Tunisia's first satellite to highlight country's technology

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In this photo taken on Thursday Nov. 28, 2019, Mohamed Frikha, CEO of Tunisia's Telnet Group, speaks with the Associated Press in Tunis. Telnet is preparing to launch the country's first satellite, which will improve the provision of data from the earth, including climate information. The small satellite will be launched by a Russian Soyuz spacecraft from Baikonur, Kazakhstan. (AP Photo/Hassene Dridi)

When 35-year-old Tunisian farmer Azyz Ben Mustapha looks to the future, he feels a growing sense of unease.

In recent years, climate change and pests have reduced harvests in the region, making life difficult for farmers like Ben Mustapha.

"Climate change is already visible—especially with the cultivation of cereals," he says. "Winters are getting shorter, hotter and dryer. Water shortages during the summer are becoming the norm."

Ben Mustapha manages 100 hectares (250 acres) of lush green pasture in Kalaat el-Andalous, about 30 kilometers (19 miles) north of Tunis, where he has been growing olives, cereals and livestock since 2013.

"If we could monitor production better and receive more information in advance so that we can properly manage crops ... This could really help," said Ben Mustapha.

Tunisian tech company Telnet may have the solution to Ben Mustapha's woes.

Later this year the company plans to launch Tunisia's first satellite, called Challenge One, which will improve the provision of data from the earth, including climate information. The small satellite will be launched by a Russian Soyuz spacecraft from Baikonur, Kazakhstan. If it is successful, Telnet plans to roll out a constellation of 30 additional satellites over the next decade.

The satellite will mark Tunisia's first venture into space. The African space market is now worth over $7 billion annually, according to the website Space in Africa which reports that it "is likely to grow over 40% in the next five years." From 1998 to 2019, 32 satellites were launched by eight African countries and three other satellite projects were funded by African institutions. Fifteen of these were launched in the last four years.

Telnet hopes to improve earth observation of Tunisia and create new technological opportunities that could assist the country's agricultural production, as well as its health and maritime sectors, from tracing the effects of pollution to monitoring the weather.

"Today there are satellites for geo-location and navigation, communications and television. We decided to work with internet technology -– the Internet of Things -– because it's the future," said Telnet CEO Mohammed Frikha in an interview at the company's hulking, galactic headquarters in downtown Tunis.

The market for this technology is unlimited, said Anis Youssef, Telnet's Research and Innovation director.

"Take, for example, solar pumps in the Sahara. The technology we are developing will permit users to control the solar pumps remotely, to irrigate certain areas during the most useful periods of time," he said.

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Telnet has identified a diverse range of uses for the satellites, from tracking livestock that cross Tunisia's borders into Algeria or Libya, to monitoring cargo ships on the Mediterranean.

"There is a multitude of functionalities and each device can offer a function that we can adapt to the needs to different clients and users" said Youssef, while showing AP around Telnet's laboratories in which dozens of young engineers are at work programming different parts of the satellite.

Each nano-satellite in the constellation will be controlled in outer space from Telnet's laboratories, he said.

Tunisia's small, low orbit satellite is relatively inexpensive. Just a foot long and made of light, stainless steel, it's hard to imagine it jetting off into space. In comparison to a large, high altitude geo-satellite that can cost hundreds of millions of dollars, Tunisia's nano-satellite cost just over $350,000, according to Telnet.

Unlike the space endeavors of its African neighbors, Tunisia's satellite is almost entirely locally made.

Of the African nations that have already launched satellites, such as Algeria, Egypt and Nigeria, most tend to buy their satellites, ready-made, from Russia or China. While the manufacturing and launch of Tunisia's satellite is supported by Telnet's international partners, a team of Tunisian engineers have developed and built the satellite's internal programming.

"Telnet's specificity is that we are not buying this satellite—we are making it ourselves," said Youssef.

The impending launch of the satellite highlights the socio-political strides Tunisia has made since the Arab Spring in 2011, when Tunisians peacefully toppled dictator Ben Ali. Tunisia remains one of the movement's few bright spots, after similar uprisings in countries such as Syria and Libya led to violent civil wars.

Frikha, recently dubbed 'Tunisia's Elon Musk' in the journal Jeune Afrique, believes that just as Tunisia prevailed in its fight for democracy, it can also lead

in technological innovation. On his desk sits a miniature rocket emblazoned with the Telnet logo.

"This satellite can give Tunisians confidence that we are capable of being leaders in technology," he said. "With a strong democracy and technology we can have a respected place in the world, even if we only have a population of 10 million and few natural resources."

Pavel Luzin, a political analyst who specializes in the space industry, said Tunisia's political progress has facilitated the development of the satellite.

"The democratization of Tunisia during the Arab Spring has made it possible for Tunisian companies to invest in the development of satellites," he said. "Because under a dictatorship there is corruption, and corruption makes it difficult to invest in long term, technological projects."

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