UAE Approach Towards Sustainable Space Economy (15 June 2020)

By: Naser Alrashedi
Overview of the UAE space sector

The UAE has become a regional center for space services, events and education

50+ Entities

Fully regulated space sector: policy, strategy, law and regulations

Emirates Mars Mission Hope Probe

UAE Astronaut Programme

Over 3100 employees in the space sector

18% Women

Over AED 22 bn in investments in the space economy

10 Satellites in orbit

8 Satellites being built

5 Research & Development Centers

3 National universities providing space programmes
NATIONAL SPACE STRATEGY 2030

1) Competitive And Leading Space Applications And Services

2) Advanced R&D And Manufacturing Capabilities

3) Inspiring Space Scientific And Exploration Missions

4) Fostering Space Culture And Expertise

5) Effective Local And Int’l Partnerships And Investments

6) Adapting And Enabling Frameworks And Infrastructure

The UAE be one of the most pioneering and advanced countries in the field of space”
534 VC invested in Space since 2009, 114 of which was for 1st time in 2018

* Sources: International space reports
Private investment in more than 412 space companies between 2009-2018 with $18B

<table>
<thead>
<tr>
<th>Category</th>
<th>Location</th>
<th>2016</th>
<th>Change</th>
<th>2017</th>
<th>Change</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(millions)</td>
<td>(millions)</td>
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<td>(millions)</td>
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<td>(millions)</td>
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<tr>
<td>Total Investment</td>
<td>U.S.</td>
<td>$2,146.0M</td>
<td>-7%</td>
<td>$1,994.0M</td>
<td>32%</td>
<td>$2,622.8M</td>
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<tr>
<td></td>
<td>Non-U.S.</td>
<td>$884.4M</td>
<td>-36%</td>
<td>$562.1M</td>
<td>9%</td>
<td>$610.3M</td>
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<tr>
<td>Seed and Venture Investment</td>
<td>U.S.</td>
<td>$1,912.6M</td>
<td>-13%</td>
<td>$1,664.5M</td>
<td>32%</td>
<td>$2,198.8M</td>
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<td></td>
<td>Non-U.S.</td>
<td>$153.4M</td>
<td>243%</td>
<td>$526.6M</td>
<td>13%</td>
<td>$595.3M</td>
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<td>Number of Investors</td>
<td>U.S.</td>
<td>90</td>
<td>3%</td>
<td>93</td>
<td>3%</td>
<td>95</td>
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<tr>
<td></td>
<td>Non-U.S.</td>
<td>51</td>
<td>62%</td>
<td>84</td>
<td>12%</td>
<td>92</td>
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<tr>
<td>Number of Recipients</td>
<td>U.S.</td>
<td>37</td>
<td>22%</td>
<td>45</td>
<td>4%</td>
<td>47</td>
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<tr>
<td></td>
<td>Non-U.S.</td>
<td>22</td>
<td>55%</td>
<td>34</td>
<td>3%</td>
<td>35</td>
</tr>
</tbody>
</table>

* Sources: International space reports*
UAE SPACE POLICY IMPACT ON UAE SPACE SECTOR

- **Survey:** Measuring the UAE Space Economy Growth in 2018
- **Done in support of Statistics Depts. and OECD**
- **43 entities working on the UAE Space Economy participated**

**Expenditure on Space R&D and Exploration**
- 24 Registered Patents
- 64 Space Scientific Publications

**Expenditure on Space Projects**
- 84% From Private Sector

**Total Contracted Entities**
- 1236
  - 480 Outside UAE
  - 756 Inside UAE

**Sectors benefiting from UAE Space Products**
- 17 Sectors, main ones are:
  - Education
  - Telecom
  - Tourism
  - Energy
  - Agriculture
  - Adv Tech Manf.

**Employees in Space economy**
- 3125 in 43 Entities

**# Entities working in UAE Space Economy**
- 50+
Space Investment Promotion Plan (1/2)

Approach

An approach based on two complementary pillars allowing UAE to propose a desirable and unique offering for Early and Later Stages space companies looking for VC Funds compared to other locations worldwide:

Pillar 1: Create an attractive environment for space industry and ecosystem

1.1 - Activity 1: Promote and Rise the Awareness of the Opportunities in Space Sector,
1.2 - Activity 2: Create a Space Regulatory framework
1.3 – Activity 3: Create a one stop shop to facilitate licensing and the settlement of businesses.
1.4 - Activity 4: Encourage the creation of Space Special Economic Zones
1.5 - Activity 5: Support and encourage other Incentives

Pillar 2: Create an investment vehicle and the needed supporting entities

2.1 - Activity 1: Setting up of a Catalyst, then Platform to facilitate Investment
2.2 - Activity 2: Create UAE Space Angels to invest in seeds.
2.3 - Activity 3: Create Space Accelerator to help start-ups and entrepreneurships

List of Stakeholders:

- Space Agency
- Investors
- Deal providers/owners
- Special Economic Zones
- Government Entities
- Academies/Universities
Space Investment Promotion Plan (2/2)

Investment vehicle and support logical flow

- **UAESA** Pushes received Deals
  - provides assessment on conformity with UAE space law, UAE space policy/Plan
  - May upon request provide technical view (not advice/recommendation)
  - Facilitates establishment of external independent tech assessor/Indpt. Judges pool technical expertise
  - Facilitates establishment of accelerator
  - Encourages establishment of external space angels

Deal Flow received by UAE SA

**Space Agency** Catalyst / Platform

Tech. Assessors “Independent Judges”

Deal Flow received by investors

**Investors** Venture Capital

Companies

Deal Flow received by UAE SA

**UAE Space Angels**

Deal Flow brought by Angels

- Start-up 1
- Start-up 2
- Start-up x

**Accelerator**

Deal Flow

Pre/Seed/ Series A

Series A, B (and other Growth Stage)

**Venture Capital**

Deal Flow

Companies

- 500k USD*
- 1-5 MUSD*
- > 5 MUSD*

- Idea
- Incubation
- Early Stage
- Venture Capital
- Later Stages

* : Notional figures
Clear ambitious **Policy, Strategy, and Law** that was designed with the future in mind, to ensure **maximum incentives** for commercial space activities and investments.

**Space Mining, Space Tourism, and other aspects to inspire investor confidence.**

**Effective & Attractive Licensing and Authorization Regimes**

Robust **IP law and Protection at a federal level applicable to the Space Sector**

Pro-active team at the UAE Space Agency with a mandate to support Investment promotion activities and **facilitate organic growth & foreign companies entry** while encouraging public and private investments.
Example of Special Economic Zones Attractive for Space Business

- Masdar City
- ADGM
- NIBRAS
- MBR Aerospace Hub
- Mars Science City
Investors & Potential Grant Providers

- Tawazun Economic Council *
- Mubadala Ventures
- Ghadan 21 Abu Dhabi Investment Office
- Dubai Future Foundation & Dubai Future Accelerator
- Kryptolabs, Accelerator
- Starburst Accelerator at Hub71
- Sandooq Al Watan
- Angels and Family Offices
- Foreign VC’s And Other Vehicles

* Would need to meet criteria for Tawazun Economic Program (offsets)
THE GEOTECH INNOVATION PROGRAM IMPACT

2 Business startups were created from ideation

82 Business applications were submitted

41% Emiratis

3 Categories covered:
- Urban & rural land management
- Disaster & crisis management
- Coastal border security

20 Universities participated in the roadshow

8 University students exhibited at the final demo day

6 Panelists from academia to industry partook at the “Future & Challenges of Space Tech Startups in UAE” session

410 Students

350 Attendees
UAE NewSpace Innovation Program
(November 2019 – October 2020)
THE UAE NEWSPACE INNOVATION CATEGORIES

Category 1 Innovations in Space Sciences
- Science Instruments, Observatories and Sensor Systems.
- Space Power and Energy Storage.
- Robotics and Autonomous Systems.
- Modeling, Simulation, IT and Processing.
- Software and Applications.

Category 2 Extending Human Presence in Deep Space
- Human Exploration Destination Systems.
- Life and Physical Sciences.
- Space Entry, Descent, and Landing.

Category 3 Exploration & Communications in Space
- Ground and Launch Systems Processing.
- Thermal Management Systems.
- Ground Station Systems and Networks.
STAKEHOLDERS

SPACE INDUSTRY

NON-SPACE STAKEHOLDERS

GOVERNMENT PARTNERS

IP MONITIZATION

UNIVERSITY PROFESSIONALS

UNIVERSITY STUDENTS
Hub71 - Starburst Accelerator Program

An ENTREPRENEURIAL program
Teaches proven principles from top global universities and businesses

Aviation, Space, and Defense FOCUSED
Includes critical courses on doing businesses in this highly regulated global industry

12 Week program with strong EMPHASIS ON TRACTION and preparation for fund raising
Coached by global aerospace leaders, government experts, and investment mentors

Access to the largest VC NETWORK
Leverages Starburst Venture's network in silicon valley and around the world

Connection to a global AEROSPACE & DEFENSE NETWORK
Enduring access to a worldwide network of experts and leaders

Information at: http://starburst.aero/hub71/
Purpose:

to create attractive and responsive regulatory environment for space sector that is in harmony with national legislation system and augment as necessary, adequately balances between the safety & security & environment requirements and the economic & commercial & innovation requirements; and respect international law;

- Represents Critical and Leading Step: full-filling a regulatory gap, and 1st of its kind in the region

- Law Objectives as stated:
  - Encourage and enable innovation, privatization, and investment
  - Support safety, security, and environment protection
  - Promote transparency and confirmity to international law and norms

- Description of Content:
  - 9 Chapters, and 54 Articles the provides the general provisions and rules to regulate the various space activities, and organizes the roles and responsibilities.
  - It provides the general terms and conditions in relation to authorization of space activities and registration of space objects
  - Forward looking, and deals with new space law aspects such as launch from space, space debris, sub-orbital and tourism, space resources, .. etc.

- Studies and several consultations during development:
  - Consulting over 15 local entities, several other space agencies, advisors and experts form around the world from different space backgrounds
  - Several local and international policy and legal studies, analyzing more than 20 treaties, 15 local relevant laws, and ensuring alignment with UAE2071
  - Benchmark with 18 countries space laws such as USA, UK, France, S. Korea, Germany, Sweden, Brazil, etc.
The 'Arab Space Cooperation Group' launched during the inaugural day of the Global Space Congress (Abu Dhabi, March 2019). Representatives from the 14 countries joined this group.

Prime Objectives of the Group

- exchange of knowledge.
- working on joint projects.
- boosting the Arab space industry.

813 PROJECT

First Joint Arab EO Satellite LEO Hyperspectral
By 2023