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1. SERVICE REQUEST

This report addresses the request received from Virginia Economic Development Partnership (VEDP) wherein VEDP has requested Channels MEA to prepare a report highlighting opportunities in 4-5 sectors relevant to VA companies.

Opportunities within below sectors have been been covered:

- Aerospace
- Defense
- Life Sciences and Healthcare
- Information Communication Technology (ICT)

2. RESEARCH FINDINGS

2.1. SECTOR OPPORTUNITIES

The United Arab Emirates (UAE) government is in the process of implementing a comprehensive strategy to diversify its economy away from the oil and gas sector and achieve optimal balance between its various sectors such as healthcare; aerospace and defense; and ICT to ensure sustainability and create new business opportunities.

Listed below are the key strategic initiatives taken by the UAE:

Vision 2021 identifies healthcare as one of the main pillars of their development agenda. Based on this plan, the national Ministry of Health and the related emirate-specific healthcare authorities create policy and related action plans.

Launched in September 2018, Tomorrow 2021 is a USD 13.6 billion initiative launched by the government to shape the economic future of Abu Dhabi. The reform looks at four areas of stimulating business and investment: quality education; research and development; and enhancement the quality of life through cultural, sporting and transport initiatives.

Abu Dhabi Economic Vision 2030 focuses on expansion of economic sectors such as Aerospace, Defense, Healthcare and IT.

Expo2020: World’s Fair
Dubai will be the host city for Expo2020, and for the first time in history, the majority of visitors will come from outside the host country. Expo presents a multitude of opportunities as the country gears up to provide housing, power, security, healthcare, and everything in between in addition to construction of a city within a city on the Expo campus itself.

Information below gives a detailed analysis of several of the key industries where opportunity exists for Virginia companies.
2.2. AEROSPACE SECTOR

The Middle East is one of the fastest growing aerospace regions in the world, and the UAE is its hub. It is one of the largest markets in the world for space, civil, and military aircraft, with robust demand for aircraft equipment, parts, and services. The sector is expected to contribute USD 52.9 billion to the UAE’s economy by 2020 and provide approximately 750,000 jobs.

Civil Aviation

The UAE’s civil aviation industry has grown steadily over the past few decades and outpaced other regional markets owing to the UAE government’s investments in aerospace infrastructure and development. A key fact underpinning the success of the UAE’s civil aviation industry is the country’s strategic location between the east and the west, which connects nearly two-thirds of the global population within eight in-flight hours. This makes the UAE a global hub for air travel, in a position to cater to both passenger and cargo flights across a vast range of destinations across the world.

Dubai International Airport is the third busiest airport in the world and expects 90.3 million passengers by end of 2018. To meet the demand by 2020, Dubai has developed Al Maktoum International Airport which is currently expanding to accommodate 160 million passengers and 16 million tons of cargo annually. The airport is actively recruiting airlines and operators to fill its five runways.

In the capital of the UAE, Abu Dhabi’s airport Midfield Terminal is aiming to set the capacity of passengers to 84 million passengers a year. The Midfield Terminal is spread around the area of 742,000 square meters and can handle up to 11,000 passengers per hour.

Growth in passenger flights: The UAE government is investing billions of dollars in developing and modernizing its aviation sector in preparation for the World Expo 2020, which is expected to attract millions of tourists from around the world.

Growth in cargo flights: The UAE has emerged as the major air cargo hub in the Arab Gulf and the wider Middle East region. Many Fortune 500 companies have set-up a base in the region over the last decade. The UAE air freight market is expected to grow at a CAGR of 4.8% between 2017 to 2021. This growth will mainly be driven by the government investment in infrastructure, airport expansion, and the World Expo 2020.

Overall, the Middle East’s business aviation market is expected to reach USD 1 billion and with anticipation of over 1,375 registered business jets by 2020.

Maintenance, Repair, and Overhaul (MRO)

The UAE is focusing on advanced aero structure as well as composite part manufacturing facilities and capabilities - with the aim to be a key supplier to original equipment manufacturers (OEMs). The UAE is home to two aerospace clusters - Dubai World Central (DWC) Aviation District and Nibras Al Ain Aerospace Park.

Aerospace investments in Abu Dhabi are centered in Nibras Al Ain Aerospace Park, a 10 miles plot of land being developed jointly by Mubadala Development Company and Abu Dhabi Airports Company. The park consists of industrial projects, businesses, office complexes and mixed-used residential zones, with two miles reserved specifically for the aerospace industry.
The investment companies that have a strong hold in the aerospace sector in the UAE are Tawazun Holding, Mubadala Development Company, and Emirates Advanced Investment Group. Their subsidiaries (Ammroc and Strata Manufacturing) have created strategic alliances with US aerospace and defense contractors for knowledge sharing and technology transfer.

**Space**

Having established itself as a regional hub for civil and commercial space activities, the UAE has set its new sights on space exploration and travel. The Mohammed Bin Rashid Space Centre (MBRSC) launched the UAE space program which includes various space satellite projects and the Emirates Mars Mission.

The UAE's investments in space technologies have exceeded USD 5.4 billion. These investments include Al Yah 3 Satellite and Al Thuraya satellite, for maps and earth monitoring.

The UAE Space Agency has taken an initiative to build an unmanned probe spacecraft that will orbit Mars by 2021. The government also announced their goal to build the first city in Mars in 100 years. The project is known as the Mars 2117.

In July 2018, the UAE Space Agency signed a letter of intent with the National Aeronautics and Space Administration (NASA) that covers cooperation for space exploration and human space flight.

**Identified Areas of Opportunity**

- **Commercial Aviation:** Opportunities exist for companies that manufacture aircraft parts, airframes and composites for aircrafts.
- **Airport solutions:** Companies providing solutions in biometrics; artificial intelligence; big data and futurist technologies; and robotics for airports have potential in the UAE. The UAE’s focus is to simplify tasks at the airports through these solutions.
- **Air traffic management:** Potential exists for companies involved in airspace design; air traffic flow management; and autonomous aviation. In December 2017, the UAE implemented air space restructuring project to enhance airspace capacity to meet the forecasted air traffic demand by 2020.
- **Air freight and cargo industry:** As the UAE’s freight market is growing at an annual compound rate of 4.8 percent until 2021, there is an opportunity for companies involved in improvement of logistics infrastructure. Cold-chain logistics services are in demand due to growing demand for pharmaceutical and cold storage products.
- **Technical expertise and knowledge transfer:** As the UAE Space Agency has undertaken initiatives such as 2020 Mars Hope and Mars 2117 mission, there is a requirement for training; education; and research and development for building national capabilities.

**2.3. DEFENSE SECTOR**

The UAE is heavily spending on the defense sector due to factors such as the government’s goal of diversifying the economy from oil and the ongoing war in Yemen. The government is mainly investing in enhancing defense manufacturing facilities locally and procuring defense related products from the US.

- The largest defense purchases the UAE has made are missiles, air defense systems and naval vessels. Its annual defense expenditure is expected to record a compound annual growth rate (CAGR) of 12.09%, of which USD 58.3 billion is spent on procurement of arms.
- The UAE is spending on the training of its armed forces and on the MRO of existing defense systems.
• The UAE’s procurement priorities include missile defense; precision fires; intelligence, surveillance and reconnaissance; command and control, expeditionary logistics; and MRO.
• Abu Dhabi Autonomous Systems Investments and Adcom Systems are currently manufacturing Unmanned Aerial Vehicles (UAV's) in the UAE.
• The UAE is also manufacturing and exporting light weapons, military support vehicles and armored personnel military vehicle manufacturer Nimr Automotive.
• Countries in the GCC region spend USD 130 billion each year on defense, out of which USD 124 billion goes to contractors in other countries, as stated by UAE security forum 2017.
• In maritime sector, Abu Dhabi Ship Building a ship construction company is involved in development of electronics and weapons systems in the UAE.

Identified Areas of Opportunity

• Training capabilities requirements: Lack of inhouse defense capabilities and training has led the UAE to seek technologically advanced, high quality defense systems from foreign OEMs, to provide sufficient protection to its strategic assets and critical infrastructure; commercial and government operations; and planned large-scale global events such as Expo 2020.
• Collaboration and Technology Transfer: The UAE is committed to developing local defense manufacturing base through collaboration with western defense firms and joint manufacturing partnerships; which will help grow the demand for local defense products and services to approximately USD 30 billion annually.
• Security Consultants: There is a requirement of subject matter experts to protect its critical infrastructure such as nuclear power plants; oil and gas production facilities; water treatment and electricity facilities; and cyber security.
• Defense and security equipment suppliers: Due to the ongoing conflict in Yemen, the UAE is currently spending on arms, ammunition, missiles, war-planes, and protection equipment.

2.4. LIFE SCIENCES AND HEALTHCARE SECTOR

With its vision to develop world-class healthcare infrastructure, expertise, and services, the UAE government is extensively expanding and upgrading its healthcare systems to match international standards. High birth rates, rise in life expectancy, growing incidence of Non-Communicable Diseases, and medical tourism are driving the demand for healthcare in the UAE.

• By 2021, UAE’s healthcare industry is forecasted to grow by 60% to be valued at over USD 28 billion approx.
• The outpatient and inpatient markets are projected to reach USD 9.2 billion and USD 7.2 billion, respectively, in 2022.
• The country is likely to see a nearly 3% annual increase in the number of hospital beds required, presenting a demand of more than 14,969 beds by 2022.
• The UAE’s current healthcare expenditure is projected to rise from USD 16.1 billion in 2017 to USD 25.6 billion in 2022, at a CAGR of 9.6 percent.
• UAE's life science sector is at the mid-point of achieving 37% growth between 2014 – 2019 equivalent to USD 19 billion approx.

Identified Areas of Opportunity

• Cancer treatment, beyond chemo: In the UAE, approximately 4,500 new cases of cancer are reported in a year, which means 12 new cancer cases a day. Cancer is the third leading cause of death in the UAE, behind cardiovascular disease and accidents, with Emiratis accounting for more than two-thirds of cancer patients, according to the UAE Ministry of Health. The leading cancers in the UAE are breast, thyroid, colorectal, lung and cancer of the cervix. The Abu Dhabi Health
Authority (HAAD) created its Cancer Control Plan to work with public, private, and community partners to create and implement strategies to help cancer patients and their families live with, through, and beyond cancer. The pillars of the program are prevention, early detection, diagnosis, treatment, and palliative care. This is an example of an emirate level public health authority creating strategy around a Vision 2021 goal and then providing engagement opportunities to private sector organizations to help achieve its targets that US companies can capitalize upon.

- **Education/Prevention:** UAE recognizes that family education is critical in tackling the epidemic of childhood obesity. Lifestyle trends such as lack of physical activity, and consumption of fast food and prepackaged foods are major causal contributors to this growing statistic. Eating is also seen as a recreational activity in this part of the world, and a way to socialize with others.
- **Wellness:** The UAE is looking to become a health hub in the region by attracting wellness tourists. There is an increase of investments in corporate wellness programs in the UAE.
- **Hospital build = shortage of beds:** There is an increase in shortage of specialized care hospital beds and cancer treatment centers in the UAE. Alpen Capital has reported that between 2017 – 2025, Dubai requires more than 3800 beds, 8300 physicians and 8,800 nurses which brings lucrative opportunities for the US healthcare providers.
- **Telemedicine / remote health monitoring:** The UAE has many eHealth start up companies that are offering telehealth devices and services such as video conferencing care. In 2016, Dubai Health Authority launched Salama Electronic Medical Record system that will be implemented in all hospitals to provide access to electronic patient records. The project is in the final phase of completion. International companies are partnering with hospitals to provide these services directly to the UAE patients.
- **Chronic disease management – alternative models:** The UAE is looking for healthcare innovators who can provide solutions towards cardiovascular diseases, childhood obesity, diabetes, tobacco related illness, and cancer treatment.
- **Innovation such as 3D printing:** Dubai Health Authority (DHA) has created a 3D printing strategy for medical services in the UAE. The 3D printing technology is important for development in prosthetics, implants, tissue and organ replication and the UAE is looking to enhance the 3D technology.
- **Creation of Centers of Excellence for specialized/ tertiary care of leading UAE diseases:** By 2021, all health-care facilities in the UAE will have international accreditation from recognized medical bodies either from the US, Canada or Australia.
- **Mental health delivery, overcoming the cultural stigma:** To recognize the rising prevalence of mental health disorders, the DHA has launched the first comprehensive mental health strategy for Dubai. The strategy titled ‘Happy Lives, Healthy Communities’ was launched in line with Dubai Health Strategy 2016-2021, to work towards successful implementation and active community participation to remove the stigma attached to it and empower the patient.
- **Emphasis on public-private collaboration:** The 2017-2020 DHA health strategy focuses on inviting private sector investment into building the primary, tertiary and secondary level health care facilities in Dubai.

### 2.5. ICT SECTOR

The Middle East, Turkey and Africa (META) ICT spending forecast for 2018 is expected to reach USD 230 billion. The GCC countries are the front-runners in the Middle East’s spending surge on ICT; this is largely driven by heavy public sector investment in education, government services, and healthcare services. The UAE and Saudi Arabia are the two largest ICT markets in the region. In 2018, the IT spending in the UAE is expected to rise by 4.8 per cent to USD 7.7 billion; and 4.3 per cent in Saudi Arabia to USD 11 billion.

This increase in spending is driven by government-led infrastructure development projects; e-government initiatives; transformations in the transportation, banking and financial services sectors; and private sector developments as governments in the region pursue diversification strategies into non-oil sectors.
High income and propensity to spend from consumers, enterprises, and government makes the UAE one of the most lucrative ICT markets globally. Demand for ICT products and services will be sustained due to steady performance of the UAE economy, as indicated by many positive indexes including rising real estate prices, growth in the tourism sector, and high business confidence.

- Artificial Intelligence (AI) is contributing USD 320 billion to the Middle East economy by 2030, equivalent to 11 per cent of GDP.
- Dubai recently established a USD 100 million Fintech-focused fund to accelerate the development of financial technology. Dubai is positioning itself as a FinTech hub for the Middle East and North Africa region.
- International Data Corporation reported that spending on Blockchain in the Middle East and Africa will double is 2018 to USD 80.8 million, up from USD 38.9 million spent in 2017.
- Global Innovation Index ranked UAE 35th as one of the world’s most innovative countries. This is highest among the Arab World region.
- The UAE is ranked fifth globally for use of big data and analytics by World Competitiveness Yearbook 2018. It also has one of the highest internet penetration rates in the world.

Identified Areas of Opportunity

- Artificial Intelligence (AI): In 2017, the UAE appointed Minister of Artificial Intelligence and launched the UAE Artificial Intelligence Strategy 2031. The strategy aims to focus on few main sectors of education; transportation; energy; space; and technology.
- Robotics; virtual reality and augmented reality: These technologies are catering to multiple industries including oil and gas; power and utilities; construction; real estate; and healthcare. There is a requirement for technical experts that operate in this space.
- Blockchain Technology: The UAE has launched Emirates Blockchain Strategy 2021 to transform 50 percent of government transactions into blockchain platform. The strategy aims to impact several industries such as energy and water; transport and logistics; tourism; safety; and healthcare. Opportunities exists within the listed industries and there is a requirement of skill development training on blockchain technology.
- Drones: The UAE has launched drone applications for traffic monitoring; surveillance; oil spills searches; water and power asset monitoring; litter monitoring; landfill density optimization; and police patrols.
  - Krypto Labs is an incubator for start-up companies in Abu Dhabi. In a bid to further boost the drone industry, Krypto Labs launched a global competition of prize money USD 1 million for best drone engineering.
- Cyber security: The cybersecurity sector is growing significantly as the UAE advances technologically, it will be vulnerable to various cyber threats. The UAE government recognizes this and has taken measures to counter the rising cyberattacks in the country and has set certain standards to maintain effective cybersecurity frameworks. Sizeable opportunities exist for companies offering cybersecurity products and solutions in sectors such as energy; oil and gas; information technology; telecom; and defense.
- Wearable Technology: There is a need for homegrown hardware and wearable tech startups in the UAE. Wearables such as smart watches and exercise heart monitors are in demand in the UAE. Wearable technology connects users to various sources of real-time, actionable data.

Expo 2020 and the UAE’s Vision 2021 serve as major catalysts for several ICT initiatives in the UAE including:

- Dubai Smart Government – The Dubai Smart Government initiative was established in 2000 to provide online government services to businesses, citizens, residents, and visitors.
Dubai Smart City – The Dubai Smart City initiative is aimed at linking the emirate’s government services and the public using smart devices accessed freely using high-speed wireless internet connections.

Dubai Internet City (DIC) is the home to some of the leading global information and communications technology (ICT) companies in the world. DIC is an economic free zone allowing companies to operate with tax-free benefits and 100 percent ownership. Opportunities for companies include all the ICT technologies, developing the UAE’s human capital, encouraging research and development, and creating the overall groundwork to allow the UAE to become a regional hub.

3. CONCLUSION

The UAE government has launched several strategies at federal and state level to diversify its dependence from oil and gas to focus on other industries. The UAE’s agenda with definite continued strategic spending in areas identified above present lucrative opportunities for Virginia companies in the region.

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