



## Research report (research update)



**”Cyber security growth market offers enormous potential; experts anticipate two-figure growth rate“**

**”Through the acquisition of I-New, CYAN has evolved into a system provider for mobile communications companies and has significantly expanded its customer base“**

**”As a result of the I-New acquisition, CYAN is advancing in new dimensions in terms of sales and revenue and has also increased its regional presence and performance“**

**Stock price target: € 49.50**

**Rating: Buy**

#### **IMPORTANT INFORMATION:**

**Please note the disclaimer/risk notice as well as the disclosure of potential conflicts of interest according to Section 85 of the German Securities Trading Act (WpHG) and Art. 20 MAR from page 23**

**Note on research as a “minor non-monetary benefit” according to the MiFID II regulation: This research Meets the requirements for being classified as a “minor non-monetary benefit”. For more information, see the disclosure under “I. Research under MiFID II”**

#### **English version**

**Date and time of completion of the report: 10/12/2018 (09:40 am)  
Date and time of the first distribution: 10/12/2018 (10:30 am)  
Validity of the price target: until max. 31/12/2019**

#### **German version**

**Date and time of completion of the report: 29/11/2018 (9:58)  
Date and time of the first distribution: 29/11/2018 (10:30)  
Validity of the price target: until max. 31/12/2019**

## CYAN AG<sup>\*5a;5b;11</sup>

**Rating: Buy**  
**Stock price target: € 49.50**

Current stock price: € 22.80  
28/11/2018 / Xetra (Close)  
Currency: EUR

### Key Figures:

ISIN: DE000A2E4SV8  
WKN: A2E4SV  
Ticket symbol: CYR  
Number of shares<sup>3</sup>: 8.77  
Marketcap<sup>3</sup>: 199.96  
<sup>3</sup> in m / in mEUR  
Freefloat: 25.4%

Transparency Level:  
Open Market  
Market Segment:  
Scale  
Accounting Standard:  
IFRS

Financial Year: 31.12.

Designated Sponsor:  
Hauck & Aufhäuser

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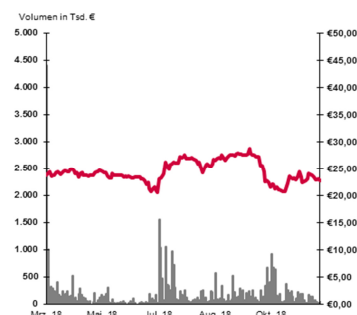
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\* Catalogue of potential conflicts of interests on page 24

### Corporate profile

Sector: Software  
Focus: IT security solutions

Employees: 160 (November 2018)  
Founded: 2006  
Registered office: Munich  
Executive Board: Peter Arnoth, Markus Cserna, Michael Sieghart



CYAN AG is a leading global provider of intelligent white-label IT security solutions with more than 15 years' experience in the field of IT security. The technology company's core businesses are mobile security solutions for mobile and fixed line (MNO, ISP) end users, virtual mobile operators (MVNOs), insurance and finance companies, and government institutions. Through the acquisition of I-New in July 2018, the CYAN Group has developed into a system provider (one-stop-shop) of technological solutions for MVNOs worldwide.

The group of companies now has contractual partnerships with more than 40 international MVNOs, who in turn serve around 5.5 million end customers. CYAN AG's range of solutions can easily be integrated into existing business partner IT infrastructure and introduced to the market through a revenue share model. Full integration with the customer's environment will also guarantee data protection.

P&L in m€	31/12/18e*	31/12/19e	31/12/20e	31/12/21e	31/12/22e
Sales	13.45	35.10	55.59	65.46	74.98
EBITDA	4.50	20.15	37.97	46.41	54.28
Net profit	3.36	14.82	28.33	34.66	40.56

Per Share Figures in €					
Earnings per Share	0.38	1.69	3.23	3.95	4.62
Dividend per Share	0.00	0.00	0.00	0.00	0.00

Key Figures					
P/E	59.51	13.49	7.06	5.77	4.93

\*consolidated financial statements of the CYAN Group estimated by GBC, incl. I-New (Group subsidiary since July 2018)

### Financial calendar

27/11/2018: Analyst meeting in Frankfurt

Dec. 2018: Publication of the Q3 figures

### \*\*last research published by GBC:

Date: publication / price target in € / Rating

18/04/2018 / € 35.80 / Buy

\*\* the research reports can be found on our website [www.gbc-ag.de](http://www.gbc-ag.de) or can be requested at GBC AG, Halderstr. 27, D86150 Augsburg

## EXECUTIVE SUMMARY

- CYAN AG is a leading global provider of white-label IT security solutions with more than 15 years' experience in the field of IT security. The company's core businesses are mobile security solutions for mobile and fixed line (MNO, ISP) end users, virtual mobile operators (MVNO), insurance and finance companies, and government institutions.
- Through the takeover of I-New in July 2018, CYAN AG is developing into a global system provider for MVNOs and will be able to significantly expand its customer base and regional presence. The company currently has more than 40 major MVNO customers, who in turn serve around 5.5 million customers. CYAN AG's IT solutions can be easily integrated into existing customer IT infrastructure and marketed through a revenue share model, enabling the customer to generate significant additional revenue.
- The main focus of the CYAN Group is the protection of mobile data traffic. This is the segment of the global IT security market that is growing at an extremely fast rate. This is due to the fact that the number of digital devices (smartphones, etc.) is steadily increasing and users of such devices are increasingly using them for important and personal matters such as email, mobile online banking, online shopping and social media. However, this user behaviour also increases the risk of being affected by cyber-attacks. According to statistics, 12.0% of EU citizens have already become victims of cyber-crime. Against this background, we also assume that this market will continue to record considerable growth rates in the future.
- The key competitive advantage of the CYAN security solution is that it is implemented directly in the customer's data centre – be it MNO, MVNO or a financial institution. This eliminates the need for end users to have downloads, as is typically the case with other security providers such as Norton or F-Secure. This security solution is particularly attractive for MNOs, because white label products are very scalable and more profitable than competitor solutions. According to the company, CYAN AG is currently the only supplier worldwide in this niche (USP). As a result, an MNO or MVNO can achieve significant additional revenue with CYAN solutions.
- For the Mobile Virtual Network Operators (MVNO) customer group, the CYAN group also offers a data optimisation solution that enables significant cost savings without major investment requirements on behalf of the MVNO (not OPEX/CAPEX). According to the company, a maximum of 20.0% of the purchased data volume can be saved, whereby the revenue is shared with the MVNO (Revenue Sharing Model).
- Likewise, the CYAN Group has developed special security solutions for the third group of customers, financial and insurance companies, which can be directly integrated into the existing app, e.g. a bank customer app (In-app solution). In this way, the respective device and internet browsing can be made safer and the actual banking transaction can be protected against threats deriving from the internet.
- In the past, CYAN AG has focused very heavily on the development of its comprehensive IT security offer and has already been able to gain the first well-known major customers, such as T-Mobile Austria and Poland, in the context of an exclusive group contract with the company Deutsche Telekom (T-Mobile). The described MVNO and banking products have also been available for purchase and marketed since Q3/2017. Since then, contracts have been concluded in these segments with Sberbank (EU), the South African company MyBucks, Surf Telecom, Flash Mobile Telecom and Klik Mobile. In addition, around 85.0% of I-New customers have already contractually agreed to use the CYAN solution to optimise their data volumes since

the acquisition of I-New. The company expects around 50.0% of these customers to have gone live with CYAN's optimisation solution by the end of October.

- The CYAN Group also has a well-filled project pipeline of potential new customers that will enable further significant revenue growth. The company has stated that it has more than 100 potential customers in test phases, negotiations or contractual discussions.
- CYAN AG successfully completed its IPO in March of this year. As part of this, EUR 31.70 million in investor funds (gross issuing proceeds) was raised. Most of the funds raised were used to fully acquire the CYAN Security Group.
- Based on the innovative system offering, the existing customer base, new customer relationships and the promising project pipeline, we expect significant growth in sales and earnings for the future business development of the CYAN Group. CYAN AG should in particular be able to benefit from the I-New acquisition, which opens up significant synergy potential. Above all, this is closely linked to I-New's extensive customer base (cross-selling). The company estimates the expected annual synergy effects (sales and costs) from this acquisition will amount to EUR 6.0 million.
- In concrete terms, we anticipate sales of EUR 13.45 million (including I-New inclusion since July 2018) and an operating result (EBITDA) of EUR 4.50 million for the current 2018 financial year, which will result in significant profitable growth compared to last year (sales and EBITDA in 2017: EUR 4.90 and 2.56 million, respectively). For the following year 2019, we anticipate a continuation of this dynamic growth course, in particular due to the anticipated revenue synergies as a result of the I-New takeover and new customer contracts and a further increase in EBITDA to EUR 20.15 million with a turnover of EUR 35.10 million. The massive increase in profitability will in particular be achieved through expected economies of scale and synergy effects. In the following financial years, new customer growth is expected to continue to develop dynamically and enable long-term double-digit EBIT margins of more than 70.0% with even more pronounced economies of scale.
- **On this basis, we evaluated the IT company using our DCF model and in doing so, we determined a fair value of EUR 49.50 (previously: EUR 35.80). The increase in the stock price target in particular resulted from the inclusion of the effects of the I-New acquisition and the roll-over effect (stock price target horizon from 2018 to 2019). Against the background of the current share price, this results in a continued BUY rating.**

## TABLE OF CONTENTS

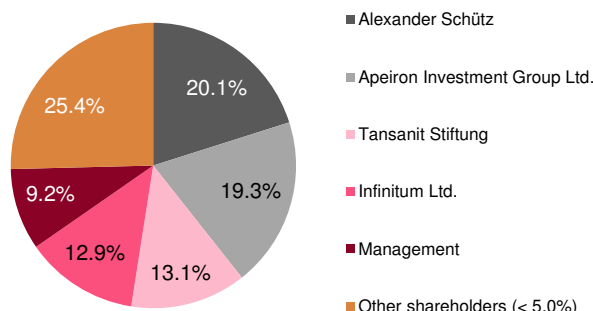
<b>Executive Summary .....</b>	<b>2</b>
<b>Company .....</b>	<b>5</b>
Shareholder structure .....	5
Corporate structure as at 31/12/2017 .....	5
Timeline .....	6
Business model of CYAN AG.....	7
Business segments .....	8
<b>Market and Market environment.....</b>	<b>9</b>
<b>Development of the Company .....</b>	<b>12</b>
Past sales development and earnings development.....	12
SWOT analysis .....	15
<b>Forecasts and Model assumptions.....</b>	<b>16</b>
Corporate strategy .....	16
Revenue forecasts .....	18
Profit forecasts.....	19
Valuation.....	21
Model assumptions .....	21
Determining the capital costs .....	21
Valuation results.....	21
DCF Model.....	22
<b>ANNEX .....</b>	<b>23</b>

## COMPANY

### Shareholder structure

Shareholder in %	09/11/2018
Alexander Schütz	20.1%
Apeiron Investment Group Ltd.	19.3%
Tansanit Stiftung	13.1%
Infinitem Ltd.	12.9%
Management	9.2%
Other shareholders (<5.0 %)	25.4%

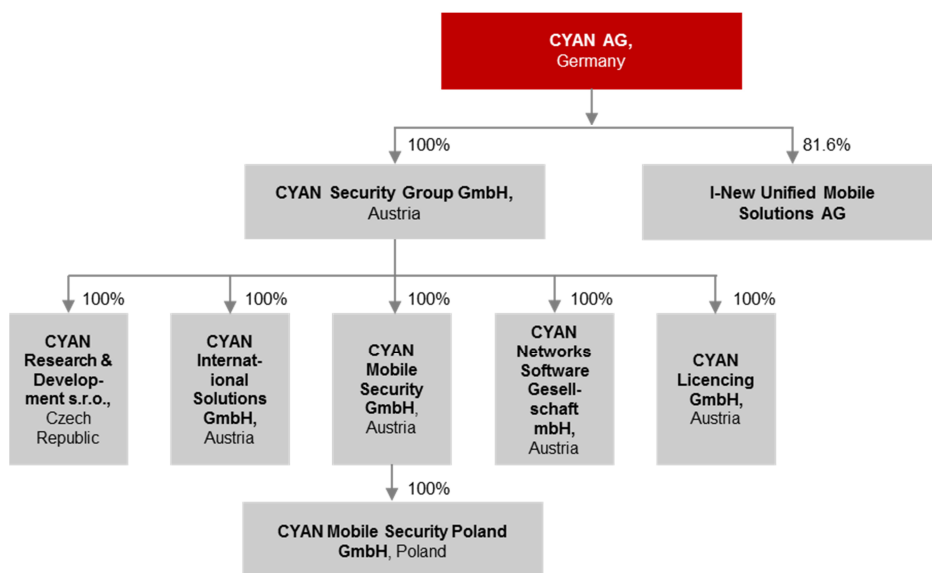
Sources: CYAN AG; GBC AG



### Corporate structure as at 31/12/2017

CYAN AG (Munich, Germany) is the parent company of the business group. As a strategic management and financial holding company, its services include the central management function and the financing and management of its investments. It mainly focuses on the accounting and controlling, human resources, strategy, public relations and brand development, IT and security of the entire CYAN Group.

The operating business is formed by its investment companies, I-New Unified Mobile Solutions AG and CYAN Security Group GmbH (Vienna, Austria) and its subsidiaries, CYAN Research & Development s.r.o. (Brno, Czech Republic), CYAN International Solutions GmbH (Vienna, Austria), CYAN Mobile Security GmbH (Vienna, Austria), CYAN Networks Software Gesellschaft mbH (Vienna, Austria), CYAN Licencing GmbH (Austria) and CYAN Mobile Security Poland GmbH (Warsaw, Poland).



Sources: CYAN AG; GBC AG

## Timeline

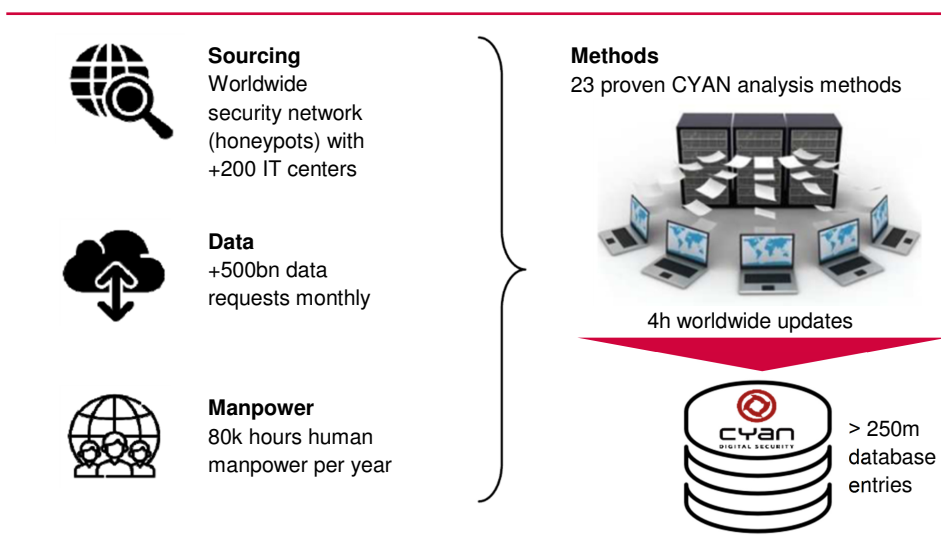
Date	Event
July 2006	<ul style="list-style-type: none"> <li>• Founding of CYAN Networks Software GmbH</li> <li>• Start of B2B security business for corporate networks</li> <li>• First B2B contracts, for example with the Federal Ministry for European and International Affairs (Ministry of Foreign Affairs) and the KBS – Knappschaft Bahn See (German Pension Insurance)</li> </ul>
Nov. 2011	<ul style="list-style-type: none"> <li>• Founding of CYAN Mobile Security GmbH</li> <li>• Start of B2B2C contracts: Development of network-integrated security solutions for mobile and telecommunications network operators for resale to their end customers</li> </ul>
July 2013	<ul style="list-style-type: none"> <li>• First B2B2C contract with T-Mobile Austria</li> <li>• Introduction of CYAN's "parental control" solution and therefore an expansion of the product range to child protection solutions</li> </ul>
Nov. 2013	<ul style="list-style-type: none"> <li>• Subsequent B2B2C contract with T-Mobile Austria</li> <li>• Introduction of internet security solution for private customers</li> </ul>
June 2014	<ul style="list-style-type: none"> <li>• Founding of CYAN Security Group GmbH</li> </ul>
Aug. 2014	<ul style="list-style-type: none"> <li>• Founding of CYAN Research &amp; Development s.r.o.</li> </ul>
Jan. 2015	<ul style="list-style-type: none"> <li>• Signing of a group contract with Deutsche Telekom AG, which defines commercial and contractual details for potential country contracts in the T-Mobile environment</li> </ul>
Aug. 2015	<ul style="list-style-type: none"> <li>• Subsequent B2B2C contract with T-Mobile Poland</li> </ul>
Dec. 2015	<ul style="list-style-type: none"> <li>• Founding of CYAN International Solutions GmbH</li> </ul>
Nov. 2016	<ul style="list-style-type: none"> <li>• Start of the development of a network-integrated solution for mobile virtual network operators (MVNO)</li> </ul>
March 2017	<ul style="list-style-type: none"> <li>• "Proof of Concept" for MVNO solution with I-New in Mexico</li> <li>• Start of the development of a security solution for financial services providers, such as banks</li> </ul>
April 2017	<ul style="list-style-type: none"> <li>• CYAN AG founded</li> <li>• Extension of the T-Mobile Austria contractual relationship until the end of 2021</li> <li>• Acquisition of the business share of the company SysConn Softwareentwicklung und Vertriebs GmbH (now: CYAN Licencing GmbH) by the company CYAN Security Group GmbH</li> </ul>
May 2017	<ul style="list-style-type: none"> <li>• Completion of the development of the security solution for financial services providers and start of worldwide marketing</li> </ul>
Sept. 2017	<ul style="list-style-type: none"> <li>• First contract concluded with MyBucks in the field of financial services (security solutions)</li> </ul>
Nov. 2017	<ul style="list-style-type: none"> <li>• CYAN AG economically re-established with change of corporate purpose</li> </ul>
Dec. 2017	<ul style="list-style-type: none"> <li>• Subsequent conclusion of the contract with Sberbank in the field of financial services providers; the contract includes a group contract</li> </ul>
Dec. 2017	<ul style="list-style-type: none"> <li>• Contribution of a 25.0% share in CYAN Security Group GmbH to CYAN AG for a capital increase in kind by increasing the share capital of CYAN AG by EUR 16,650.00 to EUR 66,650.00</li> </ul>
Dec. 2017	<ul style="list-style-type: none"> <li>• Signing of a CYAN AG option agreement for acquiring further shares of CYAN Security Group GmbH</li> <li>• Exercise of Call Option 1 of the aforementioned option agreement for the purchase of a further 26% of CYAN Security Group GmbH with effect from 15 February 2018 by CYAN AG</li> </ul>
Dec. 2017	<ul style="list-style-type: none"> <li>• Implementation of a cash capital increase by increasing the share capital by EUR 2,999,250.00 to EUR 3,065,900.00</li> </ul>
Jan. 2018	<ul style="list-style-type: none"> <li>• Implementation of a cash capital increase from company funds by increasing the share capital by EUR 3,679,080.00 to EUR 6,744,980.00</li> <li>• Implementation of a cash capital increase by increasing the share capital by EUR 269,943.00 to EUR 7,014,923.00</li> </ul>
Feb. 2018	<ul style="list-style-type: none"> <li>• Conclusion of a licence agreement between CYAN Licencing GmbH and I-New Unified Mobile Solutions AG</li> </ul>
March 2018	<ul style="list-style-type: none"> <li>• Implementation of a cash capital increase in the course of the IPO, increasing the share capital by EUR 1,200,000.00 to EUR 8,394,923.00 and including the Greenshoe for a further 180,000 shares. Immediately on the day of the initial listing, the option to acquire 49.0% of CYAN Security Group GmbH was exercised.</li> </ul>
July 2018	<ul style="list-style-type: none"> <li>• CYAN acquires majority stake in I-New Unified Mobile Solutions AG</li> </ul>
Aug. 2018	<ul style="list-style-type: none"> <li>• CYAN partners with AliasLab S.p.A. to jointly develop security solutions for bank-specific applications (PSD2)</li> </ul>
Sept. 2018	<ul style="list-style-type: none"> <li>• CYAN subsidiary I-New signs contract with Klik Mobile, Colombia's newest Digital Mobile Virtual Network Operator (MVNO)</li> </ul>

Sources: CYAN AG; GBC AG

## Business model of CYAN AG

CYAN AG is a leading global provider of IT security solutions, specialising in the protection of mobile data networks. After starting out with the development of enterprise fixed network security solutions in the B2B business, the CYAN Group now focuses on the B2B2C business and markets network-integrated security solutions to mobile operators, network operators and financial service providers, who in turn offer them to their customers. CYAN AG's research approaches and security solutions aim to prevent criminal threats on the internet and thereby protect companies, organisations and children.

### CYAN security technology



Sources: CYAN AG; GBC AG







The CYAN Group has more than 15 years of experience in cyber security (IT security). The company works closely with universities, research establishments and institutions to provide sustainable and ongoing protection when using the internet. Based on scientifically sound results, CYAN AG endeavours to identify trends and technical developments at an early stage and implement them in their customer solutions. In order to achieve this, the technology company has set up two research and development centres of its own in the Czech Republic (Brno) and Poland (Warsaw).

CYAN AG maintains a global security network with over 200 virtual IT centres that screen websites and investigate internet traffic. On this basis, the CYAN Group has developed and continues to develop a range of security solutions to protect the end customers of mobile network operators and network operators. The end customer acquires the security solution developed and marketed by CYAN AG directly from the respective mobile service provider (MNO) or network operator (MVNO), which sells the solution in its own name ("white label" business model).

In addition to its main business with network-integrated security solutions and data optimisation solutions, CYAN AG also sells security solutions for banks, financial service providers and insurers (In-app security solution). In addition, the company has recently entered into development collaboration with AliasLab to leverage further business opportunities in specific financial software segments.



**Business segments**

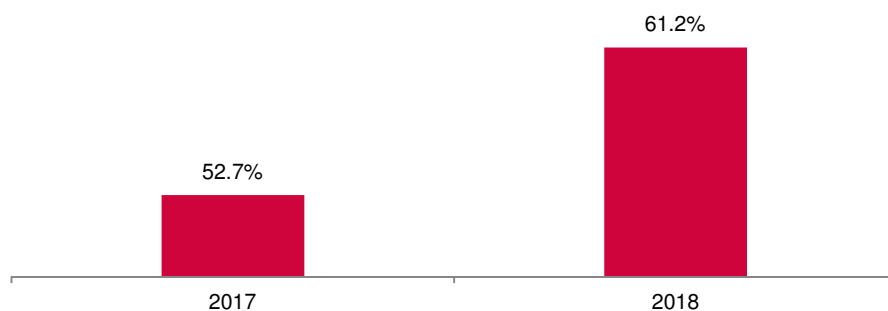
	 <b>MNOs/FNs*</b>	 <b>MVNOs**</b>	 <b>Fin. services &amp; insurers</b>	<b>Others</b>
<b>USPs</b>	<ul style="list-style-type: none"> <li>• No additional downloads</li> <li>• Easy implementation</li> <li>• Solution for on-top sales</li> <li>• Integration into existing infrastructure</li> <li>• White Label</li> <li>• Mobile &amp; fixed network compatible</li> </ul>	<ul style="list-style-type: none"> <li>• Data protection and protection of privacy</li> <li>• Increasing profits with cost-saving potential</li> <li>• Integration into existing infrastructure</li> <li>• White Label</li> </ul>	<ul style="list-style-type: none"> <li>• No additional downloads</li> <li>• Guaranteed comprehensive protection and safety</li> <li>• Easy implementation (In-App Solution)</li> <li>• Simple allocation to end customers</li> <li>• White Label</li> </ul>	 Governments   IoT-Producer   Gaming & Entertainment
<b>Products</b>	<ul style="list-style-type: none"> <li>• <b>Network-integrated security solution</b></li> <li>• App-integrated security solution (on-top)</li> <li>• Personal security (on-top)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Data traffic optimisation</b></li> <li>• App-integrated security solution (on-top)</li> <li>• Personal security (on-top)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>App-integrated security solution</b></li> <li>• Personal security Anti-theft My SOS</li> </ul>	

Sources: CYAN AG; GBC AG \* Mobile Network Operators \*\* Mobile Virtual Network Operators

## MARKET AND MARKET ENVIRONMENT

The core business of CYAN AG is the development and distribution of network-integrated security solutions for mobile operators and network operators, who use CYAN's special software to protect their end customers' mobile traffic against threats (cyber security/IT security). The IT security industry, of which CYAN is a member, is currently in growth mode.

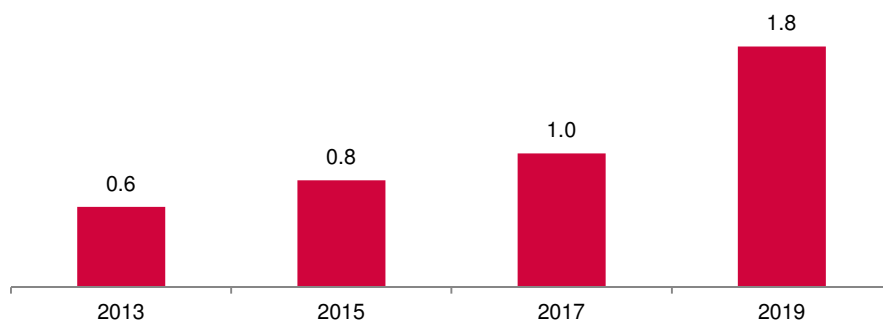
### Share of mobile in all internet traffic



Sources: GO-Globe; GBC AG

The demand for fast (broadband internet) and ubiquitous internet is steadily rising. The use of mobile terminals such as smartphones or tablets is preferred. According to the experts at digital agency GO-Globe, the share of worldwide mobile internet use in overall internet use (stationary plus mobile internet) is expected to increase significantly from 52.7% in 2017 to 61.2% in 2018. This would continue the trend away from stationary internet to mobile internet. In addition, GO-Globe study authors have also shown in their analysis that 80.0% of global social media usage and 65.0% of global digital media consumption are already delivered via mobile devices.

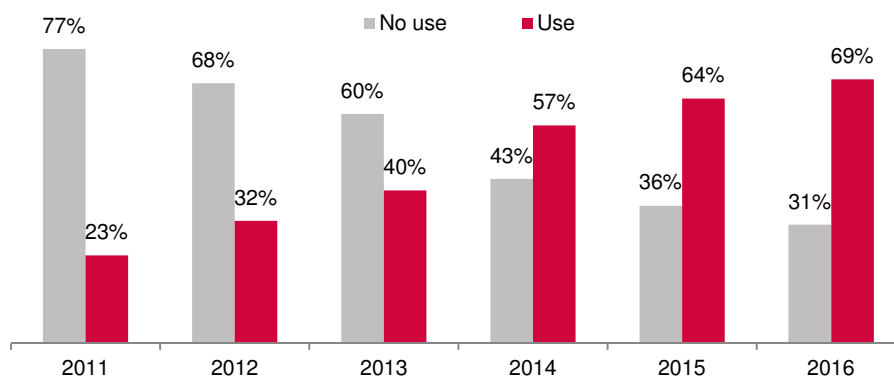
### Expected number of mobile banking users worldwide (in billions)



Sources: KPMG; GBC AG

In addition, mobile phones are increasingly being used by end users for online banking purposes. According to a recent study by the industry association Bitkom e.V., 44.0% of German citizens – almost half of Germans – already use their smartphone for online banking. In the previous years, 2016 and 2015, the rate of use was still significantly lower at 36.0% and 34.0% respectively. The number of mobile banking users is also growing rapidly worldwide. According to a study by KPMG, the number of mobile banking users will skyrocket from an estimated 1.0 billion in 2017 to an expected 1.8 billion in 2019, almost doubling in volume.

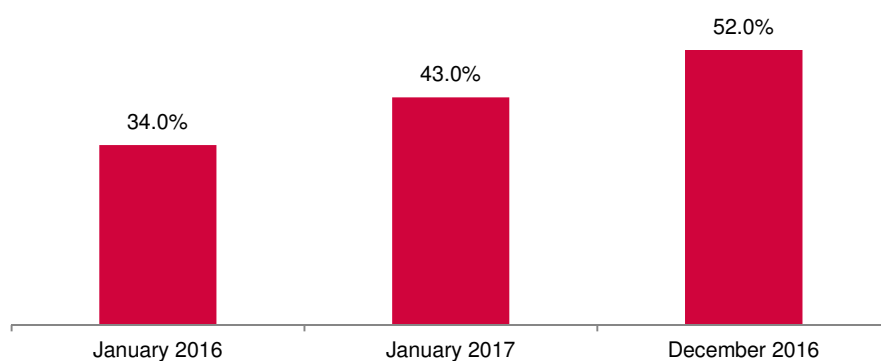
### Use of mobile devices (smartphones/tablets) for online shopping in Germany



Sources: bevh/Boniversum; GBC AG

Mobile phones have also been increasingly used for e-commerce (online commerce) over the past several years. According to a study by bevh/Boniversum, more than two thirds of German citizens already use mobile devices for shopping on the internet, and the trend is rising. A similar trend can also be observed on a global scale. Information from the global payment platform adyen shows that the use of mobile devices (smartphone, tablet) in the e-commerce sector has increased dynamically in the recent past. In December 2017, an average of 52.0% of online purchases were made via mobile devices worldwide. In January of this year, this value was still as high as 43.0% and, a year previously, the figure was around one third (34.0%).

### Worldwide usage rate of mobile devices in e-commerce



Sources: adyen; GBC AG

However, users of mobile devices are increasingly affected by cyber-crime. A global study conducted by IT security software company Symantec in 2013 revealed that 25.0% of mobile device owners have been the victims of cyber-crime in the past 12 months. We assume that the prevailing trend towards digitisation and the increase in cyber-attacks have exacerbated this negative effect since the study was conducted. This is also indicated by a recent study by the experts from Bitkom. According to the authors of the study, every third German mobile phone user is said to have been affected by an IT security problem (cyber-attack) in the last 12 months.

**The continued rise in the use of digital devices (smartphones, etc.), the increasing use of these mobile devices for important and personal matters (email, e-commerce, online banking, etc.) and the increasing threat of cyber-attacks offer good economic opportunities for CYAN AG's range of services. The company should also be able to benefit from the increased commercialisation of its data**

**optimisation solution, which allows MVNOs to significantly reduce the volume of data purchased from MVNOs. This results in cost savings of up to 20.0% for the estimated 4,000 MVNOs worldwide, a significant earnings effect.**

## DEVELOPMENT OF THE COMPANY

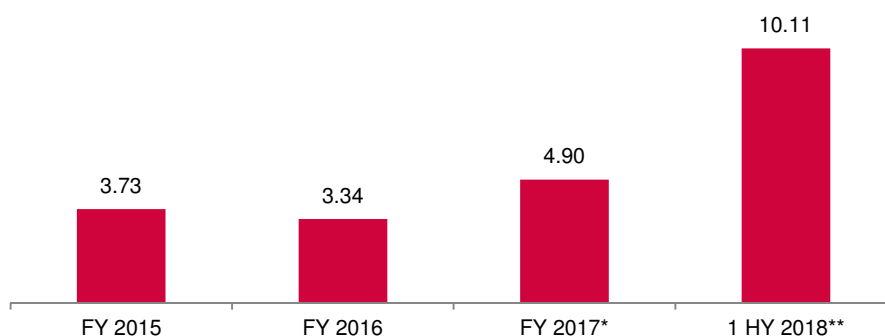
in m€	FY 2015	FY 2016	FY 2017*	1 HY 2018**
Sales	3.73	3.34	4.90	10.11
EBITDA (excl. IPO costs)	1.82	1.17	2.56	2.81
EBITDA margin	48.8%	35.0%	52.2%	27.7%
Net profit	1.38	0.86	2.01	1.50 (eGBC)

Sources: CYAN AG; GBC AG; \*from the pro-forma consolidated accounts estimated by GBC AG of CYAN AG (incl. CYAN Security Group) \*\*pro-forma consolidated accounts of CYAN AG (incl. I-New Unified Solutions AG)

### Past sales development and earnings development

The first half of 2018 was successful for CYAN AG. The first six months of the current financial year were in particular characterised by the completed IPO, the 100% acquisition of the CYAN Security Group, new major customers and the acquisition of I-New Unified Solutions AG.

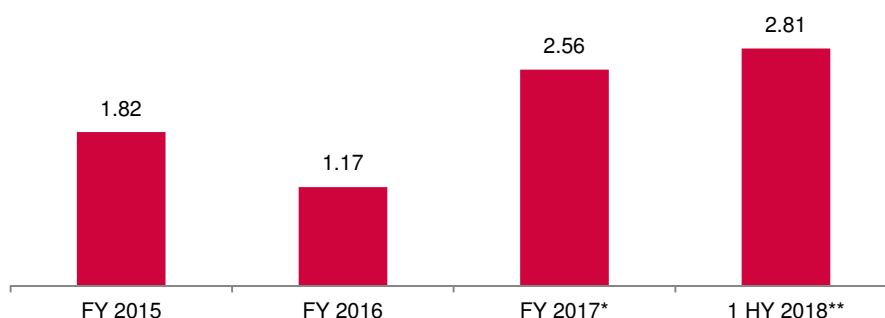
#### Revenue development (in € million)



Sources: CYAN AG; GBC AG \*from the pro-forma consolidated accounts estimated by GBC AG of CYAN AG (incl. CYAN Security Group) \*\*pro-forma consolidated accounts of CYAN AG (incl. I-New Unified Solutions AG)

In the first half of 2018, CYAN AG generated pro forma consolidated sales of EUR 10.11 million and an operating result (EBITDA, excluding IPO costs) of EUR 2.81 million. These key figures already include the acquisition of I-New Unified Mobile Solutions AG in July 2018 in order to convey or present an actual picture of the company's performance. In this context, we estimate the share of revenue attributable to CYAN AG (stand-alone) at EUR 4.50 million. We almost achieved our estimated full-year sales for 2017 (EUR 4.90 million) during the first half of 2018 alone.

#### EBITDA development (in € million, excl. IPO costs)



Source: CYAN AG; GBC AG \*from the pro-forma consolidated accounts estimated by GBC AG of CYAN AG (incl. CYAN Security Group) \*\*pro-forma consolidated accounts of CYAN AG (incl. I-New Unified Solutions AG)

We furthermore assume that at the performance level, the majority of EBITDA in the first half of 2018 will be attributable to CYAN AG. In our opinion, most of the operating results for the past financial year should be generated during the first half of the year.

In relation to the I-New transaction (acquisition of majority shareholding), CYAN AG successfully prevailed in a bidding process. The M&A transaction started in May 2018 and a few months later (July 2018) CYAN AG announced the closing of the acquisition. The total volume of the transaction for the acquired 76.8% of shares amounted to EUR 17.10 million, of which EUR 13.60 million for acquired shares and acquired financing and a further EUR 3.60 million will be paid on the basis of performance (earn-out model for the years 2019, 2020, 2021) from the performance development of I-New AG.

The majority takeover has enabled CYAN AG to significantly expand its range of services, geographical reach and company size (currently, 160 employees; previously, 35 employees). As a result, the company can act as a high-coverage system provider for telecommunications companies, thus making it particularly attractive to large mobile communications companies. As a result of this strategic measure, the company has also significantly expanded its customer base (an additional 40 MVNO customers with 5.5 million end customers) and now has around 100 IT engineers and software developers, as well as global offices in Latin America and Asia. The company's extensive project pipeline is very helpful and, according to its own statements, has put CYAN AG a good two years ahead in operational terms.

A bank loan was raised to finance this transaction. Shortly after the purchase, a further 4.8% of I-New was acquired. The current holding, therefore, amounts to 81.6%. In order to discharge some of the M&A-related debt financing, a cash capital increase of EUR 7.90 million (gross issue proceeds) was carried out in October 2018.

Shortly before this, in March 2018, CYAN AG announced a successful IPO in Frankfurt in the stock market segment Scale with a cash inflow of EUR 31.70. The growth strategy envisaged by the IPO was achieved upon acquisition of the remaining 49.0% stake in CYAN Security Group GmbH.

During the first half of 2018, the CYAN Group also benefited from the expansion of its business volume through existing partnerships with Deutsche Telekom (conclusion of a framework agreement for individual subsidiaries), MyBucks and Sberbank. The long-standing cooperation with T-Mobile Austria, in which the company provides network-integrated security solutions, particularly paid off for the company. We estimate the related revenue at around EUR 2.0 million and the total revenue share (CYAN stand-alone) is thus approximately 45.0%.

CYAN AG also announced the acquisition of new major customers during the course of the IPO. The company was able to win new contract partners with Surf Telecom and Flash Mobile Telecom. A few months later, in August 2018, the company was able to register another major customer through its cooperation with AliasLab S.p.A. According to the company, the numerous new contracts should have a positive effect on its sales performance in the second half of 2018.

The company also emphasises that it is working with more than 100 potential customers in test phases, negotiations or contractual discussions, as a result of which further business relationships are expected in the future. Based on this, we believe the CYAN Group has a particularly promising "deal pipeline" which will represent additional business potential in the near future.

**Through the acquisition of I-New, CYAN AG has strengthened its market position further with the help of the acquired structures (products/service, manpower, locations) and has thus improved its starting position for further dynamic growth through its larger customer base and expanded project pipeline.**

## SWOT analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Experienced management team with good contacts in the telecommunications sector</li> <li>• Technological trailblazer in the field of mobile security (technological edge of approx. two years)</li> <li>• Less sensitive to changes in the economy</li> <li>• Long-term customer relationships (e.g. with T-Mobile)</li> <li>• White-label business model (B2B2C) makes recurring revenue possible</li> </ul>	<ul style="list-style-type: none"> <li>• Still a relatively small company size</li> <li>• High dependence on individual executives</li> <li>• Low customer diversification with regard to the sectors (telecommunications and financial services)</li> </ul>
Opportunities	Risks
<ul style="list-style-type: none"> <li>• The growing IT security market offers tremendous growth potential, in particular in the field of mobile data traffic (industry experts expect significant long-term growth of 8.0% to 12.0% per annum).</li> <li>• The growing number of mobile devices, increased use of mobile devices for important and private matters (e.g. email, e-commerce, online banking, etc.) as well as the increasing threat of cyber-crime provide a good business environment for CYAN.</li> <li>• CYAN's IT security solution delivers attractive additional sources of revenue for Telcos (add-on service)</li> <li>• CYAN's data optimisation solution offers further earnings potential through cost savings for our estimated 4,000 MVNOs worldwide.</li> <li>• I-New acquisition opens up enormous synergy potential, improving and facilitating access to wholesale customers in particular.</li> </ul>	<ul style="list-style-type: none"> <li>• The existing "deal-pipeline" will lead to fewer new customers than hoped for and may have a negative impact on business.</li> <li>• Increased competition in CYAN's niche market Mobile Security Solutions for business customers (B2B2C). This might dent the company's margin.</li> <li>• CYAN's security solutions require R&amp;D expenditure on an ongoing basis. Without adequate investment in this technology, there is a risk that CYAN's security solutions will not be "state-of-the-art" and will not meet customer requirements.</li> </ul>



## FORECASTS AND MODEL ASSUMPTIONS

P&L (in m€)	FY 2018e*	FY 2019e	FY 2020e	FY 2021e	FY 2022e
Sales	13.45	35.10	55.59	65.46	74.98
EBITDA	4.50	20.15	37.97	46.41	54.28
EBITDA margin	33.4%	57.4%	68.3%	70.9%	72.4%
Net profit	3.36	14.82	28.33	34.66	40.56

Source: GBC AG \*from the consolidated financial statements of the CYAN Group estimated by GBC, incl. I-New (Group subsidiary since July 2018)

### Corporate strategy

CYAN AG has in particular focused its business strategy on IT security solutions and data optimisation solutions for telecommunications companies and security solutions for financial service providers. The company is pursuing a growth-oriented business policy and plans to further increase its revenue by expanding its business with existing customers, “rolling out” CYAN’s services to I-New’s MVNO platform (cross-selling) and acquiring new customers by processing the existing project pipeline (currently includes around 100 potential customers).

Increasing revenue from existing customers promises considerable potential for scaling. The company’s revenue is essentially dependent on the number of customers (MNO; MVNO) and downloads. CYAN AG, for instance, receives a 50.0% share of the revenue from each user within the scope of its contract with T-Mobile Austria (T-Mobile Austria takes over the product marketing for its own customers), whereby the guaranteed minimum amount is EUR 0.83 per customer each month. Any increase in the number of users will result in an increase in revenue and therefore a direct increase in the profit level if the cost structure remains the same. In general, we expect average customer growth of approximately 15.0% for existing customers.

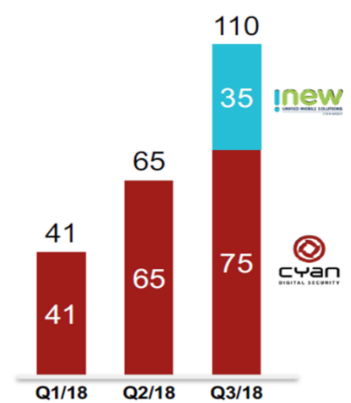
The sales base can also be increased with current customers through a regional expansion of business. For example, a framework agreement has been concluded with Deutsche Telekom, which can be used as a basis to enter into national agreements on specific terms. Country contracts have so far been successfully concluded with T-Mobile Austria and T-Mobile Poland. The company also plans to expand into additional countries in and outside Europe where Telekom operates, such as Croatia.

The takeover of I-New will also result in considerable sales potential. This is due to the fact that the acquired company has a large customer base of 40 telecommunications companies (MVNOs) that represent potential customers for the various customer solutions of CYAN AG. In November, the CYAN Group announced that around 85.0% of I-New customers have already contractually agreed to use the CYAN solution to optimise their data volumes since the acquisition of I-New. The company expects around 50.0% of these customers to have gone live with CYAN’s data optimisation solution by the end of October, whereby the remaining customers are expected to successively follow in the next few months. In the medium term, we assume that the roll-out of CYAN’s innovative network-integrated security solution to I-New’s customer base will open up further sales potential.

There are also further high sales potentials tied up with the processing of CYAN AG’s existing project pipeline, which has again significantly expanded as a result of the acquisition of I-New. The company’s extensive project pipeline is the most important basis for our sales estimates and earnings estimates derived from these figures. According to information provided by the company, the current pipeline encompasses a total of 110

potential new customers, negotiations with some of whom have already reached an advanced stage.

### General development of potential customers



Source: CYAN AG

This is set to result in around 15 promising potential projects and customers. These different projects involve different sizes of customer bases of the respective major customers, ranging from around 1.00 million customers to over 40.00 million customers. We therefore estimate that the number of potential customer-based installations should be at least 100.00 million customers, which could lead to correspondingly high sales potential, even with a low penetration rate.

Potential project	Product	Cumulative sales potential 2019-2022 (m€)	Probability
Project 1	Data Opt.	3.0-5.0	60-80.0%
Project 2	Data Opt.	5.0-7.0	60-80.0%
Project 3	Data Opt.	6.0-8.0	60-80.0%
Project 4	MNO	17.0-23.0	60-80.0%
Project 5	Data Opt.	2.0-4.0	60-80.0%
Project 6	BSS/OSS	1.0-2.0	60-80.0%
Project 7	BSS/OSS	20.0-25.0	40-60.0%
Project 8	Data Opt.	18.0-22.0	40-60.0%
Project 9	MVNE	4.0-6.0	40-60.0%
Project 10	MVNE	1.0-3.0	40-60.0%
Others (Proj. 11-15)	n/a	20.0-30.0	40-60.0%
<b>Subtotal</b>		<b>100.0-140.0</b>	
Other projects		120.0-150.0	25-50.0%
<b>Total</b>		<b>220.0-290.0</b>	

Source: Estimate GBC AG

Based on an MNO or MVNO customer with, for example, 5.00 million end customers, the company could – with a 25% installation quota and a monthly price of EUR 2.00 per customer – generate annual revenues of up to EUR 30.00 million. As the installation of the infrastructure takes place just once, with a clear cost framework, and as the updates to the CYAN IT database are fully automated, each additional customer would translate directly into profit for the company. The high scaling potential of the company's business model becomes apparent here.

In the area of financial services providers, the security solution offered by CYAN AG (white label model) needs to be integrated into existing banking apps. Customers opting for the security feature would then be protected against potential security threats if they

install the CYAN add-in update. A financial service provider with a customer base of, for example, 4.50 million would generate annual revenues of around EUR 9.00 million if the installation rate for its services was only 50%. Associated annual costs of approximately EUR 4.00 per customer have been assumed.

Potential project	Customer group	Number of customers (B2C)	Probability
T-Mobile Austria	MNO	4.5 Mio.	100% (existing customer)
T-Mobile Polen	MNO	11.0 Mio.	100% (existing customer)
Sberbank	Financial service provider	16.0 Mio.	100% (existing customer)
MyBucks	Financial service provider	1.0 Mio.	100% (existing customer)
I-New	MVNO	5.5 Mio.	100% (existing customer)

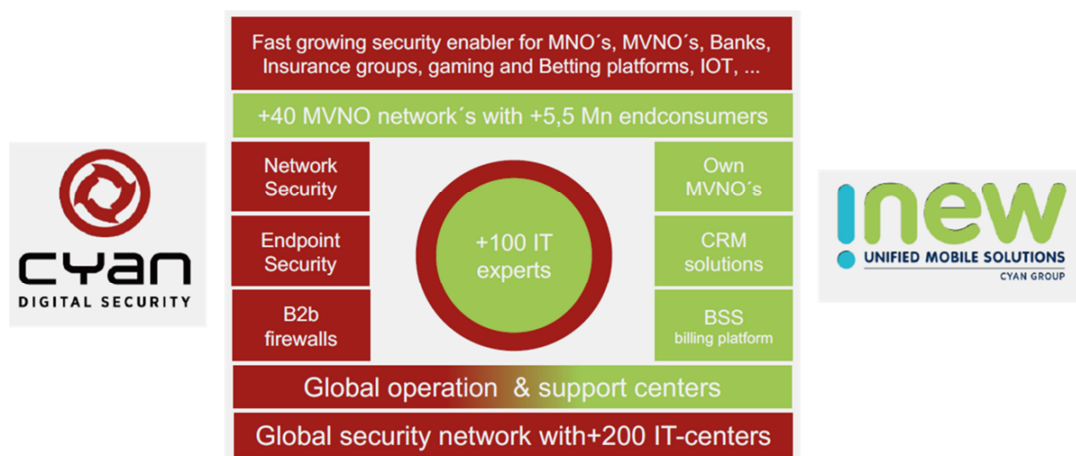
Source: Estimate GBC AG

In parallel to the potential customers, the existing customer base of CYAN AG offers continued high sales potential through an increase in the penetration rate and/or expansion of the regions (framework agreement with Deutsche Telekom), according to the illustrated calculation examples. The Financial Services segment also offers additional sales potential for the current financial year and the years to come with major customers Sberbank and MyBucks.

## Revenue forecasts

As a starting point for our sales estimates, we used the CYAN Group's extensive project pipeline with the probabilities of occurrence and sales potential presented in the table below as well as the ongoing customer projects. We have also taken into account the extensive cross-selling synergies that have emerged from the I-New acquisition. The company aims to win existing customers and new customers for security and data optimisation solutions and MVNE solutions (full-service approach).

### Strategic synergy potential between CYAN und I-New



Sources: CYAN AG; GBC AG

As a result of the I-New acquisition, CYAN AG has direct and quick access to 40 MVNOs. This has already paid off for the company. According to information from the company, the majority of I-New's customers have already contractually agreed to use the

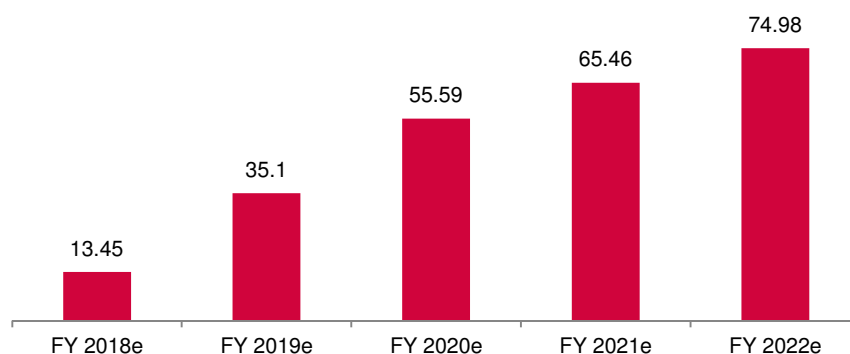
CYAN Group's data optimisation solution. The company estimates the revenue synergies at EUR 5.00 million per year.

Our forecasts are generally conservative with correspondingly lower installation rates and probability of occurrence as well as sales potential at the lower end of the specified range. Furthermore, we have not taken into account potential new products or product groups, such as security solutions in gaming and betting, in our estimates and regard them as possible upside potential.

As shown in the previous examples, small numbers of users or minor installation rates of large customers are sufficient to achieve high revenue levels. Against this background, our sales forecasts, which envisage a sales level of EUR 74.98 million by the financial year 2022, are to be regarded as conservative and are thus, in our view, very realistic.

The existing customer relationships, such as with Deutsche Telekom, also provide a good sales base which, in our view, should continue to rise in the future if customer growth is assumed.

#### Expected sales development (in € million)



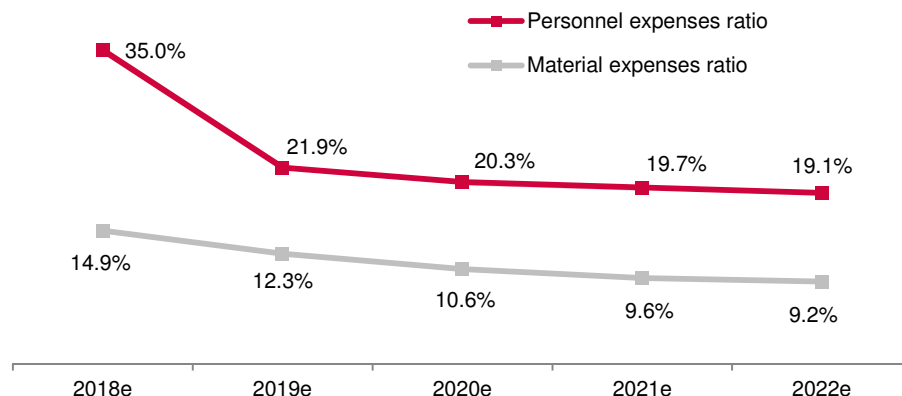
Source: GBC AG

**Against the background of our assumptions regarding the existing customer relationships, combination of individual business units (synergy effects) and potential new customer contracts (project pipeline), we expect a very dynamic sales development overall in the coming years.**

#### Profit forecasts

The dynamic business development we currently anticipate is also reflected in our forecasted results. Due to the high scalability of the CYAN business model, a marked increase in business volume should significantly improve profitability. Given the fact that the variable costs that are incurred after the acquisition of new customers and one-off implementation of the CYAN solution for the B2B customer are set to be low, we expect cost ratios to fall accordingly, particularly with regard to material and personal expenditure.

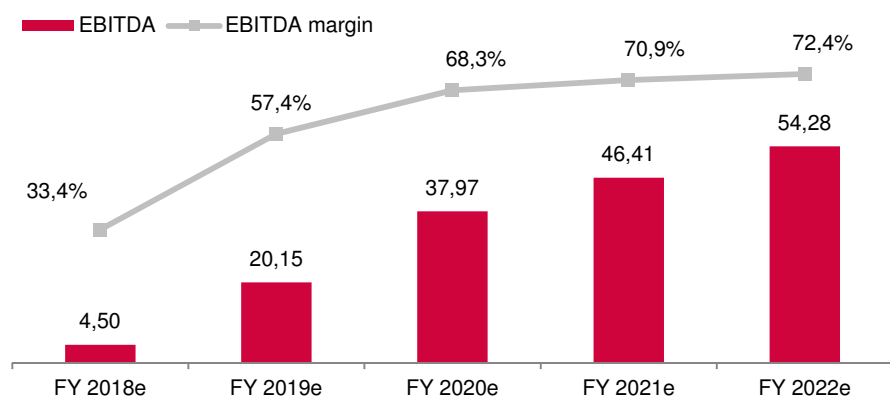
### Expected development of personnel and material cost ratios



Source: GBC AG

On this basis, the company should very quickly achieve over-proportionate earnings development. Overall, we expect the EBITDA margin to improve to more than 70.0% in the 2022 financial year and will also factor this into our DCF valuation model as a dimension that is achievable in the long term.

### EBITDA (in € million) and EBITDA margin (in %)



Source: GBC AG

If the cash inflow from operational activities derived from this remains unchanged, the company should have a high ability to finance itself from within. CYAN's business model only requires manageable ongoing investments, leading to an equally high level of free cash flow.

We therefore also assume that the bank loan taken out during the course of the I-New acquisition amounting to approximately EUR 10.00 million will be redeemed very promptly and have assumed 100% equity financing in our valuation model.

**Due to its good positioning in growth segments (IT security, data optimisation) and the expected further increase in the number of customers and increase in existing synergies within the CYAN Group, CYAN AG should be able to significantly increase the EBITDA to EUR 4.50 million in the current financial year (estimated previous year's EBITDA: EUR 2.56 million). For the following years, we expect a continuation of this extremely dynamic earnings growth.**

## Valuation

### *Model assumptions*

We rated CYAN AG using a three-stage DCF model. Beginning with the concrete estimates for 2018–2022 during the first phase, the forecast for the value drivers will be made in the second phase from 2023–2025. We expect increases in revenue of 7.0%. We have set 72.5% as the target EBITDA margin. We have included the tax rate in phase 2 at 30.0%. Additionally, a residual value is determined in the third phase by using the perpetual annuity by the end of the forecast horizon. As the final value, we assume a growth rate of 2.5%.

### *Determining the capital costs*

CYAN AG's weighted average cost of capital (WACC) is calculated on the basis of the cost of equity and borrowing costs. The market premium, the company-specific beta, as well as the risk-free 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 1.00% (previously: 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 1.67 is currently determined.

The cost of equity of 10.19% (beta multiplied by the risk premium plus risk-free interest rate) was calculated using the assumptions made. As we assume a sustainable weighting of the equity costs of 100.0%, the resulting weighted average costs of capital (WACC) amount to 10.19% (previously: 10.44%).

### *Valuation results*

**The discounting of future cash flows is based on the entity approach. The calculated fair value of EUR 433.87 million corresponds to EUR 49.50 per share (previously: EUR 35.80).**

Explanatory notes: The increase in the stock price target in particular resulted from the inclusion of the effects of the I-New acquisition and the roll-over effect (stock price target horizon from 2018 to 2019). In addition to the proceeds from the issue of EUR 31.74 million and the capital increase through cash contributions to refinance the I-New transaction, we factored a liquidity outflow of around EUR 26.00 million into the valuation model in order to acquire the remaining 49.0% shares in the operating subsidiary company, CYAN Security Group GmbH. In addition, we recognised the I-New transaction, including goodwill, in the operating assets (OAV) of our valuation model.

## DCF Model

### Three-phase DCF - Model:

Phase in mEUR	estimate						consistency		final TV
	FY 17e	FY 18e	FY 19e	FY 20e	FY 21e	FY 22e	FY 23e	FY 24e	
Sales	13.45	35.10	55.59	65.46	74.98	80.23	85.85	91.86	
Sales change	274.4%	161.0%	58.4%	17.7%	14.6%	7.0%	7.0%	7.0%	2.5%
Sales to fixed assets	0.49	0.79	1.25	1.47	1.69	1.80	1.93	2.06	
EBITDA	4.50	20.15	37.97	46.41	54.28	58.17	62.24	66.60	
EBITDA margin	33.4%	57.4%	68.3%	70.9%	72.4%	72.5%	72.5%	72.5%	
EBITA	4.30	19.95	37.77	42.40	50.28	54.16	58.24	62.59	
EBITA margin	31.9%	56.8%	67.9%	64.8%	67.1%	67.5%	67.8%	68.1%	68.0%
Taxes on EBITA	-0.86	-4.99	-9.82	-11.02	-13.07	-16.25	-17.47	-18.78	
Tax rate	20.0%	25.0%	26.0%	26.0%	26.0%	30.0%	30.0%	30.0%	30.0%
EBI (NOPLAT)	3.44	14.96	27.95	31.38	37.21	37.91	40.76	43.81	
Return on capital	1135.0%	47.9%	47.8%	45.1%	48.2%	46.2%	48.2%	50.1%	49.5%
Working Capital (WC)	3.75	14.00	25.00	32.73	37.49	40.12	42.92	45.93	
WC to sales	27.9%	39.9%	45.0%	50.0%	50.0%	50.0%	50.0%	50.0%	
Investment in WC	-3.88	-10.25	-11.00	-7.73	-4.76	-2.62	-2.81	-3.00	
Operating fixed assets (OFA)	27.50	44.50	44.50	44.50	44.50	44.50	44.50	44.50	
Depreciation on OFA	-0.20	-0.20	-0.20	-4.01	-4.01	-4.01	-4.01	-4.01	
Depreciation to OFA	0.7%	0.4%	0.4%	9.0%	9.0%	9.0%	9.0%	9.0%	
Investment in OFA (CAPEX)	-27.27	-17.20	-0.20	-4.01	-4.01	-4.01	-4.01	-4.01	
Capital employment	31.25	58.50	69.50	77.23	81.99	84.62	87.42	90.43	
EBITDA	4.50	20.15	37.97	46.41	54.28	58.17	62.24	66.60	
Taxes on EBITA	-0.86	-4.99	-9.82	-11.02	-13.07	-16.25	-17.47	-18.78	
Total investment	-31.15	-27.45	-11.20	-11.73	-8.77	-6.63	-6.81	-7.01	
Investment in OFA	-27.27	-17.20	-0.20	-4.01	-4.01	-4.01	-4.01	-4.01	
Investment in WC	-3.88	-10.25	-11.00	-7.73	-4.76	-2.62	-2.81	-3.00	
Investment in Goodwill	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Free Cashflows (FCF)	-27.51	-12.29	16.95	23.65	32.44	35.29	37.96	40.81	553.03

Value operating business (due date)	386.43	438.11
Net present value explicit FCF	106.10	129.20
Net present value of Terminal Value (TV)	280.33	308.91
Net debt	-12.43	0.06
Value of equity	398.85	438.05
Minority interests	-3.81	-4.18
Value of share capital	395.04	433.87
Outstanding shares in m	8.76	8.76
Fair value per share in EUR	45.07	49.50

### Capital cost calculation:

Risk free rate	1.0%
Market risk premium	5.5%
Beta	1.67
Cost of equity	10.2%
Target weight	100.0%
Cost of debt	4.5%
Target weight	0.0%
Taxshield	28.7%
WACC	10.2%

Return on capital	WACC				
	8.2%	9.2%	10.2%	11.2%	12.2%
48.5%	66.28	56.13	48.75	43.17	38.83
49.0%	66.85	56.59	49.13	43.49	39.10
49.5%	67.41	57.04	49.50	43.80	39.37
50.0%	67.98	57.50	49.87	44.11	39.63
50.5%	68.54	57.95	50.25	44.43	39.90

## ANNEX

### I.

#### **Research under MiFID II**

1 There is a contract between the research company GBC AG and the issuer regarding the independent preparation and publication of this research report on the issuer. GBC AG is remunerated for this by the issuer.

2 The research report is simultaneously made available to all interested investment services companies.

### II.

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#### **Legal information and disclosures as required by section 85 of the German Securities Trading Act (WpHG) and Financial Analysis Directive (FinAnV)**

This information can also be found on the internet at the following address:

<http://www.gbc-ag.de/de/Offenlegung.htm>

#### **Section 2 (I) Updates**

A detailed update of the present analysis/analyses at any fixed date has not been planned at the current time. GBC AG reserves the right to update the analysis without prior notice.

#### **Section 2 (II) Recommendation/ Classifications/ Rating**

Since 1/7/2006, GBC AG has used a 3-level absolute share rating system. Since 1/7/2007, these ratings have related to a time horizon of a minimum of 6 to a maximum of 18 months. Previously the ratings related to a time horizon of up to 12 months. When the analysis is published, the investment recommendations are defined based on the categories described below, including reference to the expected returns. Temporary price fluctuations outside of these ranges do not automatically lead to a change in classification, but can result in a revision of the original recommendation.



**The recommendations/classifications/ratings are linked to the following expectations:**

BUY	The expected return, based on the calculated target price, including dividend payments within the relevant time horizon, is $\geq +10\%$ .
HOLD	The expected return, based on the calculated target price, including dividend payments within the relevant time horizon is $> -10\%$ and $< +10\%$ .
SELL	The expected return, based on the calculated target price, including dividend payments within the relevant time horizon is $\leq -10\%$ .

GBC AG's target prices are determined using the fair value per share, derived using generally recognised and widely used methods of fundamental analysis, such as the DCF process, peer-group benchmarking and/or the sum-of-the-parts process. This is done by including fundamental factors such as share splits, capital reductions, capital increases, M&A activities, share buybacks, etc.

**Section 2 (III) Past recommendations**

Past recommendations by GBC on the current analysis/analyses can be found on the internet at the following address:

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**Section 2 (IV) Information basis**

For the creation of the present analysis/analyses, publicly available information on the issuer(s) (where available, the last three published annual and quarterly reports, ad hoc announcements, press releases, share prospectuses, company presentations, etc.) was used, which GBC believes to be reliable. In addition, discussions were held with the management of the company/companies involved, for the creation of this analysis/these analyses, in order to review in more detail the information relating to business trends.

**Section 2 (V) 1. Conflicts of interest according to section 85 of the German Securities Trading Act (WpHG) and Art. 20 of the Market Abuse Regulation (MAR):**

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**In relation to the security or financial instrument discussed in this analysis the following possible conflict of interest exists: (5a;5b;11)**

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