GBC AG
Investment Research

Research report (Initial Coverage)

“Future market laser-based communications network offers enormous growth potential”

“Airborne cooperation forms the basis for serial production”

Target price: €95.00

Rating: BUY

IMPORTANT NOTE:
Please take note of the disclaimer/risk warning, as well as the disclosure of potential conflicts of interest as required by section 34b of the Securities Trading Act (WpHG) from page 34.

Completion: 07/12/2017 **First publication: 11/12/2017**

Mynaric AG[*5a;5b;11]

Buy
Target price: 95.00 EUR

Current price: 61.45
06/12/2017 / ETR
Currency: EUR

Key data:

ISIN: DE000A0JCY11
German securities identification number (WKN): A0JCY1
Ticker symbol: M0Y
Number of shares[3]: 2.70
Market cap[3]: 166.16
Enterprise value[3]: 166.68
[3] in m / in EUR m
Freefloat (<5%): approx. 33.0%

Transparency level: Scale

Market Segment: Open Market

Accounting standard: HGB

Financial year-end: 31.12.

Designated Sponsor: HAUK & AUFHAEUSER PRIVATBANKIERS AG

Analysts:

Marcel Goldmann
goldmann@gbc-ag.de

Cosmin Filker
filker@gbc-ag.de

* Catalogue of potential conflicts of interest on page 35

Corporate profile

Segment: Technology

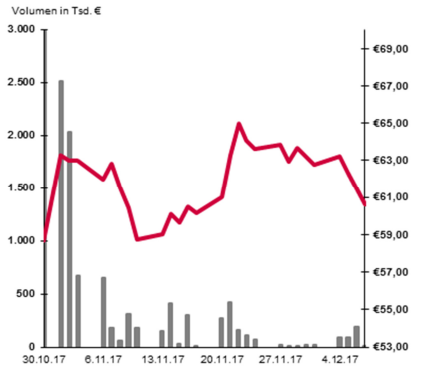
Focus: Laser-supported communication technology

Employees: 50 (as of: October 2017)

Founded: 2009

Company head office: Gilching (near München)

Management Board: Dr Wolfram Peschko, Joachim Horwath, Dr Markus Knapek



Mynaric was founded in 2009 by former employees of the *German Aerospace Center* (DLR). The technology company (formerly Vialight Communications) is a manufacturer of laser communications technology which is used to establish dynamic communications networks from flying objects (e.g. aeroplanes) and satellites in the air and space. Their wireless data transfer products include ground stations and laser terminals that allow for a high amount of data transfer over vast distances at great speed. Mynaric's laser technology enables flying objects and satellites to communicate with each other and with the ground without any wires. The technology used by the company to do so is based on more than twenty years' worth of research in the area of laser communication. Mynaric has invented wireless laser communication technology that can deliver the structural basis to enable an Internet "above the clouds" and in space.

P&L in €m \ FY-End	31/12/2016	31/12/2017e	31/12/2018e	31/12/2019e	31/12/2020e	31/12/2021e	31/12/2022e
Revenue	0.47	3.30	12.20	37.34	92.31	258.16	406.21
EBITDA	-1.71	-3.12	-3.56	2.76	16.37	59.57	109.47
EBIT	-1.84	-3.23	-3.68	0.59	9.32	50.27	98.74
Net profit	-1.84	-3.23	-3.68	0.59	7.92	35.19	69.19

Key financials							
EV/Sales	354.64	50.51	13.66	4.46	1.81	0.65	0.41
EV/EBITDA	neg.	neg.	neg.	60.39	10.18	2.80	1.52
EV/EBIT	neg.	neg.	neg.	282.51	17.88	3.32	1.69

Financial Dates
27/11/2017: Equity forum (EKF)
12/12/2017: Munich equity market Conference (MKK)
April 2018: Annual report 2017
July 2018: General meeting
Oct. 2018: Half-yearly report, H1 2017
Nov. 2018: Equity forum (EKF)

**last research published by GBC:
Date: publication / price target in € / rating

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EXECUTIVE SUMMARY

- Mynaric has specialised in the development and production of laser-based products for use in laser-supported communications networks. This business field is a young, underdeveloped market. We expect very dynamic market growth for this area and believe a market volume in the two-figure billion range to be possible.

- In the past three financial years, Mynaric focused on developed pre-series products so as to be able to use them for test and demonstration purposes for potential customers. To date, the company has not yet broken even in operating terms due to the lack of sales and increasing R&D expenses. The performance of products developed so far could be successfully demonstrated during customer tests.

- In the current financial year, Mynaric began expanding its previous product portfolio. After the main developments to date in the air segment were advanced, Mynaric then decided to manufacture terminals for the space segment. A ground station has already been developed for this area and is to be tested by the first customers in FY 2018. The development of the space laser terminal should be completed in 2018, meaning that the first tests should begin in 2019.

- In August of this year, Mynaric was able to announce the conclusion of a design and manufacturing contract with the American company Airborne Wireless Network. As part of this contract, comprehensive tests with the company's laser technologies should be conducted in the coming financial year. As a result, up to 20 aeroplanes are being equipped with Mynaric's laser technology in order to maintain a laser-based communications network. This cooperation forms the basis for the serial production the company is aiming for.

- In the past, Mynaric laid a good foundation for being able to significantly benefit from the expected dynamic growth in the future market of laser-based communications networks. For FY 2017, we expect sales revenues of €3.30 million with EBITDA of -€3.12 million. Thanks to starting serial production, Mynaric should break even at operative level in 2019. Based on dynamic sales growth and the economies of scale applied, we expect heavily increasing operating results (EBITDAs) for the next financial year. As a result, it should be possible to achieve considerable two-figure EBITDA margins in the long-term.

- **On this basis, we have assessed the company using our DCF model and have hereby determined a fair value of €95.00. Based on the current share price, this results in a BUY rating.**

INHALTSVERZEICHNIS

COMPANY

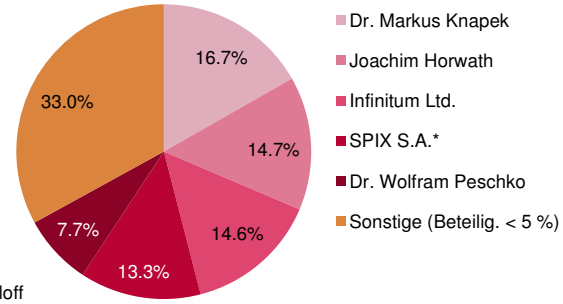
Mynaric was founded in 2009 by former employees of the DLR's (Deutsches Zentrum für Luft- und Raumfahrt) Institute for Navigation and Communication in the form of Mynaric Lasercom GmbH (previously named ViaLight Communications GmbH), which later became part of Mynaric AG. The founders, including two current members of the Management Board, gained many years of experience in the field of wireless laser communication through their employment in the DLR prior to founding the company.

At present, Mynaric Group mainly operates in the area of research and the (further) development of laser communication technologies and in the development and production of earth stations and laser terminals. These laser communication technologies can be used in the air (aeroplanes, unmanned drones and stratospheric gliders (small flying objects, e.g. balloons)) and in space (satellites) so as to establish global data networks. The earth stations hereby allow for the connection from the air or space to the earth.

Shareholder structure

Shareholders in %	16/10/2017
Dr Markus Knapek	16.7%
Joachim Horwath	14.7%
Infinitum Ltd.	14.6%
SPIX S.A.*	13.3%
Dr Wolfram Peschko	7.7%
Others (holding <5,0%)	33.0%

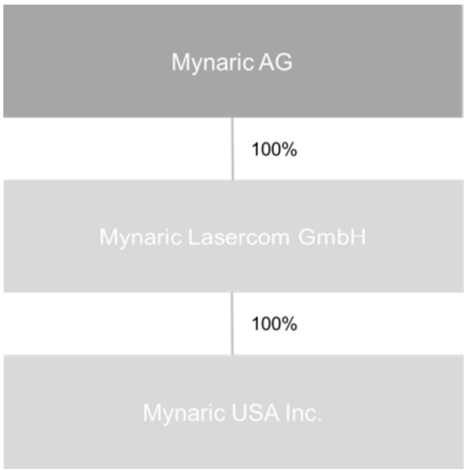
Source: Mynaric AG; GBC AG



* to be assigned to the supervisory board to Dr Gerloff

Corporate structure

Mynaric AG forms the strategic management and financial holding company of Mynaric Group and hereby exercises central management functions and provides shared services in the areas of finance, administration, Human Resources, investor relations, IT, strategy and public relations, quality management and corporate affairs for the Group. The parent company mainly focuses on strategy, public relations, management and controlling its shareholdings and developing the entire corporate group.



Source: Mynaric AG; GBC AG

The operative business is conducted by the subsidiary Mynaric Lasercom GmbH (head office: Gilching) and the shareholding Mynaric USA, Inc. belonging to this company (head office: Huntsville, Alabama, USA). The latter was founded in 2016 in order to take the international direction of the company into consideration and allow for the business to reach the US market where a large part of potential customers is located.

The company's executive bodies

Management Board

Dr Wolfram Peschko (CEO)
Dr Peschko has been employed in the company since 2011 and is responsible for the company's areas of strategy, finance and management. He studied physics at the *Technischen Hochschule* (technical university) in Darmstadt where he obtained his doctorate. Dr Peschko has over 30 years' experience in senior management which he was able to gain in companies with more than €50m turnover and up to 1,000 employees.

Dr Markus Knapek (COO)
Dr Knapek attended the Technical University of Munich where he obtained his degree and doctorate. From 2001 to 2003, he was working in the sales division of Siemens ICN in Moscow. He then worked as a scientist at the *German Aerospace Center* (DLR) from 2003 to 2011. As one of the founders, he has aided in the development of Mynaric Lasercom GmbH since 2009.

Joachim Horwath (CTO)
Mr Joachim Horwath obtained an engineering degree from the Technical University of Graz. He began his career in 2000 at Siemens AG in the area of photonic system solutions. He was then a member of the DLR's Institute for Communication and Navigation. He became the co-founder of Mynaric Lasercom GmbH in 2009 where he leads the technical development.

Supervisory Board

Dr Manfred Krischke (Chairman of the Supervisory Board)
Dr Manfred Krischke gained his doctorate in aerospace engineering from the Technical University of Munich. He is the co-founder and CEO of CloudEO and the founder and CEO of RapidEye. In addition, Dr Krischke worked in several technology companies in top positions during his professional career.

Hans-Christian Semmler (Deputy Chairman)
Mr Christian Semmler is the Managing Director of the company he founded in 2003, HCS Beteiligungsgesellschaft mbH. He was the Chairman of the Executive Board at Haupt Pharma AG from 2003 to 2010. Until 2001, Mr Semmler was a member of the Financial Executive Board of Vossloh AG listed on the MDAX. He previously worked for Deutsche Bank AG. He is also a qualified lawyer.

Dr Harald Gerloff
Dr Harald Gerloff attended ETH Zurich and concluded his studies with an engineering degree in computer science (Dipl. Ing.). Throughout his professional career he held leading positions at IBM, Credit Suisse and McKinsey & Co. He subsequently founded the software company Netmedia AG in 1996.

Dr Gerd Gruppe
Dr Gerd Gruppe holds an engineering degree (Dipl. Ing) which he obtained from RWTH Aachen. In addition, in 1985 he completed his PhD on energy marketing. At the end of the 1980s, Dr Gruppe was involved in the development of the German Space Operations Centre (GSOC) at the DLR location in Oberpfaffenhofen. Dr Gruppe is a member of the Executive Board of the German Aerospace Center (DLR) where he has been responsible for aerospace management since April 2011.

Rony Vogel
Mr Rony Vogel studied at the University of Reutlingen where he obtained his degree as an engineer (Dipl. Ing) and an MBA. Furthermore, he has been working as an investor and entrepreneur for many years. In 2000, he co-founded Equity Story AG, which is now EQS Group AG. From 2000 until the sale of his company shares in 2002, he was a member of the Executive Board of the incubator he co-founded, Firestream venture24 AG. Since 2003, Mr Vogel has been an active investor and entrepreneur in the area of software/Internet, environmental technology and property.

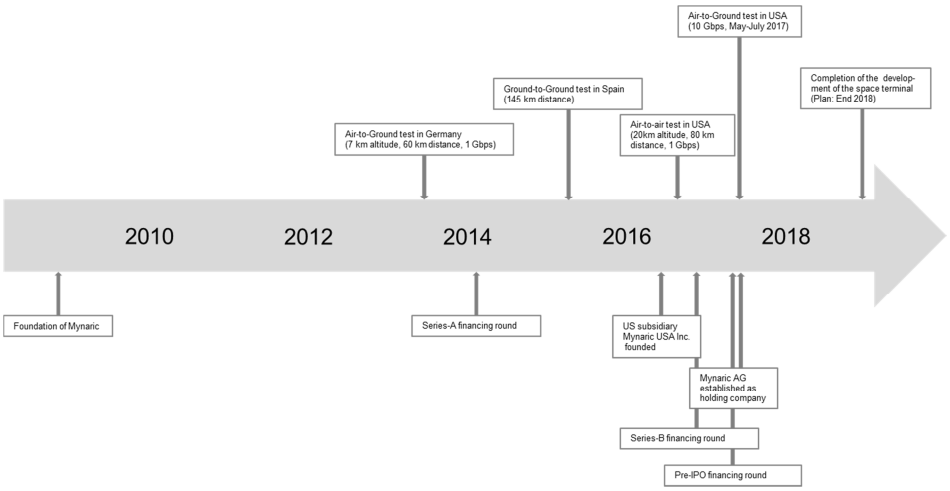
Timeline

Date	Event
May 2009	Founding of Mynaric Lasercom GmbH (formerly ViaLight Communications GmbH) with head office in Gilching (near Munich). The company's business purpose is to develop and distribute laser-based communication technologies and the systems and components used.
May/June 2013	Conclusion of a cooperation and use agreement between Mynaric Lasercom GmbH and the DLR (German Aerospace Center).
2012	First customer order to manufacture a pre-series laser terminal for aeroplanes with the aim of enabling laser-supported communication between the ground and air and the first successful test series in cooperation with the DLR in 2013.
2014	First major customer order (volume over €1m) for the delivery of two laser terminal pre-series products with the aim of laser communication amongst the air in the stratosphere, including successful test series in 2016.
Januar 2016	Foundation of Mynaric USA, Inc. (previously ViaLight Space, Inc.) with head office in Huntsville, Alabama (USA) and the start of developing a laser terminal for laser communication between satellites in the low earth orbit (LEO).
2016	First major customer order (volume over $1m) for the US subsidiary Mynaric USA, Inc. An optical ground station for laser communication from satellites to the ground will be supplied as part of the customer order.
April 2017	Foundation of Mynaric AG
July 2017	Renaming of the company “Mynaric AG” and change of the business purpose.
August 2017	Incorporation of all company shares of Mynaric Lasercom GmbH into Mynaric AG as part of a non-cash capital increase in connection with a share capital increase by €1.95m to €2.0m.
August 2017	Conclusion of a design and manufacturing agreement with the company Airborne Wireless Network that would like to connect passenger and cargo aeroplanes using laser-based communication technology, thereby developing a dense communications network in airspace.
September 2017	Execution of three cash capital increases from approved capital. The new shares were placed with selected investors by increasing the share capital by a total of €198,304 to €2,198,304.
October 2017	Initial Public Offering (IPO) of Mynaric AG, gross issuing proceeds: €27.3m.

Source: Mynaric AG; GBC AG

Milestones

Test projects that demonstrated the performance and sustainability of Mynaric technologies were important milestones in the company's history to date. This included air-to-ground tests over 60 kilometres, ground-to-ground tests over a range of 145 kilometres and air-to-air tests over 80 kilometres.

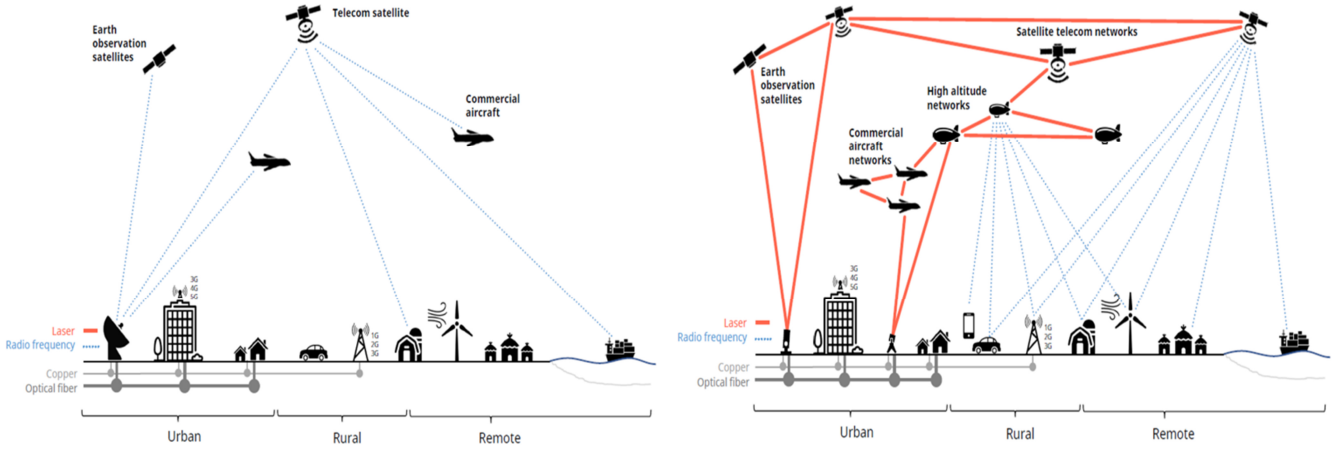


Source: Mynaric AG

Mynaric's laser technology and fields of application

Mynaric's laser technology allows for the development of global communications networks in the air and space and therefore Internet "above the clouds". As a result, data can be transferred over vast distances at great speed between ground stations, aeroplanes, high-altitude balloons in the stratosphere or satellites in space, all without cables. The hardware produced by the company uses laser technology in order to transfer large amounts of data from one point to the next over a great distance and at great speed. This technology is therefore suited to being a "data highway" for different communications networks (known as a backbone connection). Overall, the company's technology can be viewed as a fibre-optic network without optical fibres.

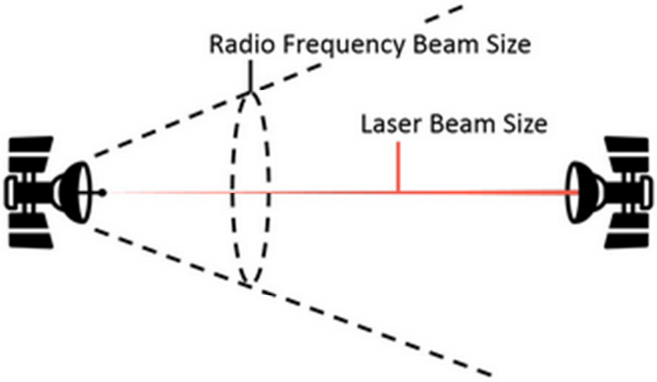
Current communications network structure and future communications network structure by using laser technology



Source: Mynaric AG

The laser company's technology can not only build on existing communications networks (data networks) that are mainly based on fibre-optic technology and that supplement radio technology, but can also replace parts of this network. The laser technology used by Mynaric offers several advantages in comparison with radio technology. As a result of lasers working at a higher frequency, large amounts of data can be transferred at great speed, currently up to 10 gigabytes per second, from one data terminal to the next; technologically speaking, even more is possible (world record: 1,720 Gigabit/second). This is approximately 100 times faster compared with typical radio technology.

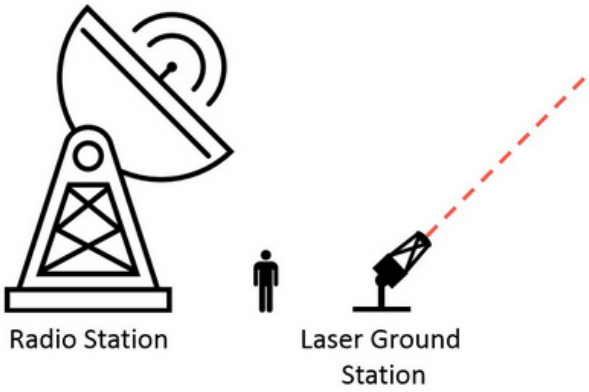
Properties of laser technology in comparison with radio technology



Source: Mynaric AG

Furthermore, lasers send information/data to a special point and not in a dispersed form, which is normally the case with radio technology. This makes laser technology more secure, as information is harder to intercept due to the focused signal transfer. This focused laser beam means that the technology is also more energy efficient. In addition, laser technology has the advantage of needing considerably smaller communications technology due to its low electromagnetic wavelength. This saves not only weight but makes communications technology even cheaper. Moreover, when using laser technologies, you do not need any (expensive) licences, which is typically the case with radio technology.

Laser communication systems are considerably smaller than radio solutions



Source: Mynaric AG

Due to the particular properties of laser technology, experts are saying this technology will play a key role in the next generation of communications networks (data networks), and it must be stated that current communications networks are already reaching their economic and logistical limits due to the virtually exploding data transfer volume in the past. This rapid increase in data was in particular caused by progressive digitalisation. Future communications networks must be able to manage even greater data volumes in conjunction with transferring data at high speed. This, in turn, is caused by current market trends such as streaming services, e-commerce, the "Internet of Things" (IoT) and "Industry 4.0", along with future topics such as virtual and augmented reality. A very efficient technology is required to meet these high standards. From our perspective, Mynaric's laser technology is particularly suited to this as it was specially developed for commercial use, which requires high quantities and relatively low prices.

Leading technology companies such as Google, Facebook, SpaceX and Telesat are working on large communications networks in the aerospace. The reason for this is on the one hand the global need for a faster and ubiquitous Internet connection and on the other hand the existence of many areas without any Internet connection (approximately three billion people worldwide). For this purpose, they use drones, satellites, high-altitude platforms etc. and wireless laser communication processes so as to be able to connect these flying objects (or enable them to communicate). Due to the great distances between these platforms and the high data rates required, only laser technology is in principle suitable for this purpose.

Overall, this shows the high status this technology currently has. The companies named are also potential business partners for the company.

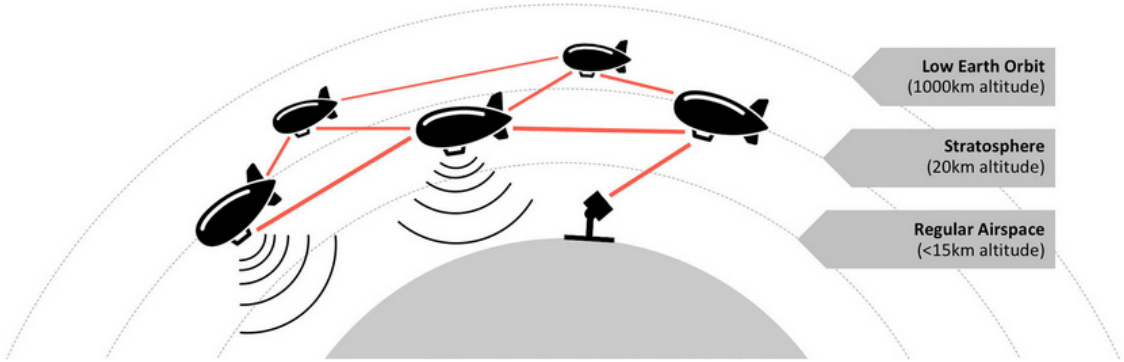
Company	Project
Google	"Google Loon" constellation: Thousands of stratosphere balloons at altitudes of 20km to 30km are to be used to set up a regional dynamic communications network. Objective: To give people in rural and remote regions Internet access. Approximately three billion people worldwide do not have Internet access.
Facebook	Facebook Aquila constellation: Thousands of stratosphere gliders (drones, UAVs) should be used at altitudes of 20km to 30km in order to develop regional dynamic communications network. Objective: To provide a broadband Internet connection for the three billion people worldwide who do not have any Internet access.

Source: Google; Facebook

These communications networks above the clouds typically consist of ground stations and flying objects to enable vast distances to be bridged. In this way, high-altitude platforms, such as balloons, can send a customary radio signal from an altitude of 15km-30km to a user on the ground. The balloons can be connected to each other using laser technology and also to a communications network on the ground that has an air-to-ground data terminal.

Typical examples of laser-based communications networks

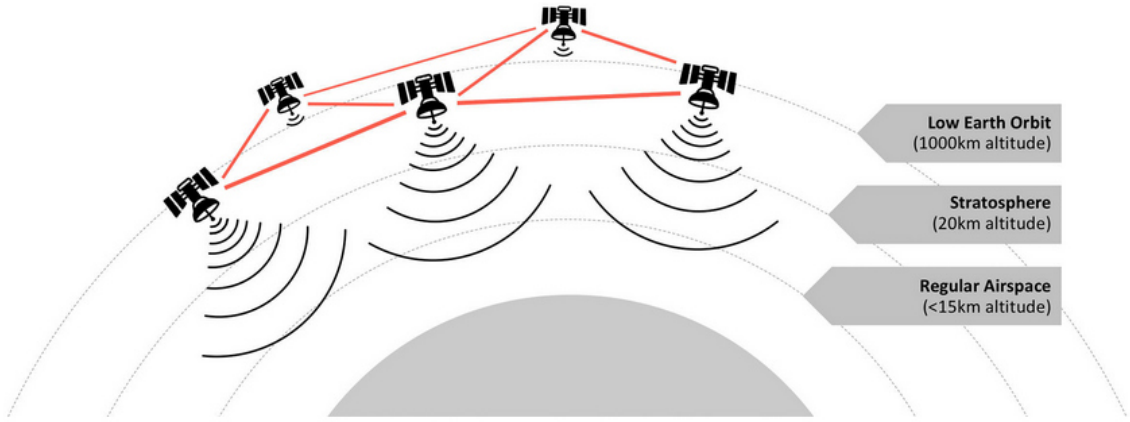
High-altitude networks (e.g. consisting of balloons or UAVs)



Source: Mynaric AG

High-altitude networks can provide end users on the ground with a broadband Internet connection by using laser-supported ground stations and high-altitude constellations (network of flying objects) that in turn use different types of laser terminals (air-to-air terminal and air-to-ground terminal). These high-altitude networks typically consist of a large number of high-altitude platforms that, via typical radio technology, can build a broadband Internet connection for end users at almost any location on earth.

High-volume satellite networks



Source: Mynaric AG

High-volume satellite networks can theoretically consist of hundreds or even thousands of satellites that are interconnected using laser technology. As a result, these data networks are able to send large quantities of data back to earth at great speed.

Satellite projects planned by international technology companies

Company	Project
SPACEX	Two planned constellations: - 4,425 satellites as part of the "LEO constellation" at an altitude of between 1,100km and 1,325km - 7,518 satellites as part of the "VLEO constellation" at an altitude of between 336km and 346km Objective: To provide a broadband Internet service for domestic, commercial, institutional, governmental and professional users worldwide.
OneWeb	Two planned constellations: - 720 satellites as part of the LEO constellation at an altitude of 1,200km - 1,280 satellites as part of the MEO constellation at an altitude of 8,500km Objective: To provide broadband Internet globally to corporate customers, telecommunications customers and private customers. The start of operative business is planned for 2020.
Telesat	Two planned constellations: - 117 satellites as part of the "Ka-band LEO constellation" at an altitude of between 1,100km and 1,250km - 117 satellites as part of the "V-band LEO constellation" at an altitude of between 1,100km and 1,250km Objective: To provide a broadband Internet connection for parts of the world with insufficient Internet access, and which have few communication alternatives.

Possible fields of application of Mynaric's laser technology

Laser technology can be used to provide broadband Internet through high-altitude networks if the **classic terrestrial telecommunications infrastructure is too expensive (uneconomical) or logistically impossible.**

Furthermore, a laser-based communications network between satellites and earth **helps avoid a current data transfer bottleneck.** The earth observation satellites currently in circulation generate 30% more data than they can send back to earth. The use of laser technology could resolve this bottleneck if there was a laser-supported connection between space and earth.

High-volume satellite networks that consist of several hundreds or even thousands of satellites can produce a **broadband Internet connection on any location on earth.** Laser communication is one of the only technologies that can be employed to connect satellites if the requirements of high data transfer speed, low energy consumption and low weight for satellites are to be met.

Further fields of application can be found in the area of remote sensing/monitoring (remote eye), surveillance-proof communications networks (state or private data networks) or securities trading (high-frequency trading).

Mynaric's product portfolio

Mynaric offers various products and services (maintenance, servicing) concerning the customer's areas of application. The technology company supplies the necessary hardware components in order to connect the customer's high-altitude platforms, drones and satellites, and to produce a connection to earth using laser technology. The company's products can be divided into three groups:

Optical ground stations: enable laser-based communication between earth and air or space objects and near-earth communication between two ground stations.

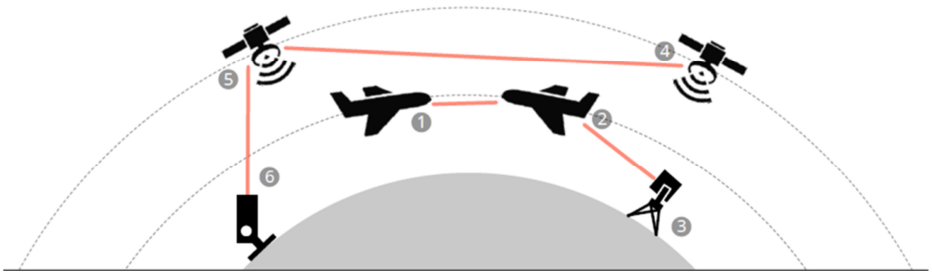
Air terminals: create an air-to-air and air-to-ground connection with ranges of up to 200 kilometres.

Space terminals: enable a broadband Internet connection between satellites and between satellites and earth. They can bridge distances of up to 4,000 kilometres.

Current Mynaric product portfolio

	Cross link terminal	Ground link terminal	Ground station
Airspace	600km bridgeable distance, 10 Gbps data transfer rate, 5kg-12kg weight, 40W energy consumption* (1) *Available for production*	50km bridgeable distance, 10 Gbps data transfer rate, 8kg-12kg weight, 80W-120W energy consumption* (2) *Available for production*	50km bridgeable distance, 10 Gbps data transfer rate*, (3) *Available for production*
Space	4,000km bridgeable distance, 10 Gbps data transfer rate, 15kg weight, 40W energy consumption* (4) *In development, available end of 2018*	1,400km bridgeable distance, 10 Gbps data transfer rate, 10kg weight, 60W energy consumption* (5) *In development, available end of 2018*	1,400km bridgeable distance, 10 Gbps data transfer rate* (6) *Available for production, first operative use start of 2018*

Source: Mynaric AG; GBC AG ** typical system parameters*



Source: Mynaric AG

Previous and planned hardware tests and demonstrations

As part of its development activities, Mynaric has already been able to produce around a dozen pre-series products (ground stations, laser terminals), mainly as customer orders, and develop the necessary electronics, mechanics, optics and software. The laser technology produced by the company has also been successfully tested, thereby considerably reducing classic product development risks.

Year	Project
2012	Test order (demonstration) from Airbus subsidiary Cassidian: Supply of a laser terminal for air-to-ground communication and successful test series in collaboration with the DLR in 2013.
2014	Test order: Supply of two laser terminals for air-to-air communication; successful test series in 2016.
2015	In collaboration with the DLR, a ground-to-ground laser telecommunication connection could be successfully demonstrated between two Spanish islands (distance: 145km).
2016	First major customer test order for the US subsidiary Mynaric USA Inc. (volume: over USD 1 million). Supply of an optical ground station for satellite-to-ground laser telecommunication
2016	Mynaric was able to create an air-to-air connection in the US between two flying platforms (balloons) with 1 Gbps (20km altitude, distance: 80km).
2017	Test order (volume: over €1.5 million, eGBC): Demonstration of an air-to-ground connection in the US (10 Gbps)
2017	Test order (volume: €1.0m, eGBC): Demonstration of an air-to-air connection by using two air terminals
2018e	After initial hardware tests with the US company Airborne Wireless Network, comprehensive tests are now planned for 2018. As part of these tests, up to 20 aeroplanes are to be fitted with laser technology, thereby overall creating a laser-based broadband communications network above the clouds with a connection to the ground.

Source: Mynaric AG; GBC AG

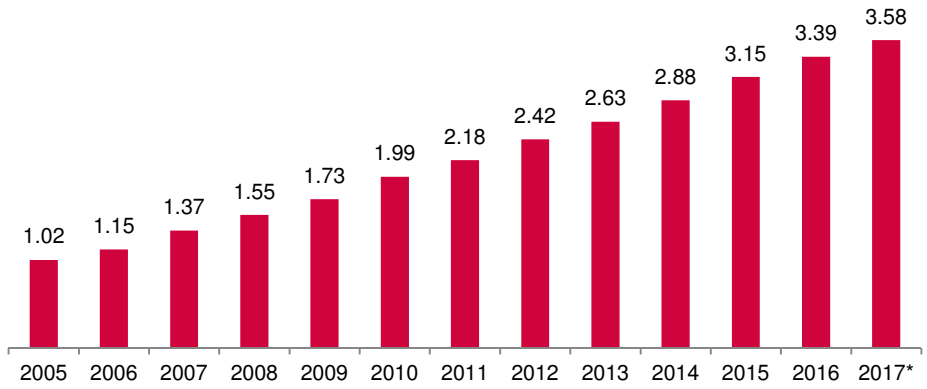
MARKET AND MARKET ENVIRONMENT

The laser-based products (laser terminals, ground stations) developed and manufactured by Mynaric should in future be used by customers to transfer large amounts of data between aerospace objects (aeroplanes, balloons, satellites etc.) and/or between such objects and the ground. In this context, future customers are planning the creation of an Internet “above the clouds” in the form of networks of flying objects (known as constellations) that are interconnected by means of laser technology.

Global Internet demand and data transfer online

As far as the company is aware, at this point in time wireless laser communication technology in aerospace is only used for data transfer purposes as part of pilot projects and demonstrations. The market for wireless laser communication using laser terminals and ground stations is therefore a still young and underdeveloped market that is at the start of development.

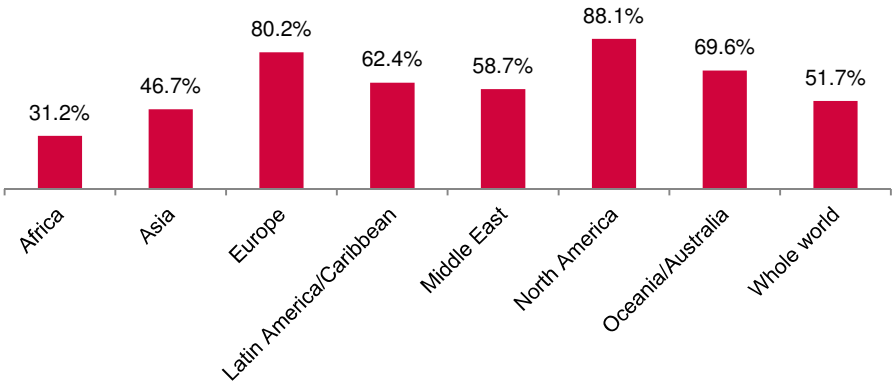
Number of global Internet users (in billions)



Source: Statista; GBC AG

The global increase in amounts of data to be transferred and the increasing need for faster Internet connections everywhere, in particular caused by progressive digitalisation, requires the expansion of the international communication infrastructure. The persistent digitalisation trend, that is penetrating more and more areas, has almost tripled the number of global Internet users in 2016 compared to 2006 to 3.39 billion people. It must also be mentioned that according to the studies of “Internet World Stats”, 3.0 billion people worldwide do not have any Internet connection. In addition to some regions in industrial nations (known as “white spots”), this particularly affects developing countries.

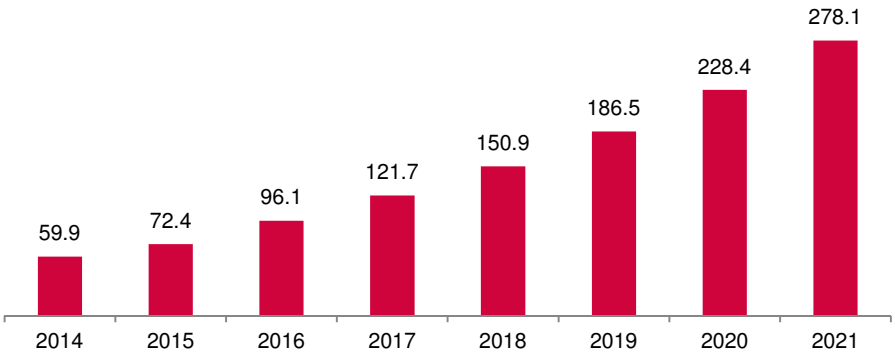
Global Internet penetration rate



Source: Internet World Stats; GBC AG

In parallel, and even more significantly in comparison to the number of users, data transfer online has risen, which is essentially caused by the increasing use of video. According to study estimates by the network specialists Cisco, the data volume of 2014 increased from 59.8 exabytes/month by 60.7% to 96.1 exabytes/month in 2016. Experts are also expecting a considerable increase in the data transfer volume in future. Data transfer between 2016 and 2021 should on average gain 24.0% (CAGR).

Global Internet data transfer (exabytes/month; 1 exabyte = 1 billion gigabytes)



Source: Cisco; GBC AG

Communication infrastructure and strategic positioning

However, expanding the existing communication infrastructure will be challenging. Customary data transfer technologies such as near-ground fibre-optic cables or radio technologies are too expensive and inefficient for global (comprehensive) high-speed Internet provision. For example, installing an underwater fibre-optic cable across 3,000 kilometres costs around €100 million. In addition, setting up a radio network requires a dense network (e.g. every three kilometres) of radio masts and expensive radio licences. It must also be mentioned that current radio technology is quickly reaching its limits in terms of capacity. All in all, the current infrastructure is reaching its logistical and economic boundaries.

Mynaric is focusing on manufacturing and marketing its products to customer groups from the business world, and is therefore not aiming for any in-house developments for military or government-related applications. The technology company sees regional business potential in the short and medium-term, in particular in North America and Asia.

On the one hand, this is based on the fact that many potential customers who have the necessary financial resources and technical opportunities to create large laser-supported communications networks have their head offices in and focus their business on the US. In addition, Mynaric's business relationships to date have also shown that the largest customer group is located in the US. It is in light of this that the American subsidiary Mynaric USA Inc. was also founded. On the other hand, many countries with high economic growth rates are located in Asia, which leads to a heightened demand for broadband Internet connections and Internet provision in these countries. This in turn shows the ever-increasing drive for innovation in these countries. More and more international leading technology companies originate from Asia and are intensively investing in innovative technologies. In keeping with these facts, Mynaric expects massive investment in laser communication technology to be made in these countries in the future.

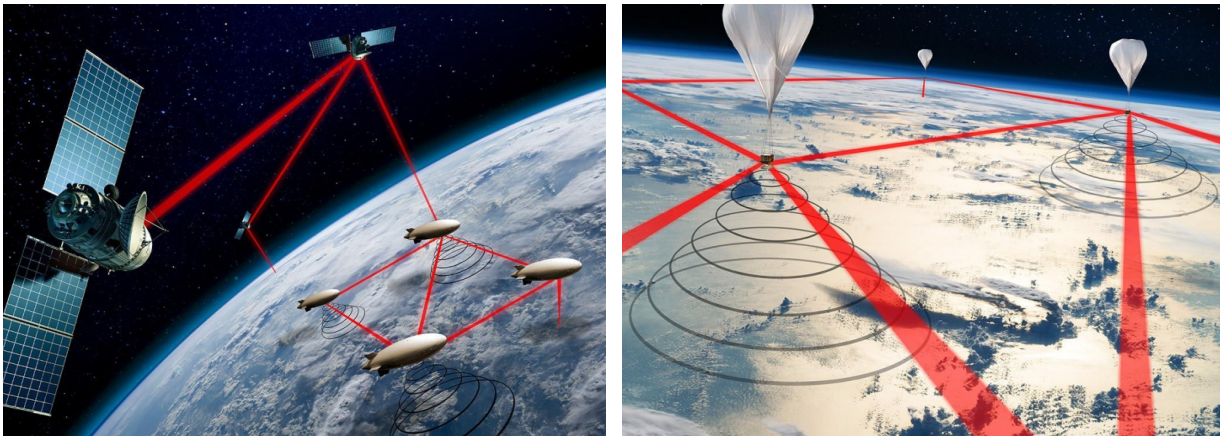
Wireless laser communications networks

Wireless laser communication for aerospace applications (e.g. for a satellite-to-satellite or satellite-to-ground connection) is currently mainly being explored as part of state-financed projects (e.g. NASA or DLR projects) or for military purposes, and is being tested by means of so-called demonstrations. The tested products are usually individually produced and the manufacturing costs often lie within the two-figure million area. Large corporations such as TESAT-Spacecom (Airbus), Ball Aerospace, Hensoldt and General Atomics contribute to this. As Mynaric is convinced that the commercial fields of application will considerably exceed military areas of application, the company has strategically focused on the commercial use of laser communication technologies in the air and space. Based on this positioning, the company's products and laser technologies are already being developed and manufactured for a broad area of application, thereby enabling cost-effective serial production. The costs for such hardware should also be considerably less than the costs of state-financed projects in aerospace accordingly.

The future market for wireless laser communication in the air and space is particularly based on the vision of creating dynamic laser communications networks and therefore "Internet above the clouds". The company's expectations with regard to the future communications network infrastructure are based on discussions with customers, the company's own expertise and market trends (such as "New Space", a synonym for the commercialisation of space). Mynaric assumes that global communication in future will only be possible with the inclusion of aerospace and, simultaneously, with the use of laser communication technologies. Renowned international technology companies such as Google, SpaceX and Facebook are also of this opinion, as are the experts.

We also assume that in view of the superiority of laser communication technology compared with its alternatives like radio, this technology will adopt a significant role in the next generation of wireless communications networks. At the technological level, the advantages compared with radio technology clearly lie in increased broadband (more gigabytes/second are technically possible), better energy efficiency (more than 1,000 times greater) and greater security. Furthermore, this technology also offers considerable economic advantages compared to conventional communications technologies. For potential customers like network operators, the use of laser technology is far more attractive in terms of costs, as no fibre-optic cables have to be deployed in the ground and large distances of several hundred kilometres can be bridged with just a few flying objects (such as satellites, aeroplanes or balloons). As a result, new and lucrative business models are opening up for many companies, as is the provision of broadband Internet services in remote areas.

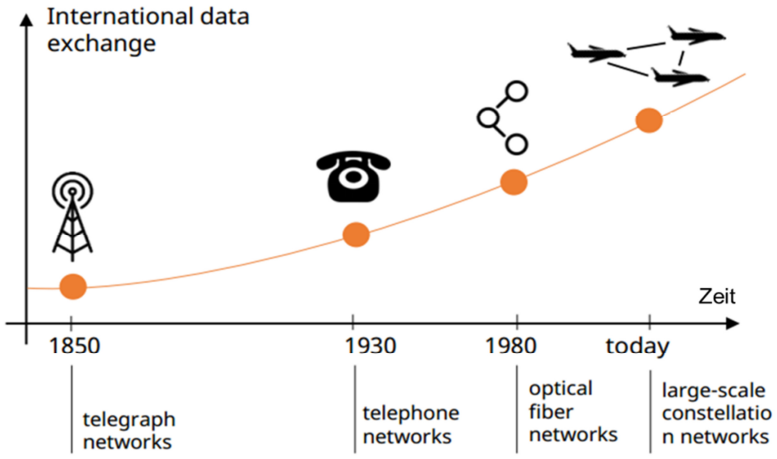
Laser-based communications network "above the clouds"



Source: Mynaric AG

Internet today largely consists of fibre-optic cables deployed in the ground that enable an Internet connection at high speed thanks to high data transfer rates. We believe that this communication infrastructure will in future be complemented by a wireless laser communications network above the clouds in the form of networks of flying objects (known as constellations, for example consisting of aeroplanes or satellites). As a result, our current communications network infrastructure could achieve a high level of development.

Development of the communications networks over time



Source: Mynaric AG; GBC AG

Projects in connection with laser-based communications networks

Future potential sales markets are shown below for Mynaric Group products that result from current commercial projects, mainly from large international technology companies.

Large Internet corporations such as Google (Project Loon) and Facebook (Project Aquila) have been working on sending their planned high-altitude platforms of flying objects (balloons and drones) into the air for some years now. Both companies have already been testing the use of wireless laser communication technology for a few years in connection with their planned networks of flying objects.

Facebook‘s “Aquila Project“

Source: Facebook

Laser communication is to be used in Facebook’s Aquila project in order to interconnect stratosphere gliders flying at high-altitude (sporty flying objects for use in the stratosphere) and to connect them with the ground, thereby also enabling a broadband Internet connection for isolated regions. For this field of application, three to four air laser terminals are required by Mynaric per stratosphere glider and several ground stations. As Mynaric has already manufactured and successfully tested laser terminals and ground stations for this stratospheric field of application, we see a potential sales market for the company with this project.

In the case of the Google Loon Project, laser communication is to be used to interconnect stratospheric balloons, which then provide an Internet connection even in remote areas. Also, in this instance, three to four air laser terminals and several ground stations would be required from Mynaric. Accordingly, we also see a potential sales market here for the company's products.

Google’s “Loon Project“

Source: Google

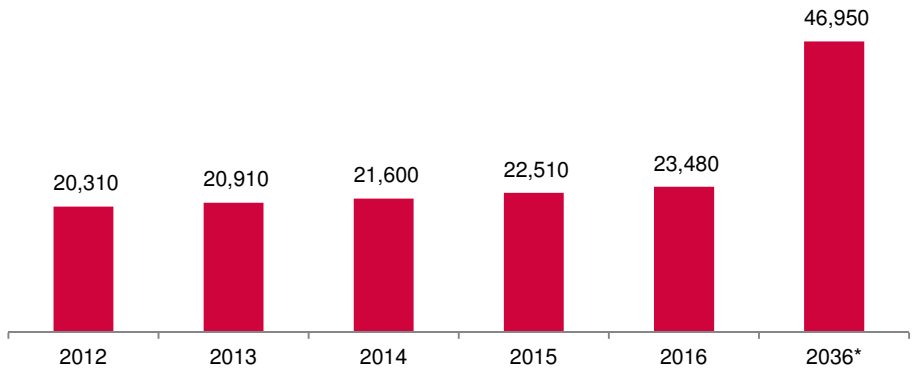
The American company Airborne Wireless Network (Airborne) is striving to build a wireless laser communications network in the air using aeroplanes such as passenger or cargo aircraft. Laser technology is also to be used in this instance to connect aeroplanes with other planes and the ground so as to provide a broadband Internet connection in the aeroplane (“in-flight entertainment”, flight data transfer to the ground). Furthermore, in a second stage, the aeroplane's Internet could be provided for use for other persons on the ground (reselling the Internet).

Laser-based communications networks between conventional aeroplanes

Source: Mynaric AG

In light of this, Airborne is endeavouring to collaborate with the laser specialists Mynaric in order to implement its ambitious projects. Within this context, on 28 August 2017 Mynaric announced the conclusion of a design and manufacturing agreement with Airborne. According to this agreement, Mynaric's laser communication technology is to be tested in a demonstration project using up to 20 connected aeroplanes. Per aircraft three to four of the company's air laser terminals and several ground stations will be required to build the communications network for such a project. There is also a potential sales market for the company here, where it must be stressed that the conclusion of an agreement with Airborne is also an important milestone in the direction of serial production. Overall, the potential market for communications technology on aeroplanes is enormous as the number of aeroplanes is huge and is constantly growing at the same time. The global number of aeroplanes in operation grew by 15.6% from 2012 to 23,480 aeroplanes. According to the aeroplane manufacturer Boeing, the global number of aeroplanes should increase to 46,950 aeroplanes by 2036.

Global number of aeroplanes (aeroplanes in operation)



Source: Boeing (Market Outlook); GBC AG

The further development of the market for professional drones and other flying objects such as solar-operated drones, Zeppelins or high-altitude platforms (HAPs), should have a positive effect on the market development for the creation of laser communications networks consisting of flying objects, as progressive development of such flying objects offers additional areas of application for laser communication technologies. Important manufacturers who are involved in the creation of such platforms in order to use laser-

supported communications networks are: Thales Alenia, Airbus and Raven. These companies are potential customers for Mynaric.

Companies that plan the creation of high-volume satellite networks (known as constellations) in space and also to publicly communicate these networks include Telesat, SpaceX, Kaskilo and Leosat. These satellite networks are normally composed of a few hundred to a thousand satellites that are supposed to be located in the low earth orbit. According to US officials, the Federal Communications Commission (FCC), which is responsible for issuing radio frequencies, technology companies like Telesat, SpaceX and Leosat have announced they will use wireless laser communications technology - which has not yet been regulated - in future to interconnect satellites. However, other companies like Kaskilo publicly announce that they are basing their satellite systems on laser technology.

Laser-supported satellite networks

Source: Mynaric AG

The following table provides an overview of technology companies that are planning to create laser-supported satellite networks (constellations) and that are therefore potential business partners for Mynaric.

Company	Constellation
SpaceX	Creation of constellation in several stages: 1 stage: 1,600 satellites 2 stage: 2,825 satellites (altitude: 1,100 to 1,325 kilometres) 3 stage: 7,518 satellites (altitude: 340 kilometres) Total number of satellites: 11,943
Kaskilo	Constellation of 300 satellites (altitude: 1,100 kilometres)
Telesat	Creation of constellation in several stages: 1 stage: 117 satellites (altitude: 1,000 to 1,250 kilometres) 2 stage: 117 satellites (altitude: 1,000 to 1,250 kilometres)
Leosat	Creation of constellation in several stages: 1 stage: 78 satellites 2 stage: 30 satellites (altitude: 1,400 kilometres)

Source: FCC; Kaskilo; GBC AG

When interconnecting satellites within the planned satellite network, three to four space laser terminals are required per satellite when using Mynaric's laser technology. Mynaric is currently developing them for this field of application.

To the best of the company's knowledge, the market for creating satellite networks in space is closely connected with the market development in the area of commercial space ("New Space"). In order to be able to set up high-volume satellite networks in space, the costs for their use also need to be massively reduced from their current level. At present, costs for a typical space satellite are around €250m. An additional two-figure million amount would be incurred for transporting the satellite into space. Based on this cost structure, large satellite constellations are not feasible at present. However, a large number of technology companies, particularly in the US, are currently working on implementing commercial business models in space which is in parallel to the classic subsidised space business.

In this way, some companies like SpaceX, Blue Origin, Virgin Galactic and Rocket Labs have specialised in developing cost-effective carrier rockets, for example for transporting satellites. In contrast, other companies are focusing on the serial building of satellites or earth observation on a large scale in order to reduce the manufacturing costs for satellites, thereby reducing the enormous costs of building satellite constellations in space in future. This is because such satellite networks must be economical in order for such constellations to be feasible. A further positive market development in the "New Space" area would in future offer additional application potential, and therefore sales potential, for Mynaric's products.

All in all, it is shown that the existing communications networks need to be expanded in order to meet the needs of increasing data transfer quantities and the increasing demand for a quicker and omnipresent Internet connection. For economic and logistics reasons, customary technology is not suited for this purpose. With all of its advantages over the alternatives, wireless laser technology is predestined for this purpose, where Mynaric has also been able to confirm this through its previously successfully conducted tests with research institutions and customers. Three customer groups and main fields of application for laser technology are of particular importance for Mynaric. On the one hand, this includes customers interested in building a network of laser-based ground stations. A second group includes companies that want to set up a network of laser-support platforms (e.g. aeroplanes) in airspace. The third group represents companies that would like to build a laser-based satellite network in space. It must be highlighted that acquiring a customer from one of the groups named means that Mynaric could generate high sales volumes in future. This is especially true in light of the fact that these clients are generally major clients, leading to an accordingly high amount of units. On the other hand, if a customer decides to choose Mynaric as a part of its system after a successful laser technology test, then it will also obtain this technology from Mynaric in the long-term as its system has been configured around Mynaric's technology (strong lock-in effect, binding effect).

All things considered, we assume that the future market for creating laser-based aerospace communication networks will reach a similar volume as the current market for optical communications networks on the ground using fibre-optic cable technology. According to the experts of "Markets and Markets" in 2017, the market for optical communications networks achieved an estimated volume of $17bn, where in future further market growth of 10.5% per year is expected.

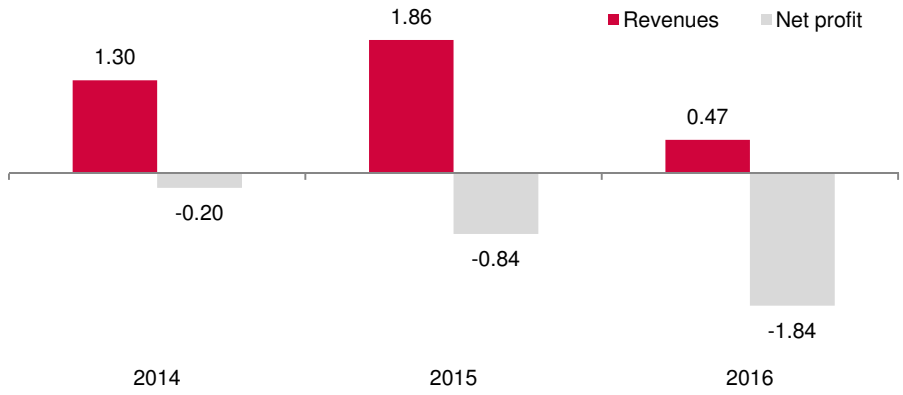
HISTORICAL DEVELOPMENT OF THE COMPANY

in € millions	FY 2014*	FY 2015*	FY 2016*
Revenues	1.30	1.86	0.47
Change in inventory	-0.17	-0.38	0.17
Capitalized service	0.00	0.00	0.04
Other operating income	0.10	0.31	0.65
Material expense	-0.44	-0.42	-0.37
Personnel expense	-0.57	-1.24	-1.91
Depreciation	-0.04	-0.10	-0.13
Other operating expenses	-0.37	-0.87	-0.76
EBIT	**-0.20**	**-0.84**	**-1.84**
Interest expenses	0.00	0.00	-0.01
Net profit	**-0.20**	**-0.84**	**-1.84**
Cash and cash equivalents	0.33	0.71	0.23
Equity *(equity ratio)*		1.48 *(85.0%)*	0.26 *(13.5%)*

Source: Mynaric AG; GBC AG **The business figures relate to the operative subsidiary of Mynaric (Mynaric Lasercom)*

In the past three financial years, Mynaric AG or Mynaric Lasercom GmbH focused on developed pre-series products in order to be able to use them for test and demonstration purposes for potential customers. Thanks to the resulting relatively low sales levels and increasing R&D expenses, this naturally led to a negative net result.

Development of revenues and results (in € millions)



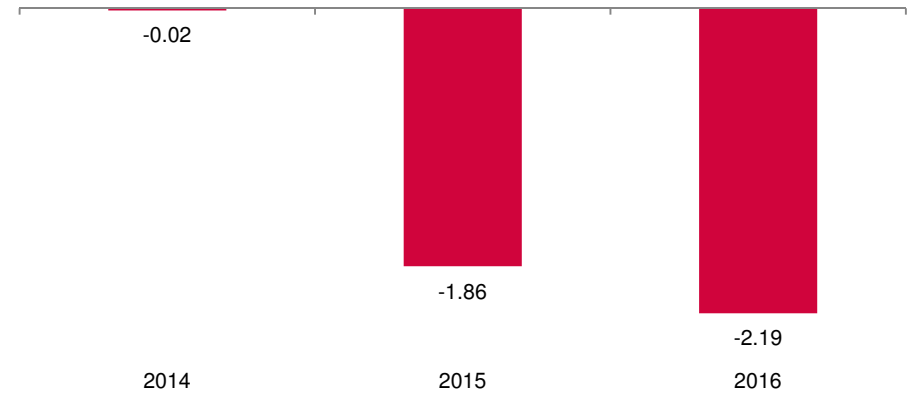
Source: Mynaric AG

All company sales generated to date are based on product demonstrations paid for by major customers, in particular in the area of the laser terminals developed by Mynaric for air applications or preliminary design studies. For this purpose, laser terminals were finished as pre-series products and ground stations were finished for air-to-air and air-to-ground communication on behalf of customers and were tested for their performance in the further course of the year. The overwhelming part of sales from the previous year were generated by the production and correlated demonstration of a total of three air laser terminals for two major customers in the US. Additional significant sales were made thanks to the production and demonstration of two ground stations for two further customers in the US.

The product demonstrations to date were individual connection tests such as testing the communication connection from laser terminal to laser terminal or from the air ground terminal to the air laser terminal. Comprehensive product demonstrations with several

flying objects are planned for the near future (manufacturing agreement with Airborne Wireless Network, including comprehensive tests).

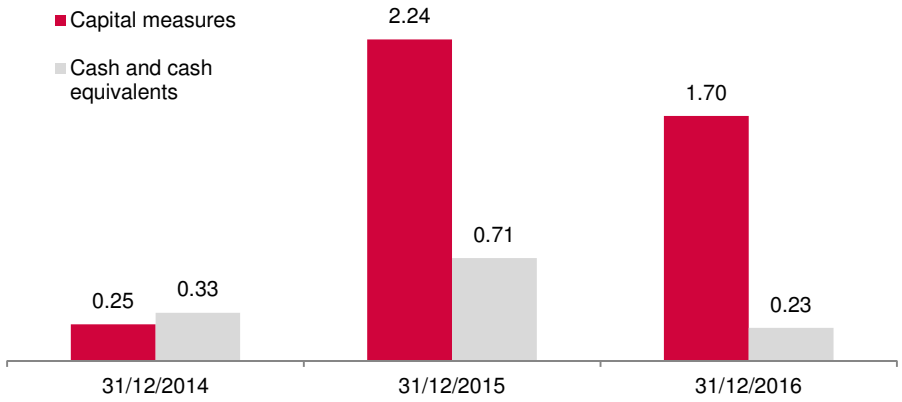
Free cash flow since 2014 (in € millions)



Source: Mynaric AG; GBC AG

The pre-series products were financed in recent years mainly through equity. Many capital increases were made in order to do so. Together with issuing bonds, taking out financial credit and obtaining investment grants, the company has raised liquid means of €4.19m since 2014. As a result of this, the accumulated free cash flow of €4.07 was more than offset. In addition, in the past financial year (2016), €1.71m was collected as part of a capital increase, issue of bonds, taking out financial credit and investment grants.

Capital measures and liquidity development (in € millions)



Source: Mynaric AG; GBC AG

Furthermore, as part of the IPO this year, financial means of €27.3m (gross issuing proceeds) could be raised from investors, thereby strengthening its capital basis. With this, the technology company has liquid funds of €0.35m as of the end of the first half-year of 2017 (reporting date: 30/06/2017).

SWOT-Analyse

Strengths	Weaknesses
• Experienced and competent management with expertise in managing companies and high technical expertise, in particular in laser technology. • Close R&D cooperation with the German Aerospace Center (DLR), one of the largest German research organisations. • Very good company network within the aerospace industry and neighbouring industries such as the Internet industry and the telecommunications industry. • Strong market position thanks to technology leadership in the commercial use of wireless laser technology (“first mover advantage"). • Significant participation by the management in the company	• Dependence on individual key persons, in particular in the areas of management and technology • Generally small-sized company with associated low financial strength and continuous high dependence on external sources of financing. • The business is highly dependent on acquiring projects and major customers. • High dependence on the suppliers of hardware components (sub-systems for the company’s own end assembly). • High dependence on US business
Opportunities	**Risks**
• Growth market for creating laser-based communications networks in air and space; high growth potential is expected in this new market; in the long-term, a multi-billion market is forecast • Lucrative maintenance, repair and servicing income • High technological complexity generates high market entry barriers for new competitors. With market volume growing in parallel, high growth potential results • Expansion of the range of services to system suppliers could open up additional growth potential and simultaneously further increase the degree of differentiation • Possible acquisition target for international leading Internet and technology companies	• The market for creating laser-based communications networks could develop differently than expected. • It is possible that customers will not accept the technologies developed by Mynaric, thereby reducing sales potential. • High dependence on the willingness of potential customers to invest. This, in turn, is dependent on the global economy and the development of the market for communications networks. • High dependence on US business as a large part of test customers and cooperation partners (Airborne) come from this region.

FORECAST AND MODEL ASSUMPTIONS

Strategy

The company's strategy is to aim to be the leading international provider of products for commercial aerospace communication networks. The laser communications technology developed forms the basis of this and is currently also the main focus of business activity.

The company's strategy is geared towards international customers who are prepared to invest in the creation of communications networks for international telecommunication. Four important pillars for Mynaric's strategy (see image below) result from the strategies and possible business models of such potential communications network operators.

Strategic positioning

Source: Mynaric AG

In the event of a successful and high-volume creation of laser-based communications networks, the market for laser communication should far exceed the market for military or governmental laser applications. The company therefore focuses on commercial applications of the laser technology they developed, which leads to a high number of units and serial production accordingly. Mynaric has therefore based its strategy on commercial applications.

A further important cornerstone is the constant cost reduction of laser communication systems in order to enable commercial use in communications networks and therefore be able to make use of the maximum market potential. Achieving serial production is the main deciding factor in optimising costs. The company's products are designed in a special way so that they are tested and finished in series and the customer can use a high number of units. Mynaric sees itself as a system integrator. The aim of product development is therefore that the product is composed of sub-systems and can be assembled in the company's production premises into one system, which can be easily adjusted to specific customer requirements. When dealing with sub-contractors, the company takes care to ensure they can also supply high numbers of units within a short period of time. The company also focuses on suppliers who offer serial-produced components that are available for a broad range of customers and do not need to be specially made for the company.

Furthermore, the company has strategically positioned itself in such a way that if the communications network market develops positively, its product portfolio based on laser technology can be expanded to related products and services (system providers ap-

proach). Through in-depth discussions with customers and technical discussions, Mynaric has been able to build comprehensive and profound industry knowledge. As a result, further business fields should emerge in future for the company if the creation of laser-based communications networks requires certain services or the development of additional products. Customers so far are already increasingly asking for more comprehensive services from the company. These new business fields could, for example, include complete solutions, additional technical devices, installations, product commissioning and maintenance or operating systems.

In addition, the international direction of the company to tap into new markets is a significant element of the strategy, as both the competition and range of customers will focus on international, major companies. In light of this, Mynaric aims to build international structures, e.g. in the form of regional subsidiaries in attractive potential markets in order to win over new customers at an early stage (“first mover advantage”) and be able to strengthen its own competitive position as a result. As part of the expansion strategy, the US subsidiary Mynaric USA shall be expanded, thereby broadening the number of customers in the US.

Overall, the company would like to develop itself into a competent partner for laser communication technologies in the commercial area of application and, in the long-term, as a diversified partner at product and country level (one-stop-shop, internationalisation) for building laser-supported communications networks in the air and space.

Forecast and model assumptions

P&L (in €m)	FY 2016	FY 2017e	FY 2018e	FY 2019e	FY 2020e	FY 2021e	FY 2022e
Revenues	0.47	3.30	12.20	37.34	92.31	258.16	406.21
EBITDA (*margin*)	-1.71 (*neg.*)	-3.12 (*neg.*)	-3.56 (neg.)	2.76 (*7.4%*)	16.37 (17.7%)	59.57 (23.1%)	109.47 (27.0%)
EBIT (*margin*)	-1.84 (*neg.*)	-3.23 (*neg.*)	-3.68 (*neg.*)	0.59 (*1.6%*)	9.32 (10.1%)	50.27 (19.5%)	98.74 (24.3%)
Net profit	-1.84	-3.23	-3.68	0.59	7.92	35.19	69.12

Source: GBC AG

Revenue forecasts

In recent years, Mynaric AG mainly invested in further developing its laser technology and built its necessary marketing capacities with the foundation of the US subsidiary Mynaric USA Inc. In addition, the products' performance could be successfully demonstrated with several potential customers (test series). After individual connection tests, comprehensive tests with customers are now to be conducted. In this process, initial success was achieved thanks to the design and manufacturing agreement concluded with Airborne this year. The aim of this project is to build and test a laser-based communications network consisting of several aeroplanes. Thanks to this cooperation, another important step was taken in the direction of serial production.

At the same time, production should be expanded so as to be able to supply the high number of units for the pending comprehensive tests and to prepare for the planned serial products. Furthermore, with the development of the space terminal (available at the end of 2018), the company is working on expanding its product portfolio where ground stations for a communication connection with space are already available and the first customer tests and planned for the start of 2018. In addition, internationalisation shall continue to move forward.

We assume that Mynaric shall be able to obtain high market shares in the coming years thanks to its "first mover advantage" which is in particular based on its innovative laser technology. In light of this, we expect very dynamic sales growth in future. Mynaric supplies three potential customer groups (air terminal customers, space terminal customers and ground station customers). Group sales proceeds can therefore also be divided into these three different segments: air, space and ground stations.

We expect that the air segment will show the highest growth rates in the coming years at sales level. This is based on the fact that, in comparison to the space segment, Mynaric is already developing the hardware necessary for its potential customers in the air segment and has already concluded a manufacturing agreement with the American company Airborne Wireless Network. Furthermore, the first high-volume laser-based communications networks should emerge in the air segment as it is less complex and cheaper to realise than communications networks in space.

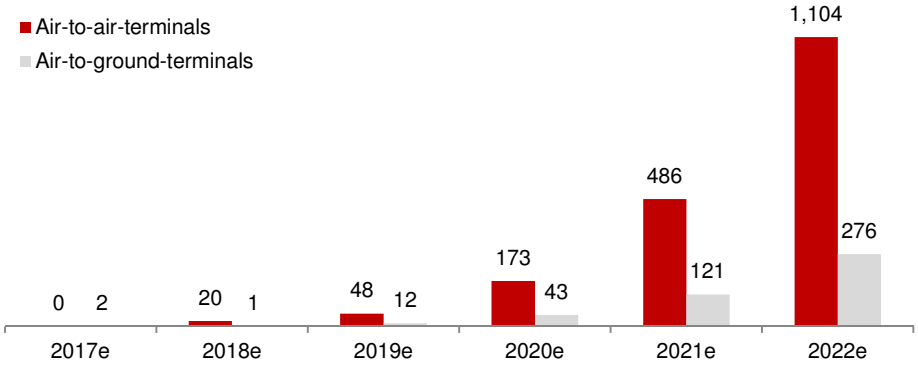
Expected segment revenue and sales development

Air segment

Based on the manufacturing agreement concluded with Airborne and the positive course of the comprehensive tests, we assume that the air segment will develop very dynamically in the coming years. From our perspective, Airborne will most likely be the main driver for future turnover and sales development in this business field. This partnership should already start to bear fruit in 2018 and lead to a clear and noticeable effect on sales growth in this segment as several aeroplanes have been fitted with laser technolo-

gy as part of the collaboration, which should therefore positively influence demand for the company's laser terminals. Mynaric should achieve high levels of turnover and sales in 2020 as this is when the first building of laser-based communications networks could begin. Furthermore, additional test projects with potential customers should spur the company's business on. We assume for 2022 that Mynaric will fit several hundred flying objects (such as aeroplanes) with a total of over 1,000 air-to-air terminals and over 250 air-to-ground terminals.

Expected sales development of air terminals (in units)



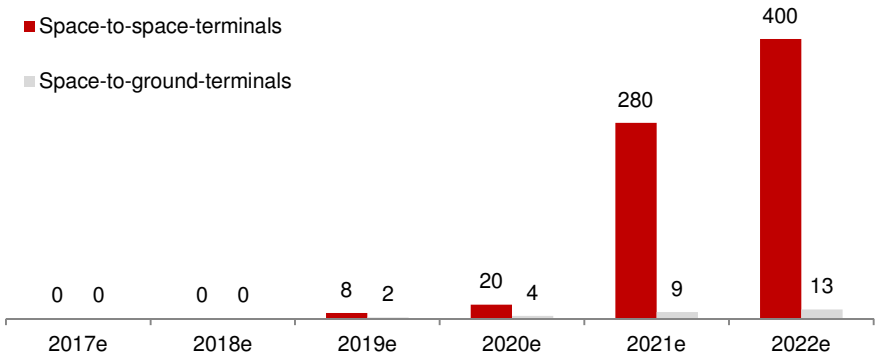
Source: GBC AG

Space segment

In the space business field, we assume that Mynaric will successfully complete the development of space terminals by the end of 2018 and will have built production capacities for serial production in 2019. Based on the high customer demand we expect in this area, we are also assuming a dynamic turnover and sales growth in this segment, which should lead to a significant level of turnover and sales in 2020.

For the 2022 financial year, we expect that Mynaric will achieve a considerable market share and therefore fit a number of satellites with laser technology. As the business models of potential customers require high numbers of satellite units (large constellations), if successful, high levels of turnover could also therefore be achieved. In light of this, we are expecting the sale of 400 space-to-space terminals and 13 space-to-ground terminals for 2022.

Expected sales development of space terminals (in units)



Source: GBC AG

Ground station segment

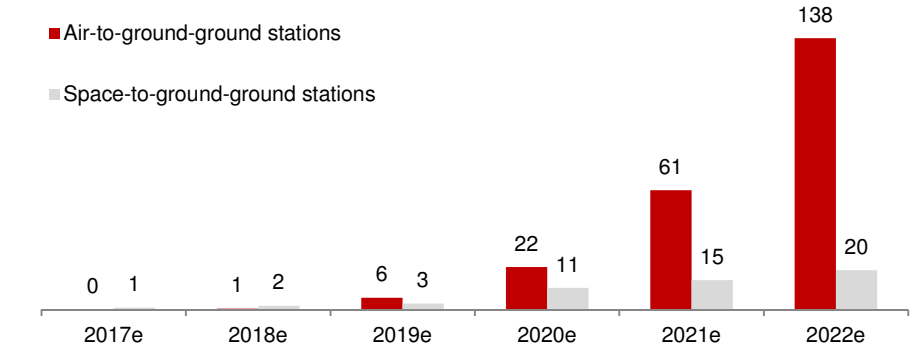
Ground stations are required both for the air segment and space segment and ensure a connection between the near-earth communications networks and flying objects in the air and space (e.g. aeroplanes or satellites).

With regard to sales quantities in the air-to-ground ground stations, we assume that one air-to-ground ground station will be sold for every two air-to-ground terminals (see above) that we expect.

In the space-to-ground ground stations, we expect that business development will mainly be shaped by an existing customer relationship. This customer is planning the construction of a ground station network for a laser-based communications connection between earth and space. Mynaric already sold a first ground station to this customer in 2017 (for test purposes).

The following image shows the sales quantities we expect for each type of ground station.

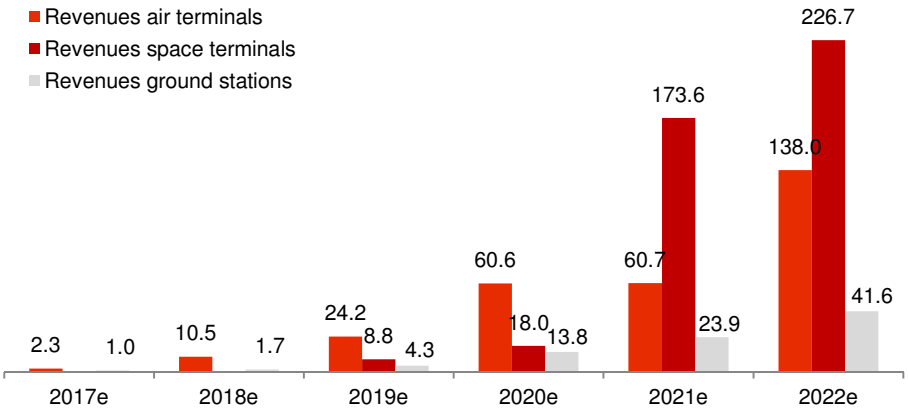
Expected sales development of ground stations (in units)



Source: GBC AG

For the 2017 financial year, we expect that sales proceeds will mainly consist of sales of test products. Subsequent financial years should in particular be characterised by sales proceeds in the air segment. As of the 2021 financial year, we expect that Group sales proceeds will mainly consist of hardware sales from the space segment.

Expected development of revenues by segments (in € millions)



Source: GBC AG

It must be noted that our sales estimates do not take into consideration sales proceeds from maintenance and servicing and from the hardware replacement business. These services would have a positive effect on Mynaric's expected business development.

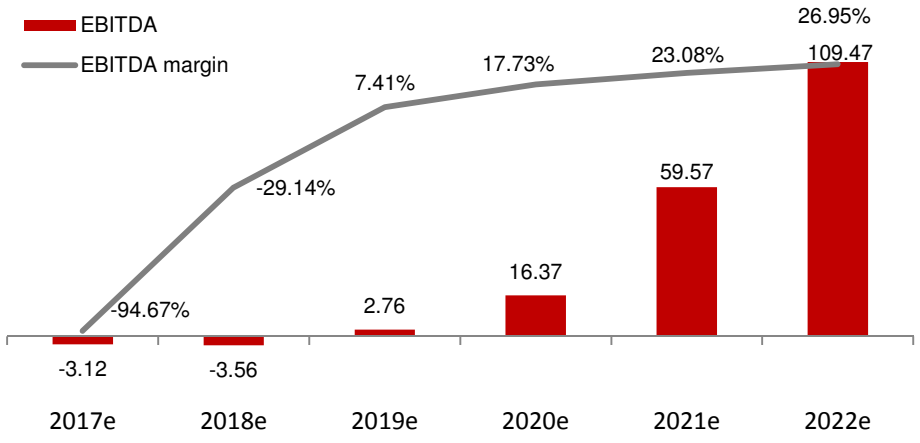
Summary of revenue forecasts

Based on its strong market position (technology leadership in commercial laser communication technologies, “first mover advantage”, international direction) in a future market with expected multi-billion volumes, Mynaric should be able to increase its sales proceeds massively in future. The successful product tests, the conclusion of an agreement with Airborne Wireless Network and great interest from international investors show that the company is already on the way to achieving this.

Profit forecasts

The expected dynamic sales development of Mynaric is also reflected in our profit forecasts. For the ongoing and coming financial year, due to the still relatively low level of sales and high investment in R&D, personnel and marketing, we still expect negative operating results. From 2019 onwards, we should then reach operative break-even. In subsequent years, the operating result should continue to grow very dynamically and achieve €109.5m in 2022. We assume that, in parallel to this, the EBITDA margin shall increase dramatically from the 7.4% expected in 2019 to 27.0% in 2022.

Expected development of EBITDA and the EBITDA margin



Source: GBC AG

We should be able to achieve this through the economies of scale, learning curve effects and the increasing purchasing power that we expect. As a result of the expected high sales dynamics, the fixed costs in the form of management costs, for example, should be distributed across a higher business volume and therefore lead to an improvement of the share of fixed costs (fixed cost degression). Fundamentally speaking, the company’s business model is less personnel and capital intensive (lower vertical integration). Mynaric’s focus mainly lies with design, engineering and hardware and software development in connection with its product range. Furthermore, the modular design of the products allows for rapid end assembly and therefore high product turnover, whereby Mynaric is merely involved with the end assembly of the delivered modules in its production facilities.

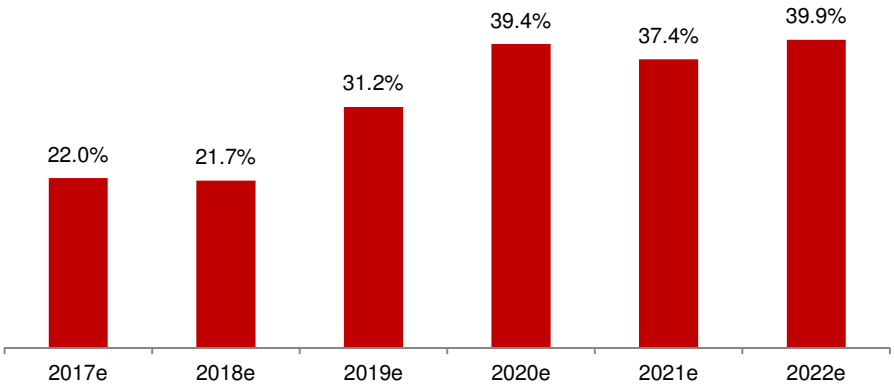
Thanks to the transition to serial production, which we expect in 2018, Mynaric should achieve learning effects during production and therefore also be able to reduce unit costs. The learning curve should allow Mynaric to optimise the design, engineering and

production of its laser products, thereby gaining increased productivity (output optimisation) and achieving lower material costs (for example through the use of other raw materials) (input optimisation).

Moreover, the start of serial production should also have a positive effect on purchasing conditions in future. As a result of a large part of product manufacturing being outsourced, the company can fully concentrate on the end assembly of the supplied modules. These can be used in a number of laser products. As a result of this, Mynaric should be able to increase their purchasing power if serial production is started. We assume that the company will benefit from improved purchasing conditions as of 2019.

The expected learning curve effects and greater purchasing power should help in being able to compensate for the negative effect in the form of the greater pricing power of the customer. In the aerospace industries, considerable price discounts are common when purchasing a high number of products. We assume that potential Mynaric customers will expect price discounts of up to 75.0% when purchasing more than 1,000 product units.

Expected development of gross margin



Source: GBC AG

The aforementioned effects in connection with high product quality (high customer use) should lead to Mynaric being able to generate a high gross margin of around 40.0%, and also being able to sustain this level in the long-term, despite the future increasing pricing power of the customer.

Summary

In the past, Mynaric AG laid a good foundation for being able to significantly benefit from the expected dynamic growth in the future market of laser-based communications networks. As a result of the planned start of serial production, the company should be able to break even in 2019 and achieve a two-figure EBITDA margin in the long-term thanks to the expected high sales dynamics in combination with the economies of scale to be employed.

VALUATION

Model assumptions

We rated Mynaric AG using a three-stage DCF model. Starting with the specific consolidated estimates for the years 2017-2022 in phase 1 and the years 2023 to 2024 in phase 2. We have included the tax rate in phase 2 at 15.0% to 30.0% and in phase 3 at 30.0%. Additionally, after the end of the forecast horizon, a residual value is determined in the third phase by means of a perpetual annuity. As the final value, we assume a growth rate of 2.0 %.

Determining the capital costs

The weighted average cost of capital (WACC) of Mynaric AG is calculated from the equity cost and the cost of debt. The market premium, the company-specific beta, as well as the risk-free interest rate have to be determined in order to determine the equity cost.

The risk-free interest rate is derived from the current structured interest rate curves for risk-free bonds in accordance with the recommendations from the “Fachausschuss für Unternehmensbewertung und Betriebswirtschaft” (FAUB, Special Committee for Business Valuation and Business Management) of the “Institut der Wirtschaftsprüfer in Deutschland e.V.” (Institute of Public Auditors in Germany). This is based on the zero bond interest rate calculated using the Svensson Method published by the German Bundesbank. In order to compensate for short-term market fluctuations, the average returns for the previous three months are used and the result is rounded up to the nearest 0.25 basis points. The value currently used for the risk-free interest rate is 1.25 %.

We set the historical market premium of 5.50 % as a reasonable expectation of the market premium. This is supported by historical analyses of equity market returns. The market premium reflects in a percentage the improved return expected from equity markets relative to low-risk government bonds.

According to GBC estimates, a beta of 2.36 is currently determined. This high value takes into account the high risk. Mynaric has so far only achieved revenues on the basis of customer tests and demonstrations. In addition, the high profit and revenue expectations are uncertain. Using the premises provided, the equity cost is calculated at 14.21 % (beta multiplied by risk premium plus risk-free interest rate). As we assume a sustainable weighting of the equity cost of 90 %, the result is a weighted average cost of capital (WACC) of 13.28 %.

Valuation result

The discounting of future cash flows is based on the entity approach. We have calculated the corresponding weighted average cost of capital (WACC) to be 13.28%. The resulting fair value per share at the end of the 2018 financial year corresponds to the stock target price of EUR 95.00.

DCF Model

Mynaric AG - Discounted Cashflow (DCF) model scenario

Value driver of the DCF - model after the estimate phase:

consistency - phase	
Revenue growth	5.0%
EBITDA-Margin	26.9%
Depreciation to fixed assets	15.0%
Working Capital to revenue	25.0%

final - phase	
Eternal growth rate	2.0%
Eternal EBITA - margin	17.9%
Effective tax rate in final phase	30.0%

three phases DCF - model:

phase	estimate						consistency		final
in Mio. EUR	FY 17e	FY 18e	FY 19e	FY 20e	FY 21e	FY 22e	FY 23e	FY 24e	final value
Revenue	3.30	12.20	37.34	92.31	258.16	406.21	426.52	447.85	
Revenue change	383.0%	269.7%	206.0%	147.2%	179.7%	57.3%	5.0%	5.0%	2.0%
Revenue to fixed assets	1.94	3.17	2.57	1.96	4.16	5.68	5.42	5.47	
EBITDA	-3.12	-3.56	2.76	16.37	59.57	109.47	114.94	120.69	
EBITDA-Margin	-94.7%	-29.1%	7.4%	17.7%	23.1%	26.9%	26.9%	26.9%	
EBITA	-3.23	-3.68	0.59	9.32	50.27	98.74	103.14	108.40	
EBITA-Margin	-97.8%	-30.2%	1.6%	10.1%	19.5%	24.3%	24.2%	24.2%	17.9%
Taxes on EBITA	0.00	0.00	0.00	-1.40	-15.08	-29.62	-30.94	-32.52	
Taxes to EBITA	0.0%	0.0%	0.0%	15.0%	30.0%	30.0%	30.0%	30.0%	30.0%
EBI (NOPLAT)	-3.23	-3.68	0.59	7.92	35.19	69.12	72.19	75.88	
Return on capital	-190.4%	-128.3%	7.7%	32.3%	50.2%	54.6%	41.7%	40.9%	29.6%
Working Capital (WC)	1.17	3.84	10.07	23.08	64.54	101.55	106.63	111.96	
WC to revenue	35.5%	31.5%	27.0%	25.0%	25.0%	25.0%	25.0%	25.0%	
Investment in WC	-0.25	-2.67	-6.23	-13.01	-41.46	-37.01	-5.08	-5.33	
Operating fixed assets (OAV)	1.70	3.85	14.50	47.00	62.00	71.50	78.70	81.90	
Depreciation on OAV	-0.11	-0.13	-2.18	-7.05	-9.30	-10.73	-11.81	-12.29	
Depreciation to OAV	6.2%	3.3%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	
Investment in OAV	-1.03	-2.28	-12.83	-39.55	-24.30	-20.23	-19.01	-15.49	
Capital employment	2.87	7.69	24.57	70.08	126.54	173.05	185.33	193.86	
EBITDA	-3.12	-3.56	2.76	16.37	59.57	109.47	114.94	120.69	
Taxes on EBITA	0.00	0.00	0.00	-1.40	-15.08	-29.62	-30.94	-32.52	
Total investment	-1.28	-4.95	-19.05	-52.56	-65.76	-57.24	-24.08	-20.82	
Investment in OAV	-1.03	-2.28	-12.83	-39.55	-24.30	-20.23	-19.01	-15.49	
Investment in WC	-0.25	-2.67	-6.23	-13.01	-41.46	-37.01	-5.08	-5.33	
Investment in Goodwill	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Free cashflows	-4.40	-8.50	-16.29	-37.59	-21.27	22.61	59.92	67.35	473.74

Value operating business (due date)	207.54	243.61
Net present value explicit free cashflows	9.64	19.42
Net present value of terminal value	197.91	224.19
Net debt	-21.82	-13.31
Value of equity	229.36	256.92
Minority interests	0.00	0.00
Value of share capital	229.36	256.92
Outstanding shares in m	2.70	2.70
Fair value per share in €	84.81	**95.00**

Cost of capital:	
Risk free rate	1.3%
Market risk premium	5.5%
Beta	2.36
Cost of equity	14.2%
Target weight	90.0%
Cost of debt	6.5%
Target weight	10.0%
Taxshield	25.0%
WACC	**13.3%**

ANNEX

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The analysts responsible for this analysis are:
Marcel Goldmann, M.Sc., Financial Analyst
Cosmin Filker, Dipl. Betriebswirt (FH), Vice Chief Financial Analyst

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GBC AG
Halderstraße 27
D 86150 Augsburg
Tel.: 0821/24 11 33-0
Fax.: 0821/24 11 33-30
Internet: http://www.gbc-ag.de

E-Mail: compliance@gbc-ag.de

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- R E S E A R C H & I N V E S T M E N T A N A L Y S E N -

GBC AG
Halderstraße 27
86150 Augsburg
Internet: http://www.gbc-ag.de
Fax: ++49 (0)821/241133-30
Tel.: ++49 (0)821/241133-0
Email: office@gbc-ag.de