, and cryptocurrencies, 2019-2026
(Source: IEA, 2024: 31)

One of the most common discussions in the 21st century is that, in the near future, data may replace oil as a primary resource, and any country aiming to lead internationally must master data, algorithms, and AI technology broadly (Mollaei and Kafi, 2022: 30).

Data centers are essential for achieving AI supremacy. These facilities are geopolitically and technologically significant because proximity to users enhances access speed, and local data is protected under national laws. Having advanced data centers within borders ensures control over valuable data and technology sovereignty. Currently, Persian Gulf countries lag behind Western Europe in data center capacity. By the end of 2023, the UAE had 235 MW of data center capacity, and Saudi Arabia 125 MW, compared to Frankfurt's 1 GW. To narrow this gap, the UAE plans to increase its capacity by 345 MW, and Saudi Arabia aims to add 470 MW over the next few years (Steman, 2024).

The Saudi government actively promotes AI investments, engaging in multiple discussions with UAE investors to explore collaboration opportunities between the private sector and national AI infrastructure projects. Saudi Arabia's National Investment Fund is negotiating with venture capitalists to allocate \$40 billion specifically for AI investments. Addressing commercial concerns and facilitating foreign investment, Saudi Arabia seeks to enhance local skills and expertise. This development, coupled with strong government support for a digital economy and stable electricity prices, is driving significant growth in the data center industry (Interesse, 2024).

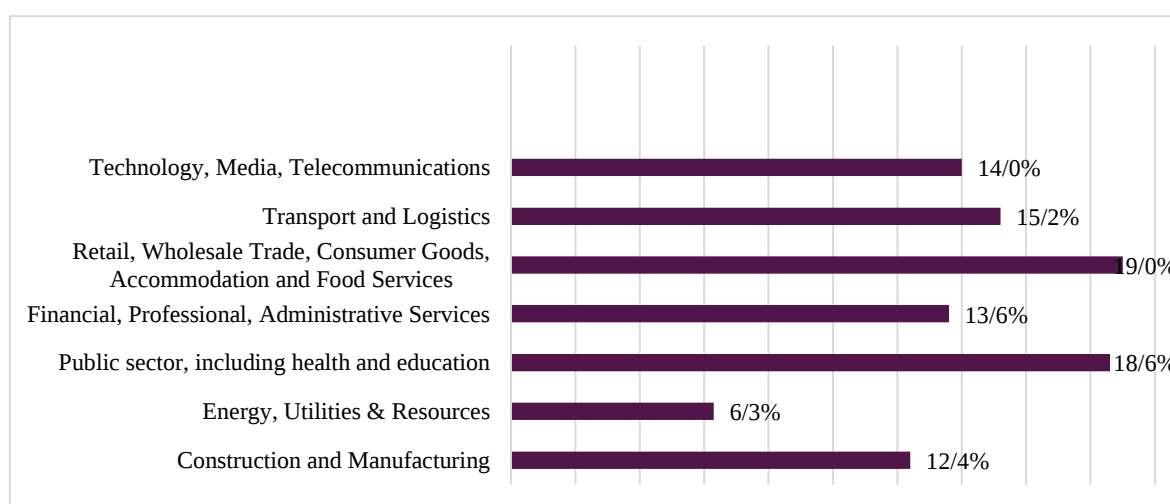


Fig. 7. Forecasted Contribution of AI to Middle East GDP by industry in 2030
(Source:Interesse, 2024)

Complete digitalization of the economy could lead to an increase of at least 46% in per capita GDP over 30 years; in other words, it could generate long-term benefits worth at least \$1.6 trillion. The World Bank estimated in a report that in the first year alone, this increase in per capita GDP for the region could be nearly \$300 billion. The boost in low-income countries in West Asia and North Africa could be even greater (at least a 71% increase), as these gains stem from reducing the access gap to digital technologies. The access gap is more significant for low-income countries (Cusolito et al., 2021: 59-71). Additionally, AI can assist regional diplomacy by analyzing big data, predicting crises, and providing evidence-based solutions. For example, AI algorithms can analyze government behavior patterns and identify opportunities for joint cooperation. In West Asia, where political tensions among countries like Iran, Saudi Arabia, and Turkey are evident, such tools could help reduce misunderstandings and build mutual trust.

One of AI's opportunities in West Asia is strengthening economic collaboration through smart platforms. For instance, joint AI-based projects in the energy sector, such as optimizing oil production, could bring countries closer together. Furthermore, cooperation in cybersecurity to counter mutual threats could serve as a pivotal point for political integration. Therefore, AI, as a leading technology, plays an increasingly important role in shaping global politics.

8. Conclusion

This paper was an attempt to show how AI as a tool can facilitate regional cooperation and strengthen integration in West Asia. Based on the theory of neo-functionalism, technical and economic cooperation can gradually lead to political integration. As a transdisciplinary technology, AI can help establish networks of collaboration between countries. These networks not only facilitate the exchange of knowledge and technology but also have the potential to build trust among nations. For example, regional cooperation in cybersecurity—which is heavily reliant on AI—can contribute to reducing political tensions and enhancing security collaboration. AI has globalized technology, but politics is moving toward de-globalization. Without consensus and long-term decision-making, countries cannot harness the opportunities offered by this technology. Growth and development are no longer abstract concepts but are dependent on joining the global technological community. Politicians who lack technological knowledge will not be able to foster growth and development for their nations.

In the near future, governments will find it difficult to make decisions on virtually any governance matter—from security, traffic management, passport issuance, and taxation, to tracking smuggling and reducing financial and administrative corruption—without AI. The UAE, by investing in AI in software sales and consultancy for more precise decision-making, efficient operations, and increased economic growth, has advanced toward a future-ready approach.

AI and machine learning are transforming various sectors such as government, healthcare, and finance. Data sovereignty and the development of local cloud infrastructure are priorities in the region, with the transition to multi-cloud and hybrid solutions to help businesses comply with regulatory requirements while remaining competitive. Cybersecurity is emerging as a key area, as organizations rely on AI-driven threats to protect their digital assets. Governments will continue investing in technology to improve public services, citizen engagement, and digital education. These efforts emphasize the region's desire to lead globally in technological innovation. The public sector, especially in Persian Gulf Cooperation Council countries, will drive digital transformation, with smart city initiatives and e-government projects expanding.

In healthcare, AI solutions like predictive analytics and telemedicine are helping improve services. The financial sector is also experiencing growth through fintech and digital payments, with cities like Dubai and Riyadh becoming major fintech hubs. The energy sector is increasing investment in smart grids and renewable energy, emphasizing sustainability goals. The oil and gas industry are utilizing new technologies to enhance maintenance quality and efficiency.

The AI ecosystem in the region will reach greater maturity with increased investments in ethical AI, improvements in workforce skills, and the development of robust infrastructure. As AI and machine learning technologies advance, efficiency, accessibility, and personalization across various industries will be elevated to a new level. West Asia is on the brink of a technological revolution in the coming years, centered on AI, cloud computing, cybersecurity, and the Internet of Things. With appropriate investments and policies, this region can become a global leader in digital transformation. However, overcoming challenges such as workforce readiness, regulations, and cybersecurity is vital for success.

The future of West Asia in the AI era depends on nations' ability to turn competition into constructive collaboration. Successful experiences in low-tension areas demonstrate that

technology can serve as a bridge over historical divides. Nevertheless, overcoming longstanding skepticism requires bold leadership and a vision beyond short-term interests. If current trends continue, West Asia may witness the emergence of technology cooperation blocs centered around specific sectors. Developing data corridors between Persian Gulf Cooperation Council countries and collaborating on large-scale projects like smart cities could foster new economic solidarity. Conversely, escalating regional power rivalries might lead to the formation of conflicting “technology hubs.” Saudi Arabia's focus on attracting global talent contrasted with Iran’s protectionist policies for indigenous tech development signals such possibilities. In this scenario, incompatible technical standards and restricted access to advanced technologies could hinder cooperation.

AI-driven convergence in West Asia presents a dual story of technological ambition and persistent fragmentation. While Persian Gulf countries showcase AI’s potential to transcend traditional economic boundaries via smart infrastructure and digital services, broader regional integration requires addressing critical gaps in governance capacity, cultural compatibility, and sustainable implementation. The emergence of Arabic-language AI systems presents unprecedented opportunities for knowledge sharing among Arab nations, but concurrent risks such as algorithmic bias and energy overconsumption necessitate proactive policy responses.

AI developments in West Asia are creating a paradox of convergence and divergence. On one hand, the shared need for technological progress is pushing countries toward cooperation—examples include joint renewable energy projects, efforts to establish common standards, and regional educational initiatives. On the other hand, competition over talent acquisition, access to advanced technologies, and military applications of AI has introduced new fault lines. Key recommendations to strengthen integration based on Neo-functionalism and to achieve shared political interests through technical cooperation include:

- Establishing a West Asian AI Development Fund to finance joint projects
- Launching a regional AI university network for resource and knowledge sharing
- Drafting a convention to ban offensive use of AI with all regional countries’ participation
- Developing a regional open data platform to facilitate research collaboration
- Expanding ethical governance networks and cross-border oversight mechanisms

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