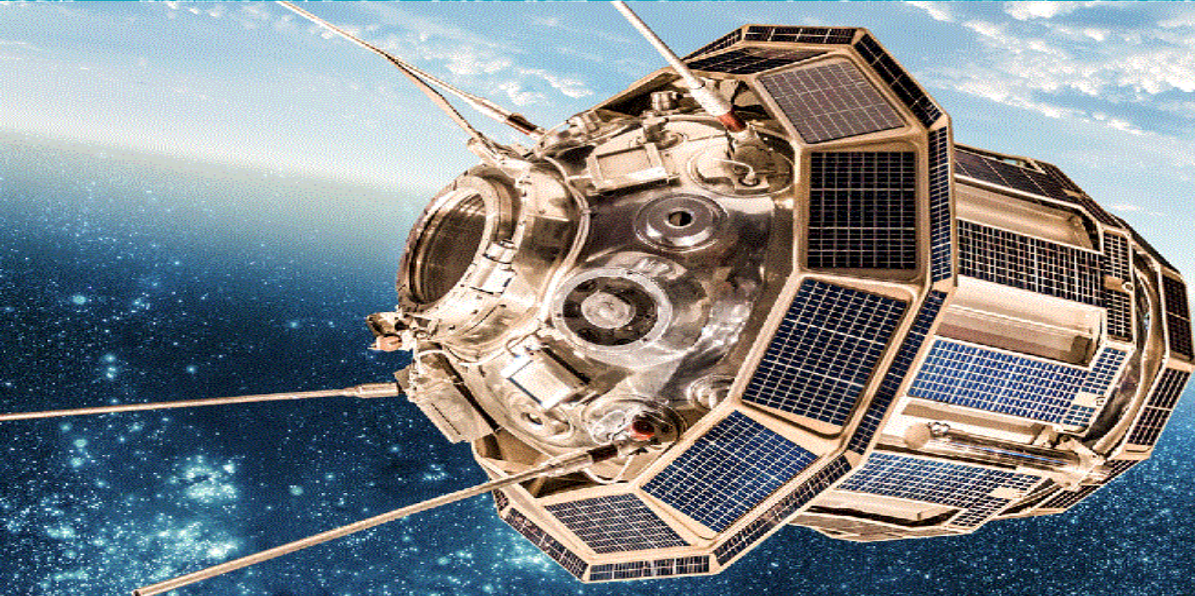


UAE Approach Towards Sustainable Space Economy (15 June 2020)

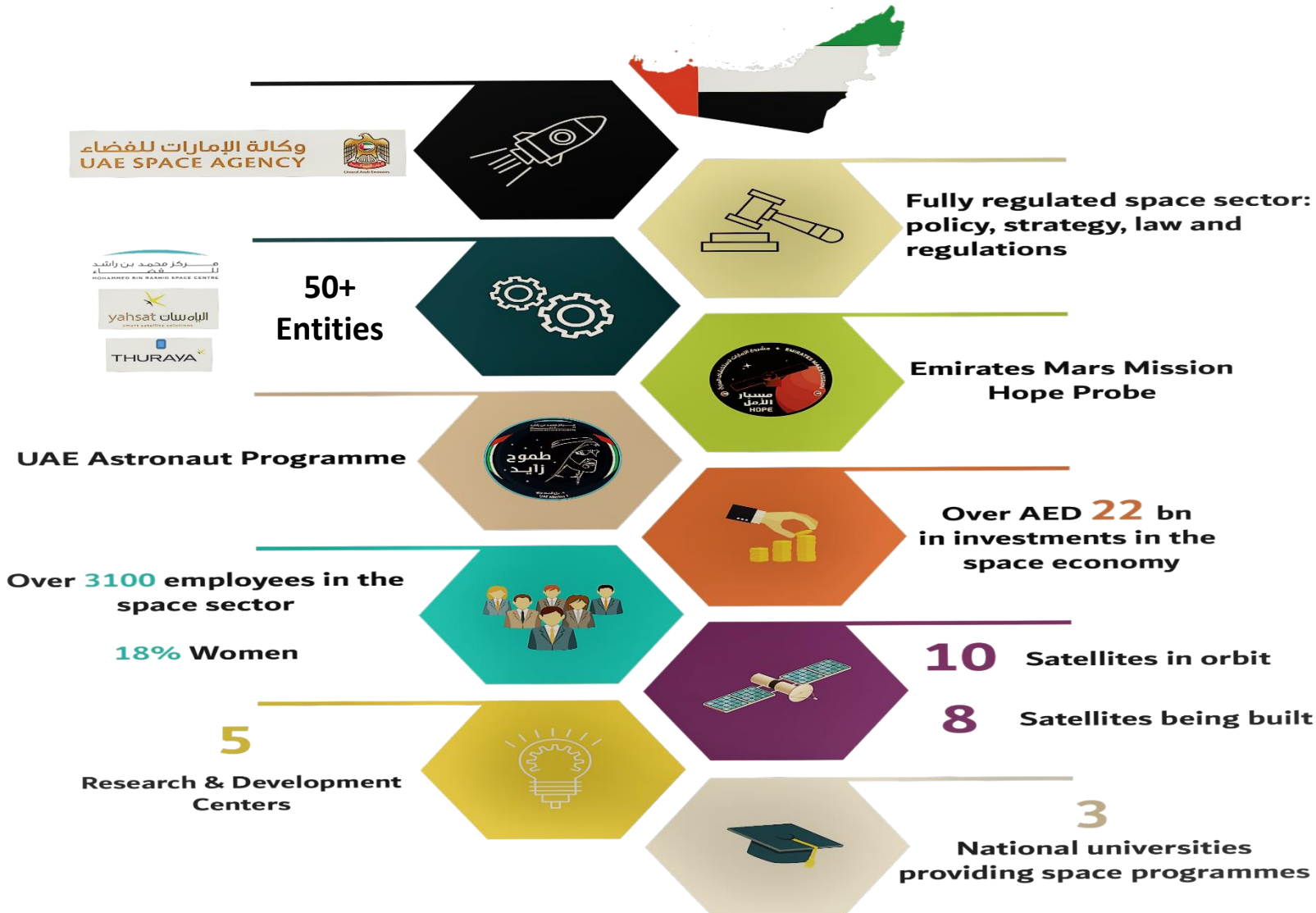
By: Naser Alrashedi





Overview of the UAE space sector

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





NATIONAL SPACE STRATEGY 2030



The UAE be one of the most pioneering and advanced countries in the field of space”



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

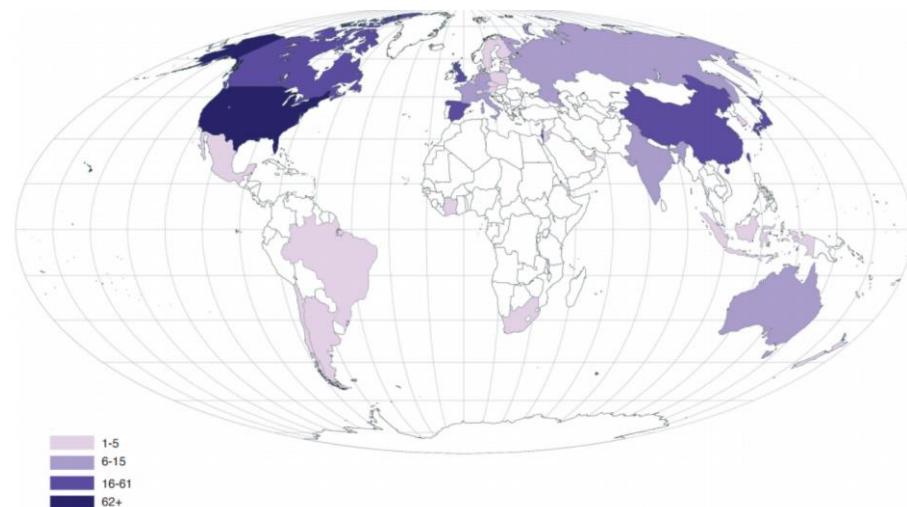
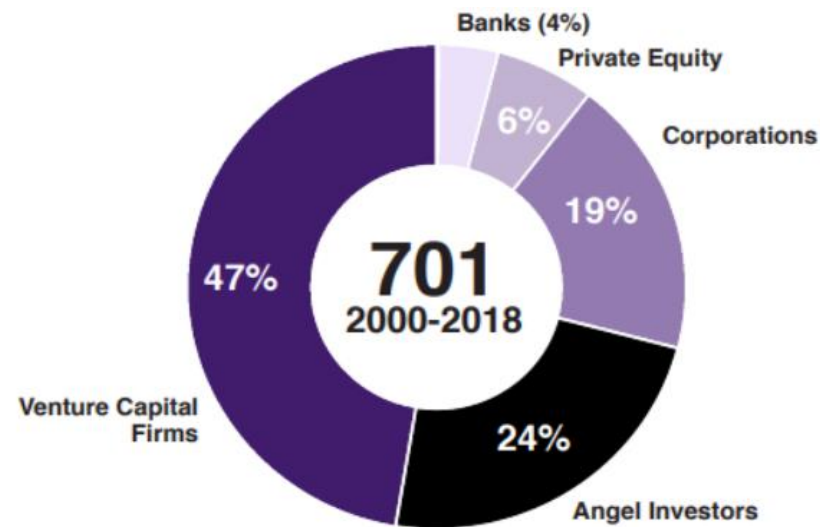
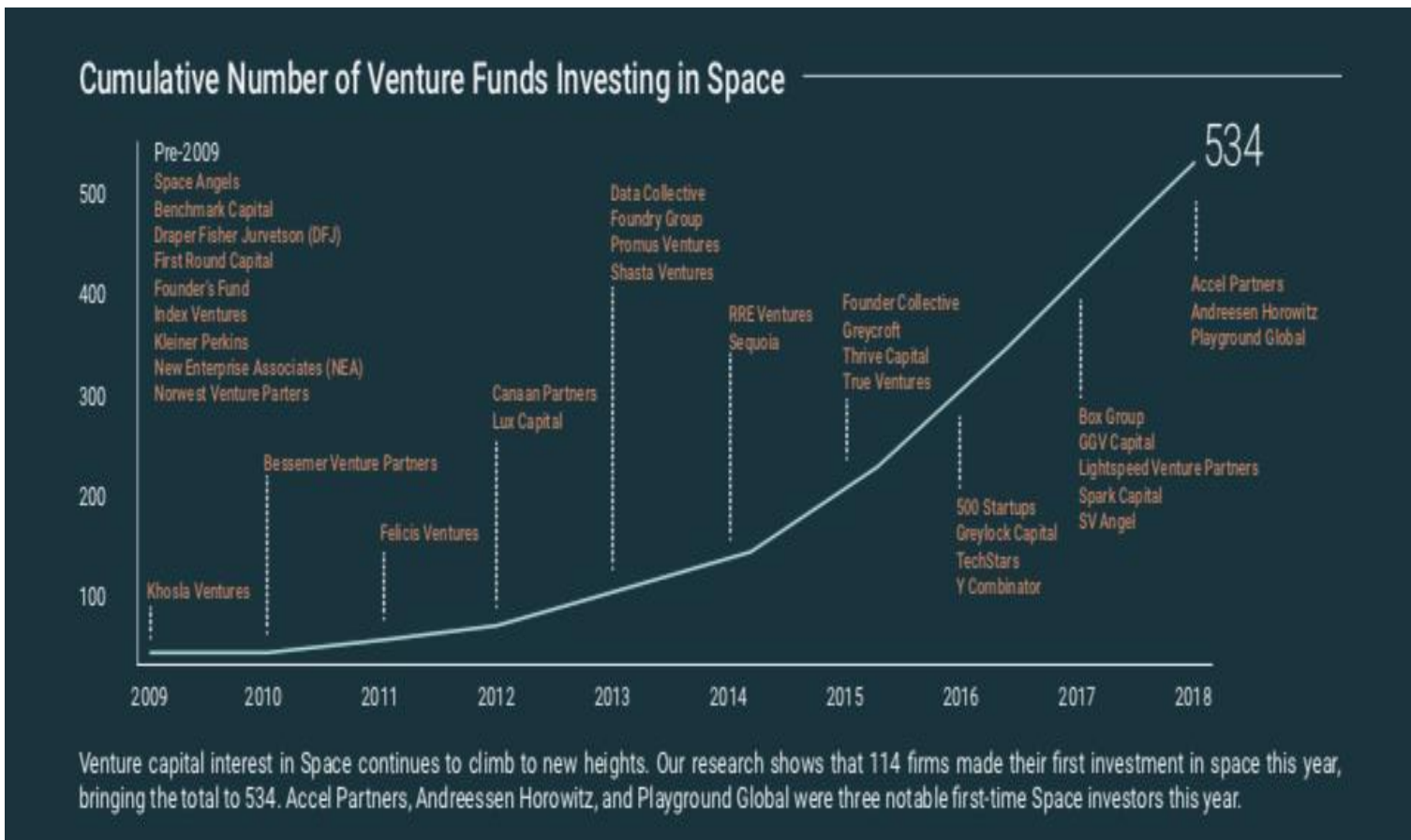


5) Effective Local And Int' Partnerships And Investments



6) Adapting And Enabling Frameworks And Infrastructure

534 VC invested in Space since 2009, 114 of which was for 1st time in 2018



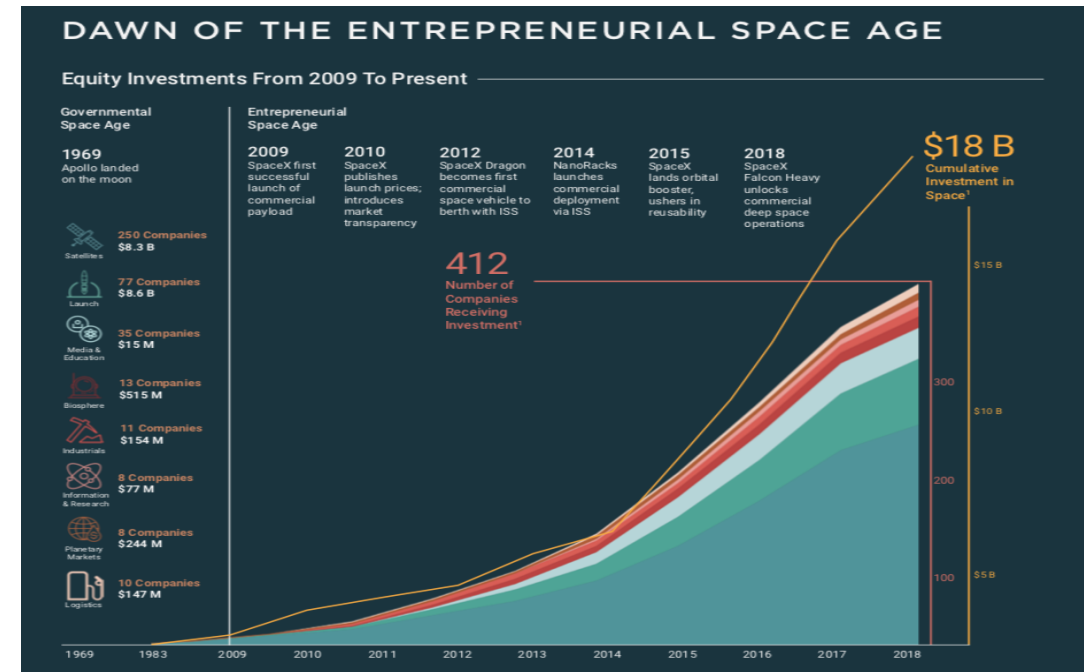
* Sources: International space reports



Private investment in more than 412 space companies between 2009-2018 with \$18B

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

Investment Type	2016 (millions)	Change	2017 (millions)	Change	2018 (millions)
Seed/Prize/Grant	\$447.7	22%	\$548.3	44%	\$791.7
Venture Capital	\$1,617.8	2%	\$1,642.8	22%	\$2,002.4
Private Equity	\$0	0%	\$0.0		\$85.0
Acquisition	\$962.5	-63%	\$360.0	-72%	\$100.0
Public Offering	\$0	0%	\$0.0	0%	\$0.0
Total Investment	\$3,028.0	-16%	\$2,551.0	17%	\$2,979.1
Debt Financing	\$1.9	159%	\$5.0	5010%	\$254.0
Total with Debt	\$3,030.0	-16%	\$2,556.0	26%	\$3,233.1



* 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



Entities working in UAE Space Economy

50+

Expenditure on Space Projects

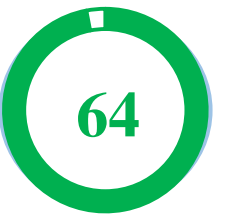


From Private Sector

Expenditure on Space R&D and Exploration



Registered Patents



Space Scinetific Publications

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

In 43 Entities

3125



Space Investment Promotion Plan (1/2)

وكالة الإمارات للفضاء
UAE SPACE AGENCY



Informational Slide

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

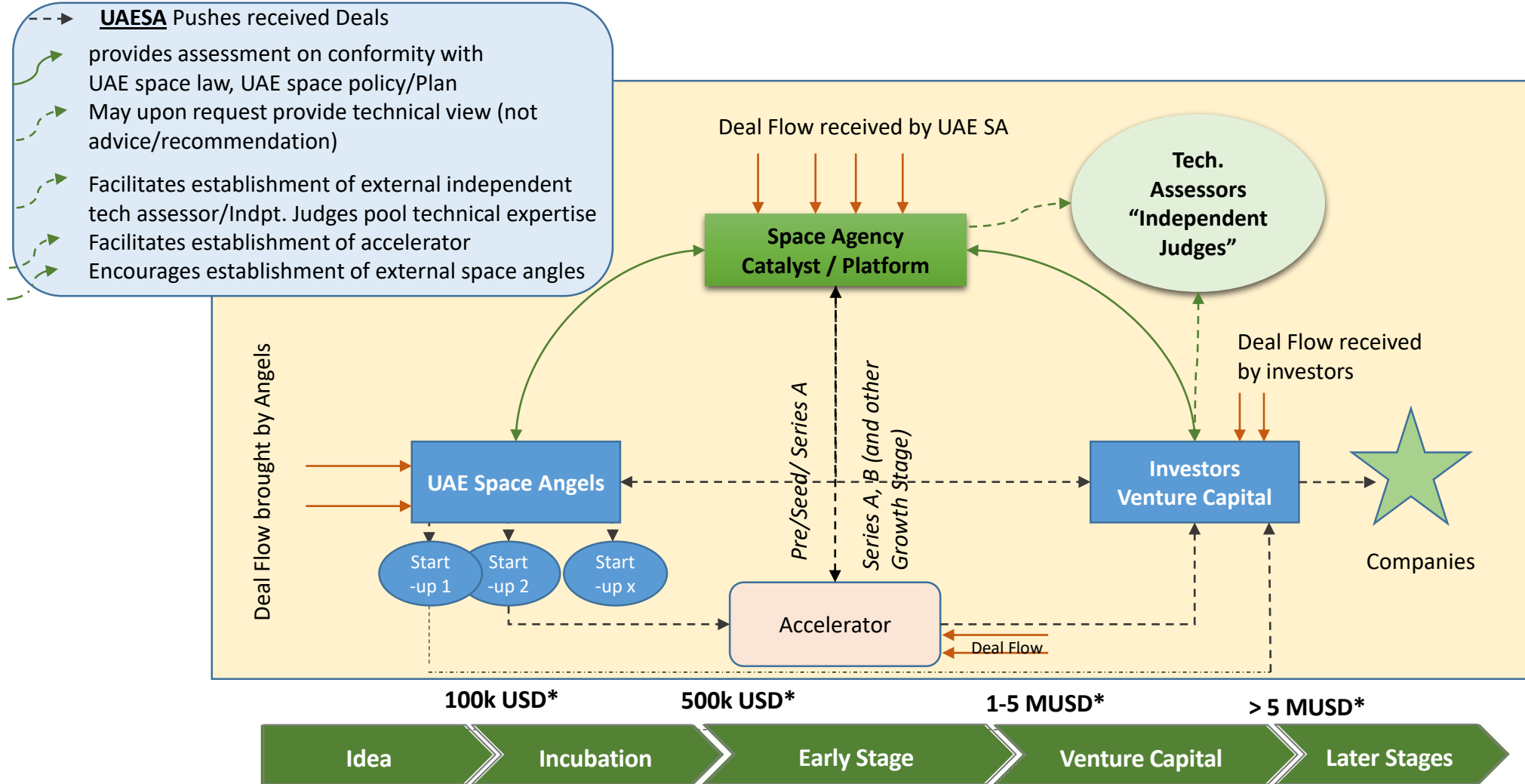


List of Stakeholders:

- 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



* : 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.

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

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

Effective & Attractive Licensing and Authorization Regimes

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



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



Sandoq 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 were submitted Business applications

41% Emiratis

3 Categories covered:

- Urban & rural land management
- Disaster & crisis management
- Coastal border security

20 Universities participated in the roadshow

410 Students

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

350 Attendees



KRYPTO | LABS

وكالة الإمارات للفضاء
UAE SPACE AGENCY



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 Health, Life Support, and Habitation Systems.
- 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



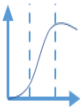
An **ENTREPRENEURIAL** program

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**

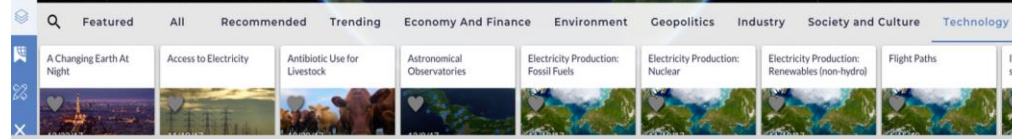
Leverages Starburst Venture's network in silicon valley and around the world



Connection to a global **AEROSPACE & DEFENSE NETWORK**

Enduring access to a worldwide network of experts and leaders

Information at: <http://starburst.aero/hub71/>

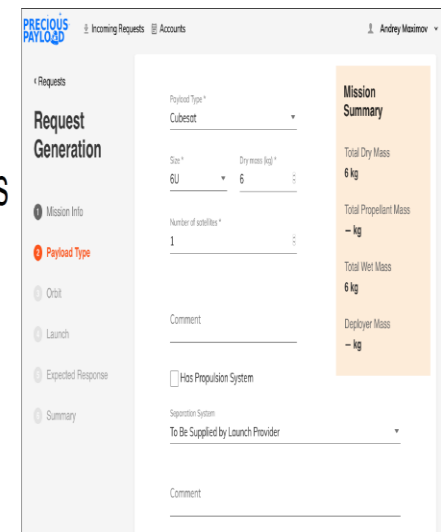


PRECIOUS PAYLOAD Online service to manage satellite projects

Space logistics for small satellites

Satellite components • Ground Segment • Rocket launches
• Insurance • Export compliance • Satellite licensing

Internally





FED. LAW 2019 ON REGULATING THE UAE SPACE SECTOR

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 conformity 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.



التعليم
القطاعات الاقتصادية
البنية التحتية
البيئة
المحاور
2071
UAE CENTENNIAL 2071

#	Country	Document short title
1	USA	Three different national legal regimes
2	Sweden	Act on Space Activities
3	UK	Outer Space Act
4	Russia	Law on Space Activities
5	South Africa	Space Affairs Act
6	Ukraine	Law on Space Activities
7	Hong Kong	Outer Space Ordinance
8	Belgium	Space Law
9	Netherlands	Space Law
10	France	Law on Space Operations
11	Austria	Outer Space Act
12	Kazakhstan	Law on Space Activities
13	Norway	Act on Launching
14	Australia	Space Activities Act
15	Brazil	Administrative Edict No. 27
16	South Korea	Space Development Promotion Act
17	Canada	Remote Sensing Space Systems Act
18	Germany	Act on Satellite Data Security

60+ countries involved & interested in space activities
 28 countries
 Filter 01: Countries with some form of national legislation dedicated to space activities
 Filter 02: Countries with national law addressing the involvement of private operators in space activities in implementation of the space treaties

ARAB SPACE COOPERATION

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

