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Small States in the New Space Age: Policy Lessons from UAE & Luxembourg

By Tan Teck Boon

SYNOPSIS

The UAE and Luxembourg are going after a piece of the lucrative space economy. Their strategies leverage on international cooperation and education. They offer useful insights for other space-keen small states.

COMMENTARY

NOW THAT William Shatner — best known as Star Trek's Captain James T. Kirk — has [gone into space](#) in real life, the role of private aerospace companies in this new space age is again in the limelight. Unlike the Cold War's Space Race in which the United States and USSR competed for superiority in space flight, this new space age is conspicuously led by the private sector.

Today, these space companies get all the media attention. The world seems to have forgotten that some small states are also important players in the new space race. This is regrettable since they offer valuable lessons for other small states angling for a piece of the [fast-growing space economy](#). In fact, the United Arab Emirates and Luxembourg are great examples because they have effectively positioned themselves for a front row seat in the upcoming space-tech boom.

Learning by Doing to Diversify Economy

What the two countries have achieved is no small feat considering the high entry barriers to the exclusive space club. Indeed, only a handful of countries belong to it. So as a practical matter, learning from the UAE and Luxembourg can be beneficial for other small but space-keen countries.

As the new space age opens up [unprecedented economic opportunities](#), catching up with the frontrunners is more rewarding than ever.

One might wonder why on earth the UAE would want a space programme. Not only is having one exceedingly expensive, there is also no guarantee that it will takeoff.

Long dependent on oil and gas exports, the UAE must contend with the day when they are depleted. Part of the country's long-term strategy to reduce its reliance on these resources, the space programme is a strategic move to diversify the economy.

Partnering With Frontrunners in Space Race

To accelerate its space programme, the UAE turned to partnering frontrunners in the space race, South Korea and Japan. But instead of just importing the technology from them, the emirate decided that its engineers and scientists would take a hands-on approach so that they too would develop the necessary skills and expertise.

Additionally, the UAE signed an agreement with Virgin Galactic to let the aerospace company operate out of the [Al Ain International Airport](#). With this strategic partnership, the UAE now stands to benefit directly from a space tourism boom.

Meanwhile, the UAE is trying to muscle into three critical sectors of the space economy: mining, logistics services and debris management. The third is especially important since collisions between space-based objects can trigger a chain reaction and create so much debris that space activities become impossible.

Similarly, space mining is expected to be very lucrative since celestial bodies like the Moon and Mars are rich in [valuable minerals and elements](#). Lastly, all these space activities require logistical support so that is why the space logistics sector is booming too.

Imparting Relevant Skills

Putting satellites into orbit since the late 1980s, the small but wealthy European nation of Luxembourg is no stranger to extra-terrestrial pursuits. In fact, the space sector now accounts for roughly [two percent](#) of the country's \$70 billion annual Gross Domestic Product or GDP. Even so, the government continues to invest in the country's space programme in anticipation of a boom in that sector.

Like the UAE, Luxembourg wanted to transform its economy. Focused on steel and then banking, it needed reinventing to stay relevant in a world threatened by disruptions. It was against this backdrop that space was chosen as the next frontier to deliver a new source of growth.

To jumpstart the country's space programme, the government formed a [strategic partnership](#) with a private satellite operator in 1985 and by 1988, it was sending satellites into space. Today, Luxembourg is a bustling hub for space activities.

Luxembourg also leverages international cooperation to advance its space ambitions.

As a member of the European Union (EU), Luxembourg engages in space-related projects through the European Space Agency. A major benefit of this collaboration is that Luxembourg-based companies can receive funding from the European Commission. Apart from the EU, Luxembourg also [partners frontrunners](#) such as the United States, China and Japan.

Two key factors contributed to the success of Luxembourg's space programme. Firstly, funding is generous with the government handing out financial incentives to commercial space companies. There is also funding for industries and academia collaboration.

Secondly, the government ensures that there are enough rocket scientists and engineers for its space programme by offering [space-related curricula](#) from the primary to tertiary level. Interestingly, classes impart technical knowledge as well as relevant skills like business and management so that students understand different aspects of the space economy.

Lessons for Other Small Nations

Space is no longer the exclusive domain of big players. UAE and Luxembourg prove that even small countries can have a viable space programme. More than that, they offer valuable lessons for other small but space-keen nations.

The UAE taught us how a [complementing model](#) can help realise a country's space ambitions. By working with frontrunners, the UAE shortened the timeframe needed to develop space-related capabilities. A problem with this development approach is that the frontrunner often refuses to transfer core technologies and skills to the latecomer.

To tackle this, the UAE places strong emphasis on hands-on learning for its rocket scientists and engineers so that they may eventually hold their own. Meanwhile, Luxembourg showed us how even a small workforce can be nurtured for the space economy.

By offering space-related subjects at all education levels, the government not only ensures that the country has enough rocket scientists and engineers, it also cultivates interest in the industry among the young. This approach underlines the importance of the [education system](#) since it can take years to home-grow the specialised talents needed for a space programme.

Reportedly, Shatner was [overwhelmed by emotion](#) when he returned from space. As it turned out, the American actor was profoundly moved by how vulnerable Earth looked from space. To the nonagenarian, more people seeing that would be good for the planet.

In that case, more countries joining the space club is a positive thing. Thanks to the UAE and Luxembourg, space-keen countries can take heart in the fact that they can do it too.

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