

# AAC Clyde Space

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Flightpath to 2030

Aerospace & defence

**AAC Clyde Space (AAC) is entering period of significant development and investment as it tracks towards its targeted sales of SEK2.2bn in 2030. Investment in its own constellations of small satellites should drive a rapid growth in high-margin space data as a service (SDaaS) revenues to account for 60% of targeted sales. The improving margin mix should transform the business model to a self-sustaining, cash-generative position. In the near term the higher levels of required investment are reflected in the market rating, which looks undemanding against our DCF valuation as well as against the recently listed spacetech peers.**

Year end	Revenue (SEKm)	PBT* (SEKm)	EPS* (SEK)	DPS (SEK)	P/E (x)	Yield (%)
12/20	98.4	(26.7)	(0.26)	0.0	N/A	N/A
12/21	180.0	(27.0)	(0.14)	0.0	N/A	N/A
12/22e	242.6	(21.6)	(0.10)	0.0	N/A	N/A
12/23e	372.0	5.0	0.02	0.0	78.0	N/A

Note: \*PBT and EPS are normalised, excluding amortisation of acquired intangibles, exceptional items and share-based payments.

## Supply chain constraints

While direct pandemic effects have eased, the consequent supply chain and labour market effects continue to delay project execution and deliveries and drive up costs. AAC's subdued Q122 sales and trading performance again reflected these factors. The pipeline remains strong and deferred revenues should be booked as project completions accelerate during the remainder of 2022. In addition, the deployment of the first satellites for the company's own constellations this year should initiate a sharp acceleration in high-margin SDaaS sales. We have reduced our FY22 revenue estimate by 10% following the Q122 results, though management remains confident that the group should achieve a positive FY22 EBITDA and operating cash flow and is on track to reach sales of c SEK500m by FY24.

## Medium- and long-term targets retained

Of the order backlog of SEK395.2m at the end of March SEK171.2m is due for delivery in the remainder of FY22, leaving order cover for our FY22 sales estimate at 88%. We expect infill orders primarily for third-party space products to fill the c SEK30m differential. We believe the level of own work capitalised should grow to over SEK50m as AAC invests in its own constellation satellites funded primarily by cash flow, although a further fund-raise or debt may be required. In turn, these should drive the rapid acceleration of high-margin SDaaS sales from SEK13m in FY22 to the 2030 target of c SEK1.2bn out of the total group sales of SEK2.2bn.

## Valuation: Interesting relative to SPAC peers

The space-related listings over the last 18 months provide useful peers for AAC although many remain pre profit. With AAC also in a network investment for growth phase its comparative valuation does not look demanding now much of the space fever has calmed down. In addition, despite increased investment we now anticipate in the near term our capped DCF still indicates substantial potential as the strategy is executed, with a value of SEK 7.9 per share (previously SEK7.0).

5 July 2022

**Price** **SEK1.56**

**Market cap** **SEK311m**

SEK12.5/£, SEK10.3/\$

Adjusted net cash (SEKm) at 31 March 2022 (excluding lease liabilities) 88.9

Shares in issue 199.03m

Free float 87%

Code AAC

Primary exchange Nasdaq First North Premier Growth Market

Secondary exchange OTCQX

### Share price performance



% 1m 3m 12m

Abs (16.8) (34.0) (52.0)

Rel (local) (6.0) (18.8) (39.2)

52-week high/low SEK3.76 SEK1.53

### Business description

Headquartered in Sweden, AAC Clyde Space is a world leader in nanosatellite end-to-end solutions, subsystems, platforms, services and components, including supply to third parties. It has production and development operations in Sweden, Scotland, the Netherlands and the United States as well as a start up in Africa.

### Next events

Q222 results 25 August 2022

Q322 results 24 November 2022

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## Investment summary

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### Integrated satellite manufacturing and services

Despite slower than expected revenue growth and higher costs due to the pandemic AAC has acquired three business (Hyperion, SpaceQuest and Omnisys) in the last 18 months and set up on operation South Africa, while raising sufficient capital to maintain a healthy balance sheet. The group's rapid expansion adds capabilities and global reach, and AAC has formulated a strategy targeting sales of over SEK2.2bn (\$250m) by 2030. The new businesses add enhanced capabilities including attitude and navigation controls, sensor technologies, propulsion and a constellation of data-acquiring satellites. The purchases enable AAC to retain more of the value chain in manufacturing its own satellites as well as supplying a broad range of components and systems to other space tech manufacturers. The expanded manufacturing footprint now includes the US, the Netherlands and South Africa, as well as strengthening the Swedish presence.

### Deployment of constellations to drive SDaaS growth

Despite the constraints on revenue growth due to supply chain issues continuing in Q122, AAC appears to be on track to reach its mid-term sales target of SEK500m by 2024, with a robust Q122 order backlog of SEK395.2m. As currently delayed projects are completed, we expect platform and component revenues to accelerate and a progressive build-up of higher-margin, cash generative SDaaS sales as satellites are deployed. AAC is accelerating investment in its own low Earth orbit (LEO) satellites and constellations to acquire and process data for a variety of applications.

### Third-party sales should grow with the market

Management expects the small satellite market to grow at a compound rate of over 20% in the medium term. With its broad product offering of state-of-the-art satellite buses, components and subsystems, AAC can also support missions for other space operators. As the number of satellite deployments rises sharply demand for navigation, power supply, propulsion, control and high-quality sensors combines with its substantial flight heritage should augment revenue growth.

### Financials

Pandemic effects delayed many projects over the last two years, but there were few cancellations. Supply chain issues continued to constrain deliveries through Q122, but a number of platforms are due for delivery in FY22. Of the Q122 backlog, SEK171.2m relates to deliveries expected in FY22, with book and bill orders primarily for Space Products expected to meet our reduced FY22 sales estimate. Ten of these are due to be launched in FY22, including three for Wyvern, adding two to SpaceQuest's fleet, one for ORBCOMM, heralding a period of sharp growth in high-margin SDaaS sales. We expect the operational network of AAC-owned satellites to grow to near 100 by 2030, underpinning management's 2030 target for group sales of SEK2.2bn with c SEK1.2bn coming from SDaaS. As the proportion of SDaaS sales rises, group margins and cash flows should rise substantially, funding constellation capex as its increases to more than SEK50m pa. With Q122 adjusted net funds (excludes leases) of SEK88.9m, a further capital raise may be required to provide greater flexibility in near-term capital allocation, including for M&A.

### Space remains a hazardous environment

Adding to the normal operational risks in space there is increasing concern about the amount of space debris in LEO, which threatens the safety of orbiting objects. The war in Ukraine could disrupt the relatively benign collaborative environment that has been enjoyed in recent decades.

## A vertically integrated space services offering

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Both founded in 2005, AAC Microtec in Uppsala, Sweden and Clyde Space in Glasgow, Scotland came together in early 2017 when the quoted AAC acquired Clyde Space. AAC predominantly manufactured microelectronic components and power management subsystems for small satellite applications while Clyde was at the forefront of nanosatellite and CubeSat manufacture. The integrated business was renamed AAC Clyde Space and the stock's main listing is on the Nasdaq First North Growth Market in Stockholm. The shares also trade on the OTCQX exchange in the US.

While the order backlog and revenues had been growing as the group pursued its ambition to be a leading global player in the small satellite market, the group has made several acquisitions. The new companies have expanded the geographic footprint, increased technology capabilities, and increased vertical integration. Hyperion Technologies, which is based in the Netherlands, was acquired in late November 2020 for SEK23m, with the SEK76m acquisition of SpaceQuest in the US completed shortly thereafter at the end of December 2020. Omnisys Instruments, which is also based in Sweden, was acquired in April 2021 for SEK75m.

In addition, in July 2021 the group launched AAC Space Africa, a start-up space technology subsidiary in South Africa to support the anticipated growth of space requirements in Africa.

Following the expansion AAC has operations across Europe, a presence in the very important US market, the world's largest, as well as in Africa. The subsidiaries also supply and support a global customer base including Asia.

As a result of the expansion of in-house capabilities through the acquisitions, AAC is a market leader in micro satellites technologies (satellites up to 50kg). It now provides a more vertically integrated end-to-end offering to its expanding client base that includes commercial government and educational organisations. The enhanced offering includes mission analysis, planning, satellite design, development and manufacturing, as well as launch brokerage, in orbit services including data acquisition and processing, and end-of-life decommissioning and replacement. The global market for small satellites continues to grow rapidly despite recent challenges including pandemic-related supply chain disruptions and rising geopolitical tensions.

### Management

Since Luis Gomes arrived as CEO in 2019, the group has continued to evolve and strengthen its executive team, as well as enhancing its operational management structure, which should facilitate the pursuit of its more clearly defined strategic ambitions. A new strengthened group management structure was implemented in March 2022 to increase agility and underpin growth, and to work alongside operational management for each country. The executive management team of Luis Gomes (CEO), Mats Thideman (deputy CEO and CFO) and Andrew Strain (CTO) retain their leadership positions and were joined in 2021 by five new executives from within the group and across the industry. Internally, Dr Dino Lorenzini, the founder of SpaceQuest, was appointed group CSO (chief scientific officer) and Peter Anderson, who has been with the company since 2015 was appointed CCO (chief commercial officer) in September 2021. External appointments include Dr Andrew Carrel, who joined in May 2021 as president data and services to provide leadership in developing the SDaaS opportunity, Stefania Mandirola who joined in October as COO, and Kulwinder Bhumbra who was appointed HR director in November 2021.

The change to the US leadership team saw Dr Lorenzini's position as CEO of SpaceQuest and head of Americas filled by Chris Fauquier, who has been promoted internally from COO. The new management team of AAC Space Africa brings over 40 years of experience to the group with two pioneers of the African CubeSat industry, Dr Robert Van Zyl and Francois Visser, assuming the positions of managing director and technical director, respectively.

The board provides oversight on strategy, finance, culture, value, ethics and shareholder communication. It was strengthened in 2021 through the appointment of Nicole Robinson who adds her long experience in the space industry to the existing non-executive board directors. Her appointment brings the board size to six. She joins the chairman, Rolf Hallencreutz (since 2014), Per Danielsson (2014), Per Aniansson (2014), Will Whitehorn (2018) and Anita Bernie (2019).

## Business model

AAC is developing a vertically integrated small satellite business fully covering the satellite lifecycle from design, manufacture, systems integration, testing, deployment and operation, to replacement of the satellites and replenishment of constellations. For LEO satellites the operational life is normally about five years. Its leading technology and systems development will allow it to sell a broad portfolio of platforms, components and subsystems to external customers.

AAC generates revenues in three main categories:

- **SDaaS** – acquiring, processing and delivering space-based data directly to customers.
- **Space Products & Components** – supplies a wide range of off-the-shelf and customised subsystems, components and advanced payload sensors for its own and third-party smallsats.
- **Space Missions** – turnkey solutions that supply, operate and support advanced flight-ready micro and nano satellites and platforms for other space missions for external customers.

We expect EBIT margins of around 15–20% to be achieved in Space Missions and Space Products, while with significant upfront capex but very high return on investment, SDaaS sales should generate margins in excess of 40%.

Clearly the streams are intertwined as components and subsystems support the development of its own and third-party satellite platforms and missions. In turn, with their varied payload configurations the satellites acquire and transmit data that can then be sold to clients to meet their specific requirements creating SDaaS sales. While focusing on the microsatellite (up to 50kg) segment of the satellite market, components and systems can be offered across the small satellite sector (up to 500kg). AAC has significant strength and flight heritage through the development, manufacture and operation of nano and microsatellites, especially CubeSats.

## Strategic 2030 roadmap targets \$250m (SEK2.2bn) of revenues

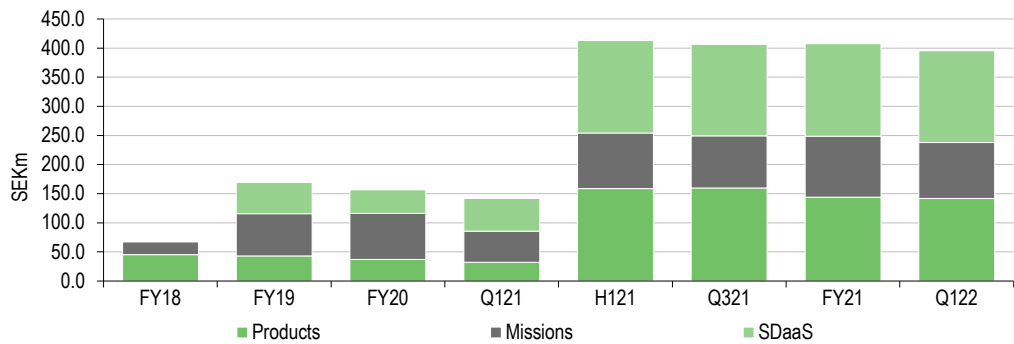
AAC is aiming to be a world leader in commercial small satellites and services from space by developing and applying leading technologies to provide customers with timely, high-quality data in a cost-effective manner. Management has also evolved the strategy and has now defined a path of growing group sales to SEK2.2bn by 2030, building on its sales expectations of SEK500m in 2024. Growth will come from all three revenue segments, driven by SDaaS, and should be underpinned by building, deploying and operating its own constellations before the end of the decade. These will focus on earth observation, climate and meteorology, as well as maritime and land-asset tracking (automatic identification system, AIS) and communication. The company will also offer data services to third parties that require their own satellites. SDaaS sales accounted for 3% of sales in 2020 and are targeted to increase to SEK200m (40%) by 2024 and SEK1,200m by 2030, representing 60% of total group sales.

The strategic priorities for the current year are to expand the SDaaS offerings including demonstrating the VHF Data Exchange System (VDES) service, growing the AIS (SpaceQuest's constellation) from the existing fleet of four by adding a further four in 2022 and 2023, as well as starting a hyperspectral imaging service for farming and forestry management. AAC intends to launch 10 satellites in total for its own constellations in 2022. The company is also seeking to increase the proportion of recurring sales from Space Products and Space Missions, in part by focusing on clients that want their own constellations.

Over the next few years AAC is hoping to create an operational VDES service, expand its hyperspectral data service, start a weather data service and introduce a larger, more capable satellite platform, including intersatellite links and propulsion. As its proprietary network expands by 2030, these services should mature and deliver high margin and growing SDaaS revenue streams.

As can be seen in Exhibit 1, the order backlog has remained relatively stable in Q122 at SEK395.2m except for a small contraction in Space Missions as deliveries modestly exceeded order intake temporarily. The sharp jump in mid-2021 reflected two factors. The addition of Omnisys added around SEK130m to Space Products in April 2021. The addition of the record SDaaS contract from Wyvern, worth c SEK100m, was received in June and should start to be consumed as the first satellites are deployed this year.

**Exhibit 1: AAC order backlog development**



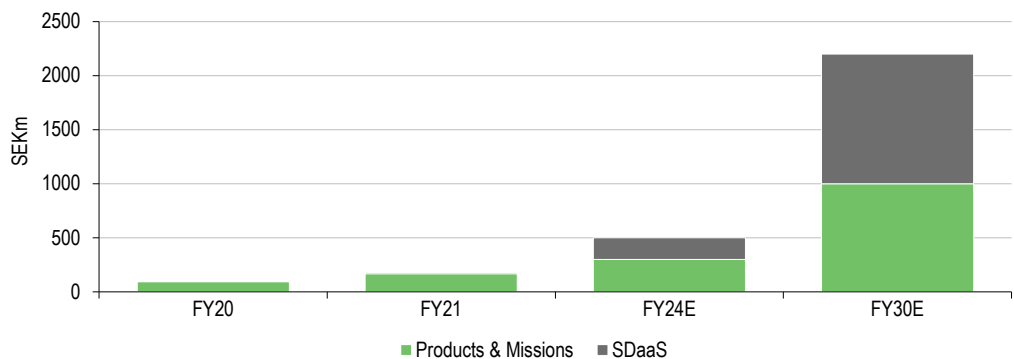
Source: AAC Clyde Space reports

We anticipate order intake should accelerate in FY22, especially for SDaaS, as clients should be able to reference the performance of the operational fleet.

### Higher-margin SDaaS to become the dominant revenue segment

The demand for space-based data remains the key driver for the space economy as the world continues to increase connectivity and applications to resolve global issues, generating increasing data caches for processing and analysis. LEO satellites and constellations offer a cost-effective alternative to the traditional and well protected GEO satellite operations and are increasingly regarded as being complementary with increasing technology capabilities and lower launch costs.

**Exhibit 2: AAC's revenue development to 2030 – SDaaS is key**



Source: AAC Clyde Space

AAC's creation of its own networks will not generate revenues from satellite sales; instead, costs are capitalised with operating expenses covered and profit generated by selling data to customers.

As it matures SDaaS should provide a fast-growing and persistent high-margin revenue opportunity. As the margin mix improves cash flows should also grow rapidly.

Success requires customers to be acquired and retained, which given the number of satellites expected to be launched necessitates the offering to be cost effective and appropriate, utilising leading technologies to provide high-quality data for a specific application (eg meteorology, asset tracking, or monitoring resources). As Dr Dino Lorenzini says in the FY21 Annual Report, ‘the real test will be whether we can sell sufficient satellite data at a reasonable price in the face of stiff competition and cover the cost of replacement satellites’.

We expect up to around 100 satellites to be operated by AAC by 2030 and clearly the vertically integrated nature of the group means the increase should support volume growth in both the Space Missions and Space Products segments. AAC will also continue to supply third-party operators and their systems for a variety of missions that are not limited to orbital systems but also include beyond-earth missions. The selection of its instruments on these programmes serves as a validation from key customers including space agencies.

While we do not have all the detail for AAC below, we present an illustrative constellation model that we think represents the financial potential of operating a build, own, operate constellation to generate SDaaS revenues. We assume each satellite can generate SDaaS revenues of twice their capital cost during a five-year operational life.

### Exhibit 3: Illustrative constellation financial model

Year-end December (SEKm)	2022e	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e	
Annual satellites deployed	2.0	8.0	12.0	12.0	12.0	15.0	20.0	25.0	25.0	
Cumulative constellation size	2.0	10.0	22.0	34.0	46.0	59.0	71.0	84.0	97.0	
Cost @ SEK6m per unit	12.0	48.0	72.0	72.0	72.0	90.0	120.0	150.0	150.0	
<b>SDaaS revenues</b>	<b>14.4</b>	<b>86.4</b>	<b>230.4</b>	<b>403.2</b>	<b>576.0</b>	<b>756.0</b>	<b>936.0</b>	<b>1116.0</b>	<b>1303.2</b>	
D&A per units delivered	(2.4)	(9.6)	(14.4)	(14.4)	(14.4)	(18.0)	(24.0)	(30.0)	(30.0)	
D&A annual charge	(1.2)	(7.2)	(19.2)	(33.6)	(48.0)	(63.0)	(78.0)	(93.0)	(108.6)	
Launch costs	(0.6)	(2.4)	(3.6)	(3.6)	(3.6)	(4.5)	(6.0)	(7.5)	(7.5)	
Operating expense	(3.0)	(25.0)	(53.6)	(80.6)	(106.2)	(132.1)	(154.5)	(177.1)	(197.9)	
<b>EBIT</b>	<b>9.6</b>	<b>51.8</b>	<b>154.0</b>	<b>285.4</b>	<b>418.2</b>	<b>556.4</b>	<b>697.5</b>	<b>838.4</b>	<b>989.2</b>	
<i>EBIT margin</i>	67%	60%	67%	71%	73%	74%	75%	75%	76%	
<b>EBITDA</b>	<b>10.8</b>	<b>59.0</b>	<b>173.2</b>	<b>319.0</b>	<b>466.2</b>	<b>619.4</b>	<b>775.5</b>	<b>931.4</b>	<b>1097.8</b>	
<i>EBITDA margin</i>	75%	68%	75%	79%	81%	82%	83%	83%	84%	
Cumulative capitalised cost	12.0	60.0	132.0	204.0	276.0	366.0	486.0	636.0	786.0	
Cumulative D&A	(1.2)	(8.4)	(27.6)	(61.2)	(109.2)	(172.2)	(250.2)	(343.2)	(451.8)	
<b>NAV</b>	<b>10.8</b>	<b>51.6</b>	<b>104.4</b>	<b>142.8</b>	<b>166.8</b>	<b>193.8</b>	<b>235.8</b>	<b>292.8</b>	<b>334.2</b>	
<b>DCF model</b>	<b>2022e</b>	<b>2023e</b>	<b>2024e</b>	<b>2025e</b>	<b>2026e</b>	<b>2027e</b>	<b>2028e</b>	<b>2029e</b>	<b>2030e</b>	<b>Terminal</b>
<b>Revenues</b>	<b>14.4</b>	<b>86.4</b>	<b>230.4</b>	<b>403.2</b>	<b>576.0</b>	<b>756.0</b>	<b>936.0</b>	<b>1116.0</b>	<b>1303.2</b>	
Costs	(3.6)	(27.4)	(57.2)	(84.2)	(109.8)	(136.6)	(160.5)	(184.6)	(205.4)	
Capex	(12.0)	(48.0)	(72.0)	(72.0)	(72.0)	(90.0)	(120.0)	(150.0)	(150.0)	
<b>Cash flow</b>	<b>(1.2)</b>	<b>11.0</b>	<b>101.2</b>	<b>247.0</b>	<b>394.2</b>	<b>529.4</b>	<b>655.5</b>	<b>781.4</b>	<b>947.8</b>	<b>7898.5</b>
<i>Discount factor</i>	95%	84%	75%	67%	60%	54%	48%	43%	38%	38%
Discounted annual cash flow	(1.1)	9.3	76.3	166.2	236.9	284.0	314.0	334.3	362.0	3016.7
<b>Cumulative NPV cash flow</b>	<b>(1.1)</b>	<b>8.2</b>	<b>84.5</b>	<b>250.7</b>	<b>487.7</b>	<b>771.7</b>	<b>1085.7</b>	<b>1420.0</b>	<b>1782.0</b>	<b>4798.7</b>

Source: Edison Investment Research

All of the development costs of building the satellites are initially capitalised as fixed intangible assets. These are transferred to fixed tangible space assets once deployed and depreciated over the operating lives of the satellite, which we assume is five years. No revenue is generated until the data transmission commences post deployment. We assume that the bulk of the operating expense is fixed as many satellites can be operated using the same ground-based infrastructure and workforce with incremental steps as the constellation grows. There is a variable element depending on the number of satellites operating due to bought in services and support.

In addition to the recurring revenue streams from SDaaS contracts, the replenishment cycle for satellites (both its own and for third parties) should also progressively increase as the normal

lifecycle of a LEO satellite is around five years. Therefore, an increasing amount of production in the second half of the decade should be replacing existing satellites with upgraded payloads.

### **Space Missions expanding in a growth market**

With AAC expecting small satellite markets to grow at over 20% annually, Space Missions should continue to expand. Clyde Space has historically been the main hub and SpaceQuest brings its own experience and capability while satellite manufacturing capacity has been added in Sweden. Revenues are generated from the supply of nano and microsatellite and other platforms to third parties with a focus on CubeSats. Satellites can be offered as part of end-to-end mission packages, which can include design, manufacturing, payload integration, launch and ground services.

A CubeSat is a 10cmx10cmx10cm (1U) form that can be modularly expanded (eg 3U, 6U, 12U, 16U) allowing increased payload capacity and operational capabilities. Continuous technology advances improve capability, while reducing size, weight and cost of components and subsystems. As result, payloads for LEO satellite operations with a typical service life of around five years can be spirally upgraded as satellites are regularly relaced and constellations replenished.

ACC has designed a standardised range of CubeSat platforms, the EPIC spacecraft range, designed with constellation users in mind. These are available from 1U to 16U forms permitting flexible configurations, either fully integrated or as buses for customers to integrate their own payloads. It can offer customised satellite buses larger than 16U using the same components although we are not aware of any sales of such platforms yet. Alongside the supply of satellites, it can offer customers optional services covering launch, operation and data delivery.

## Space Products & Components: A growing portfolio of leading capabilities

The table below provides an indication of AAC's expanded product range.

Exhibit 4: Space Products & Components – key products					
	AAC Clyde Space	Hyperion	Omnisys	SpaceQuest	AAC Space Africa
Command & data handling	KRYTEN CubeSat mission computers, SIRIUS on-board computers and data storage and handling systems			Q7S command and data handling system	
Batteries	OPTIMUS CubeSat batteries				
Power systems	STARBUCK NANO CubeSat Power Control & Distribution Units (PCDU)				
Communications	PULSAR range of radio components including transceivers, transmitters and antennas	CubeCAT small size, high-throughput optical communications module for nanosatellites		Antennas, AIS receivers, GNSS receivers, transceivers and transmitters	
Solar arrays	PHOTON solar arrays for CubeSats				
Structures	ZAPHOD range of lightweight modular CubeSat structures				
Payloads	Processor modules	Optical imagers, Star Trackers, payload processing	Microwave sensors	AIS receivers	
Attitude determination & control systems (ADCS)	Reaction wheels	Integrated ADCS for >6U satellites, magnetometers, star trackers, sun sensors, reaction wheels and propulsion		Horizon sensor, magnetometers, GNSS receiver, sun sensors and reaction wheels	
Propulsion	PM200 high thrust 1U propulsion module for 3–12U CubeSats and similar platforms				
Smallsat technology	Navigation and power controls, STARBUCK MICRO and MINI PCDU, SIRIUS Command and data handling products	Smallsat ADCS and laser communications		Transceivers and AIS	

Source: AAC Clyde Space reports

As well as developing components and systems for its own network, the group's subsidiaries can offer them externally and clearly an element of cross selling is possible on customer projects.

## Operations

The main operational brands are as follows:

### AAC Clyde Space

AAC Clyde Space was formed in 2019 following the integration of ÅAC Microtec (in Uppsala, Sweden) with Clyde Space (based in Glasgow, Scotland), which was acquired earlier that year. Both were founded in 2005 and have substantial flight heritage. The two components of the brand in Sweden and Scotland report separately, which is helpful given the current and future differences in revenue mix, although somewhat confusingly the Swedish company also carries the main group title and the brand name.

### AAC Clyde Space

Originally the ÅAC Microtec activity in Uppsala, Sweden, AAC Clyde Space AB is developing its product offering in line with the total group capabilities and requirements. The Uppsala site is the group head office and specialises in advanced satellite components. The original microelectronics technology activity was primarily focused on avionics and other subsystems for a variety of third-party customers in the space sector. Primarily these were smaller, lighter satellite producers seeking more compact, highly capable subsystems to enhance their operating economics and thus



their business models. Following the combination with Clyde Space and subsequent acquisitions, the activity has been expanded to include its own satellite manufacturing capability.

**Exhibit 5: AAC Clyde Space AB trading and forecasts**

SEKm	FY19	FY20	FY21	FY22e	FY23e	FY24e
Net sales						
■ SDaaS	0.0	0.0	0.0	3.3	4.1	6.2
■ Space Missions	0.0	0.4	8.9	17.9	35.7	57.2
■ Space Products	26.3	27.6	31.1	33.7	40.5	52.6
■ Licence income	0.1	0.0	1.4	2.0	2.0	2.0
<b>Total net sales</b>	<b>26.4</b>	<b>28.0</b>	<b>41.4</b>	<b>56.9</b>	<b>82.4</b>	<b>118.0</b>
<b>Adjusted EBITDA*</b>	<b>(13.7)</b>	<b>(12.3)</b>	<b>(11.7)</b>	<b>(8.0)</b>	<b>1.0</b>	<b>14.0</b>
<i>Margin</i>	<i>-51.8%</i>	<i>-44.0%</i>	<i>-28.2%</i>	<i>-14.1%</i>	<i>1.2%</i>	<i>11.9%</i>

Source: Company reports, Edison Investment Research estimates. Note: \*Before exceptional costs.

Following a strong sales performance in FY21 we expect an increasing satellite build stream to accelerate revenue growth from this year.

### Clyde Space

Clyde Space has been at the forefront of developing CubeSat technologies and today it is the primary location for satellite missions within the group. It has the primary CubeSat manufacturing and test facility, manufactures advanced satellite components and is also part of the satellite ground operations network.

**Exhibit 6: Clyde Space trading and forecasts**

SEKm	FY19	FY20	FY21	FY22e	FY23e	FY24e
Net sales						
■ SDaaS	0.0	3.1	1.2	9.0	41.0	71.8
■ Space Missions	20.4	51.2	48.6	68.0	81.6	97.9
■ Space Products	19.6	13.8	11.7	14.1	16.9	22.0
■ Licence income	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total net sales</b>	<b>40.1</b>	<b>68.0</b>	<b>61.5</b>	<b>91.9</b>	<b>139.5</b>	<b>191.6</b>
<b>Adjusted EBITDA</b>	<b>(13.6)</b>	<b>(5.6)</b>	<b>(10.7)</b>	<b>(3.6)</b>	<b>10.0</b>	<b>32.0</b>
<i>Margin</i>	<i>-34%</i>	<i>-8%</i>	<i>-17%</i>	<i>2%</i>	<i>7%</i>	<i>17%</i>

Source: Company reports, Edison Investment Research estimates

As the main Space Missions company in the group, Clyde has been the most heavily disrupted by the subsystem supplier delays, which led to a shortfall in revenue expectations as deliveries and project milestones were delayed. The increase in costs in FY21, notably on the personnel front to support anticipated growth, has led to a deterioration in the EBITDA margin, undoing some of the loss reduction achieved in FY20.

The trends continued into Q122, but several satellites projects are scheduled for delivery this year and we expect a substantial improvement in trading performance as the year progresses. Improvements in SDaaS revenues should follow the initial launch of satellites to support both the Wyvern contract and VDES.

It should be noted that when manufacturing satellites for its own constellations, costs are initially capitalised and then amortised over the operational life of the satellite. Therefore, there is no sales revenue, but work is included as own work capitalised in total group income.

### AAC Omnisys

Founded in 1992 in Gothenburg, Sweden, Omnisys Instruments was acquired in April 2021 and rebranded AAC in October 2021. It has been designated the advanced payload development centre of excellence for the group. With over 30 years of experience in space, the company brings four main technologies in ground and satellite-based data-gathering instruments and sensors to the group: radiometer systems, power and control units, THz products and microwave sensors. In addition to its major system development project for the Arctic Weather Satellite (AWS), it is

expected the instruments can be integrated into AAC's CubeSat platform offering space-based weather data. In addition, its ability to develop pioneering payloads should allow the group to acquire new SDaaS clients that wish to collect and manipulate data for a broad range of applications.

#### Exhibit 7: AAC Omnisys trading and forecasts

SEKm	FY19	FY20	FY21	FY22e	FY23e	FY24e
Net sales						
■ SDaaS			0	0	0	0
■ Space Missions			0	0	0	0
■ Space Products			43.8	59.2	74.0	92.5
■ Licence income			0	0	0	0
<b>Total</b>			<b>43.8</b>	<b>59.2</b>	<b>74.0</b>	<b>92.5</b>
Adjusted EBITDA			5.4	7.7	11.1	16.6
Margin			12%	13%	15%	18%

Source: Company reports, Edison Investment Research estimates

Omnisys started strongly in FY21, and although it slowed sequentially in Q122 we expect full year progression to be significant, albeit aided by a full year of consolidation. As it works through the existing backlog, the combination of the low-cost nature of the AAC strategy and Omnisys's sensors should facilitate the expansion of the client base. Omnisys is to supply SEK124m of products for the European Space Agency's (ESA's) AWS, including the key microwave radiometer. In addition Starbuck power systems and Sirius mission avionics are to be supplied by AAC Clyde Space in Uppsala. The AWS is a prototype to demonstrate radiometric measurement to improve weather forecasts in the Arctic region and globally, and could lead to a constellation of 16 satellites. We expect the programme to be a major driver of growth in FY22 and beyond.

### AAC SpaceQuest

Founded in 1994, SpaceQuest was acquired by AAC in December 2020 and was rebranded AAC SpaceQuest. Building on almost three decades of experience in space, with substantial flight heritage including deploying and operating its own constellation and ground station network for its AIS SDaaS offering, it has been designated the group's centre of excellence for SDaaS and mission capabilities. It also supplies satellite components, microsatellite systems, ground stations, AIS data and M2M connectivity. It provides the group with access to the US small satellite market, the largest in the world.

#### Exhibit 8: AAC SpaceQuest trading and forecasts

SEKm	FY19	FY20	FY21	FY22e	FY23e	FY24e
Net sales						
■ SDaaS			11.6	18.0	25.0	32.0
■ Space Missions				0.0	0.0	0.0
■ Space Products			7.6	8.9	12.7	17.0
■ Licence income				0.0	0.0	0.0
<b>Total</b>			<b>19.2</b>	<b>26.9</b>	<b>37.7</b>	<b>49.0</b>
Adjusted EBITDA			5.3	6.7	9.8	13.7
Margin			27%	25%	26%	28.0%

Source: Company reports, Edison Investment Research estimates

In its first full year of consolidation, SpaceQuest made a strong contribution to the group, generating a healthy EBITDA of SEK5.3m. As it expands its AIS satellite fleet, SDaaS sales should accelerate.

### AAC Hyperion

Founded in 2013 and based in Delft in the Netherlands, Hyperion Technologies was acquired in 2020. It now forms the group's centre of excellence for advanced attitude determination and control systems (ADCS) components, propulsion and laser communications. These are all key technologies that significantly increase the group's future satellite mission offering. AAC Hyperion has built a global presence, supplying some of the world's largest space companies and a variety of

institutions including universities, the Canadian Space Agency, the ESA, D-Orbit, the University of Maribor and Aalto University. The company collaborates closely with Dutch research institutes and supply chain partners on technology for optical satellite communications.

#### Exhibit 9: AAC Hyperion Technologies trading and forecasts

SEKm	FY19	FY20	FY21	FY22e	FY23e	FY24e
Net sales						
■ SDaaS				0.0	0.0	0.0
■ Space Missions				0.0	0.0	0.0
■ Space Products		2.4	13.9	19.5	23.4	28.1
■ Licence income				0.0	0.0	0.0
<b>Total</b>		<b>2.4</b>	<b>13.9</b>	<b>19.5</b>	<b>23.4</b>	<b>28.1</b>
<b>Adjusted EBITDA</b>		<b>0.4</b>	<b>0.8</b>	<b>2.3</b>	<b>3.5</b>	<b>5.1</b>
<i>Margin</i>		17%	5%	12%	15%	18%

Source: Company reports, Edison Investment Research estimates

Although challenged by the pandemic constraints, Hyperion delivered a profitable performance in FY21, its first full year of consolidation. We expect a significant improvement in FY22 although Q122 remained challenging and the operation returned a small loss. It recently won a c SEK4.2m contract to develop an onboard artificial intelligence capability for small satellites in collaboration with the Royal Netherlands Aerospace Centre, funded by the ESA.

### AAC Space Africa

AAC Space Africa was founded in August 2021 in order to improve access in Africa's rapidly growing market for satellites and space services. The African space market is expected to increase revenues to \$10bn by 2024. Based in South Africa, which already has a significant space heritage, AAC Space Africa has appointed an experienced management team of Dr Robert van Zyl as managing director and Francois Visser as technical director; they have previously worked with the group from the Cape Peninsula University of Technology (CPUT) and have over 40 years of smallsat experience, including the launch of Africa's first ever CubeSat. AAC Space Africa will be the centre of excellence for advanced radio communications across the AAC Group, supporting missions globally.

#### Exhibit 10: AAC Space Africa trading and forecasts

SEKm	FY19	FY20	FY21	FY22e	FY23e	FY24e
Net sales						
■ SDaaS						
■ Space Missions						
■ Space Products				5.0	20.0	35.0
■ Licence income						
<b>Total</b>			<b>0</b>	<b>5.0</b>	<b>20.0</b>	<b>35.0</b>
<b>Adjusted EBITDA</b>			<b>(1.3)</b>	<b>(4.6)</b>	<b>(2.0)</b>	<b>0.3</b>

Source: Company reports, Edison Investment Research estimates

AAC Space Africa is already receiving new business and was selected in June 2022 to deliver a ground station to a client in Africa worth c SEK3.4m for delivery by the year end.

## Current major projects

### xSPANCION developing state of the art platforms

The xSPANCION (Xtended Satellite Production ANd Constellation OperatioNs) Pioneer project was announced in November 2020 as a three-year public-private partnership between ESA, the UK Space Agency (UKSA) and Clyde Space with its industry partners (Bright Ascension, Strathclyde University, D-Orbit UK, the Satellite Applications Catapult and Alden Legal UK). The €19.7m (SEK201.7m) programme is being co funded by the UKSA and ESA over three phases.

Under the programme, AAC is working to develop an innovative 10-satellite constellation that should revolutionise its SDaaS offering. It should allow customers including commercial clients, governments and academia quick and cost-effective access to timely and high-quality satellite data across a variety of applications from earth observation and monitoring to communications.

As part of the ESA's ARTES (Advanced Research in Telecommunications Systems) Pioneer programme, the xSPANCION project's objectives are stated as:

1. To complete downstream vertical integration based on a single system meta-model
2. To develop and implement key constellation enabling spacecraft technology
3. To extend production capability in a scalable manner to deliver constellations of spacecraft
4. To establish a scalable lean interface to control constellations of spacecraft
5. To design a constellation mission framework including licensing filing and launch coordination
6. To generate an interface for customers to access mission data efficiently
7. To successfully demonstrate the innovative developments through the manufacture of 10 satellites (launch and operation of 4 of these)

The first €1.8m (SEK18.4m) Preliminary Design Review phase was completed last year, enabling the programme to be accelerated in November 2021. The €5.6m (SEK57.3m) Manufacturing Preparation Phase is now underway with AAC's industry partners and includes detailed design of spacecraft for constellations, development of digital production processes, constellation operations capability together with licensing, regulation, and more efficient launch coordination. It should be completed by the end of this year.

We believe the programme provides the architecture for AAC's strategy to build, own and operate its own constellations, selling its SDaaS offering across an extended number of applications to a select customer base alongside the programme. The discussions with these customers are expected to be completed before the start of Phase 3 of the programme, which includes the manufacture of the 10 satellites, with the four satellite deployments planned in FY23.

We expect AAC to launch up to 130 of its own constellation satellites by the end of the decade, underpinning the company's 2030 revenue plan for SDaaS of SEK1.2bn.

## **AOS created to develop VDES for maritime communication**

Following the signing of a memorandum of understanding in August 2020, AAC is cooperating with ORBCOMM and Saab to create a VHF Data Exchange System (VDES) based maritime communication system to outperform the current widely used automatic identification system (AIS). VDES should enable ship-to-ship and ship-to-shore communication worldwide by accessing space-based capability to extend the existing ground-based coastal capability. AAC plans to deliver a 3U demonstration satellite for launch in H222. The companies have formed a consortium AOS to develop and deliver the system, which should help to both improve communication as well as optimise navigation with the potential to deliver significant fuel and emission savings. The bandwidth offered should be up to 32x times greater than existing systems, which should allow AOS to offer additional services such as weather data to end customers.

## **A record SDaaS contract for Wyvern**

In June 2021, AAC closed a SEK100m SDaaS contract with Canadian EO company Wyvern. AAC will design, manufacture and own three 6U EPIC satellites to deliver high-resolution, multi-band, hyperspectral data to Wyvern, which will initially offer the data to the agriculture sector to optimise farming. Hyperspectral imaging across multiple bands provides much more information than the three main colour bands detected by the human eye. Wyvern has committed to subscribe to the data service for four years with options to extend the contract on an annual basis thereafter. All

three satellites are planned for launch during 2022, which should drive significant growth in SDaaS revenues from H222, adding around SEK25m annually.

## Horizon Technologies constellation for maritime monitoring

Under a £4.6m (c SEK55m) contract also awarded in June 2021, Clyde Space is delivering a turnkey solution to Horizon Space Technologies, including two EPIC 6U satellite launches, operations and data delivery. The satellites will become part of Horizon Space Technologies' Amber constellation, which is dedicated to delivering maritime domain awareness intelligence data. The Amber system is designed to locate and track vessels worldwide by tracking RF signals that can be used to address maritime issues such as piracy, illegal trans-shipments, illegal fishing and refugee smuggling, as well as other purposes. If successful, the network could be extended with more than 10 additional Amber CubeSats.

The mission is a follow-on order from the Satellite Applications Catapult IOD programme (IOD-3 AMBER-1) for which Clyde supplied the 6U CubeSat. On 6 April 2022 Horizon signed a new launch agreement with the UK's Satellite Applications Catapult and Virgin Orbit to launch the satellite from the Cornwall Spaceport later in 2022.

## Eutelsat

AAC is delivering two 6U satellites for launch in 2022 as part of Eutelsat's ELO (Eutelsat LEO for Objects) constellation project with the first propulsion systems on-board its satellites. AAC's satellites carry a sophisticated software-defined radio payload and will enter commercial service as soon as they are in orbit. The mixed platform constellation aims to deliver global IoT coverage enabling objects to transmit data wherever they are.

## Space satellite services proliferating

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We recently reflected on the growing space market in our report [Investing in space](#). As space-based data demand rises inexorably, an acceleration of constellation deployments of LEO small satellites is underway, with over 1,000 launches in each of the last two years compared to an average below 250 in the previous decade. As a result, there are now around 4,500 satellites in operation today and potentially another 100,000 could be launched over the next decade, dominated by the megaconstellations of SpaceX, OneWeb, Amazon (Kuiper Project) and others. In addition, a significant and growing number of smaller networks are also planned.

As functionality increases so will the number of applications and the data service revenues. As well as the fundamental requirement to improve connectivity for the globe, which should drive operational efficiency, increasingly advanced earth observation sensors are allowing data acquisition and analysis to identify and manage issues such as resource planning, energy management, agriculture, climate change, weather forecasting and disaster response. New technologies continue to be developed to increase the control and capabilities of payloads in order to improve the cost and timeliness of high-quality data supplied. An increasing number of launch options have reduced costs and increased the opportunity.

The global space industry has revenues approaching \$400bn, of which almost three-quarters relates to the satellite industry, with the balance split between projects funded by government space budgets and commercial human spaceflight. Innovative new technologies and increases in demand for connectivity and the acquisition and transmission of space data are driving a surge in space activity. While the number of satellites to be launched increases substantially, the average value per satellite is likely to fall as the smallsat segment expands. The number of traditional high-value GEO satellites is not expected to change dramatically, meaning overall market growth is subdued.

It is useful to note the three main orbits involved in the provision of satellite services (all heights from the earth’s surface):

- GEO (geosynchronous earth orbit) >35,780km where the large incumbent fixed-satellite service (FSS) space operators operate in a highly regulated and slot constrained environment.
- MEO (medium earth orbit) 2,000–35,780km includes GPS satellites at 20,200km in a semi-synchronous orbit completing two orbits a day over the same locations.
- LEO (low Earth orbit) 180km up to 2,000km is the main area for application of the new space companies’ satellites and technologies.

As opposed to the large GEO and MEO satellites weighing several tonnes deployed by the incumbent FSS and mobile-satellite service (MSS) operators, LEO deployments tend to be small satellites defined as weighing less than half a tonne. It is where AAC deploys its own microsatellite constellations and its satellites for customer missions, while supplying products to third parties for their own small satellite projects.

The small satellites category can be further segmented as follows:

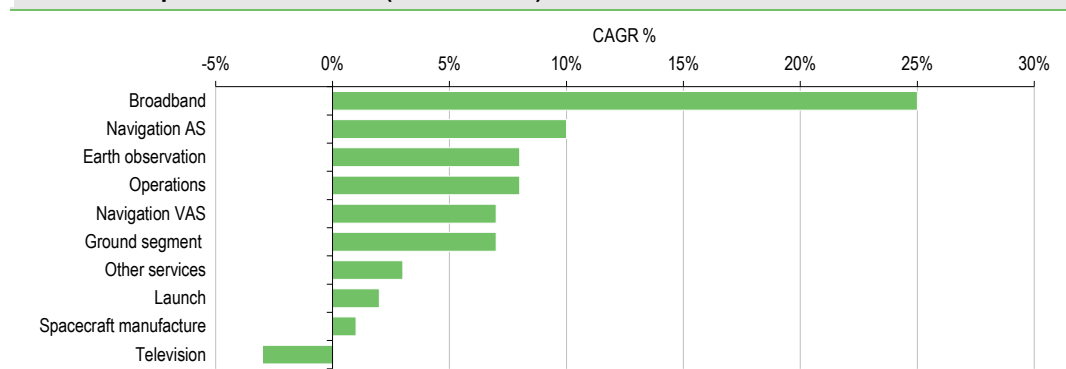
- minisatellites weighing between 100kg and 500kg,
- microsatellites weighing between 10kg and 100kg,
- nanosatellites weighing between 1kg and 10kg, and
- picosatellites weighing less than 1 kilogramme.

## The scale of the opportunity

As part of its National Space Strategy released in September 2021 the UK’s Department for Business, Energy & Industrial Strategy (BEIS) constructed a Space Sector Model developed by Bain & Company in April 2021. The model suggests that the global space economy could grow from £270bn (\$346bn) in 2019 to £470bn (\$603bn) by 2030. Other estimates suggest the space economy could more than treble to over \$1bn by 2035. The opportunity is therefore substantial.

Exhibit 11 shows the segmental growth rates as the market grows, according to the BEIS Space Market Model used in developing the UK National Space Plan, released in September 2021.

**Exhibit 11: Space market CAGR (2019 to 2030)**



Source: BEIS Space Market Model

While the BEIS model could prove conservative, we feel it provides useful trend information. As can be seen broadband, global navigation satellite system (GNSS) and Earth observation (EO) segments are expected to show the strongest growth. While the number of satellites to be launched increases substantially, the average value per satellite is likely to fall as the smallsat segment expands. The number of traditional high-value GEO satellites is not expected to change dramatically, meaning overall market growth is subdued.

The space-based data services for EO and GNSS segments account for almost 40% (\$133bn) of the current space economy, which BEIS is expected to increase to almost 50% (\$305bn) by 2030. The segments cover a vast array of data-hungry domains including air, sea and land navigation, asset tracking, climate, meteorology, natural resource planning, agricultural optimisation and urban development, among others. Customers can be commercial, institutional or governmental.

Overall, the proportion of space-based data services versus infrastructure (spacecraft, launch, ground equipment and operations) revenues (69%:31%) in 2019 does not vary substantially in the BEIS model by 2030 (67%:33%), although we suspect the data demand will exceed expectations. For example, the European Union Agency for the Space Programme’s (EUSPA) GNSS and EO Market Report suggests that data services revenue for those segments could be around \$100bn higher by 2030 than the UK model, which referenced earlier EUSPA GNSS reports. However, the same applies to the supporting ground-based connectivity infrastructure.

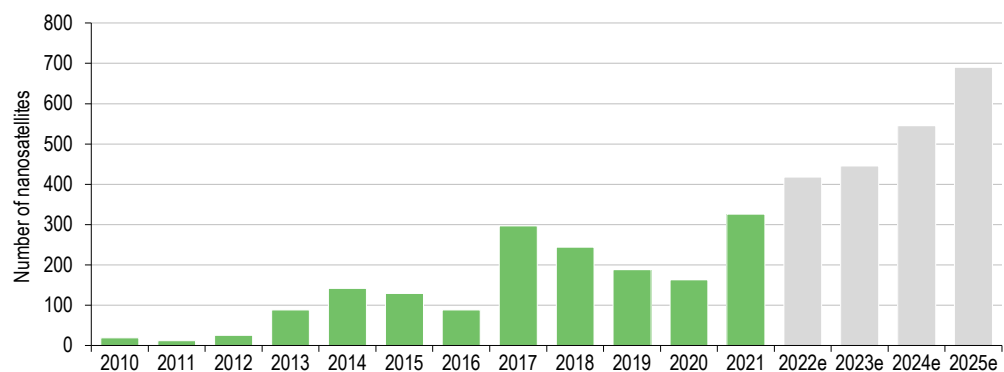
We expect the bulk of market growth to come from LEO operations, although technology and capacity upgrades in GEO should add to services revenues. Note that in absolute dollar terms, a low percentage growth rate in GEO revenues equates to substantial growth for new space sales.

### Positioning AAC in the market

AAC is one of several small satellite companies building positions in the small satellite market, and potential new entrants continue to emerge. It is therefore clear that AAC’s SDaaS offering must be compelling in terms of data quality and cost compared to its competitors as well as the mega-constellations and the incumbent GEO and MEO operators. It appears that the company will continue to focus on niche opportunities rather than seek to provide connectivity bandwidth, where the mega-constellations appear likely to compete. The deployment of its own constellations over the next decade is likely to see it build and launch around 130 6U nanosatellites including a growing number of units to replenish its constellations.

In addition, we expect AAC to continue to supply platforms, subsystems and components to other operators for their networks and missions. Growth in the overall nanosats market is expected to continue, although progress has been disrupted during the last couple of years by the pandemic.

**Exhibit 12: Number of nanosatellites launched, historical and forecast (2010 to 2025e)**



Source: Erik Kulu, Nanosatellites & CubeSat Database, [www.nanosats.eu](http://www.nanosats.eu)

Erik Kulu’s Nanosatellites & CubeSat Database ([www.nanosats.eu](http://www.nanosats.eu)) identifies 2,037 nanosatellites launched through 1 June 2022 by 76 countries, of which 1,862 have been CubeSats, with 1,737 successfully deployed. These numbers have almost doubled since 2018. Of the total launched, 115 were lost to launch or deployment issues, which represent only a few mission failures given that the record for the largest single deployment was via a SpaceX launch with 143 nanosatellites onboard in 2021. However, only 1,296 are operational as around 20% have re-entered the atmosphere (387

nanosats) or returned to Earth (eight nanosats), with a further 12% (241) remaining in orbit but non-operational, around half of which have never been heard from since launch (127).

After only 80 launches between 1998 and 2009, the number of nanosatellites being deployed has increased dramatically and is expected to continue growing, as reflected in Exhibit 12.

Following the constraints across the industry caused by the pandemic, the forecasts indicate nanosatellite deployments are increasing once more. From 326 launched in 2021, the number is set to more than double to 690 by 2025, and we expected AAC to be deploying increasing numbers of its own and customer nanosatellites during this period.

### Space debris a potentially compounding risk

A risk to LEO operations and missions is the proliferation of space debris. Debris is not just obsolete materials such as defunct satellites and spent rocket boosters, it is also the result of destructive impacts, be they accidental space object collisions or deliberate acts such as military anti-satellite (ASAT) missile testing. In LEO orbit the debris pieces can be travelling at up to 35,000km per hour and the debris field expands in three dimensions from the original collision orbit into both higher and lower orbits, which determines the natural decay time until earth re-entry. While plans are being evolved to remove some observable, well-defined debris such as old satellites, debris pieces down to a size of around 10cm are catalogued but there are probably millions of much smaller particles arising from destructive events. The problem is that because of these deliberate acts, more accidental collisions may take place, creating more debris and compounding the problem.

A global moratorium on ASAT tests could help. In April 2022 the US unilaterally committed to desist from further ASAT tests, which may translate into a global agreement. However, in the current geopolitical environment it is not clear whether the other active nations are going to follow suit.

In addition, mission operators appear to be taking more responsibility for mitigating the creation of further space debris during and after the operational life, including improving manoeuvrability by adding propulsion to more rapidly deorbit satellites, a feature that AAC is clearly addressing with Hyperion's PM200 unit.

## Sensitivities

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Apart from the normal strategy execution risks, the following are some of the key sensitivities for AAC Clyde Space. This list is not exhaustive but aims to highlight some of the issues involved not only in operating in the space arena but also in coordinating and managing day-to-day operations following significant expansion:

- **Geopolitical risks:** having navigated Brexit and a global pandemic and with space strategies increasingly backed by governments, this issue was appearing to moderate until Russia performed its ASAT test last year and followed that by invading Ukraine. These factors could disrupt the relatively cooperative space environment both physically (space debris, satellite operation) and in collaborative terms, especially where national security considerations are involved.
- **Market competition:** while much of the technology involved in the small satellite market is at a nascent stage, there is growing competition in the market. This risk can also extend to key personnel being attracted to competing firms. Developing technology can be considerably demanding on a company's resources, especially given the rapid pace of advances. To keep up with the competition may be too optimistic or too costly. New technologies could yet emerge that disrupt the model assumptions; for example, the emergence of propulsion systems that may extend the operational lifecycle of LEO constellation nanosatellites.



- **M&A execution risk:** management has grown the company through both organic and selective M&A activity. It is likely the company has the intention to further develop the business via future acquisition. Hence there is risk in identifying viable targets and integrating them correctly, although to date the acquired operations appear to be bedding in positively. Additional funding is also likely to be required if any targets are addressed in the near term.
- **Space industry:** while the global space industry is valued at c \$376bn today (Satellite Industry Association), growth is not without risk. From early-stage development to launch costs, there is inherent risk in a business where the majority of assets are positioned in orbit around the earth. In addition, the space market has essentially transitioned from governmental stewardship to commercial entities and sometimes individuals. As this transition continues, it is likely that new risks will become apparent, for example, the successful entry into service of new, lower-cost launch platforms and the increase in space debris in LEO.
- **Financial risks:** the rapid growth of the business presents its own challenges financially. A further round of funding appears likely to allow constellation investment to support growth as well as further possible M&A funding. Financial risk is not only internal but also relates to counterparties who may be relative newcomers to commercial space markets with unproven and immature business models. Customer due diligence requirements are therefore heightened especially where long-term satellite-as-a-service models are proposed.
- **FX risks:** the company is operating in an essentially US dollar-based industry, incurring its costs in predominantly Swedish krona, sterling and now euros. While there is some natural hedge to transactional risk from SpaceQuest and dollar purchases in the supply chain, the company also uses forward exchange contracts to mitigate fluctuations. There is clearly an element of translational risk from non-Swedish subsidiaries into krona, but as this is quantitative not qualitative, like other companies it is not hedged. From a competitiveness perspective, any appreciation against the US dollar may have an adverse impact as many of the competitors are US based.

## Valuation

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It is clear that space has become an increasingly high-profile sector for investors. That is reflected in the number of new listings and the record amount of capital raised during 2021. Although the share price performance of recently listed companies has been mixed, many of them now provide useful comparators. However, we continue to focus on our capped discounted cash flow (DCF) methodology while valuations mature alongside business models.

### Capped DCF valuation

We continue to use our capped DCF methodology for AAC (consistent with our industrial companies) as our main fair value reference point as the company has yet to become self-financing. The model captures six years of forecasts and then assumes zero growth in the terminal value, with capex normalised to depreciation and working capital flows neutralised. We consider this to be conservative as we do not capture continued growth in companies beyond the forecast period, with AAC clearly outlining a higher growth path beyond 2025.

Although subject to the usual risks of operating in space markets (delays, operational failures, space debris, etc), these should diminish as higher-margin, recurring SDaaS revenues grow. Our calculated WACC of 12.0% reflects the current situation and the DCF returns a value of SEK7.9 per share (from SEK7.0 previously), reflecting a modest increase in the WACC and lower capex.

If, as we have done previously, we extend the growth period to include our estimates to 2030, which are broadly aligned with the strategic plan before capping the growth, the value rises to SEK13.6

per share. Successful execution of the strategy and achieving estimated margins remain key to realising these higher values. We note that our long-term EBITDA margin assumption of c 35% and top-line growth rates are more moderate than many of its peers indicate.

The sensitivity of our DCF model to changes in WACC assumptions and the terminal growth rate is shown in the table below.

	WACC	7.0%	8.0%	9.0%	10.0%	11.0%	12.0%	13.0%	14.0%	15.0%
Terminal growth rate	0%	15.9	13.4	11.6	10.1	8.9	<b>7.9</b>	7.1	6.4	5.9
	1%	18.3	15.2	12.9	11.1	9.7	8.6	7.6	6.8	6.3
	2%	21.8	17.6	14.6	12.4	10.7	9.3	8.2	7.3	6.7
	3%	27.0	20.9	16.9	14.0	11.9	10.3	9.0	7.9	7.3

Source: Edison Investment Research estimates

## Peer group comparison

What has been apparent over the last decade has been an increasing amount of investment in space markets, underlined by the popularity of listing via special purpose acquisition companies (SPACs) over the last couple of years. A SPAC is a listed vehicle that raises funds to invest in acquisition opportunities, normally via a merger that provides an identified partner with funding and a listing. Since Virgin Galactic in October 2019, a further 12 space-related SPACs have listed on the NYSE and Nasdaq markets, with D-Orbit scheduled to enact its merger and listing in H222.

Around half of the SPACs we categorise as space infrastructure, which form a good peer group for AAC. Share price performances to date have been generally underwhelming, but the listed SPACs have a current combined market capitalisation of \$9.9bn 40% lower than two months ago.

Terran Orbital is one of the most comparable peers. It debuted on the NYSE on 28 March 2022. The company offers end-to-end satellite solutions as well as SDaaS. It does a lot of US government projects including for defence agencies but is also planning its own constellation deployment.

Many of these companies have similar model aspirations, leveraging increases in high-margin SDaaS revenue flows across a relatively fixed operating cost base with high upfront capital investment required that will level off as constellations are fully deployed and go into a replenishment cycle. Differentiators are primarily customer type (civil institutions, governmental/security and commercial customers), application domains (communication, observation, tracking etc) and the supporting technologies and sensors deployed as payloads.

**Exhibit 14: Recent space-related SPAC deals**

Company	Ticker	SPAC partner	Listed	Share price (\$)	Mkt cap (\$bn)	Segment
Virgin Galactic	NYS: SPCE	Social Capital Hedosophia	25-Oct-19	6.28	1.62	Launch & transportation
AST SpaceMobile	NAS: ASTS	New Providence Acquisition Corp.	06-Apr-21	6.33	1.15	Space infrastructure
Astra	NAS: ASTR	Holicity, Inc.	30-Jun-21	1.33	0.35	Launch & transportation
Momentus	NAS: MNTS	Stable Road Acquisition Corp.	12-Aug-21	2.16	0.18	Launch & transportation
Spire	NYS: SPIR	NavSight Holdings, Inc.	16-Aug-21	1.24	0.19	Space infrastructure
Rocket Lab	NAS: RQLB	Vector Acquisition Corporation	25-Aug-21	3.80	1.76	Launch & transportation
Redwire	NYS: RDW	Genesis Park Acquisition Corp.	02-Sep-21	3.13	0.20	Space infrastructure
Arjit	NAS: ARQQ	Centricus Acquisition Corp.	03-Sep-21	6.16	0.75	Information technology
BlackSky	NYS: BKSY	Osprey Technology Acquisition Corp.	09-Sep-21	2.31	0.26	Space infrastructure
Planet Labs	NYS: PL	dMY Technology Group, Inc. IV	07-Dec-21	4.39	1.15	Space infrastructure
Virgin Orbit	NAS: VORB	NextGen Acquisition Corp. II	28-Dec-21	3.84	1.29	Launch & transportation
Satelloptic	NAS: SATL	CF Acquisition Corp. V	26-Jan-22	3.99	0.31	Space infrastructure
Terran Orbital	NYS: LLAP	Tailwind Two Acquisition Corp.	28-Mar-22	4.16	0.57	Space infrastructure
D-Orbit	NAS: DOBT	Breeze Holdings Acquisition Corp	Exp.H222			Launch & transportation

Source: Refinitiv, Edison Investment Research, prices as of 4 July 2022

By comparison AAC is relatively small and as we have noted a good deal of anticipated growth comes from 2025 and beyond, whereas the majority of the SPAC peers have presented aggressive

growth plans to 2025, some of which have already been tempered. We have tried to take account of this in the comparison table below. As a general comment, most of the peers are trading at a significant discount to a 2025 EV/EBITDA multiple of around 5.3x equivalent to 11x discounted back to a present value at a rate of 20% a methodology used by some SPACs. By implication the market does not believe the projections are going to be achieved as the plans are executed. It is therefore up to managements to deliver against their strategies, including AAC.

#### Exhibit 15: Peer group comparison

	Market cap	Net debt/(cash)	EV	EV/sales (x)			EV/EBITDA		
				\$m	\$m	\$m	2022e	2023e	2025e
<b>AAC Clyde Space</b>	<b>32.8</b>	<b>-9.3</b>	<b>23.6</b>	<b>1.00</b>	<b>0.65</b>	<b>0.35</b>	<b>377.98</b>	<b>7.72</b>	<b>1.41</b>
AST SpaceMobile	1149.1	-255.0	894.1	62.09	29.12	0.34	-6.47	-12.03	0.55
Black Sky	264.4	-94.2	170.2	2.52	1.34	0.32	-3.70	19.34	0.70
Planet Labs	1151.0	-490.9	660.1	3.63	2.52	0.95	-10.11	-20.50	3.88
Redwire	196.2	57.0	253.3	1.52	0.91	0.30	28.78	8.01	1.68
Satelloptic	307.3	-150.0	157.3	4.25	1.90	0.33	-4.92	-22.48	0.53
Spire Global	187.5	-58.1	129.4	1.48	0.96	0.53	-4.11	46.20	2.01
Terran Orbital	572.2	-254.0	318.2	3.48	0.91	0.24	-6.49	4.72	0.49
<b>Peer group average (ex AAC)</b>				<b>11.28</b>	<b>5.38</b>	<b>0.43</b>	<b>12.34</b>	<b>13.25</b>	<b>1.41</b>
<b>Peer group average adj (ex AAC)</b>				<b>1.84</b>	<b>1.33</b>	<b>0.36</b>	<b>12.34</b>	<b>13.25</b>	<b>0.99</b>

Source: Refinitiv, company reports, Edison Investment Research estimates, prices as of 4 July 2022

As can be seen, the anticipated rates of growth and model development make comparison in the near term unhelpful, so we have included 2025 as a comparator year to try to provide a better data point and have excluded outlying numbers to provide a more meaningful average.

## Financials

We have reduced our FY22 revenue and earnings forecasts to reflect the sluggish Q122 trading performance including increased external costs to reflect mitigation of the tight labour market. Our FY23 outlook is less affected as we would hope that supply chain constraints should ease as FY22 progresses, allowing a more normal project execution in FY23. We continue to believe the company to be on track to achieve its FY24 revenue target of SEK500m (\$50m) driven by rapid growth in SDaaS revenues, supported by the strong order backlog and growing demand for small satellites and subsystems. We would remind readers that by dint of its scale, AAC remains a small company executing relatively large and therefore potentially lumpy projects. Over time we would expect potential volatility to diminish as SDaaS and satellite replenishment revenues grow.

Overall, the revenue growth of 12% was below expectations and had it not been for initial first quarter contributions from Omnisys and AAC Space Africa group revenues would have been down year-on-year. All of the subsidiaries appeared to have been constrained by the ongoing project delays both across the group and externally caused primarily by supply chain delays that have led to subsystem and component delivery delays. While SpaceQuest made good progress compared to Q121, its Space Products revenues also contracted slightly, and it was a stronger contribution from its SDaaS fleet, which allowed sales to progress. Clyde Space showed the biggest shortfall in net sales compared to Q122, reflecting the delays to project completion and execution delays.

We note that the SDaaS revenue was generated by SpaceQuest in Q121, with the balance in Space Products. Hyperion revenues are entirely attributable to the sale of Space Products, as are Omnisys sales. Going forward, we think the bulk of the SDaaS sales expansion will be attributable to Clyde Space and SpaceQuest

The growing investment in its own satellites was reflected in the development work capitalised included in the overall group income. We expect this to accelerate as investment in its own constellations increases, with the first two nanosatellites expected to be launched in 2022.

## Q122 results

<b>Exhibit 16: AAC Q122 result summary</b>			
<b>Three months to March (SEKm)</b>	<b>Q121</b>	<b>Q122</b>	<b>% change</b>
AAC Clyde Space	12.383	10.842	-12.4%
Clyde Space	17.062	14.130	-17.2%
Hyperion	3.406	2.198	-35.5%
SpaceQuest	3.932	5.639	43.4%
Omnisys		8.288	
AAC Space Africa		0.059	
<b>Net sales</b>	<b>36.783</b>	<b>41.156</b>	<b>11.9%</b>
SDaaS	2.014	4.006	98.9%
Space Missions	15.109	11.771	-22.1%
Space Products	18.279	25.379	38.8%
Licence income	1.381	0.000	
<b>Net sales</b>	<b>36.783</b>	<b>41.156</b>	<b>11.9%</b>
Other operating income	3.476	6.099	75.5%
Development work capitalised	2.185	5.335	144.2%
<b>Group income</b>	<b>42.444</b>	<b>52.590</b>	<b>23.9%</b>
<b>EBITDA</b>			
AAC Clyde Space	(1.676)	(2.220)	32.5%
Clyde Space	(0.537)	(5.944)	1006.9%
Hyperion	0.598	(0.544)	n.m.
SpaceQuest	1.152	0.895	-22.3%
Omnisys		1.302	
AAC Space Africa		(1.113)	
<b>EBITDA</b>	<b>(0.463)</b>	<b>(7.624)</b>	<b>1546.7%</b>
D&A	(3.982)	(7.009)	76.0%
<b>Expenses</b>			
Raw materials & subcontractors	(15.289)	(15.272)	-0.1%
Personnel costs	(20.770)	(32.564)	56.8%
Other external expenses	(6.441)	(8.522)	32.3%
Other operating expenses	(0.407)	(3.856)	847.4%
<b>Total operating expenses</b>	<b>(42.907)</b>	<b>(60.214)</b>	<b>40.3%</b>
<b>Operating profit</b>	<b>(4.445)</b>	<b>(14.663)</b>	<b>229.2%</b>
EPS (basic, diluted) SEK	(0.03)	(0.06)	100%
Cash flow from operating activities	(20.8)	7.0	-%
Cash and cash equivalents	37.1	88.9	-%
Order backlog	141.8	395.2	178%

Source: AAC Clyde Space reports

## Capital allocation priority remains investment for growth

A positive operational cash flow in Q122 of SEK7.0m meant that net cash consumption was limited to just SEK7.7m. It largely reflected a favourable working capital performance. With adjusted a net cash balance of almost SEK89m, the balance sheet remains healthy as the group prepares for an increased level of investment in its own satellite networks. Together with a SEK5m currently unutilised bank facility, the cash flow should facilitate the growth in high-margin SDaaS sales, which management is targeting to grow to c SEK1.3bn by 2030, out of total group sales of SEK2.3bn. However, a capital raise could be undertaken to add flexibility for growth investment including M&A, although using debt could be an alternative as SDaaS revenues increase and cashflows improve.

## Revisions to earnings estimates

We have reduced our FY22 estimates to reflect the constrained Q122 performance. We expect the pace of satellite deployments to recover during the remainder of FY22, generating increased SDaaS revenues almost immediately, and grow further from FY23. As a result, our FY23 estimate is only modestly reduced in absolute terms (SEK10/\$). We expect order intake to increase as reference satellites for Wyvern and ORBCOMM are added to the expanding SpaceQuest AIS fleet.

**Exhibit 17: AAC revisions to earnings estimates**

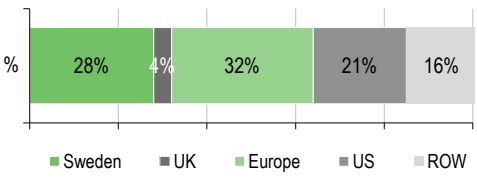
Year to 31 December (SEKm)	2022e			2023e		
	Prior	New	% change	Prior	New	% change
<b>By Business</b>						
AAC	56.9	40.9	(28.1%)	82.4	77.4	(6.0%)
Clyde	100.8	91.1	(9.6%)	151.1	139.5	(7.7%)
Hyperion	24.4	19.5	(20.0%)	29.3	23.4	(20.0%)
SpaceQuest	28.8	26.9	(6.7%)	40.4	37.7	(6.7%)
Omnisys	59.2	59.2	0.0%	74.0	74.0	0.0%
AAC Clyde Africa		5.0			20.0	
<b>Total group net sales</b>	<b>270.1</b>	<b>242.6</b>	<b>(10.2%)</b>	<b>377.1</b>	<b>372.0</b>	<b>(1.4%)</b>
<b>By activity</b>						
SDaaS	30.3	30.3	0.0%	70.1	70.1	0.0%
Space Missions	95.6	83.6	(12.5%)	129.0	112.9	(12.5%)
Space Products	142.2	126.7	(10.9%)	176.0	187.0	6.2%
Licence & royalties income	2.0	2.0	0.0%	2.0	2.0	0.0%
<b>Total group net sales</b>	<b>270.1</b>	<b>242.6</b>	<b>(10.2%)</b>	<b>377.1</b>	<b>372.0</b>	<b>(1.4%)</b>
Other operating income	7.3	7.3		7.3	7.3	
Own work capitalised	34.5	33.5		37.9	37.8	
<b>Total group income</b>	<b>311.9</b>	<b>283.4</b>	<b>(9.1%)</b>	<b>422.4</b>	<b>417.0</b>	<b>(1.3%)</b>
Raw materials & subcontractors	(121.6)	(106.8)	(12.2%)	(162.2)	(163.7)	0.9%
Personnel costs	(137.8)	(129.9)	(5.7%)	(163.0)	(160.5)	(1.5%)
Other external expenses	(45.2)	(46.1)	1.9%	(62.2)	(61.4)	(1.4%)
<b>EBITDA (company adjusted)</b>	<b>7.3</b>	<b>0.6</b>	<b>(91.2%)</b>	<b>35.0</b>	<b>31.5</b>	<b>(10.0%)</b>
<b>EBIT (pre PPA amortisation)</b>	<b>(7.3)</b>	<b>(17.3)</b>	<b>135.0%</b>	<b>10.9</b>	<b>10.0</b>	<b>(8.5%)</b>
<b>Underlying PBT</b>	<b>(10.5)</b>	<b>(21.6)</b>	<b>105.5%</b>	<b>7.2</b>	<b>5.0</b>	<b>(30.8%)</b>
<b>EPS - underlying continuing (SEK)</b>	<b>(0.05)</b>	<b>(0.10)</b>	<b>103.5%</b>	<b>0.03</b>	<b>0.02</b>	<b>(30.8%)</b>
Adjusted net cash/(debt)	22.5	22.5	1.5%	(16.7)	(7.9)	(52.6%)

Source: Edison Investment Research estimates

**Exhibit 18: Financial summary**

	SEKm	2019	2020	2021	2022e	2023e
Year end 31 December		IFRS	IFRS	IFRS	IFRS	IFRS
<b>PROFIT &amp; LOSS</b>						
Net sales		66.4	98.4	180.0	242.6	372.0
Own work capitalised and other operating income		14.1	21.1	30.9	40.8	45.1
Group income		80.6	119.5	210.8	283.4	417.0
EBITDA		(27.3)	(17.5)	(12.4)	0.6	31.5
Operating Profit (before amort. and except).		(32.7)	(22.2)	(21.9)	(9.6)	19.5
Intangible Amortisation		(4.6)	(3.3)	(0.9)	(7.7)	(9.5)
Exceptionals		(2.9)	(12.1)	(15.8)	(10.0)	(10.0)
Other		0.0	0.0	0.0	0.0	0.0
Operating Profit		(40.2)	(37.5)	(38.6)	(27.3)	(0.0)
Net Interest		(0.8)	(1.3)	(4.2)	(4.3)	(4.8)
Profit Before Tax (norm)		(38.2)	(26.7)	(27.0)	(21.6)	5.0
Profit Before Tax (FRS 3)		(41.0)	(38.8)	(42.8)	(31.6)	(5.0)
Tax		0.5	0.5	3.3	1.6	0.3
Profit After Tax (norm)		(37.8)	(26.4)	(24.9)	(20.5)	4.7
Profit After Tax (FRS 3)		(40.6)	(38.3)	(39.5)	(30.0)	(4.8)
Average Number of Shares Outstanding (m)		84.8	102.3	173.8	198.0	203.8
EPS - fully diluted (SEK)		(0.45)	(0.26)	(0.14)	(0.10)	0.02
EPS - normalised (SEK)		(0.44)	(0.26)	(0.14)	(0.10)	0.02
EPS - (IFRS) (SEK)		(0.48)	(0.37)	(0.23)	(0.15)	(0.02)
Dividend per share (SEK)		0.0	0.0	0.0	0.0	0.0
EBITDA Margin (%)		-41.1	-17.8	-6.9	0.3	8.5
Operating Margin (before GW and except.) (%)		-49.3	-22.5	-12.2	-3.9	5.2
<b>BALANCE SHEET</b>						
Fixed Assets		436.9	523.0	681.0	724.3	736.5
Intangible Assets		418.6	494.3	639.5	673.7	676.9
Tangible Assets		4.1	16.2	26.4	40.0	53.5
Right of use asset		14.2	12.5	15.1	10.6	6.1
Investments		0.0	0.0	0.0	0.0	0.0
Current Assets		108.5	113.3	193.4	127.5	152.9
Stocks		13.1	12.8	13.2	41.2	63.2
Debtors		17.7	9.5	23.0	38.8	59.5
Cash		52.4	62.4	96.1	23.1	0.3
Other		25.2	28.5	61.1	24.4	29.8
Current Liabilities		(60.5)	(56.1)	(129.2)	(105.5)	(150.8)
Creditors		(60.5)	(56.1)	(128.5)	(105.5)	(142.5)
Short term borrowings		0.0	0.0	(0.6)	0.0	(8.2)
Long Term Liabilities		(16.0)	(14.4)	(16.6)	(14.6)	(11.7)
Long term borrowings		(0.8)	(0.3)	0.0	(0.2)	(0.0)
Lease liabilities		(14.1)	(12.9)	(15.1)	(12.5)	(10.0)
Other long term liabilities		(1.1)	(1.2)	(1.5)	(1.8)	(1.7)
Net Assets		468.9	565.8	728.6	731.6	727.0
<b>CASH FLOW</b>						
Operating Cash Flow		(15.3)	(14.2)	(35.3)	(35.3)	14.4
Net Interest		(0.8)	(0.7)	(2.2)	(2.4)	(3.1)
Tax		0.4	0.4	2.1	1.1	(0.2)
Capex		(13.9)	(17.2)	(29.2)	(37.8)	(43.8)
Acquisitions/disposals		(3.0)	(6.2)	2.6	(31.4)	1.9
Financing		73.3	49.2	94.1	33.3	0.0
Dividends		0.0	0.0	0.0	0.0	0.0
Net Cash Flow		40.7	11.4	32.0	(72.6)	(30.8)
Opening net debt/(cash) excluding lease liabilities		(10.9)	(51.6)	(62.2)	(95.5)	(22.9)
HP finance leases initiated		0.0	0.0	0.0	0.0	0.0
Other		0.1	(0.8)	1.3	0.0	0.0
Closing net debt/(cash) excluding lease liabilities		(51.6)	(62.2)	(95.5)	(22.9)	7.9
Net financial liabilities including lease liabilities		(37.5)	(49.3)	(80.4)	(10.3)	17.9

Source: Company reports Edison Investment Research

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Management team	
<p><b>Chairman: Rolf Hallencreutz</b></p> <p>Rolf Hallencreutz has been chairman since 2014. He has experience from start-up and major multinational companies within IT, industrial companies, life sciences and shipping. Rolf's experiences among other fast-growing companies range from roles as chairman, CEO and sales manager, as well as extensive experience in M&amp;A and financing. He is independent in relation to major shareholders.</p>	<p><b>CEO: Luis Gomes</b></p> <p>Luis Gomes was appointed CEO in 2019. He has 25 years of experience in the space industry and specialises in the small satellite field. He most recently comes from the British firm SSTL, where he was CTO and executive director, responsible for defining and conducting technical and commercial strategies.</p>
<p><b>CFO and deputy CEO: Mats Thideman</b></p> <p>Mats Thideman has been CFO and deputy CEO since 2014 and is responsible for finance, IT and staff. Mats has extensive experience as a CFO from growing industrial companies, as well as public and venture capital owners, such as Åkerströms, Image Systems (public), TracTechnology (public) and most recently Cortus Energy AB (public).</p>	
Principal shareholders	(%)
CBNY-RJA-CLIENT ASSET ACCT (holding by SpaceQuest former owners)	12.45
Försäkringsaktiebolaget, Avanza Pension	7.18
Nordnet Pensionsförsäkringar AB	1.82
Kock, John	1.69
UBS Switzerland	1.67

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