



Special Release – The Opportunities, Challenges and Future of the Middle East Space Sector

Speaker: Steve Bochinger, Affiliate Executive Advisor, Euroconsult – 25 minutes

John Gilroy: Welcome to Constellations, the podcast from Kratos. My name is John Gilroy and I will be your moderator. Our guest today is Steve Bochinger, the Affiliate Executive Advisor of Euroconsult. The space sector in the Middle East is highly dynamic, growing and being driven by evolving national ambitions and strategies. Leveraging their vast financial resources and strategic geographic location, the Middle East nations have increasingly gained prominence in the global space industry. However, limited access to key technologies, skills, also knowledge gaps and governance issues in the region have the potential to pose unique challenges alongside promising growth opportunities.

Here to discuss the space sector development in the Middle East, including the opportunities, challenges, and the future, is Steve Bochinger the affiliate advisor of Euroconsult. Steve has over 20 years of experience in the space sector and has vast knowledge across the space value chain from a commercial and government perspective. So Steve, we're going to start off with the numbers.

John Gilroy: There are four times more countries investing in space today than in the early 2000s. What makes space even more attractive for Middle East investment than in the past?

Steve Bochinger: Actually that's true. For the last 20 years, we've seen a really formidable expansion of countries investing in space. I think we are hitting now, globally speaking, around 80 countries. And motivated by a lot of various issues and interests, areas of interest, but essentially what they are looking for is ensuring their socio-economic development. So that's why more and more countries are investing in space. What makes Middle East a bit special, I would say, is that compared to other regions, maybe it has been a bit late in adopting space, the space sector and investing in the space sector compared to other regions such as, for instance, Asia. Asian countries have investing maybe a bit earlier, but they are catching up very, very rapidly. In the last five to 10 years, we've seen a rapid, rapid expansion of space investments in the Middle East because of various issues that I guess we're going to discuss later on, but we've seen a formidable acceleration of space initiatives in the region. We've seen space policies, space strategies, space agencies created, and this is maybe one of the most dynamic region worldwide today for space.

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John Gilroy: See, there's some serious numbers we're going to get into here. I mean in 2022, nine countries in the Middle East invested over a billion dollars in space. So what do you project the investment levels will be over the next few years for the region?

Steve Bochinger: Let me correct a bit. 2023, we expect that 13 countries in the ME&A region, so Middle East and North Africa, are investing after today \$1.4 billion.

John Gilroy: Wow.

Steve Bochinger: That's quite a bit of investment obviously, and we're projecting that this number is going to be \$2.7 billion by the end of the decade. So we are talking about doubling investment.

John Gilroy: Wow. So let's take a look at the economy itself. So what is the current size of the Middle East space economy and how does it compare to other regions?

Steve Bochinger: Other regions. When we're talking about space economy, we're talking about the anti-monetary flows, we're talking about government investments, we're talking about space revenues of the industry in general, so all money, all the economic activities around space. In the Middle East in 2023, we are estimated this to be around \$25 billion. So where you're combining everything, the revenues, the investments, everything's around \$25 billion. Compared to 10 years ago, that's a massive increase, because it was around \$8 billion and we're projecting it to be \$70 billion by the end of the decade.

But this is driven by applications, revenues, by satellite communications, satellite navigations, earth observations. This is really the downstream area that is pushing government investments of course because it's a key, it's kicking the industry. We're maybe discussing how the interest and the effect of government investments, but this is really the downstream size of the business that is actually pulling all this activity. How that is compare to the global space economy, so that's roughly 5% of the global space economy, which is more or less representing the GDP size of the Middle East worldwide. And as a ratio of the GDP, of the regional GDP to give you an idea, space economy equals 0.7% of the GDP of the region. That's our estimate.

John Gilroy: Well, if we graph this, 8 to 25 to 70, that's a hockey stick, isn't it?

Steve Bochinger: Exactly. Yeah.

John Gilroy: Wow. Incredible.

Steve Bochinger: That's impressive. And that's again, because this is an extremely, extremely dynamic region, because they are kicking all their activities, all the investments,

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there's a lot of initiatives that are starting right now and this is creating a real momentum in the region.

John Gilroy: Good. There are many drivers for space investment including economic growth, technology development, security, and even sovereignty. So what is driving the Middle East to make these tremendous investments?

Steve Bochinger: You said it all. Essentially, you said it. Sovereignty. My pick would be first sovereignty and security. This is a number one concern from this country to secure sovereign access to satellite assets and to space in general. So sovereignty. Capability building, as you said, because it's a major driver to be autonomous and to develop domestic industry and to be able to develop national ecosystem and as well to drive STEM education. So capability building is very much important. I guess we're going to talk about that, I hope, later on as well.

Economic growth is obviously another key area of motivation of investments, because these countries are looking to diversify their economy and they see space as a key enabler to facilitate this diversification. So that's an important area too. And don't forget pride, national pride too. When you're launching astronauts, that's a super motivation factor as well for the young generation to motivate and to showcase all the benefits from space and so on. So pride is important. And I would say overall at the end, they're using space to solve regional issues and global issues, climate change, disaster management. This is a region that is facing a lot of issues on the climate area. So this is obviously as well an important motivation factor for these countries to invest in space.

John Gilroy: Steve, if you're ever in Washington D.C. and ride the Metro, you'll see teenagers with NASA T-shirts. Suddenly, it's stylish. And so I think people over the world are kind of getting on this bandwagon, Elon Musk and stylish, and they can be very proud. And I think the idea of STEM is really important. All of a sudden is, a young person in school can go, "I'm going to push my way through statistics or through calculus in order to put something up in space." I mean, it's getting wheels or something, isn't it?

Steve Bochinger: And you can see in the region, the effect of astronauts programs. In May, Saudi Arabia has launched its first... Well, it's not the first, but the first new generation of astronauts. Two astronauts launched in May and that had a major coverage in the country. And this is inspiring the generation to do careers in space. It's very important.

John Gilroy: If we look back over the years, the space sector has been experiencing growth in many key areas, including manufacturing and launch, earth observation, communication, space situational awareness and more. What areas of the Middle East are they choosing to invest in?

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Steve Bochinger: That's interesting, because beyond the volume of investment that we've just discussed, the key trend which I think is even more interesting is the diversifying nature of these investments. In the recent past, or even if you take the current picture today, most of these investments are targeting application satellite communication, earth observation. Basically, the countries in the Middle East are acquiring satellite assets for earth observation, satellite communication. This is 80% of the investments of the last decades have been oriented towards applications, satellite assets procurement for applications.

Now what we are seeing for the future is an evolution towards kind of applications and fields of space, activities in space, that are more related to historical powers, more mature space programs, like access to space, science, exploration, Moon and Mars, contributions to these kind of programs. So we are shifting a bit from the traditional satellite acquisition for communication and earth observation to more mature and more advanced type of activities. So, diversification. And these areas, like, again, science, technology, exploration, access to space, are going to account for up to 40% of these investments in 10 years. So we see that these countries are changing their areas of investments, because they are growing in maturity.

John Gilroy: They're diversifying their big economy as well as diversifying where they invest. How are these investments driving the economy in the Middle East anyway?

Steve Bochinger: Why these investments are important is that these are essential to actually build the national ecosystem. When a government agency in the Middle East is acquiring a satellite system, the objective is to build the capabilities locally. So it's not only acquiring satellite assets from a foreign vendor, it's actually progressively localizing the technology developments in the nation so that they can be self-sustainable at some point in some key technology areas. So these investments are key in establishing the national space ecosystem.

John Gilroy: Well, Steve, limited access to technology skills and knowledge can make it difficult to achieve the full potential of all these space investments. So from your perspective, what factors have the potential to inhibit the growth of the space sector in the Middle East?

Steve Bochinger: As you said, capability building. For me, this is the key thing. For me, when you're talking to people and the stakeholders in the region, they always come back to this, developing the skills, developing the capabilities. It's not only about the facilities, obviously, but the know-how, the engineering background, all the academic framework, training the students, professional training. This is taking time. So this is not something that you can acquire in a very short period of time. So this is a challenge. It's not necessarily a big issue. This is something that you can solve over time, but this is something that requires money, investment, but also patience. So this is clearly one of the key challenge.

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The other one, I would say, is about governance and regulation. You need to have a proper regulatory framework when you want to develop your space ecosystem. That's what stakeholders are expecting. But I think there is very good progress and we have countries such as, for instance, the UAE, they have one of the most advanced space regulatory framework in place. And this is even sometime known as a reference worldwide. So there is very good progress there.

John Gilroy: Well, let's go from up in a satellite down to the ground. How do you see the ground segment supporting the national space strategies of the countries in the Middle East?

Steve Bochinger: I think there are two main reasons for ground segment to actually be a main component of the space strategies. The first one is that the ground segment is at the heart of the transformation of the space sector, and for many different reasons. You have the digitization of the sector, mega constellations, hybrid networks, AI, cloud computing. All of these is putting more and more emphasis on the ground segments as really the core, the key elements of these transformations all around the value chain of the industry. So when countries in the Middle East as well, but when a country starts investing in space and in its development of its capability in space, it has to put one more emphasis on the ground segment as a core.

I think it's more important today that what it used to be 20 or 30 years ago, again, for all of these reasons. You have to put more focus on the ground segment. That's number one. Number two is the Middle East has geographical advantages with respect to the deployment of ground segments in the country, in the territories, because of clear skies, because of the high mountains. The region is very well-connected with cable and submarines to other continent as well. This is an ideal location for the deployment of ground segments, meaning that a number of countries have put these ground segment strategy, localization strategy, as one of the key features of a space program, and it's obviously a very important growing area of interests for stakeholders, ground segment stakeholders from the industry, that are looking for partnerships to localize their ground stations in a country. So again, for all of these reasons, that makes this piece of the space industry, the ground segment piece of the space industry, a significant and important part for the space strategy of Middle Eastern countries.

John Gilroy: Steve, we're talking about the Middle East, and might as well state the obvious here, a lot going on over there. There is an increasingly complex geopolitical environment in the Middle East, and integrating space and military operations, it's only growing. So how is this impacting the investments in the region?

Steve Bochinger: Well, this is boosting investment because there's one more concerns. And as it is the case in worldwide, we see a more and more important drive from the

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defense community and the defense sector into space. So the share of defense investments into space is growing worldwide because of the evolution of the geopolitical situation. Defense represents about 40% of investments in space in the Middle East. It's a bit lower actually than what we see as well. Globally speaking, it's about 50, 55%, but there is a very fast catch up from the defense community in the Middle East because of the changing nature of the geopolitical situation, as we said.

And by the end of the decade, we should see around 50% of this investment coming from the defense community. What it impacts, it impacts in terms of the type of satellite assets they are acquiring, because the defense community is looking for very sophisticated and advanced technologies, more maybe than what you can see in the civil area. So that changes the type of requirements, with more cutting edge, sophisticated satellite systems procured more and more in the region, which is making strong business opportunities for international manufacturers.

John Gilroy: Steve, thousands of people all over the world listen to this podcast, and if we did an instant survey here, I don't think most of them would identify UAE as a leader in this governance area. I mean, this is really kind of fascinating. Relatively small country, and yet they're making moves very aggressively. You mentioned it earlier. This is a really interesting country in the whole area for governance, isn't it?

Steve Bochsinger: Yeah. They have pioneered this new generation of space programs in the Middle East by establishing the space agency. They have this new regulatory framework. They have even a special jurisdiction for space. So they have really put a kind of advanced, modern framework for space. But in the region you see countries having established their space agencies. New countries are doing this too. For instance, Saudi Arabia is reorganizing very seriously its space ecosystem with the new space agency and they are making very good progress and they're having a very ambitious space strategy now. And you have other countries that may not decide to actually have their own space agency. You don't have, for instance, space agency in Qatar, you don't have necessarily a space agency either in Oman, for instance, because they will decide to continue developing their space strategy through more, I would say, an administrative management through a space office, for instance. So really it depends on where the country stands and the level of ambitions as well in space.

John Gilroy: In Washington D.C. here, since the events in the Ukraine, been a big push between private-public partnerships. Let's look at your region. So how is the partnership between the government and commercial sector evolving to support development in the space segment in the Middle East?

Steve Bochsinger: This is a very important topic, and actually we're going to discuss that in the conference we're going to have in Oman in January. Partnerships is essential to

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develop the national ecosystem. We discussed about capability building, and how you traditionally do that when you are setting up your national space program is that when you are procuring your satellite assets from foreign vendors, you join with these capability building, development of facilities, training programs. So the partnership with these international vendors, with the international commercial industry, is key for the development of the national capabilities. We've seen that in Algeria, we've seen that in Egypt, we've seen that in Turkey, in the UAE, in Saudi. Every time, there is this capability building component that is attached to this partnership with commercial vendors.

Now, what is interesting in this partnership with the commercial industry is first we see a much wider diversified set of partnerships compared to what we used to see. Just to give you an idea, in the earth observation domain in 2023 only, we've seen around 20 to 25 MOUs and different type of agreements to develop climate change modeling, AI, cloud computing, applications for earth observations, meteorology, and so on, with a very diversified set of partners, commercial partners. So a diversification, again, of the type of partnerships you will see in the region. That's number one.

And more importantly and I think more interesting, is that what we see now is a growing local to local partnership. Before, it used to be government to international vendors. Now we see more government to local industry, because they're starting to build their national champions, and these national champions are actually not able to support the development of the national ecosystem. We've seen, for instance, in the UAE, agreements between MBRSC and UAESA for the development of observation, and we've seen agreements with the UAE Space Agency with Edge, and for local space capability building. So it's not only about commercial partnership with international suppliers, it's also now commercial partnership with local stakeholders, because they are more capable.

John Gilroy:

That's interesting. So if we had a virtual whiteboard here and I stood up there and I tried to list the top two or three countries in the Middle East, we know UAE is up there, who's number two and three, who'd you say?

Steve Bochinger:

I don't want to give a kind of ranking because I don't think that's give a good impression. I think there are two natural engines in the region. That's Saudi Arabia and the UAE. There's that dynamics. Can talk about Turkey as well. It's a historical player in the region. Can talk about Morocco and Algeria, they've been doing as well a lot of initiatives and so on. But in terms of important engines in the region, UAE is a pioneer of this new generation of space programs, and Saudi Arabia, which is redeveloping space strategy, redeploying very strongly its space strategy with significant ambitions that are going to put these two country, I think, as, I hope, strong drivers for the region, not only for themselves, but also for the region, by putting more traction about what's going on in the region and by organizing regional cooperation. I hope that we're going

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to see in the next future a stronger cooperation between these countries to actually structure space programs of high scale.

John Gilroy: Well, you said the word future and that's what I'll end with here. I want you to get out your virtual crystal ball and look into the future, next five or six years. We look at this, which is fascinating, the cooperation within the country. And so what other trends do you see happening in the next five years in the Middle East?

Steve Bochinger: I think what we had in the last five years was a kind of phase of transition, so I hope that what we're going to see in the next five years is the materialization of this transition into concrete new programs, new missions, commitments, actually the delivery of the promises, if I can say. We had all these transitions, all these affirmations of new visions and so on. Now it's the time to implement things. And this is what we should see in the next five years, with new leaders stepping up, cooperation within the region, and hopefully seeing in the Middle East a new ecosystem of players and the region being able to be able to take full part of the space sector worldwide.

John Gilroy: Steve, I think you've given our listeners a better grasp of the surprising amount of money that's been invested in space from the Middle East. I'd like to thank our guest, Steve Bochinger, the affiliate advisor of Euroconsult. Thanks, Steve.

Steve Bochinger: Thank you, John.

John Gilroy: Thank you for listening and I hope you enjoyed Steve's exclusive insights on the Middle East Space market. You can download Euroconsult's freshly released whitepaper "Beyond the Stars, The Middle East's Space Ecosystem on the Move" on Euroconsult's website right now.