



UNITED ARAB EMIRATES  
MINISTRY OF ECONOMY

# INVESTING IN THE ICT SECTOR IN THE UAE



# TABLE OF CONTENTS

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## ❖ ICT as an Industry

❖ Growth outlook for ICT in UAE

❖ Ecosystem for Investment in ICT in UAE

❖ Key government stakeholders and industry associations in the UAE's ICT Sector

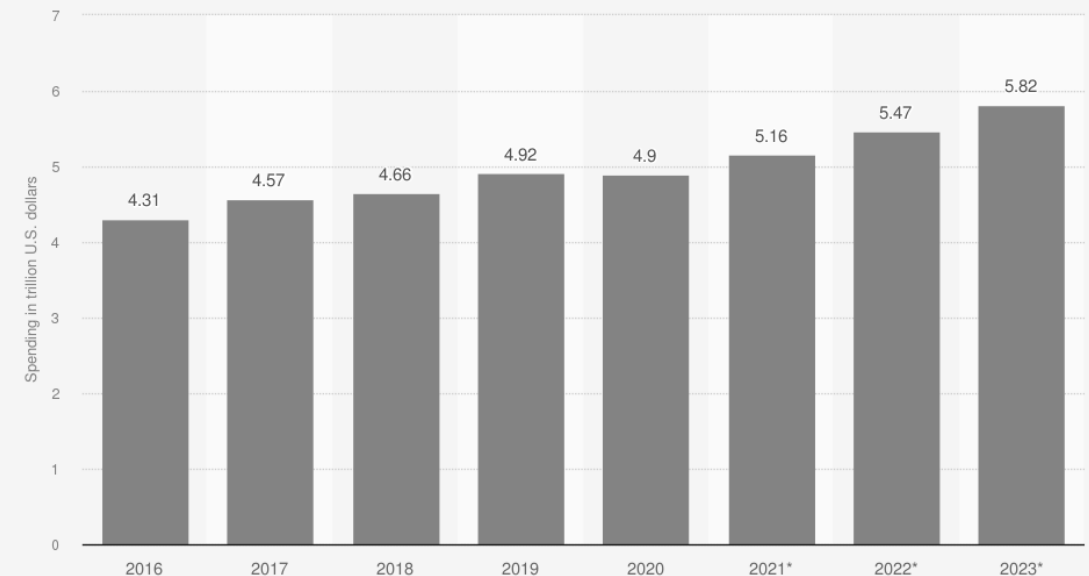
# THE ICT SECTOR CONSISTS OF SEVERAL SEGMENTS

<b>Internet of Things (IoT)</b>	<b>Artificial intelligence (AI)</b>	<b>Telecommunications</b>
<p>The Internet of things describes physical objects that are embedded with sensors, processing ability, software, and other technologies that connect and exchange data with other devices and systems over the Internet or other communications networks.</p>	<p>Artificial intelligence leverages computers and machines to mimic the problem-solving and decision-making capabilities of the human mind.</p>	<p>Telecommunication is the transmission of information by various types of technologies over wire, radio, optical, or other electromagnetic systems.</p>
<b>Software &amp; Computer Systems</b>	<b>3D Printing</b>	<b>Cyber Security</b>
<p>The software industry is involved in the development, marketing, and sales and is multifaceted. Its scope ranges from personal computer applications, operating systems, network management tools, enterprise software, software applications, operating systems, and customized software.</p>	<p>3D printing, also known as additive manufacturing, is a method of creating a three dimensional object layer-by-layer using a computer created design.</p>	<p>Cyber security is the application of technologies, processes and controls to protect systems, networks, programs, devices and data from cyber attacks. It aims to reduce the risk of cyber attacks and protect against the unauthorised exploitation of systems, networks and technologies.</p>

# GLOBAL ICT INDUSTRY OVERVIEW

- Ranking as one of the largest industries in the world, the ICT market is forecasted to reach a size of almost USD 6 trillion by 2023.
- Global ICT spending reached about USD 4.9 trillion in 2020 and is expected to grow to USD 5.8 trillion by 2023.
- The global telecom services market size was valued at USD 1.657.7 billion in 2020 and is expected to expand at a compound annual growth rate (CAGR) of 5.4% from 2021 to 2028.
- The AI market will grow to a USD 190 billion industry by 2025 with global spending on cognitive and AI systems reaching over USD 57 billion in 2022.
- Global ICT Investment in Government Market size & share revenue was valued at around USD 484.6 billion in 2020 and is expected to reach USD 695.32 billion by 2026, and grow at a CAGR of around 6.2% during the forecast period 2021- 2026.
- The global business software and services market size was valued at USD 389.86 billion in 2020. It is expected to expand at a compound annual growth rate (CAGR) of 11.3% from 2021 to 2028.
- The worldwide market for 3D printing products and services was valued at around USD 12.6 billion in 2020. The industry is expected to grow at a compound annual growth rate (CAGR) of some 17% between 2020 and 2023.

**Total information communication technology (ICT) market spending worldwide from 2016 to 2023 (in trillion U.S. dollars)**



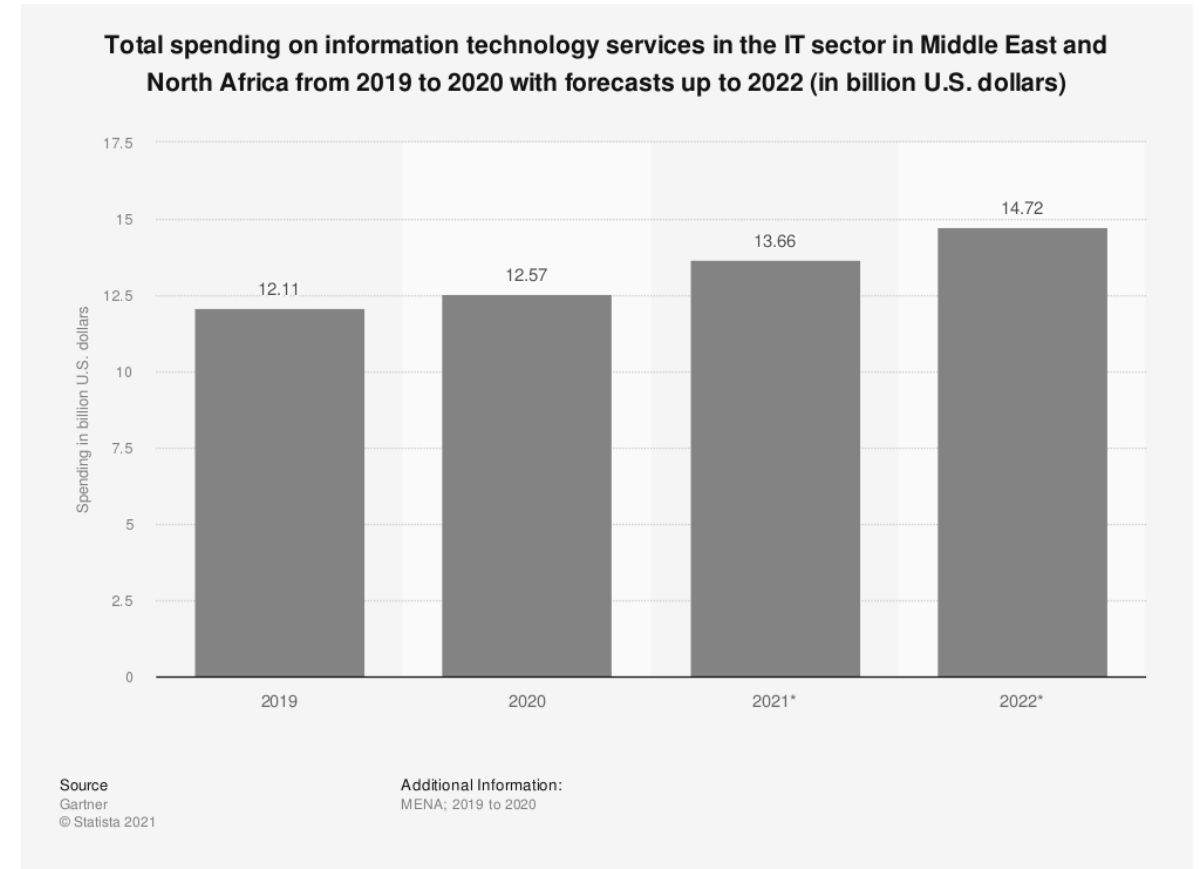
Source  
IDC  
© Statista 2022

Additional Information:  
Worldwide; 2016 to 2020

Source: Statista, Grand View Research

# ICT INDUSTRY IN THE MENA REGION - OVERVIEW

- The Middle East ICT market is expected to reach USD 95.05 billion by 2025 from USD 84.23 billion in 2020 at a compound annual growth rate (CAGR) of 2.4%.
- The IT sector in the Middle East is steadily growing with countries increasing their budgets. Since 2008 the funding was made 5 times bigger, and in 2019 amounted to USD 207 billion.
- Software spend has been one of the fastest growing technology sectors in the MENA region, increasing by 11% year-on-year to a record-high of USD 6.2 billion in 2018.
- The AI in computer vision market in the MEA is expected to grow from USD 310.71 million in 2019 to USD 5,210.41 million by 2027; it is estimated to grow at a CAGR of 43. 2% from 2020 to 2027.
- The cybersecurity market in the Middle East & Africa was valued at USD 1903.59 million in 2020, and it is expected to reach USD 2893.40 million by 2026 and register a CAGR of 7.92% during the forecast period of 2021-2026.
- By 2024, the MEA region's market for smart city technologies will be worth USD 2.7 billion.



Source: Forrest & Sullivan, Zawya, East Analytics

# ICT INDUSTRY FUTURE TRENDS

## Digitalization Demands

- Demand for ICTs is at an all-time high as digital transformation becomes a requisite for success across industries, especially in the wake of the pandemic.
- This has created an ICT landscape replete with opportunities for investment, R&D, and M&A.
- Technologies like 5G Mobile Network, Edge Computing, and cloud provide the infrastructure to enhance connectivity and computational capacity.

## The Shift to Hybrid Cloud

- More organizations are adopting a cloud infrastructure, drawn to the cost savings, flexibility, and scalability that cloud-based technologies offer.
- Hybrid cloud gives organizations the ability to work across multiple computing environments and manage exponential data growth while also ensuring security, privacy, and compliance.
- ICT companies are leading this shift, prioritizing cloud-based solutions in their own businesses, followed by on-premise solutions where needed.

## The Future of Work

- The future of work and the ICT industry have converged, resulting in increasingly virtual, remote workforces, real-time operations, and process automation.
- These are shifts enabled by ICTs like artificial intelligence, IoT, predictive analytics, and advancements in connectivity and computing power.
- Across industries, there is a drive to build internal ICT capabilities and automate work to keep pace with digitalization.



# TABLE OF CONTENTS

---

❖ ICT as an Industry

❖ **Growth outlook for ICT in UAE**

❖ Ecosystem for Investment in ICT in UAE

❖ Key government stakeholders and industry associations in the UAE's ICT Sector

# GROWTH OUTLOOK FOR ICT INVESTMENTS IN UAE

**4.4%**

Value added growth in the UAE (2020)

**USD 9.9 billion**

Government funding for ICT (2019)

**USD 23 billion**

Expected ICT Spending  
(2024)

In 2030, AI is forecast to contribute:  
**USD 96 billion(14% of GDP)**

**11%**

Software/application spending CAGR  
(2021-2024)

**USD 6 billion**

Expected revenue from  
hardware/infrastructure (2024)

Source: US International Trade Administration, Global Data

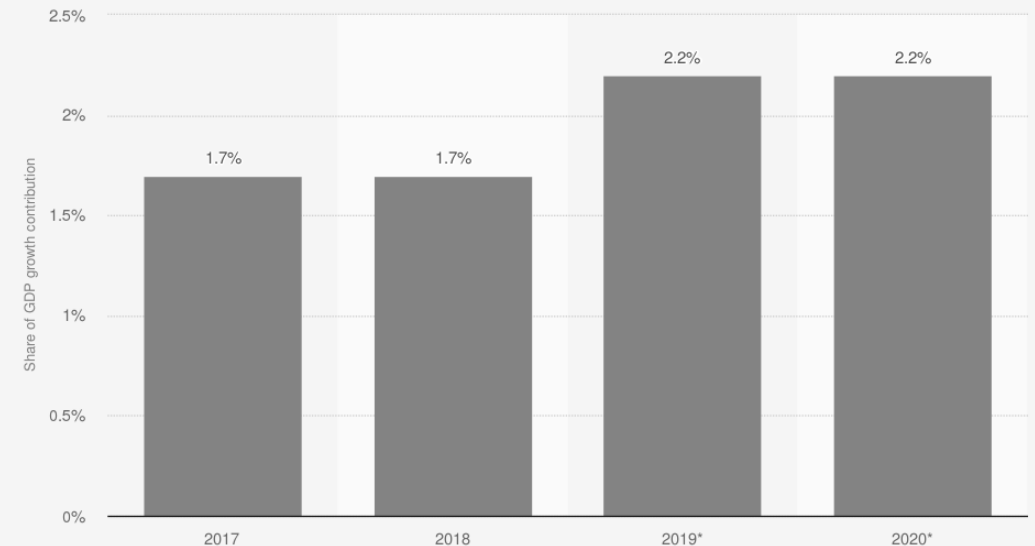


# ICT INDUSTRY GROWTH ENVIRONMENT IN THE UAE

**The UAE, a leading hub for international trade and business in the MENA region, is a competitive market for the ICT industry.**

- UAE is also a hub that reexports the ICT with over 50% of all goods, that cross its borders, later being transferred elsewhere.
- Governmental funding for the ICT in 2019 was USD 9.9 billion.
- ICT spending in the UAE is estimated to grow at a compound annual growth rate (CAGR) of 8% during the period 2019-2024 to reach USD 23 billion in 2024.
- The services segment accounted for around 58% of the overall ICT spending in 2019 and is forecast to retain the largest share by the end of 2024.
- The software/application segment is projected to record the highest CAGR of 11% during the forecast (2020-24) period.
- ICT spending across the banking, financial services and insurance (BFSI) and energy verticals will account for a major share (43%) of the overall ICT spend in the UAE by 2024.
- For 2020, the ICT sector in the UAE contributed a GDP growth of 2.2%. For that year, the ICT sector value added growth was 4.4%.

**GDP contribution growth of information and communications technology (ICT) sector in the United Arab Emirates (UAE) from 2017 to 2018 with forecasts for 2019 and 2020**



**Sources**  
Atradius; Macrobond; Oxford Economics  
© Statista 2020

**Additional Information:**  
United Arab Emirates; Macrobond; Oxford Economics; Atradius; 2017 to 2018

# IMPORTANCE OF THE INTERNET OF THINGS (IoT) MARKET IN THE UAE

- The UAE internet of things (IoT) market is driven by the widespread adoption of IoT solutions across various enterprises, especially the SMEs.
- The UAE has emerged as a leading global location for the deployment of IoT solutions to enhance public infrastructure, especially Dubai as it aims to become a leading smart city.
- The government has a strong interest in developing the IoT sector in the UAE and was estimated to spend more than USD 35 billion by 2019, with anticipated annual growth of 29%.
- Spending on IoT was estimated to exceed USD 37 billion by 2020, with a CAGR of 31%.
- In Oct 2019, Emirates Integrated Telecommunications Company du entered into a partnership with Wipro to boost its purpose-built Internet of Things (IoT) identity and access management platform for the UAE .



# IMPORTANCE OF THE ARTIFICIAL INTELLIGENCE (AI) MARKET IN THE UAE

- Artificial Intelligence (AI) spend in public sector industry in UAE has increased at 65.1% during 2018 to reach USD 52.1 million.
- Spend on AI is expected to record a CAGR of 25.2%, increasing from USD 76.6 million in 2019 to reach USD 368.3 million by 2025.
- AI is forecast to play a role to contribute almost 14% of the national GDP by 2030 (USD 96 billion).
- The annual growth in the AI contribution to the UAE economy is forecast to grow by 33.5% between 2018 and 2030.
- As part of the government's UAE Centennial 2071 plans, the UAE AI Strategy 2031 was launched to improve efficiency in the transport, health, space, renewable energy, water, technology, education, environment, and traffic sectors.
- The UAE has already begun integrating AI with industries such as education, healthcare, space, transportation, and aviation.
- In the same sector, the UAE plans to make 25% of vehicles on the road autonomous by 2030.
- In the healthcare sector, the government intends to provide data to train AI algorithms to predict risks associated with genetic conditions, and to provide better care to people with rare diseases.
- The aviation industry too is being integrated with AI; Emirates is developing an AI-powered assistant for customers, and the UAE's aviation authority has signed an agreement to explore the use of AI in air traffic management.



# IMPORTANCE OF THE TELECOMMUNICATIONS MARKET IN THE UAE

- The UAE was the first country in the Arab region and fourth globally to launch its 5G network.
- The UAE telecom market is expected to register a CAGR of 3.5% during the forecast period (2022-2027).
- In a 2021 global 5G Experience report by OpenSignal, UAE placed 8th in 5G Peak Download Speed, with a score of 703.7 Mbps, while placing 10th in 5G Upload Speed having scored 25.7 Mbps.
- The UAE's telecom regulator expects to bring all inhabited areas of the country under 5G network coverage by the end of 2025.
- Spending on Telecom services in 2019 amounted to USD 8.77 billion. The highest amongst other segments within the ICT industry.
- du revenues in Q3 2021 grew 6.9% year-on-year to Dhs2.874bn (USD782 million) on sustained demand for broadband services and 5G handsets.
- Etisalat has announced that its consolidated revenue for fiscal year 2021 hit AED53.34 billion (USD 14.5 billion), representing a year on year increase of 3.2%



Source: Mordor Intelligence, OpenSignal, CIO, Gulf Business, TradeArabia

# IMPORTANCE OF THE CYBER SECURITY MARKET IN THE UAE

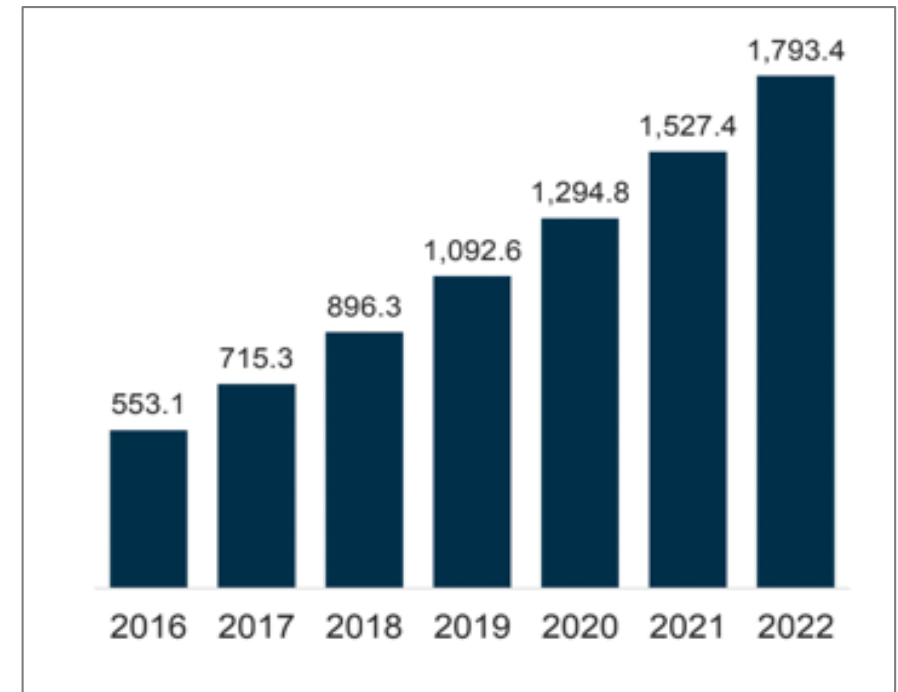
- The UAE jumped 33 places to rank 5th in the Global Cybersecurity Index 2020.
- The cybersecurity market is forecast to be worth USD 363.05 billion in 2025, almost 125% more than the amount spent in 2019.
- Currently, the cyber security market in the UAE is valued at USD 490 million.
- The market is projected to grow at an annual 14.5% over the next five years.
- The UAE announced the adoption of cybersecurity standards for government agencies as it revealed a budget of USD 79 billion for the next five years (2022-2026), which is the largest in the history of the Gulf state.
- In 2017, the UAE Banks Federation partnered with US-based Anomali (IT Security Company) to create the Information Sharing and Analysis Center, the first such initiative in the Middle East.
- In July 2020, The UAE's Telecommunications Regulatory Authority (TRA) mentioned that the National Computer Emergency Response Team (aeCERT) repelled more than 100,000 cyberattacks against the Federal Government entities in June.



# IMPORTANCE OF THE SOFTWARE & COMPUTER SYSTEMS MARKET IN THE UAE

- The public cloud service market in the UAE recorded 40.9% growth year on year in 2020, reaching a value of USD 645.32 million.
- The UAE Cloud Computing market is expected to grow at a CAGR of 38.2% between 2020 and 2027.
- In 2019, the UAE's estimated spending on cloud computing was about USD 1.1 billion and is expected to reach USD 1.8 billion by 2022.
- The Government Information Authority (GIA) is currently developing cloud technology to be used by Federal government entities in the UAE, and the services it offers include electronic hosting, file management and database systems, intranet portals, email and meeting management systems.

UAE Cloud Computing Spending (US\$ million)



# IMPORTANCE OF THE 3D PRINTING MARKET IN THE UAE

- The UAE 3D Printing market size is estimated to grow at a **CAGR of 60%** during 2017-30.
- The 3D printing sector in the UAE to triple every year to reach **AED2.2 billion (USD 598.97 million)** by 2025.
- The sector will add **AED11 billion (USD 2.99 billion)** to the UAE's GDP in 2028, contributing to **over 1.0%** of the GDP and inducing it with around **3%** of the 3D-printing global market share.
- In UAE 3D printing market, binder jetting technology accounted for major revenue share due to its emerging demand in architecture sector for architectural modelling.
- With forthcoming novel construction projects worth **USD 160 billion** in UAE the construction sector is anticipated to witness major growth which would upsurge the demand for binder jetting technology during the forecast period.
- In terms of revenue generation, fused deposition modelling technology is the second most extensively used technology owing to its low prices.
- The UAE boasts the widest range of concrete 3D printers in the world and is the only country in the GCC with a private sector that owns and operates metal 3D printing systems.



# INITIATIVES FOR THE GROWTH OF ICT IN THE UAE

## UAE National Strategy for Artificial Intelligence 2031

- The National Artificial Intelligence Strategy 2031 aims at positioning the UAE as a global leader in artificial intelligence by 2031, and to develop an integrated system that employs artificial intelligence in vital areas in the UAE.
- The National Artificial Intelligence Strategy 2031 includes eight strategic objectives, a number of initiatives, along with a number of initiatives aimed at employing artificial intelligence in vital areas such as education, government services and the community wellbeing.
- The strategy also includes a plan to build a well-established UAE brand of artificial intelligence through artificial intelligence activities that will make the UAE a test platform for artificial intelligence technology, provide enhanced services with advanced technology, training and qualification programmes, talent building, research, data development and governance.



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**DIGITAL ECONOMY & REMOTE WORK APPLICATIONS OFFICE**

## Fourth Industrial Revolution (4IR) Strategy

- The Fourth Industrial Revolution Strategy aims to strengthen the UAE's position as a global hub for the Fourth Industrial Revolution and to increase its contribution to the national economy by means of advancing innovation and future technologies.
- It also aims to position the UAE as a global model in adopting leading-edge technologies to serve society and achieve happiness and sustainability.
- Some strategic areas for the strategy include: augmented education, personalized medicine, connected care, space data, advance defence manufacturing, and intelligent cities.





# INITIATIVES FOR THE GROWTH OF ICT IN THE UAE

## Dubai Paperless Strategy

- The Dubai Paperless Strategy aims to build a perfectly integrated paperless government infrastructure that enables the transformation of Dubai Government's traditional services and operations into digital by December 2021.
- It would eliminate more than 1 billion pieces of paper used for government transactions every year.
- Through this strategy, Dubai has become the world's first government to turn 100% paperless helping save more than AED 1.3 billion (USD 350 million) and over 14 million man hours across the Dubai government.



## Etisalat 6G Plan

- Etisalat has said it has taken considerable efforts towards 6G realisation by “conducting research and developing international standards that are the main building blocks for the 6G ecosystem”.
- While the realization of 6G technology is estimated 7-8 years away, Etisalat remains committed to bringing the latest technologies to UAE market to enable digital societies.
- The 6G technology requires agile communications governance and increased collaboration across multisector stakeholders. The technology is seen as an enabler of new coverage dimensions in space and maritime in addition to the terrestrial dimension



# INITIATIVES FOR THE GROWTH OF ICT IN THE UAE

## National Cybersecurity Strategy

- The strategy has a number of objectives including providing confidence to citizens to securely participate in the digital world, fostering a culture of entrepreneurship in cybersecurity, and protecting critical information infrastructure assets of the country.
- The strategy is based on 5 pillars and 60 initiatives aiming to mobilise the whole cybersecurity ecosystem in the UAE.





# TABLE OF CONTENTS

---

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# ECO SYSTEM COMPONENTS – INSTITUTIONAL FRAMEWORK



- **Centre of Digital Innovation (CoDI)** is an initiative launched by the Telecommunications and Digital Government Regulatory Authority-TDRA in the UAE in late 2013 as a response to the UAE's attempt towards being a smarter and digitally transformed nation.
- CoDI does various capacity-building, research and development activities resulting in high-quality products and services in the area of ICT. CoDI has established an ecosystem of partners and stakeholders from different sectors.

# ECO SYSTEM COMPONENTS – EDUCATIONAL FRAMEWORK



- Mohamed Bin Zayed University of Artificial Intelligence is a graduate-level, research-based academic institution located in Abu Dhabi.
- The university was established in 2019, and offers graduate-level students a range of postgraduate degrees, focusing on core components of the AI industry: Computer Vision, Machine Learning, and Natural Language Processing.



- The Centre for the Fourth Industrial Revolution UAE (C4IR UAE) is a collaboration between the Dubai Future Foundation and the World Economic Forum.
- The Centre in the UAE serves as a global public-private platform for the collaborative development of technology governance and policy protocols. Each project portfolio works on a global scale, tailoring each framework to the local ecosystem.
- The C4IR network is a focal point within the international community for multi-stakeholder dialogue and concrete cooperation on governance challenges and opportunities presented by advanced technologies from the fourth industrial revolution (4IR).

# ECO SYSTEM COMPONENTS – EDUCATIONAL FRAMEWORK



- Telecommunications and Digital Government Regulatory Authority (TDRA) launched the TDRA Virtual Academy, known before as the Smart Government Virtual Academy with the aim to provide training and learning courses in the fields of business, information technology and soft skills.



- The TDRA Summer Innovation Camp was initiated in 2015 for children and teenagers ranging from the age of 6 to 17 years, aiming to nurture and build their ICT skills and talents. The camp continues to run every year in the summer time featuring the latest technology trends and interactive activities.

# EVENTS BY THE UAE GOVERNMENT IN 4IR TECHNOLOGIES

Illustrative, non exhaustive



- GITEX is an annual consumer computer and electronics trade show, exhibition, and conference that takes place in Dubai. The events covers markets such as AI, 5G, Cloud, BigData, Cybersecurity, Blockchain, Quantum Computing, immersive Marketing, and Fintech.



- Ai Everything offers a unique focus on the global artificial intelligence ecosystem. The event provides government and C-Level executives a key platform to draw on the knowledge of leading experts and meet with hundreds of leading brands and enterprises transforming today's challenges through the adoption of artificial intelligence.



# TABLE OF CONTENTS

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❖ ICT as an Industry

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# ICT SECTOR GOVERNANCE



UNITED ARAB EMIRATES  
MINISTRY OF ECONOMY

<https://www.moec.gov.ae/en/home>

- The UAE Ministry of Economy was established in accordance with Federal Law No (1) of 1972.
- The Ministry set out an growth vision aiming to achieve an internationally competitive and diversified economy driven by efficient and knowledgeable UAE nationals.
- The ministry plays a major role in facilitating and enabling business landscape and formulating business-friendly policies that would consolidate the UAE's reputation as a regional and global business hub.



<https://tdra.gov.ae/>

- The Telecommunications and Digital Government Regulatory Authority is the federal telecommunications regulatory agency of the United Arab Emirates since 2003.
- The TDRA enacts regulations for the space sector, specifically in the domain of satellite networks and the launching of space satellites.

# ICT SECTOR GOVERNANCE



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DIGITAL ECONOMY & REMOTE WORK APPLICATIONS OFFICE

<https://ai.gov.ae/>

- His Excellency Omar Sultan Al Olama has been appointed as Minister of State for Artificial Intelligence in October 2017, and then was appointed as Minister of State for Artificial Intelligence, Digital Economy and Remote Work Applications in July 2020.
- His responsibilities include enhancing the government performance levels by investing in the latest technologies and tools of artificial intelligence and applying them in various sectors.



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<https://moiat.gov.ae/en/>

- Established in July 2020, the Ministry of Industry and Advanced Technology (MoIAT) aims to boost the UAE's industrial sector and increase its contribution to the GDP.
- The Office of the Minister of State for Advanced Technology, the Emirates Authority for Standardization and Metrology (ESMA) and the Industry sector in the Ministry of Energy and Infrastructure have been merged into the structure of the Ministry of Industry and Advanced Technology since then, and all authorities, responsibilities and duties have been transferred to the newly founded Ministry.

# ICT SECTOR GOVERNANCE



UNITED ARAB EMIRATES  
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<https://www.digitaldubai.ae/>

- Digital Dubai was established by His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President & Prime Minister of the UAE, and Ruler of Dubai, in June 2021 to develop and oversee the implementation of policies and strategies that govern all matters related to Dubai's information technology, data, digital transformation, and cyber-security.
- The entity has been entrusted with four key tasks - accelerate digital transformation of the city through strategic partnerships with governments and private sector entities, increase the Emirate's digital economy contribution to the city's GDP, build and develop digital competencies of national talent, and maintain and develop Dubai's digital wealth whilst accelerating Dubai's cybersecurity efforts.