IVU TRAFFIC TECHNOLOGIES

ANNUAL REPORT **2019**

KEY FIGURES
Overview

CONSOLIDATED FINANCIAL STATEMENTS IN LINE WITH IFRS

(in € million)	2015	2016	2017	2018	**2019**	Change 2019 to 2018
Revenue	58.1	59.8	71.1	77.8	88.8	+11.0
Gross profit	40.1	42.8	47.7	52.1	62.1	+10.0
Personnel expenses	25.2	28.6	31.2	33.9	39.7	+5.8
EBIT	4.9	1.4	6.1	6.7	10.5	+3.8
Consolidated net profit	3.6	-0.2	5.0	6.2	10.6	+4.4
Cash flow from operating activities	-5.0	2.6	3.8	12.3	12.5	+0.2
Free cash flow	-6.3	1.1	2.9	9.8	8.0	-1.8

KEY FIGURES

	2015	2016	2017	2018	2019
Equity ratio (Equity/total assets)	63%	66%	64%	61%	54%
EBIT/gross profit	12.1%	3.3%	12.9%	12.9%	16.9%
Full-time equivalents as annual average	353	393	419	458	496
Gross profit per FTE (in € thousand)	114	109	114	114	125

LETTER TO THE SHAREHOLDERS

Dear shareholders,

The past fiscal year marks an important milestone in IVU's history. All key figures developed positively in 2019, with revenue increasing by 14% and now standing at €88.8 million. Gross profit, which reflects the added value of IVU, recorded a plus of 19% year-on-year to €62.1 million in fiscal 2019. EBIT developed correspondingly positively. At €10.5 million, it is in double figures for the first time in IVU's history. We also would like to share this success with you, and will therefore be proposing a dividend of €0.16 at the Annual General Meeting.

Demand for our products remains high. The railway sector in particular has been in a state of radical change for some time. Many railway companies are looking for standard solutions on the market to digitalise and optimise their complex operational processes. The fact that IVU.rail is one of the leading products for this purpose is demonstrated by the two major orders from DB Long Distance and Danish State Railways (DSB), which we won last year. It is now paying off that we adapted our software to railway requirements at an early stage and developed it further together with our customers. We intend to continue this in the future to gain further international customers for IVU.rail.

We also entered the electric mobility market early on, which is another promising area for us. In line with the integrated system standard, we enable transport companies to plan and control their electric buses under a uniform user interface using the IVU.suite. To this end, we are developing numerous new functions to extend our standard product in an appropriate way. And with Daimler Buses, we not only have a strong shareholder, but also a suitable technology partner at our side.

To create new capacities for our projects and continue to adapt our products to new requirements, we need suitably qualified personnel. We therefore successfully stepped up our recruiting activities last year. Despite the shortage of skilled IT personnel, we were able to recruit over 100 new talented persons and now have over 600 employees.

Matthias Rust, CTO Martin Müller-Elschner, CEO Leon Struijk, CCO

Currently, we are all concerned with the effects of the novel coronavirus. Due to the structure of our business, i.e. the development and sale of primarily digital products, we do not currently expect any significant effects on our company. Depending on how long the measures last, there may be postponements in the hardware-related systems business. Overall, we remain well positioned with our products for buses and trains and our solutions for the megatrends of digitalisation, climate protection and smart cities.

We are confident that IVU will continue to earn your loyalty in 2020.

Yours sincerely,

THE EXECUTIVE BOARD
Berlin, March 2020

REPORT OF THE SUPERVISORY BOARD

Dear Shareholders,

With this annual report for 2019, my colleagues and I take great pleasure in announcing the best year-end result for IVU Traffic Technologies AG in its existence. As the Supervisory Board, our function is to oversee the current economic situation and future development of the company and to safeguard it over the long term.

We continuously monitored and advised the Executive Board in 2019 in line with legislation, the company statutes and the German Corporate Governance Code. We informed ourselves in detail about the economic and financial performance, key business events and the strategy and planning of IVU. The Executive Board notified the Supervisory Board promptly and on a regular basis. All important facts and relevant documents required for pending decisions were made available to us in good time.

In its advisory capacity during the past year, the Supervisory Board dealt in particular with the continued growth of IVU and the organisational adaptations. Among other things, the focus of our attention was on the spin-off of IVU elect GmbH, the implementation of strategic cooperation and partnerships and the focusing of business.

IVU's continuing success and the progressive growth in personnel are also accompanied by organisational adjustments. Since the company has continually employed more than 500 people throughout the Group since 2019, it now falls under the One-Third Participation Act. The Supervisory Board now consists of a total of six members, four of whom represent the shareholders and two of whom were elected by IVU employees.

The shareholder representatives are Prof. Herbert Sonntag (Chairman), Ute Witt (Deputy Chairwoman), Dr Heiner Bente and Prof. Barbara Lenz. The employees are represented by Benedikt Woelki and Axel Zimmermann. Cooperation between the shareholder side and employee representatives was constructive. All members of the Supervisory Board are committed to the overarching goal of making the best decisions for the company.

The Chairman of the Supervisory Board maintained regular contact with the Executive Board above and beyond the meetings. He brought major findings and information from these discussions to the attention of the Supervisory Board members in order to keep them equally informed and give them the opportunity to offer their advice.

Activities

The Supervisory Board meets regularly in order to discuss the matters described above and take decisions. In 2019, four scheduled meetings were held at which the Executive Board informed the Supervisory Board in detail of the economic situation and development of IVU: The dates in question were 28 March, 28 May, 28 August and 20 November 2019. In addition to these meetings, we held a constituting session of the Supervisory Board on 24 July. The Supervisory Board was represented at all meetings in a quorate number. No member of the Supervisory Board attended only half or less of the meetings of the Supervisory Board and the committees to which he or she belongs. Furthermore, in the context of the meetings and resolutions, a series of preparatory and follow-up discussions took place between the members of the Supervisory Board in order to share information and prepare for decisions.

The Supervisory Board formed the following committees at its constituent meeting:

- General Committee: Prof. Herbert Sonntag (Chairman), Dr Heiner Bente
- Audit Committee: Ute Witt (Chairwoman), Prof. Herbert Sonntag, Axel Zimmermann

The General Committee deals with fundamental company issues, especially possible M&A activities, as well as restructuring and conversions and the service contracts and personnel matters of the Executive Board. The committee met once during the course of the fiscal year.

The Audit Committee deals in particular with issues relating to accounting, the effectiveness of the internal control system, risk management, compliance and the internal audit system as well as the audit of the financial statements. The committee met twice in 2019. One of these meetings was used to determine the preparation of the audit of the annual financial statements with the auditor. All committee members were present at the meetings.

Focal Points of Discussions

Discussions focused on the economic situation of the company, its prospects and its future orientation in the international competitive environment. In this context, the Supervisory Board dealt in detail with the Executive Board's strategy to concentrate on the core business with public transport companies and railways. We support the Executive Board's efforts in expanding the product portfolio in the field of electric mobility and entering into appropriate partnerships. With this in mind, we are pleased to welcome the participation of Evobus GmbH – Daimler AG's subsidiary for bus production – in IVU. We are certain that this cooperation will further strengthen IVU both in terms of its market position and its technical expertise.

Other key topics at the meetings were:

- Assessing and approving planning for fiscal year 2019
- Approving the consolidated financial statements 2019
- Adopting the separate financial statements 2019
- Liquidity planning 2019
- Discussing the quarterly financial statements 2019
- Spin-off of IVU Elect GmbH
- Personnel
- Risk management
- Major projects and their economic impacts on the company
- Preparations for the Annual General Meeting
- Cooperation and partnerships
- Determining the focal points of the audit with the auditor for the 2019 annual financial statements (individual and consolidated financial statements)

Corporate Governance

Responsible management and sustainable value creation are hugely important to IVU Traffic Technologies AG. Therefore, in 2019, the Supervisory Board and Executive Board again discussed the recommendations and suggestions of the German Corporate Governance Code and issued the declaration of conformity pursuant to Section 161 of the German Stock Corporation Act (AktG) and published it on IVU's website (www.ivu.de) together with the corporate governance declaration. With just a few exceptions, IVU meets the code's recommendations. Detailed reasons for the deviations are provided. They concern the information and reporting obligations of the Executive Board, the deductible in the case of D&O insurance for the Supervisory Board, the compliance management system and whistle-blower system, the reporting of Executive Board remuneration, the age limit for members of the Executive Board and Supervisory Board, diversity, the nomination committee and remuneration of the Supervisory Board.

Annual and Consolidated Financial Statements 2019

The Audit Committee has dealt intensively with the annual financial statements of IVU Traffic Technologies AG and the consolidated financial statements of 31 December 2019 and the respective management reports together with the auditors of Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft. At the accounts meeting on 26 March 2020, the Audit Committee recommended that the other members of the Supervisory Board approve the consolidated financial statements and adopt the individual financial statements of the AG. In this meeting of the Supervisory Board, we considered in detail the annual financial statements of IVU Traffic Technologies AG, the consolidated financial statements as at 31 December 2019 as well as the respective management reports. The auditors, Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, were available during the meeting to answer questions. After detailed examination and discussion, we approved both the consolidated financial statements and the separate financial statement of the AG.

For the Supervisory Board
Prof. Herbert Sonntag
Chairman of the Supervisory Board
Berlin, 26 March 2020

INTERVIEW WITH THE EXECUTIVE BOARD

The IVU annual report is being published in turbulent times. The novel coronavirus has both the country and the economy firmly in its grip. What does this mean for IVU?

MARTIN MÜLLER-ELSCHNER: The current situation is unprecedented and challenging – but I can proudly say that we as a company, as well as our employees, have reacted very quickly and are handling it very well and with the right level of appropriateness. Since we mainly offer digital solutions, we can flexibly handle many tasks from home. In this way, we are ensuring that we can continue to support our customers and implement projects. Of course, health protection measures taken by the authorities or customers can also lead to project postponements for us. However, we currently do not expect any significant effects on our business.

The past year was again very successful: IVU was able to increase revenue, gross profit and EBIT for the third consecutive year. The operating result in particular has made a clear leap. How did this come about?

MARTIN MÜLLER-ELSCHNER: Due to the reporting date-related consideration, there can always be fluctuations in the key earnings figures between the years. It is more important to us that we are correctly positioned for the long term: Digitalisation, climate protection and Smart Cities – these are mega trends that are playing into the hands of our customer group, and thus also of IVU. In the past, the abbreviation 'LPT' (Local Public Transport) had to be explained. Today it is widely understood and the topic is highly esteemed.

How important is the railway market for IVU?

LEON STRUIJK: In recent years, we have adapted our products more and more to railway requirements. The business is very high-margin, and we are, of course, benefiting from this. Overall, rail customers account for about 40% of our revenue. This year, the projects at DB Fernverkehr and Danish State Railways will likely have a significant impact on earnings for the first time.

What potential do you still see here?

LEON STRUIJK: There are still many railway companies worldwide that we can win over for IVU.rail. But we should also keep in mind that such projects are long-term partnerships, and that these do not simply end with their introduction to IVU.rail. We work closely with our customers to develop new functions and to incorporate them into the standard. In the future, we will certainly be able to achieve good margins thanks to cross- and up-selling.

Electric mobility is another trend topic. How is the partnership with Daimler Buses developing?

MATTHIAS RUST: This cooperation is also long-term. Currently, we have a very lively exchange of ideas on a technical level. Our aim is to integrate more and more functions for electric buses into our IVU.suite. In Wiesbaden, there is currently an important flagship project underway – in two years, the city wants to operate only electric buses. Daimler Buses is supplying at least 56 of them – and we are taking care of the charging management.

Are there any other opportunities for IVU here?

MATTHIAS RUST: Of course, we are just at the beginning with electric mobility. In the next ten years, almost all municipal transport companies in Germany are expected to switch to electric buses. And they will need special software for this. With our systems and our partnerships – for example with our ebus solutions joint venture – we are optimally positioned for this.

Last year, the Annual General Meeting approved the IVU.elect spin-off. What do you intend to do with it?

LEON STRUIJK: It was particularly important to us here to clearly separate election software from our core business in terms of organisation. IVU.elect can

thus operate independently in the market. But we are obviously keeping various options open, and would not rule out a sale.

IVU has grown strongly in 2019, not only financially. How are you stepping up personnel development?

MARTIN MÜLLER-ELSCHNER: This is indeed a challenge. To introduce new employees to the products and projects quickly, we have had a comprehensive induction programme in place for several years. We also quickly integrate them into the teams by using mentors, sports groups and events. Fortunately, we are always gaining new space in the buildings we have rented, so everyone is able to work at the same location. And the overarching topic "climate-friendly transport" helps to inspire the bright minds at IVU.

Has cooperation with the Supervisory Board changed as a result of the new One-Third Participation Act?

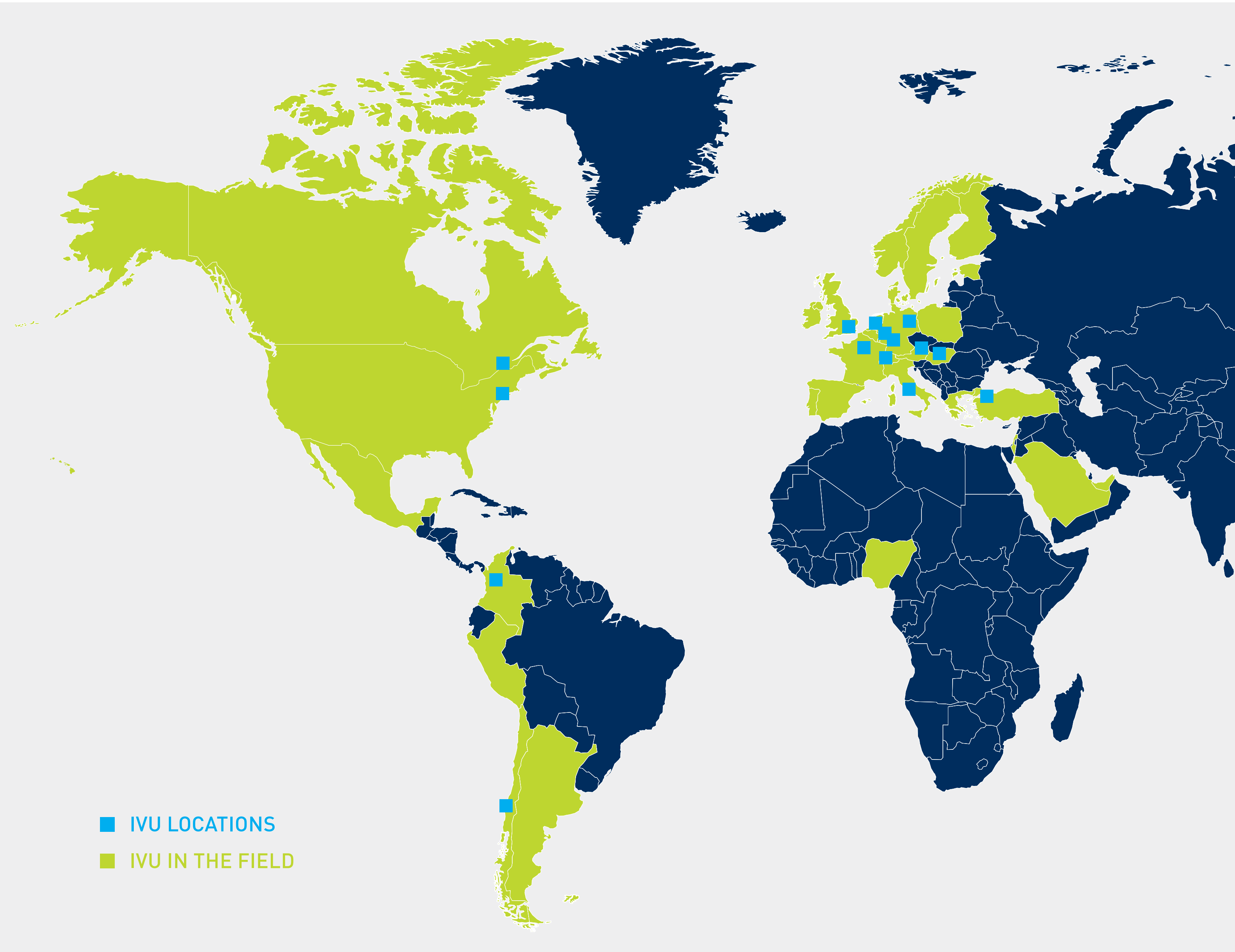
MATTHIAS RUST: This is simply due to the size of the new Supervisory Board. I am very pleased with the composition and our discussions. I am also pleased about the participation of the employees, whose contributions I greatly appreciate.

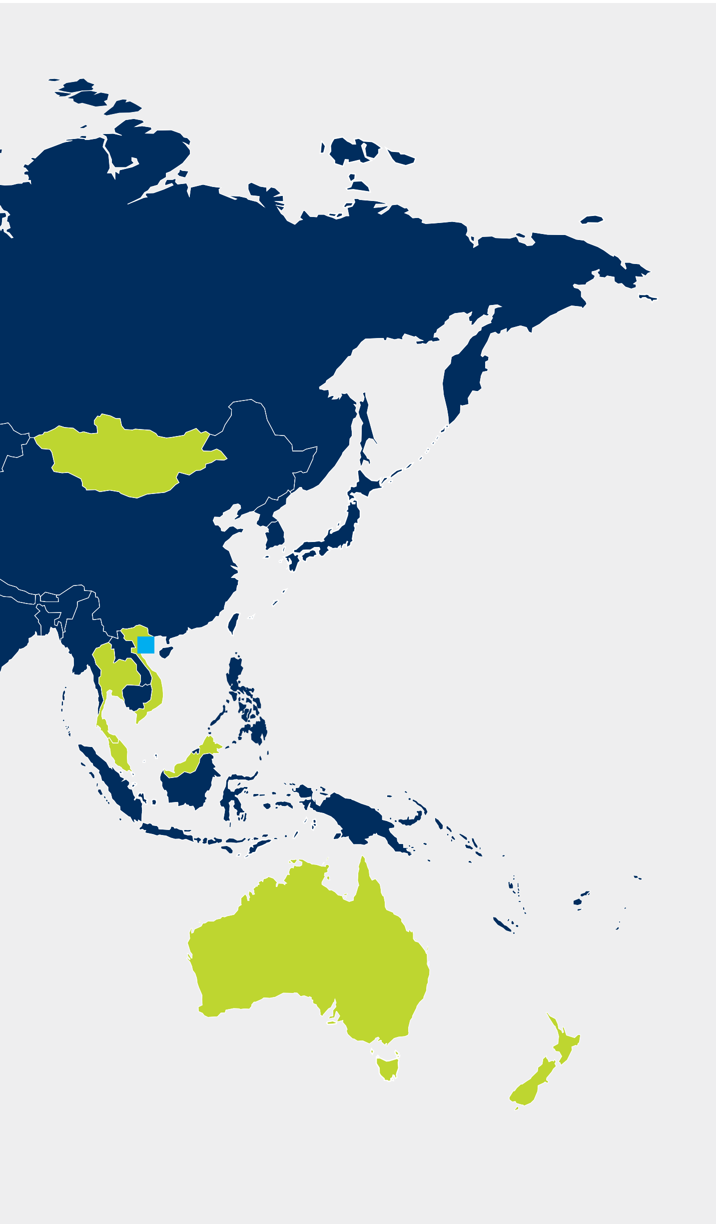
Where will growth take IVU?

MARTIN MÜLLER-ELSCHNER: Our focus is clearly on our core business with public bus and rail companies in our home countries and selected foreign markets. But, strategic acquisitions are an option that we are examining in order to open up a new market or a further segment. However, such companies must fit in with us and our business. That is why I am happy to refer again to my statement from last year: even viewed from a purely organic growth perspective, we are very well positioned for the years ahead – and even the current turbulence caused by the coronavirus does not change these promising prospects.

IVU WORLDWIDE

BERLIN (HEADQUARTER), **AACHEN, FRANKFURT AM MAIN** (DE), **VEENENDAAL** (NL), **ROME** (IT), **BIRMINGHAM** (GB), **VIENNA** (AT), **PARIS** (FR), **BUDAPEST** (HU), **MONTRÉAL** (CA), **OLTEN** (CH), **NEW YORK** (US), **SANTIAGO** (CL), **HANOI** (VN), **ISTANBUL** (TR)





Selected references 2019

GERMANY

Deutsche Bahn is building a new digital production platform for long-distance transport together with IVU. The basis for this is our standard system IVU.rail.

NETHERLANDS

Qbuzz has opted for IVU's integrated dispatching and depot management system for the efficient deployment of around 160 electric buses.

DENMARK

The Danish State Railways have also opted for IVU.rail in order to deploy trains and train crews more quickly and flexibly in future with their new planning and dispatching platform.

SWITZERLAND

SBB Cargo plans and schedules around 320 locomotives and 2,200 employees with IVU.rail every day. Since last year, the company has relied entirely on hosting the system in the IVU.cloud.

GREAT BRITAIN

Around 30 top managers from renowned European railway companies took part in the "IT for Rail" management conference to which IVU, together with Arriva UK and MTR Crossrail, had invited to London.

HIGHLIGHTS 2019


DRICHSTRASSE
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GERRY WEBER
U
Friedrichstraße
ginatricot
FINAL
SALE
50%

Projects

Frankfurt am Main. IVU.rail for DB Long Distance

DB is setting up a new digital production platform for its Long Distance division in conjunction with IVU. It will be used to gather and process all operational information relevant to the deployment of long-distance trains. Based on this data, it will be possible to deploy trains and train personnel even more efficiently and manage them even more effectively in the future. One major advantage of the new system is that the impacts of unexpected disruptions to operations can be identified and rectified more quickly. Furthermore, the modern integrated IT system will replace a host of IT applications currently in use. The basis of the new production platform is the standard product IVU.rail, which is already used by numerous railway operators worldwide. This order is one of the most important in IVU's history and underlines our position as a leading system supplier for railway operators.

DEMAND FOR IVU'S PRODUCTS IS HIGH.
Last year, numerous railway and transport companies opted for IVU.suite and IVU.rail.

Every day, more than 1,400 trains cross Germany and bring over 400,000 passengers to their destinations. A new digital production platform based on IVU.rail improves planning, making travelling with DB Long Distance easier and more convenient.

Copenhagen. Major order from Danske Statsbaner

Danske Statsbaner (DSB) is also setting up a new digital planning and scheduling platform in order to dispatch and manage its trains and train personnel quicker and more flexibly in the future. The basis of the integrated system is IVU.rail. Our standard software enables central, end-to-end data storage for all areas of work. This speeds up workflows and ensures efficiency. What's more, DSB can use the system to standardise planning and dispatch across all their services, from suburban lines to intercity and regional trains. The 12-year framework agreement covers licensing, implementation and maintenance of IVU.rail.

Olten. SBB Cargo plans and schedules in the IVU.cloud

SBB Cargo transports over 200,000 tonnes of freight by rail right across Switzerland every day. This is handled by around 320 locomotives and 2,200 employees, planned, dispatched and deployed by the transport company via IVU.rail. Since last year, SBB Cargo has been hosting the system entirely in the IVU.cloud. With its simple scalability, the IVU.cloud can be flexibly adapted to the respective computing requirements of SBB Cargo. All details of technical operations management from user administration to error handling are closely coordinated with SBB Cargo. IVU takes care of all the technology, thus keeping the system constantly up to date.

WHETHER STATE RAILWAY OR REGIONAL TRANSPORT: IVU.rail creates a **continuous digital data flow** and integrated workflows. This makes planning and dispatching **more efficient** and saves resources.

Bern. SBB dispatches stationary personnel with IVU.rail

Improved employee communication and optimised staff allocation: SBB is using IVU.rail to ensure the efficient planning and dispatch of all employees in the stationary department Sales, Service and Marketing. Conveying around 1.25 million local and long-distance passengers every single day, SBB is the biggest railway company in Switzerland and the backbone of the country's public transport network. To provide the best possible customer service, SBB employs 2,300 people – including trainees – at its contact centre and its currently around 150 travel centres throughout Switzerland. Originally developed for transport operations, the IVU solution offers numerous functions that can also be used for planning and dispatching SBB's stationary personnel. In addition, IVU.cloud ensures efficient operations.

Cuxhaven. Express introduction at Start Unterelbe

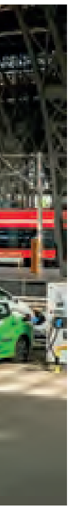
From Hamburg to Cuxhaven: With 70 employees, transport company Verkehrsgesellschaft Start Unterelbe mbH, a subsidiary of regional transport operator Regionalverkehre Start Deutschland GmbH, is operating the RE5 regional express route in Lower Saxony and Hamburg. IVU.rail enables Start to plan and dispatch its vehicles as well as its employees in a cloud-based system. As part of IVU.cloud, IVU takes care of all hosting as well as the technical operations management of IVU.rail. The planners benefit from numerous functions, some even automated, which simplify the planning processes and optimise vehicle and duty schedules. Thanks to the standardised introduction process IVU.express, Start was able to get the entire system up and running in just three months.

Amersfoort. Qbuzz dispatches e-buses with the IVU.suite

Whether it's an e-bus or a bus with a combustion engine, in future the Dutch transport company Qbuzz will be dispatching all of the vehicles serving its Groningen and Drenthe concession using a single system. To this end, IVU is implementing an integrated depot management system for more than 400 diesel and electric buses. The software will help Qbuzz to make the best use of all vehicles in future: For rostering, IVU.vehicle automatically takes into account the current recharge statuses and anticipated remaining ranges of the e-buses. Directly connected to the vehicle working dispatch, it enables IVU.vehicle to formulate the best possible plan for the charging infrastructure and parking at the depot in order to ensure reliable operation. In addition, the ITCS continuously monitors the recharge status and remaining range during transport operations.

Berlin. IVU.suite for RidePooling service CleverShuttle

Get from door to door flexibly and economically while caring for the environment – CleverShuttle operates with this quality aspiration in six German cities. In future, the ridepooling service will use the dispatch solutions of IVU.suite. About 1,500 drivers and more than 500 vehicles allow CleverShuttle to provide wide-scale coverage in the cities that are served. The entire fleet consists exclusively of hydrogen- or battery electric-powered vehicles. Customers book the service using an app, after which an algorithm intelligently pools the passengers and determines the quickest route. The products included in IVU.suite will allow CleverShuttle to respond quickly to changing requirements and to deploy employees more efficiently and more economically.



FROM RESOURCE PLANNING AND FLEET MANAGEMENT TO BILLING: IVU solutions provide **support for all operational tasks**, in rail transport as well as for buses and new mobility services.

Copenhagen. Integrated ITCS for suburban railway

The Letbane på Ring 3 is scheduled to be transporting approximately 14 million passengers a year by 2025 in the Greater Copenhagen area. Siemens AG is supplying 29 Siemens Avenio trams for the network and as the general contractor, the company is responsible for all project coordination and execution. IVU has been tasked with installing a complete system for fleet management. Over the course of the project, all trams will be fitted with an IVU.box.touch on-board computer. The ITCS IVU.fleet in turn continuously processes vehicle location data, which helps the dispatch managers to react quickly and appropriately to changes in the traffic situation. The passenger information system IVU.realtime then provides the incoming actual data in real time.

Bremen. VBN orders association wide planning system

As an amalgamation of over 30 private and municipal transport operators, VBN provides all public transport in the network region covering the cities of Bremen, Bremerhaven and Oldenburg. Every year, more than 175 million passengers use the services provided by the member companies. With the new planning system from IVU, VBN wants to give the small and medium-sized operators in the network access to an integrated resource planning tool. The system enables transport companies to carry out computer-supported vehicle and duty scheduling to deploy vehicles and employees efficiently – completely from the IVU.cloud. Up to 30 VBN members with around 1,000 buses will be able to upgrade to the new environment over the next few years.

Berlin. Transdev Group continues to standardise its processes

Transdev GmbH, the largest private operator of bus and railway services in Germany, has been using the IVU.suite for some time now to efficiently schedule, deploy and manage its vehicles and employees. Last year, another milestone has been reached: seven subsidiaries operating around 450 buses have commissioned an integrated, all-in-one system for ITCS and ticketing. To help with this, IVU has supplied the standard IVU.suite products for fleet management and ticketing, including on-board computers. This allows Transdev to establish uniform and standardised processes across the company. In the coming years, Transdev intends to equip further companies with the IVU solution in order to position itself for future growth.

Events

IT FOR RAIL. Around 30 top managers from renowned railway companies accepted the joint invitation from Arriva UK, MTR Crossrail and IVU in London to discuss about digital solutions for railway traffic.

UITP Summit. Digital solutions

Under the motto "The Art of Public Transport", the UITP Summit took place in Stockholm from 9 to 12 June 2019. IVU also presented its contribution to this work of art: complex algorithms that create optimal deployment plans to deploy electric buses efficiently or to react quickly to disruptions. The IVU.suite for example makes transport companies e-ready. Numerous functions help to make optimum use of electric buses. IVU.rail enables dispatch managers to make all necessary changes quickly, even in the event of deviations at short notice from the timetable, for example in order to divert trains, adapt services and create deployment restrictions.

IVU User Forum. E-mobility in the focus

There was no way around electromobility last year either: the subject was the chief topic for discussion at the annual industry convention of IVU, which took place in Berlin on 18 and 19 March. Alongside the talks by experts, one particular high point came in the form of the new eCitaro from Daimler Buses, which visitors had the chance to inspect up close. In his address, keynote speaker Ulrich Bastert, head of Marketing, Sales and Customer Services at Daimler Buses, emphasised the importance of the overall system in making efficient use of electric buses, which was why Daimler Buses provided its customers advice on how to get the best out of the eCitaro using the IVU.suite.

Innovations

E-mobility is changing public transport. **New intelligence** is needed to continue to use vehicles and personnel efficiently. IVU provides **innovative solutions** for this.

Mobility as a service

Mobility as a service is the future of public transport – from trains to bikes for hire culminating in a section of the journey on an autonomous bus, all seamlessly connected in a single system. IVU is researching ways of making this idea a reality together with its partners in the MaaS L.A.B.S. project funded by the German Federal Ministry of Education and Research.

The research project is looking to combine flexible and demand-based public transport with automated on-call micro-buses and car-, bike- and ride-sharing services. MaaS L.A.B.S. is testing the relevant technologies, combining them all in a multi-manufacturer app and developing the requisite background systems. IVU is bringing its expertise as a specialist in integrated software solutions to bear within the MaaS L.A.B.S. project in the development and implementation of forecast and routing algorithms for on-demand transport.

Assistance system for public transport

Whether a seat on the bus, the right transfer connection or a goods delivery service, the University of Kassel's U-hoch-3 research project for easy urban transport wants to give customers a better experience of using public transport. IVU is also involved in the project. The research project's aim is to develop an assistance system that helps passengers in line with their needs in the course of their journeys. Its features include an app for intermodal travel planning and an inner-city delivery service that passengers can use to deposit their bags and have them dropped off at home. IVU is playing an instrumental role in implementing the connection management. We are developing interfaces that will allow reliable data-sharing between the systems, the central control centre and the on-board computers in the vehicles.

Joint venture for electromobility

Electric buses are taking over public transport – and fundamentally changing rostering. In response, IVU and ebusplan are pooling their expertise in a joint venture. To advance the development of that support transport companies in rostering electric buses, the two specialists in public transport have consequently founded EBS ebus solutions GmbH, based in Aachen, Germany.

Making use of IVU's and ebusplan's expertise, ebus solutions will develop software, software modules and components for electric buses. The systems are intended to enable a consistent planning process in five fields, where the special features of electrically powered fleets in particular are taken into account. From strategic planning and vehicle scheduling to charging phase planning, depot management and vehicle dispatch, transport companies therefore get an integrated solution for the future of electromobility.

Employees

Complex systems need smart thinkers. IVU's employees develop ideas, write software, implement projects, advise customers and provide support. Their expertise is a key factor in our success.

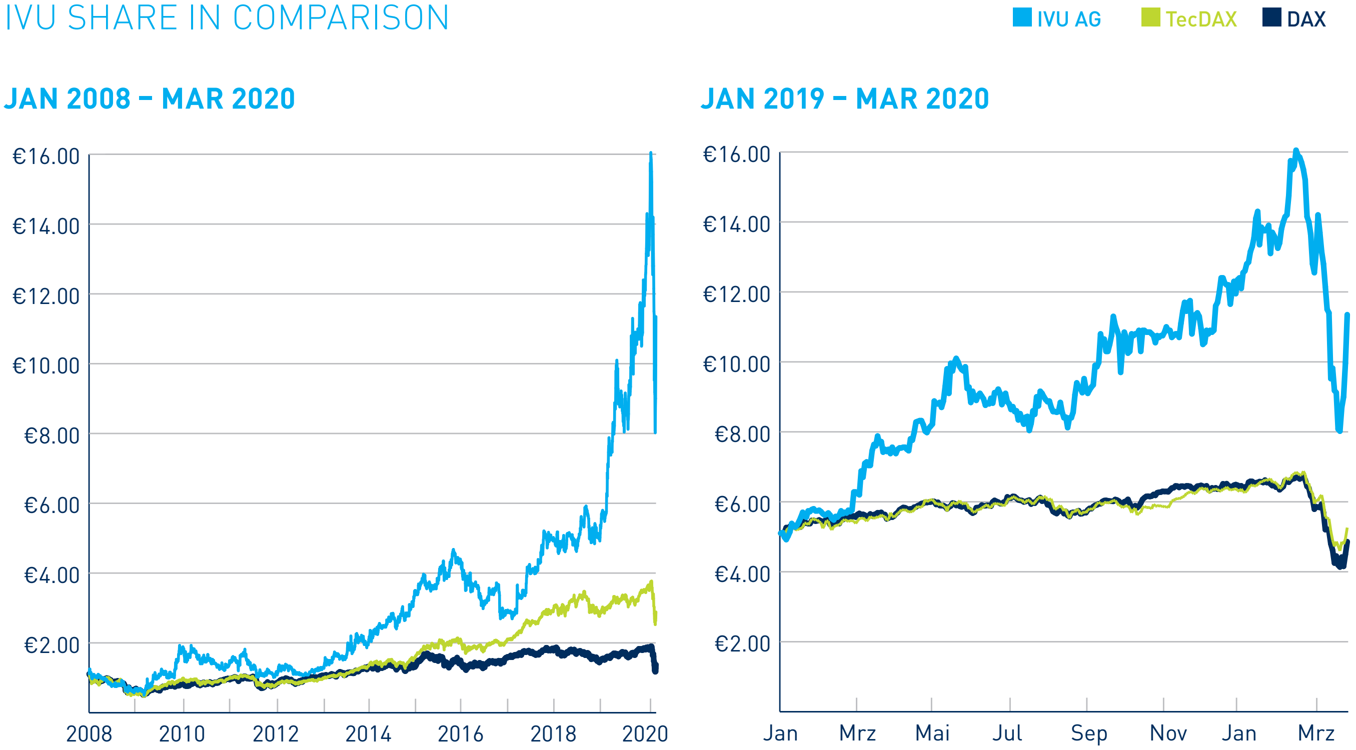
We continued our intensive recruiting programme in the 2019 financial year in order to recruit suitable software and project engineers for IVU's further growth. With success: Despite the continuing shortage of skilled personnel, we succeeded in attracting more than 100 new talents last year – more than ever before. This means that IVU now has 655 employees across the Group (corresponding to a personnel capacity of 496 FTE). In addition to the project departments, we have concentrated primarily on software development. In addition to the classic development locations of Berlin and Aachen, we have hired highly qualified software engineers in Rome for the first time who will support the existing teams.

We also support the further development of our employees internally. In a special management trainee program, we prepare promising candidates to take on management responsibility. In doing so, we are offering them excellent prospects while also helping to retain valuable knowledge in the company. With great success: The level of staff turnover at IVU in 2019 was just 6.8 percent.

TEAM SPIRIT: Even outside the workplace, IVU colleagues face new challenges, whether in the company's own table tennis league or in the joint company run.

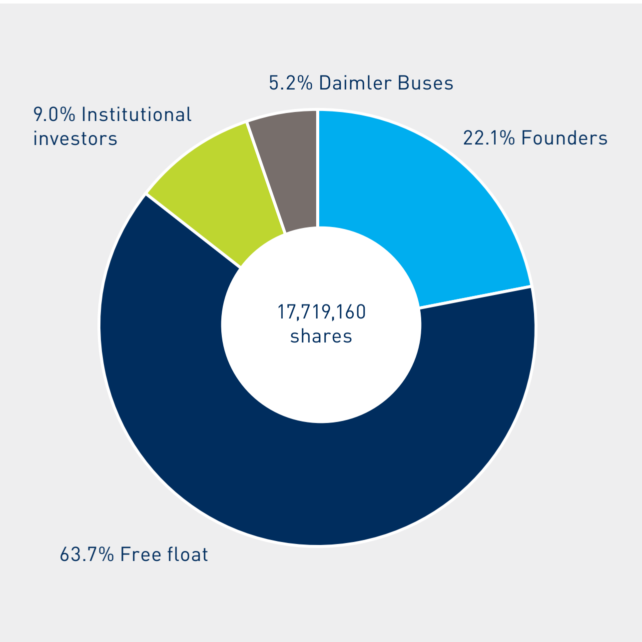
IVU share, key figures

IVU SHARE IN COMPARISON



As at 25 March 2020

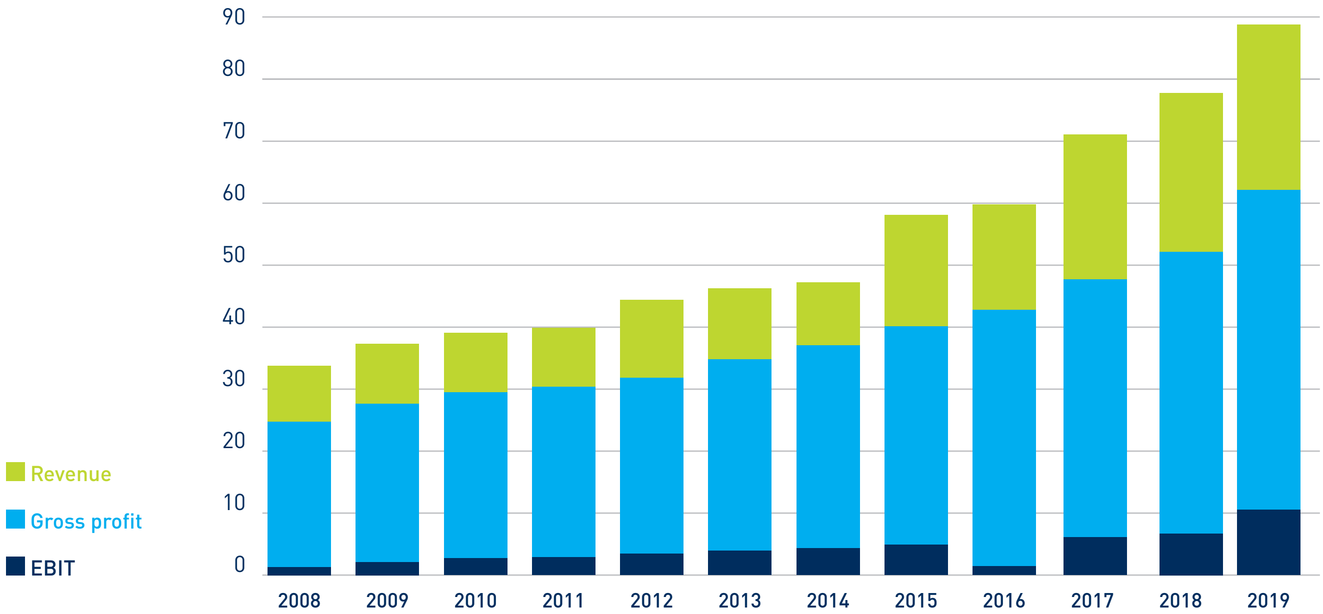
SHAREHOLDER STRUCTURE
AS AT 31 DEC 2019



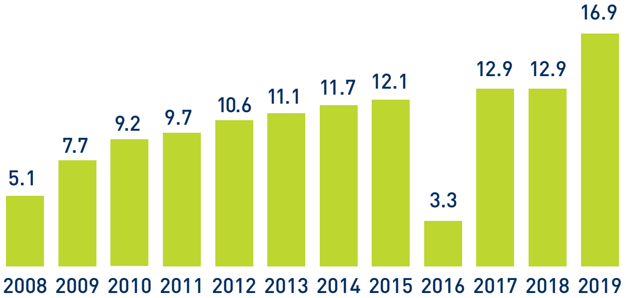
SHARES HELD BY BOARD MEMBERS
AS AT 31 DEC 2019

EXECUTIVE BOARD	SHARES
Martin Müller-Elschner	235,000
Matthias Rust	12,300
Leon Struijk	14,998
Executive Board, total	**262,298**
SUPERVISORY BOARD	
Prof. Dr Herbert Sonntag	866,000
Ute Witt	1,000
Axel Zimmermann	680
Supervisory Board, total	**867,680**
BOARD MEMBERS, TOTAL	**1,129,978**

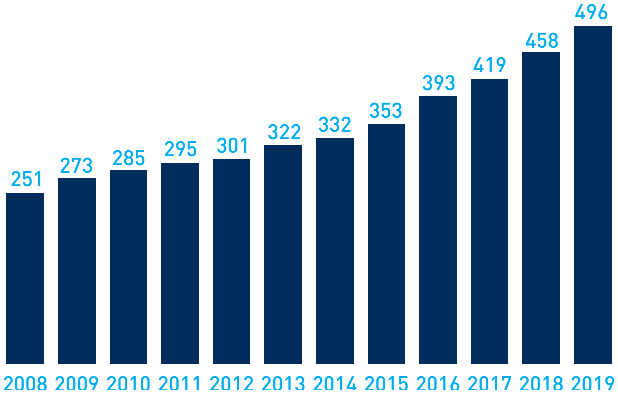
KEY FIGURERS 2008-2019
IN € MILLION



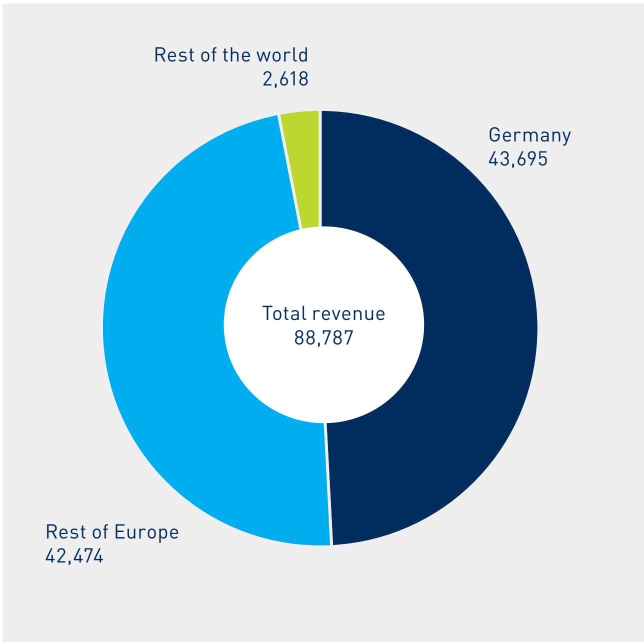
EFFICIENCY 2008-2019
EBIT/GROSS PROFIT IN %



FULL-TIME EQUIVALENTS 2008-2019
AS ANNUAL AVERAGE



REVENUE 2019
IN € THOUSAND



GROUP MANAGEMENT REPORT

Group Management Report for the 2019 financial year

A. **GROUP FUNDAMENTALS**

Group structure and products

IVU develops, installs, maintains and operates integrated IT solutions for buses and trains. The standard products IVU.suite and IVU.rail cover the whole spectrum of planning, operation and quality assurance for public transport and railway companies. IVU's software and hardware systems create timetables, plan and optimise the deployment of buses and trains, dispatch drivers and vehicles, control and monitor the operation of vehicle fleets, sell tickets, inform passengers, cash up takings and prepare statistics. Consequently, they increase the efficiency and the quality of public transport. The former Logistics segment was dissolved as at 1 January 2019.

Building on more than 40 years of experience, digital solutions by IVU help transport companies to standardise their entire operational workflows and provide forward-looking services for the transport of tomorrow. From planning and deployment of resources, operational control, passenger information or performance assessment – IVU products create a consistent digital workflow.

The integrated approach of IVU systems is a particular advantage. In the context of digitalisation, it opens up opportunities to link up departments, use data extensively and optimise and accelerate workflows on a long-term basis. This way, IVU's products increase the efficiency and quality of public transport.

IVU serves customers worldwide from its locations in Berlin (headquarters), Aachen, Frankfurt/Main (Germany), Olten (Switzerland), Vienna (Austria), Veenendaal (Netherlands), Paris (France), Rome (Italy), Birmingham (Great Britain), Budapest (Hungary), Istanbul (Turkey), New York (US), Montréal (Canada), Santiago (Chile) and Hanoi (Vietnam). The core markets of IVU are Germany, Italy and Switzerland as well as the rest of Europe and railway companies worldwide.

Strategy and management

The corporate strategy of IVU is aimed at continued, financially sustainable growth, expanding its market position in the core markets and neighbouring regions of Europe, and increasing recurring revenue as the basis for the economic stability of IVU.

The foundation for the continued growth of IVU lies with sophisticated products, which it develops in cooperation and coordination with its customers. An important condition for this is maintaining product standards, so that as many customers as possible work with identical solutions. The product portfolio for the two customer groups (public transport companies/associations and railways) is to be largely integrated, providing users with consistent workflows across all operational areas.

In order to expand its position in the German-speaking domestic market, IVU relies on good customer contacts. Sales are set to expand the opportunities for up- and cross-selling products. When implementing new requirements – for example in the field of electric mobility – IVU wants to be the first point of contact for its customers. Further growth will be generated by the targeted acquisition of new customers in the neighbouring countries within Europe. In the railway market, IVU sees all global railway companies as potential customers.

Recurring revenue is expected to grow at an above average rate, or at least proportionally to consolidated revenue. Alongside the maintenance business and support, additional services relating to IVU products, such as training and consulting services, and the expansion of the cloud business will serve as growth drivers. The focus is on marketing the IVU.cloud in order to gain further customers where IVU can operate its own systems.

IVU's management systems are designed to provide a constant up-to-date picture of the economic and financial situation of the Group and to help it in achieving its strategic objectives. The key performance indicators include the development of revenue as an indicator of the growth rate, gross profit (total operating performance plus other operating income and less cost of materials) as an indicator of own value added, and operating profit (EBIT) as an indicator of profitability. The EBIT/gross profit ratio serves as a key indicator of IVU's efficiency.

Research and development

IVU has been developing complex software solutions for public transport for over 40 years. Continued development and involvement in promising research and standardisation projects are strengthening the IVU.suite products. Close collaboration with transport companies and partners in industry and science generates impetus for new functionalities and application models of IVU systems.

IVU maintains excellent contacts with technical colleges and universities, including Technical University of Berlin, Ilmenau University of Technology, RWTH Aachen University, Karlsruhe Institute of Technology, University Kassel, Technical University Munich and the Technical University of Applied Sciences, Wildau. The company cooperates intensively with these education establishments in the area of research and teaching.

In 2019, two research projects began with IVU's participation. MaaS L.A.B.S. is looking to combine flexible and demand-based public transport with automated on-call micro-buses and car-, bike- and ride-sharing services. IVU is bringing its expertise to the development and implementation of forecast and routing algorithms for on-demand transport. The U-hoch-3 project focuses on developing an assistance system for public transport. Here, IVU is responsible for implementing connection assurance. Both projects are funded by the German Federal Ministry of Education and Research.

The ProTrain project funded by the Federal Ministry of Transport and Infrastructure, which uses forecasts and current occupancy information to research the effective routing of passengers in order to make better use of existing capacities in rail transport, will expire in 2020. IVU completed its work last year.

In the past year, IVU invested €3.5 million in R&D. Most of IVU's research and development work is carried out within the regular product and release cycles. These development costs continue not to be capitalised.

Personnel

The positive development of the order situation is also reflected by the growing headcount at IVU. To handle the acquired projects, enhance the product range and provide customers with high-quality support, IVU needs well-trained software and project engineers with sector-specific specialist knowledge. Their qualifications and motivation form an important pillar for lasting success and further growth. Therefore, most IVU employees are graduates. In 2019, the proportion of academics was around 80%.

The labour market for IT specialists remained challenging last year. The fact that the required employees were still recruited testifies to IVU's good reputation as an employer and the working environment at the company. As at 31 December 2019, IVU had a total workforce of 655 employees, including part-time employees and students (2018: 570). The average personnel capacity increased by 8.3% to 496 FTE (2018: 458) and personnel expenses climbed 17.2% to €39.7 million (2018: €33.9 million). In general, IVU operates in a high-salary environment.

Ongoing training

Only those who are constantly at the forefront of technical development are equipped to develop complex IT systems. For this reason, IVU provides its employees with ongoing further training opportunities. This is essential to the development of high-quality systems on which customers can rely. This has led to the development of an active knowledge culture within the company. One example of this is the in-house Developer School. It gives software engineers at IVU the opportunity to engage collectively with their colleagues with regard to new technologies and further developments in their programming environments.

Growth at IVU brings with it an increasing demand for management personnel. IVU continued to run an internal management trainee programme to prepare suit-able candidates for future management roles.

Recruitment measures

To attract specialists and graduates, IVU regularly attends careers fairs. During the past year, IVU took part in 12 of these events, not only at its main locations of Aachen and Berlin, but also in other relevant university towns such as Karlsruhe, Cologne and Diepenbeek (Limburg).

Cooperations with universities play a key role in recruitment. In this context, IVU's software engineers lend their expertise in projects or prepare seminars and lectures. As a result, students gain insight into the technical challenges in public transport and the day-to-day tasks at IVU. To this end, IVU also makes use of the good contacts with its research partners

Qualification programme

Fast and extensive qualification of new employees is the main ingredient in the success of IVU projects. IVU operates a structured induction programme. In intensive training courses, the future software and project engineers at the German and international offices acquire the basic knowledge they need in order to perform their tasks successfully. The seminars cover topics such as the how public transport works, IVU products and the requirements for customer-oriented project management. This brings new employees up to speed more quickly and enables them to take on their own projects in a short time frame.

Diversity

IVU is characterised by an open corporate culture. The aim is for employees to feel at home in the company. Therefore, diversity is hugely important to IVU. People from a total of 30 nations work at the various locations. The proportion of women is 29%. It is therefore well above the proportion of female graduates in the relevant MINT subjects, which averages 19.3%.

B. ECONOMIC REPORT

Industry-related conditions

IVU operates still in a dynamic, fast-growing market environment dominated by the three megatrends of urbanisation, mobility and digitalisation. There is strong demand all over the world for solutions providing efficient, reliable public transport in order to overcome rising traffic volumes. At the same time, car traffic is steadily declining. According to a study by the Kantar market research institute, by 2030 only around 46% of all journeys within cities will be made by car, while around 49% of journeys will be made by public transport, bicycle or on foot.[1] Digitalisation enables transport operators and local authorities to meet this high demand and improve their services.

Rail traffic also continues to increase. UNIFE, the Association of the European Rail Industry, predicted that the rail market would grow by around 2.5% per year from 2018 until 2023. The project integration segment, which had a market volume of €600 million in 2017, is thus showing the strongest growth with an increase of 4.8%.[2]

IVU also benefits from this. Demand for IVU.rail, our software solution developed especially for railways, remains strong, with nine installations completed or commissioned with European state railways. Last year, for example, DB Long Distance and Danish State Railways (DSB) opted for the IVU platform to digitalise their use of resources. IVU.rail uses sophisticated mathematical algorithms for optimising the highly complex timetabling of trains, thus helping railway companies to save valuable resources.

IVU is also the market leader in the German railway market with its standard solution. According to the Competitor Report Railways 2019/20 by mofair e.V., the alliance for fair competition in rail passenger transport, the four largest regional railway companies DB Regio, Transdev, Netinera and Abellio have a market

[1] Kantar, Mobility Futures, published on 22 October 2019.

[2] UNIFE, World Rail Market Study 2018, published on 18 September 2018.

share of around 82%. They all rely on IVU.rail for the planning and dispatching of vehicles and personnel. They are joined by IVU's customers HLB, AVG, National Express and SWEG, who also serve more than 6% of the German volume of regional public transport traffic.[3]

IVU has traditionally enjoyed great success in Europe, particularly in the German-speaking region. The company is able to build on its high level of recognition and strong networks here. According to industry associations, the number of passengers is rising steadily in all three states. For example, the Association of German Transport Companies (VDV) counted more than 10.413 billion passengers for 2019.[3]

In addition to pure passenger growth and the resulting increasing demand for appropriate IT solutions, the political and social framework conditions are also contributing to increased demand for corresponding products. Last year, the Federal Government paid around €8.6 billion in regionalisation funds to finance local public transport and regional passenger transport in the federal states. In addition, the Federal Ministry of Transport and Infrastructure is providing €1.5 billion as part of the 'Immediate Action Programme for Clean Air 2017-2020'. Of this amount, €393 million alone will go towards the electrification of transport and a further €500 million towards the digitalisation of transport systems. The Federal Ministry for the Environment is also funding the acquisition of electric buses for public transport with a total of around €300 million by 2022.

According to the Association of German Transport Companies, this has had the effect that 400 electric buses were already in use nationwide at the end of 2019. By the end of 2020, the industry association estimates that their number will rise to around 1,000.[5] According to a study by SCI Verkehr, only 0.4% of all buses in Europe were electrified in 2018. The market research company expects the market for electric buses in Europe to grow by 40% by 2023.[6]

IVU intends to participate in this growth. Last year it concluded a cooperation agreement with the vehicle manufacturer Daimler Buses. We want to work together to develop innovative, integrated solutions that go far beyond the vehicle itself or the traditional IT transport system and help transport companies to make optimum use of their electric buses. In addition, IVU together with ebusplan GmbH, Aachen, founded the joint venture EBS ebus solutions GmbH, Aachen, with the aim of developing software modules and components for electric buses that enable an integrated planning process.

Alongside pure project business and subsequent maintenance, the operation of software in the cloud is also playing an increasingly important role for IVU. According to the expectations of the market research company Gartner, the international market for cloud applications will almost double by 2022.[7] This development does not stop at public transport either. Among other things, IVU was able to implement IVU.cloud at companies such as SBB, SBB Cargo and DELFI e.V. last year. Verkehrsverbund Bremen/Niedersachsen also took up IVU's offer.

Earnings, finances and assets

Record earnings in 2019

After posting record EBIT of €10.5 million (2018: €6.7 million) on revenue of €88.8 million (2018: €77.8 million), IVU remains on its successful path. The key performance indicator of EBIT/gross profit increased to 16.9% in the reporting year (2018: 12.9%). This was due in particular to higher call-ups of licenses at the end of the year.

3 mofair e.V., Competitor Report Railways 2019/20, published on 22 October 2019.

4 Verband Deutscher Verkehrsunternehmen, ÖPNV-Bilanz 2019, published on 28 January 2020.

5 Verband Deutscher Verkehrsunternehmen, Zwischenbilanz E-Busse, published on 4 February 2020.

6 SCI Verkehr, MultiClient Study: Buses – Global Market Trends 2019, published on 20 November 2019.

7 Gartner, Gartner Forecasts Worldwide Public Cloud Revenue to Grow 17.5 Percent in 2019, published on 2 April 2019.

Revenue is increasing significantly

IVU continued the growth trend of recent years in the 2019 fiscal year. Revenue rose by 14.1% to €88.8 million (2018: €77.8 million). The forecast of over €80 million was comfortably exceeded thanks to the positive business performance. In particular, proceeds from license sales and recurring revenue from the maintenance and hosting business contributed to growth, which increased by €5.0 million and €3.6 million respectively.

Revenue breakdown

In 2019, 49% of revenue was generated on the German market and 51% from export business. Revenue on the German market increased to €43.7 million (2018: €37.5 million), while international revenue rose to €45.1 million (2018: €40.3 million).

Cost of materials

At €27.0 million, the cost of materials remained at the previous year's level (2018: €27.1 million). This includes expenses of €1.5 million for the operating system changeover of our hardware.

Rise in gross profit

The value added within IVU is reflected mainly by its gross profit, which rose by 19.3% to €62.1 million (2018: €52.1 million). The successful business performance meant that the gross profit forecast for 2019 of at least €55 million was clearly exceeded.

Personnel expenses, depreciation and other expenses

Personnel expenses rose by 17.2% to €39.7 million in 2019 (2018: €33.9 million). This increase is mainly due to the 8.3% rise in personnel capacity (FTE). Due to the shortage of skilled workers, which is very noticeable in the competitive IT sector, IVU generally has a high salary level. This applies both to new hires and existing employees, whose salaries are brought into line with normal market levels.

Depreciation on non-current assets increased by €1.2 million to €2.2 million (2018: €1.4 million) due to the first-time application of the new IFRS 16 accounting standard.

Other operating expenses fell slightly to €9.7 million in 2019 (2018: €10.1 million). The decrease is due to lower risk provisions for specific contract risks and value adjustments on contract assets comparedDue to the previous year. Infirst-time application of the new IFRS 16 accounting standard, rental and lease expenses fell by €1.3 million. By contrast, administrative expenses rose, among other things due to by €0.5 million as a result of growth, the introduction of the One-Third Participation Act and the expansion of the Supervisory Board.

Tax revenue

The tax income of €0.5 million mainly results from the capitalisation of deferred taxes of €2.2 million for the tax loss carryforwards exceeding the actual tax expense of €1.3 million (2018: €1.2 million).

Finances and assets

Equity rose by €8.4 million to €56.8 million in the reporting year (2018: €48.4 million). At 54%, the equity ratio in 2019 was down on the previous year (2018: 61%) due to the first-time application of the new IFRS 16 accounting standard. The company's net assets are stable, and its overall financial strength remains very good.

As a result of the stronger year-end business, both trade receivables and trade payables rose significantly year-on-year by €5.5 million to € 30.1 million and €4.3 million to €7.6 million respectively.

Contract assets and liabilities increased only slightly in each case and are at a moderate level of €14.8 million (2018: € 3.1 million) and €9.1 million (2018: €7.9 million).

Liquidity

At €12.5 million (2018: € 12.3 million), operating cash flow was at the previous year's level. Taking into account the cash flow for investment activities of €-1.2

million and financing activities of €-3.4 million, cash and cash equivalent increased by €8.0 million. Cash flow from financing activities includes the dividend payment to shareholders of €2.1 million.

With €29.3 million in cash and cash equivalents as at 31 December 2019 (2018: €21.3 million), IVU's financial position can be rated very good.

IVU was able to meet its financial obligations at all times in the reporting year. IVU's clients have a positive assessment of its creditworthiness.

Summary

IVU had a very successful year in 2019, characterised by pleasing growth in revenue, gross profit and operating profit. For 2020, we expect the continuation of the profitable growth course and are looking to the future with confidence thanks to the good order situation and promising sales opportunities.

C. FORECAST, RISK AND OPPORTUNITY REPORT

Order situation

As at 29 February 2020, the order backlog for the current 2020 fiscal year was over €75 million. A considerable portion of the planned targets are thus already covered. The focus is now on processing the orders and dealing with restrictions due to the novel coronavirus. We expect postponements above all in the hardware-related systems business, where, for example, we are dependent on both vehicle manufacturers and the workshop capacities of our customers for the installation of on-board computers.

Outlook

IVU is well and robustly positioned in every respect, both technically and financially, with high liquidity, a good order backlog and rising recurring revenue.

We therefore also expect positive business development in 2020 and currently do not anticipate any significant effects on IVU resulting from the coronavirus. This is mainly due to the structure of IVU's business, which focuses on the development and sale of primarily digital products. It is conceivable that there will be project delays, particularly in the hardware-related systems business, which may lead to the postponement of revenues. The duration and scope of the official restrictions will be decisive here. As in every year, revenue is also influenced by project-related hardware deliveries, which may be deferred in terms of annual cut-offs.

At present, we expect the situation to increasingly normalise in the second half of 2020 and that the annual targets can be achieved despite the coronavirus. We therefore continue to expect consolidated revenue of over €90 million (actual 2019: €88.8 million) and a gross profit of €65 million (actual 2019: €62.1 million). With a gross profit margin (EBIT/gross profit) of about 15%, we expect an operating result (EBIT) of over €10 million.

Risk management

To secure the long-term success of the company, we must identify and manage all types of risks. Our risk management aims to identify, analyse and manage risk at an early stage. The internal control system is embedded in the risk management system. Management uses deviation analyses as an instrument for corporate control.

The Executive Board assumes overall responsibility for internal controlling and risk management systems with regard to the accounting processes at the company. This includes all factors that can significantly influence the accounting and overall assessment of the financial statements, including the management report.

Risk management is based on the monthly reporting system, which contains important key performance indicators and compares planned figures with the actual figures. The subsidiaries are included in the reporting system. Regular meetings held with those responsible for revenue, cost and deadline development ensure that the Executive Board is provided with timely information about critical developments and that corrective measures can be initiated if required. To ensure that available liquidity and credit lines are adequate, liquidity is planned on a rolling basis and developments in cash and cash equivalents are monitored on a daily basis.

Risk management is a fixed item on the agenda at every meeting of the Supervisory Board and is discussed in detail at each of its meetings. The relevant risks are assessed based on the extent of possible damages and the probability of occurrence. The company has identified the following significant risks and classified them as low, medium or high based on its assessment of their estimated probability of occurrence and the extent of possible damages.

Risks

Export business

The opportunities presented by internationalisation have to be balanced against the costs of accessing new markets, which always represent an upfront investment in uncertain successes. In addition, IVU is subject to the general political and economic conditions of the countries in which it operates. This naturally brings with it risks that range from project delays to project cancellation and non-payment. Our assessment of the probability of occurrence and the extent of possible damages remains medium. To limit these types of risks, we try to minimise the costs of accessing new markets by adopting a strategic focus on more promising countries in target markets. To avoid the risk of non-payment, we use a range of instruments for securing payment, such as letters of credit, advance payments or payments on account.

Defaults

Defaults are a potential risk in all large and, in particular, international projects as experience shows that political and economic conditions can change quickly. In particular, changes in decision makers can have an impact on payment deadlines. The economic consequences of the coronavirus could also lead to payment defaults, especially among smaller customers. The probability of occurrence and the extent of damages remain unchanged at high and medium respectively. Measures to counter these risks include delivery-oriented payment plans and efficient project management. In addition, the payment practices of our customers can generally be considered good as the majority of them are from the public sector.

Project business

The project business at IVU is based entirely on service contracts that are based on the standard products of IVU.suite. This naturally brings with it the risk that the workload involved turns out to be more than was planned. Any resulting delivery delays may lead to claims being made for compensation. Our assessment of the probability of occurrence and the extent of possible damages remains medium. Measures to reduce these risks are efficient project management as well as adherence to deadlines and quality standards.

Quality deficits

In the event of deficiencies in the software or hardware supplied, this can delay the acceptance and, consequently, the payment of invoices. The probability of occurrence and the extent of damages both remain unchanged at medium. One measure to counter this risk is consistent quality management in accordance with ISO 9001. In addition, the steadily increasing degree of standardisation of IVU systems reduces the risk of quality deficits because only customer-specific adaptations rather than special developments are required and all products can be subjected to intensive testing.

Currency risks

Since IVU conducts a part of its business outside the euro zone, exchange rate fluctuations may have an impact on results. Foreign currency risks apply to receivables, liabilities, cash in hand and cash equivalents that do not correspond to the functional currency used by IVU. The probability of occurrence and the extent of potential damages remain unchanged at high and low respectively. As a hedge for cash flows in foreign currency, IVU concludes currency forward transactions as needed and where such transactions make economic sense. Here, the anticipated inflows and outflows are estimated on the basis of contracts concluded and payment agreements made. Currently, no accounting units have been established for showing hedging relationships. On the balance sheet date, there were no open currency forward transactions.

Personnel

A specialised software company such as IVU derives its strength on the market from the ability of its highly qualified specialists and managers to carry out demanding projects and meet special customer requirements. There are risks associated with the need to recruit specialists due to the growth in our business and with the potential loss of expertise. Our evaluation of the probability of occurrence is still medium with the extent of damage still at medium. Measures to reduce these risks include a long-term human resources policy to ensure low rates of staff turnover and a corporate culture based on openness and trust, which promotes a high level of staff loyalty, as well as a policy of actively recruiting highly qualified employees.

Coronavirus

It is not currently possible to fully assess the effects of the coronavirus. In the hardware-related systems business in particular, project delays are conceivable, which could lead to postponement of sales. Due to the basic structure of IVU's business, which consists primarily of the development and sale of digital products, and a high proportion of revenues in the domestic markets, we assume that the overall risk is low.

Overall risk assessment

We are still assuming low risk overall.

Opportunities

The marketing strategy adopted by IVU aims to further expand the company's position in the domestic market and to systematically exploit the opportunities presented by internationalisation. As one of the few system manufacturers worldwide, IVU offers IT solutions for all processes at a transport company – from planning to operations and through to settlement. With our products for public transport, which are bundled in the IVU.suite, we are one of only a few providers of comprehensive, integrated solutions.

In particular, our business on the domestic market and in small and medium-sized projects is stable and therefore easily predictable. Conversely, it is difficult to plan the placement of orders and the progress of major projects. In this context, individual projects can have a major impact on IVU's result.

Overall, the opportunities for IVU are assessed as very good. We are profiting from the sustained trends towards urbanisation, digitalisation and mobility, which are forcing cities and transport operators to invest increasingly in the expansion and modernisation of their systems. As a result of successfully implemented projects, IVU has become a sought-after project partner. We will capitalise on our strong reputation and will further expand our market position through targeted marketing activities in our chosen markets.

D. SUPPLEMENTARY INFORMATION

Supplementary information as per Sections 315a (1) and (2) and 315 (4) of the German Commercial Code (HGB)

The Executive Board of IVU AG received remuneration of €1.548 thousand (2018: €1,388 thousand) for the 2019 financial year. The remuneration of the Executive Board comprises a fixed (€683 thousand) and a variable portion (€865 thousand). The variable portion amounted to 56% (2018: 45%) of total remuneration in the year under review.

On 25 May 2016, the Annual General Meeting resolved to exempt the company from the duty to disclose the remuneration of individual members of the Executive Board for the financial years 2016 to 2020 inclusive. The remuneration of the Supervisory Board does not contain a performance-related component and consists of fixed basic remuneration. No attendance fee is agreed.

Under the long-term incentive plan initiated by the company, the members of the Executive Board receive shares in the company as a further variable remuneration component. The future transfer of the shares is dependent on the positive development of the IVU share price, taking into account the performance of the TecDAX stock market index. The term of the programme will end on 31 December 2022. The physical delivery of the shares would then have to be fulfilled by IVU in the first quarter of 2023. In accordance with the principle of sustainable remuneration, the right to transfer and the number of shares actually transferred to the Executive Board depends on the economic development of the company. A maximum total of 180,000 shares can be granted, the minimum number is 0. The fair value of the share programme was determined at the grant date to be €1,216 thousand. In determining the fair value of the share-based payment plans, a share price of IVU of € 9.86, an index value of 2,873 points – in each case on the day of the grant –, a term of 3.6 years, standard deviations of the yields of 19 % (index) and 35 % (share price) and a risk-free interest rate of -0.62 % were used. In addition to the remuneration information mentioned above, personnel expenses of €198 thousand were taken into account as a variable remuneration component for the long-term incentive plan for the members of the Executive Board during the fiscal year. In the following years until the end of the term of the programme, €339 thousand will be recognised annually in personnel expenses and transferred to the capital reserve

The company's share capital of €17,719,160 is divided into 17,719,160 shares with a notional value of €1 each.

By way of resolution of the Annual General Meeting on 25 May 2016, the Executive Board was authorised, with the approval of the Supervisory Board, to increase the company's share capital on one or several occasions by up to 30% of the current share capital of €17,719,160, i.e. by €5,315,748, by issuing new no-par value bearer shares against cash or non-cash contributions by 24 May 2021. The Executive Board can make use of this authorisation for any legally permissible purpose. In 2019, the Executive Board did not make use of this authorisation.

Furthermore, by way of resolution of the Annual General Meeting on 29 May 2019, the Executive Board was authorised to acquire shares in the company for any purpose permitted under Section 71 (1) No. 8 of the German Stock Corporation Act (AktG) in the context of the statutory restrictions and in line with the following provisions by 28 May 2024. The authorisation is restricted to the acquisition of shares with a proportional amount of the share capital of €1,771,916, i.e. 10% of the share capital of €17,719,160. In 2018, the Executive Board did not make use of this authorisation.

There are no restrictions with regard to voting rights or transfer. The Executive Board is not aware of any agreements of this kind between individual shareholders. Furthermore, no material agreements have been made that contain regulations for a change of control as a result of a takeover bid.

According to Article 7 of the company statutes, the Supervisory Board appoints the Executive Board members and determines the number thereof. Further details on appointment and dismissal are governed by Sections 84 ff. AktG.

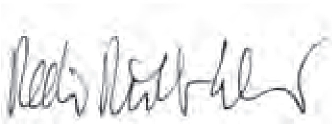
According to Article 17 of the company statutes, the Supervisory Board is authorised to make changes to the company statutes that relate solely to the wording. Otherwise, the company statutes are adopted as per Section 179 AktG by the Annual General Meeting by a majority of at least three quarters of the share capital represented at the time of voting on the resolution.

Declaration on Corporate Governance as per Section 315d of the German Commercial Code (HGB)*

The company has published the corporate governance declaration, which is part of the Group management report, on its website, www.ivu.com. The corporate governance declaration comprises the declaration pursuant to Section 161 AktG regarding compliance with the German Corporate Governance Code.

Berlin, 26 March 2020

The Executive Board



Martin Müller-Elschner

Matthias Rust

Leon Struijk

* Not examined by the auditor as regards content.

CONSOLIDATED FINANCIAL STATEMENTS


Helaba

Consolidated statement of financial position in line with IFRS as at 31 December 2019

ASSETS	Notes	31 Dec 2019 € thou.	31. Dec 2018 € thou.
A. Current assets			
1. Cash and cash equivalents	(132)	29,254	21,298
2. Current trade receivables	(124) - (127)	30,111	24,590
3. Current receivables from joint ventures	(119) - (122)	295	0
4. Current contract assets	(128) - (130)	14,756	13,135
5. Inventories	(123)	2,692	2,146
6. Other current assets	(131)	4,676	3,873
Current assets, total		**81,784**	**65,042**
B. Non-current assets			
1. Tangible fixed assets	(116)	1,237	1,043
2. Intangible assets	(116) - (118)	11,480	11,596
3. Rights of use	(80) - (87)	7,198	0
4. Non-current trade receivables	(124) - (127)	0	37
5. Deferred taxes	(156) - (160)	3,553	1,661
Non-current assets, total		**23,468**	**14,337**
ASSETS, total		**105,252**	**79,379**

LIABILITIES	Notes	**31 Dec 2019** € thou.	31 Dec 2018 € thou.
A. Current liabilities			
1. Current trade accounts payable		7,567	3,273
2. Contractual liabilities	(128) - (130)	9,129	7,865
3. Current leasing liabilities	(80) + (87)	1,206	0
4. Provisions	(152) - (153)	6,044	1,235
5. Provisions for taxes	(156) - (159)	329	1,714
6. Other current liabilities	(154) - (155)	12,897	12,110
Current liabilities, total		**37,172**	**26,197**
B. Long-term liabilities			
1. Leasing liabilities	(80) - (87)	6,102	0
2. Deferred taxes	(150) - (160)	15	0
3. Provisions for pensions	(136) - (147)	5,160	4,804
Non-current liabilities, total		**11,277**	**4,804**
C. Equity			
1. Share capital	(133) - (135)	17,719	17,719
2. Additional paid-in capital	(70)	198	0
3. Revenue reserve	(64) - (65)	40,098	31,644
4. Other components of equity	(66)	-1,212	-985
Equity, total		**56,803**	**48,378**
LIABILITIES, total		**105,252**	**79,379**

Consolidated income statement for the 2019 financial year

	Notes	2019 € thou.	2018 € thou.
Sales revenues	(163)	**88,787**	**77,798**
Other operating income	(164)	380	1,400
Cost of materials	(165)	-27,039	-27,127
Gross profit		**62,128**	**52,071**
Personnel expenses	(166)	-39,712	-33,880
Depreciation on non-current assets	(167)	-2,245	-1,414
Other operating expenses	(168)	-9,690	-10,074
Operating profit (EBIT)		**10,481**	**6,703**
Financial income		2	15
Financial expenses		-278	-190
Result from investments accounted for using the equity method	(119) - (122)	-119	0
Earnings before taxes (EBT)		**10,086**	**6,528**
Actual income taxes	(156) - (160)	-1,278	-1,228
Deferred taxes	(156) - (160)	1,772	859
Consolidated net profit		**10,580**	**6,159**

Earnings per share (basic and diluted)	(169) - (170)	0.60	0.35
Weighted average shares outstanding (in thousands)	(169) - (170)	17,719	17,719

Consolidated statement of comprehensive income for the 2019 financial year

	2019 € thou.	2018 € thou.
Consolidated net profit	**10,580**	**6,159**
Currency translation	7	-9
Other comprehensive income to be reclassified to the consolidated income statement in subsequent periods	**7**	**-9**
Actuarial gains / losses from the valuation of pension commitments	-339	0
Income tax effect	105	0
Other comprehensive income not reclassified to the consolidated income statement in subsequent periods	-234	0
Other comprehensive income after taxes	**-227**	**-9**
Consolidated comprehensive income after taxes	**10,353**	**6,150**

Consolidated statement of changes in equity in line with IFRS for the financial years 2019 and 2018

	SHARE CAPITAL € THOU.	CAPITAL RESERVE € THOU.	RETAINED EARNINGS € THOU.	OTHER RESERVES € THOU.	FOREIGN CURRENCY ADJUSTMENT ITEM (OTHER RESERVES) € THOU.	TOTAL € THOU.
Notes	(133) - (135)	(70)	(64) - (65)	(66)	(66)	
As at 1 January 2018	**17,719**	**0**	**27,175**	**-932**	**38**	**44,000**
Consolidated net income 2019	0	0	6,159	0	0	6,159
Other comprehensive income after taxes	0	0	82	-82	-9	-9
Consolidated comprehensive income	**0**	**0**	**6,241**	**-82**	**-9**	**6,150**
Dividend distribution (€0.10 per share)	0	0	-1,772	0	0	-1,772
AS AT 31 DECEMBER 2018	**17,719**	**0**	**31,644**	**-1,014**	**29**	**48,378**
As at 1 January 2019	**17,719**	**0**	**31,644**	**-1,014**	**29**	**48,378**
Consolidated net income 2019	0	0	10,580	0	0	10,580
Share-based payment	0	198	0	0	0	198
Other comprehensive income after taxes	0	0	0	-234	7	-227
Consolidated comprehensive income	**0**	**198**	**10,580**	**-234**	**7**	**10,551**
Dividend distribution (€0.12 per share)	0	0	-2,126	0	0	-2,126
AS AT 31 DECEMBER 2019	**17,719**	**198**	**40,098**	**-1,248**	**36**	**56,803**

Consolidated statement of cash flows in line with IFRS for the 2019 financial year

1. Operating activities	Notes	2019 € thou.	2018 € thou.
Consolidated earnings before income taxes for the period		10,086	6,528
Depreciation of fixed assets	(167)	2,245	1,414
Change in provisions		4,826	-17
Net interest income		276	175
Equity-settled share-based payment	(70)	198	0
Non-cash expenses / income from right of use and leasing liabilities	(80) - (87)	110	0
Other non-cash expenses / income		7	-9
Share of profit of associates and joint ventures	(122)	119	0
Result from the disposal of assets		0	-2
		17,867	**8,089**
Changes in current assets and liabilities			
Inventories		-546	-462
Receivables and other assets		-7,881	-99
Liabilities (excluding provisions)		6,345	5,207
		15,785	**12,735**
Interest paid		-232	-190
Income taxes paid		-3,009	-237
Cash flow from operating activities		**12,544**	**12,308**
2. Investing activities			
Payments made for investments in fixed assets		-1,053	-774
Payments for the acquisition of shares in associated companies		-119	0
Interest received		2	15
Cash flow from investing activities		**-1,170**	**-759**
3. Financing activities			
Payments for the repayment of leasing liabilities	(80) - (87)	-1,292	0
Payment of dividends		-2,126	-1,772
Cash flow from financing activities		**-3,418**	**-1,772**
4. Cash and cash equivalents			
Net change in cash and cash equivalents		7,956	9,777
Cash and cash equivalents at the beginning of the period		21,298	11,521
Cash and cash equivalents at the end of the period	(132)	**29,254**	**21,298**

+ = cash inflow / - = cash outflow

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

Notes to the consolidated financial statements as at 31 December 2019

A. GENERAL INFORMATION ON THE COMPANY

1 The parent company of the IVU Group is IVU Traffic Technologies AG (IVU AG), based at Bundesallee 88, 12161 Berlin, Germany. It was founded on 4 August 1998 and is entered in the commercial register of the Berlin-Charlottenburg Local Court under HRB 69310.

2 The Executive Board adopted the consolidated financial statements as at 31 December 2019 and the Group management report for the 2019 financial year on 26 March 2020 and then submitted them to the Supervisory Board for approval. The Supervisory Board approved them at its meeting on 26 March 2020.

3 The business activities of the Group comprise the development, manufacture, marketing and operations of software for planning, organisation and information processing for public administrations, transport companies and other public and private sector operators. This includes research, the formulation of expert reports, consulting and training in these areas. The average number of employees in the Group was 610 in 2019 (2018: 558).

4 Up to 31 December 2018, the Group was divided into two main segments: Public Transport and Logistics. As at 1 January 2019, the Logistics segment was dissolved as a result of focusing on the core business.

5 The main customers of the Group are operators of public transport in Germany, Europe and selected countries in the world. The IVU Group is represented at locations in Berlin (headquarters), Aachen (Germany), Olten (Switzerland), Vienna (Austria), Veenendaal (Netherlands), Paris (France) Rome (Italy), Birmingham (UK), Budapest (Hungary), San Francisco (United Sates), Santiago (Chile) and Hanoi (Vietnam).

6 The company is listed in the Prime Standard (Deutsche Börse AG) on the Frankfurt stock exchange.

B. ACCOUNTING POLICIES

Basis of preparation

7 The consolidated financial statements of IVU AG were prepared in accordance with the International Financial Reporting Standards (IFRS) as applicable in the EU and the applicable regulations of section 315e (1) of the Handelsgesetzbuch (HGB – German Commercial Code). The consolidated financial statements were prepared in euro. Unless stated otherwise, all amounts are in thousands of euro.

8 The consolidated financial statements of IVU AG were prepared on the basis of the historical cost principle. This does not apply to financial assets available for sale and carried at fair value. There were no such items as at the balance sheet date.

Changes in accounting policies

9 The Group applied IFRS 16 for the first time. The nature and effects of the changes resulting from the initial application of these new accounting standards are described below. There are some other amendments and interpretations that are applicable for the first time in 2019 but they have no effects on the consolidated financial statements. The Group has not applied any standards, interpretations or amendments that have been published but have not yet come into effect prematurely.

IFRS 16 Accounting of leases

10 With effect from 1 January 2019, IFRS 16 replaces IAS 17 Leases, IFRIC 4 Determining whether an Arrangement Contains a Lease, SIC-15 Operating Leases – Incentives and SIC-27 Evaluating the Substance of Transactions Involving the Legal Form of a Lease. The standard sets out the principles for the recognition, measurement, presentation and disclosure of leases and requires lessees to recognise most leases in their balance sheets.

The Group has applied IFRS 16 according to IFRS 16.C5 b) retroactively in that it accounts for the cumulative effects as at 1 January 2019 (modified retroactive application). The new standard contains two exceptions to the obligation to recognise leases in the statement of financial position for lessees (IFRS 16.5): leases for low-value assets (e.g. PCs) and short-term leases (i.e. leases with a term of not more than twelve months). The Group makes use of this option and does not apply IFRS 16 in these cases. With the first-time application of IFRS 16, the Group recognised and measured all leases for which it is the lessee (with the exception of short-term leases and leases for which the underlying asset is of low value) using a single model. It recognised liabilities for lease payments and rights of use for the right to use the leased asset. The rights of use were recognised in the amount of the lease liabilities as at 1 January 2019 in accordance with IFRS 16.C8 b) ii). There was therefore no effect on retained earnings at the time of initial application. Rights of use were recognised and reported separately in the balance sheet. The same applies to lease liabilities. Deferred tax assets increased due to the effect of the recognised lease-related assets and liabilities on deferred taxes.

11 In measuring lease liabilities under operating leases, the Group discounted the lease payments at its assumed incremental borrowing rate of 1.7% as at 1 January 2019.

The following table shows the reconciliation of lease liabilities as at January 1, 2019:

	01.01.2019 € thou.
Obligations under operating leases as at 31 December 2018, as disclosed in the consolidated financial statements in accordance with IAS 17	6,183
Discounted at the incremental borrowing rate as of 1 January 2019	5,918
Liabilities from financial leases as at 31 December 2018	0
leases not recognised in accordance with the option, for which the underlying asset is of low value	0
leases not recognised in accordance with the option, the term of which ends within 12 months of the date of initial application	-16
options for extension that are exercised with sufficient certainty	1,641
Lease liability as at 1 January 2019	7,543

12 There are the following effects on the consolidated statement of financial position:

Balance sheet item	As at 31.12.2019 € thou.	As at 01.01.2019 € thou.
Assets		
Rights of use to leased assets	7,198	7,543
Liabilities		
Lease liabilities	7,308	7,543
Net effect on equity	**-110**	**0**

13 There were the following effects in the consolidated income statement in 2019:

Income statement item	Effect in € thousand (effect on earnings)
Depreciation and amortisation on assets	-1,276
Other operating expenses	+1,292
Earnings (EBIT)	+16
Financial expenses	-126
Earnings before taxes (EBT)	-110
Income taxes	+34
Consolidated profit/ loss for the year	-76

14 This resulted in the following effects on the 2019 consolidated statements of cash flows:

	Effect € thou.
Payment for contracts previously treated as operating leases	+1,292
Non-cash recognition of leases (rights of use and lease liabilities)	+110
Cash flow from operating activities	**+1,402**
Payments for the amortisation of leasing liabilities	-1,292
Cash flow from financing activities	**-1,292**

There is no effect on other comprehensive income or diluted and undiluted earnings per share.

IFRIC 23 Uncertainty over Income Tax Treatments

15 IFRIC 23 clarified the recognition and measurement of items where income tax treatment is unclear. As part of its assessment of uncertainty, a company has to assess whether it is probable that the tax authorities will accept the income tax treatment of circumstances undertaken by the company in its tax return or which it intends to undertake. If the company comes to the conclusion that the income tax treatment will be accepted by the tax authorities, it must determine the taxable income, the tax assessment basis, unused tax losses and tax credits as well as applicable tax rates in accordance with this conclusion. If the company comes to the conclusion that the tax authorities will not accept the relevant income tax treatment, it must take this uncertainty factor into account in determining the associated values with the most probable value (the single mostly likely individual value within a range of possible outcomes) or the expected value (the sum of the probability-weighted amounts of possible outcomes). The method that gives a better indication in terms of resolving uncertainty must be applied here. IFRIC 23 is applicable for the first time for financial years beginning on or after 1 January 2019.

16 The Group makes significant judgements in identifying uncertainties regarding income tax treatment. As the Group operates in a complex international environment, it has assessed whether the interpretation has had an impact on its consolidated financial statements. When applying the interpretation for the first time, the Group considered whether there were any uncertainties regarding tax treatment, particularly in connection with transfer pricing. Transfer pricing deductions have been made in the tax returns filed by the company and its subsidiaries in various jurisdictions, and the relevant tax authorities may question these tax treatments. Based on its analysis of tax compliance and transfer pricing, the Group has concluded that the tax treatments applied by the Group (and its subsidiaries) are likely to be accepted by the tax authorities.

17 There were no effects on the consolidated financial statements resulting from the application of IFRIC 23. For details on income taxes, see sections (156) et seq.

Effects of new accounting standards

18 On 23 January 2020 the IASB published the amendment to IAS 1 "Classification of liabilities as current or non-current". The purpose of the amendments to IAS 1 is to clarify that the classification of liabilities as current or non-current is to be based on existing rights of the company on the balance sheet date. In doing so, management's expectations as to whether such a right will actually be exercised should not be taken into account. The amendments to IAS 1 are to be applied retrospectively and for the first time for fiscal years beginning on or after 1 January, 2022. No significant effects on the consolidated financial statements of IVU are expected.

Significant judgements, estimates and assumptions

19 In preparing the consolidated financial statements, the management makes judgements, estimates and assumptions that affect the amount of the income, expenses, assets and liabilities reported, the related disclosures and the disclosure of contingent liabilities.

20 The key forward-looking assumptions and other main sources of uncertainty in the estimates at the end of the reporting period, on account of which there is a significant risk that a material adjustment to the carrying amounts of assets and liabilities could be necessary within the next financial year, are discussed below. The assumptions and estimates of the Group are based on parameters as at the time the consolidated financial statements were prepared. However, these conditions and the assumptions about future developments can change due to market developments and market conditions beyond the control of the Group. Such changes are not taken into account in the assumptions until they occur.

21 **Impairment on goodwill:** The IVU Group tests goodwill for impairment based on the regulations of IAS 36. Impairment testing is based on the future cash flows to be generated for individual assets or groups of assets combined as cash-generating units. Further details on impairment testing can be found in paragraphs (117) and (118). The carrying amount of the tested goodwill was €11,349 thousand as at 31 December 2019 (previous year: €11,349 thousand).

22 **Determining the term of leases with options to extend or terminate – the Group as a lessee:** The Group determines the term of the lease on the basis of the non-cancellable period of the lease and including the periods resulting from an option to extend the lease, provided that it is reasonably certain that it will exercise this option, or the periods resulting from an option to terminate the lease, provided that it is reasonably certain that it will not exercise this option. The Group has entered into several lease agreements that include options to extend or terminate. These mainly relate to property lease agreements. The Group makes significant judgements in assessing whether there is sufficient certainty that the option to extend or terminate the lease will be exercised or not. In other words, it takes into account all relevant factors constituting an economic incentive for it to exercise the option to extend or terminate. After the commencement date, the Group determines the lease term again if a significant event or change in circumstances occurs that is within its control and affects whether or not it will exercise its option to extend or terminate the lease (e.g. significant leasehold improvements or significant adjustment to the underlying asset).

23 **Revenue from contracts with customers:** The Group made the following judgements, which have a material influence on determining the amount and timing of revenue from contracts with customers:

Identification of contractual obligations in implementation projects

24 The Group provides installation services and furthermore provides licenses, hosting and maintenanceservies.TheGroupgeneratesmuchof its revenue from software implementation projects. The Group has established that the licences, hardware and the services offered are in principle individually definable. However, these contractual commitments are not definable as a rule in the context of the Group's usual implementation projects. Rather, these are contractually defined service packages, where not only the software but also integration thereof plays a key role. Accordingly, implementation projects are usually accounted for as a contractual obligation.

Measurement

25 In the case of implementation projects, the services over a period give rise to assets that do not present any alternative potential uses for IVU. In terms of the contracts, the Group has a legal claim to appropriate remuneration for the services performed at any point during the contract execution.

The Group therefore recognises revenue on the basis of the estimated performance in projects. Performance estimates are made based on an estimated quantity of hours and other project-related costs and are continuously updated. Further details on revenue from projects recognised but not yet invoiced can be found in sections (128) et seq.

26 **Allowance for expected credit losses on trade receivables and contract assets:** The Group does not carry out any general impairment on the basis of an impairment matrix, since there are no signs, based on past experience, of gen-

eral default risks and the customer structure and financial risk management are such that no structural default risk is expected in future either (see paragraph (56) et seq.). Expected losses are recognised via specific valuation allowances in individual cases in question. Information about expected credit losses on the Group's trade receivables and contract assets is included in paragraphs (124) et seq.

27 **Deferred tax assets:** Deferred tax assets are recognised for all unutilised tax loss carryforwards and temporary accounting differences to the extent that it is likely, or that there is substantial objective evidence, that there will be future taxable profit available against which the losses can actually be used. The calculation of the amount of deferred tax assets requires an estimate by the management based on the expected timing and amount of future taxable income together with future tax planning strategy (timing of tax events, consideration of tax risks, etc.). Deferred tax assets on loss carryforwards amounted to €6,607 thousand (2018: €4,438 thousand) as at 31 December 2019. Unutilised corporation tax losses for which no deferred tax assets have been recognised amount to €7.4 million (2018: €20.0 million), and unutilised trade tax losses to €2.3 million (2018: €15.0 million). Deferred tax assets of €10.1 million exceed deferred tax liabilities of €6.6 million. As far as possible, the balance sheet shows netted figures, hence the reporting of a deferred tax asset of €3,553 thousand and a deferred tax liability of €15 thousand. Further details can be found in paragraphs (156) through (160).

28 **Pensions and other post-employment benefits:** The book value of the provisions as well as the cost of post-employment defined benefit plans is determined on the basis of actuarial calculations. The actuarial valuation is based on assumptions regarding discount rates, the expected pension age, future wage and salary increases, mortality and future pension increases. Owing to the long-term nature of these plans, such estimates are subject to significant uncertainty. The new Heubeck mortality tables (2018 G) had to be taken into account in the financial year. The provision for pensions and similar obligations was €5,160 thousand (2018: €4,804 thousand) as at 31 December 2019. Further details can be found in paragraph (136) et seq.

Consolidation principles

a) **Subsidiaries**

29 The consolidated financial statements comprise the financial statements of IVU AG and the subsidiaries it controls as at 31 December 2019. The Group controls an investee when it is exposed to, or has rights to, variable returns from its involvement with the investee and has the ability to affect those returns through its power over the investee. In particular, the Group controls an investee if, and only if, all the following criteria are met:

- control of the investee (i.e. based on its currently existing rights, the Group has the ability to control the activities of the investee that have a significant influence on its returns),
- risks from or rights to variable returns from its exposure in the investee and
- the ability to utilise its control so as to influence the returns from the investee.

If the Group does not hold a majority of the voting or similar rights in an investee, it takes into account all relevant facts and circumstances in assessing whether it controls an investee. These include:

- a contractual arrangement
- with other parties entitled to vote,
- rights resulting from other contractual arrangements,
- voting rights and potential voting rights of the Group.

If facts and circumstances suggest evidence indicating that one or more of the three control criteria have changed, the Group must check again whether it controls an investee. Subsidiaries are included in consolidation from the date when the Group gains control of them. It ends when the Group loses control of them. The assets, liabilities, income and expenses of a subsidiary that was acquired or disposed of during the reporting period are recognised in the statement of financial position or the statement of comprehensive income respectively from the date on which the Group gains control of the subsidiary until the date on which control ceases.

The gain or loss and each component of other comprehensive income are attributed to the holders of ordinary shares of the parent company and the non-controlling interests, even if this results in a negative balance for non-controlling interests. A change in the ownership interest of a subsidiary without a loss of control is accounted for as an equity transaction. The following steps are taken if the parent company loses control of a subsidiary:

- derecognition of the assets (including goodwill) and liabilities of the subsidiary,
- derecognition of the cumulative translation differences recognised in equity,
- recognition of the fair value of the consideration received,
- recognition of the fair value of the investment retained,
- recognition of surplus or deficit in profit or loss,
- reclassification of the components of other comprehensive income attributable to the parent company to the income statement or retained earnings other reserves, as would be required if the Group had sold the related assets or liabilities directly.

30 The purchase method in accordance with IFRS 3 is applied in accounting for acquisitions. Companies acquired or disposed of during the year are included in the consolidated financial statements from the date of acquisition or up to the time of sale.

31 The excess of the cost of an acquisition over the share in the fair values of the identifiable assets and liabilities as at the date of the acquisition is referred to as goodwill and recognised as an asset. The identifiable assets and liabilities are measured at their fair values as at the acquisition date.

32 The following companies are included in the consolidated financial statements as subsidiaries. IVU AG's interests in them are identical to the existing voting rights.

	Share %
IVU Traffic Technologies Italia s.r.l., Bozen, Italy ('IVU Italia')	100.0
IVU Traffic Technologies UK Ltd., Birmingham, Great Britain ('IVU UK')	100.0
IVU Benelux B.V., Veenendaal, Netherlands ('IVU Benelux')	100.0
IVU Chile LTDA., Santiago de Chile, Chile ('IVU Chile')	100.0
IVU Traffic Technologies Inc., Wilmington, Delaware, USA ('IVU USA')	100.0
IVU Traffic Technologies Schweiz AG, Zurich, Switzerland ('IVU Schweiz')	100.0
IVU Austria GmbH., Vienna, Austria ('IVU Austria')	100.0
IVU.elect GmbH, Berlin ('IVU elect')	100.0

By resolution of the Annual General Meeting of 29 May 2019, IVU elect GmbH, Berlin, was spun off from IVU AG retroactively to 1 January 2019.

b) **Joint ventures**

33 In the financial year, IVU AG and ebusplan GmbH, Aachen, founded the joint venture EBS ebus solutions GmbH, based in Aachen (hereinafter: EBS). IVU AG holds a share of 74% and accounts for this using the equity method in accordance with IAS 28 because the provisions of the joint venture shareholders' agreement on voting rights mean that the Group is unable to control those activities of EBS ebus solutions GmbH that have a significant influence on its return.

c) **Consolidation adjustments and uniform measurement in the Group**

34 The annual financial statements of the subsidiaries included in the consolidated financial statements are based on uniform accounting standards and reporting periods.

35 Intercompany balances and transactions, and the resulting intragroup gains and unrealised gains and losses between consolidated companies, have been eliminated in full. Unrealised losses were eliminated only if the transactions gave no substantial indication of an impairment of the asset transferred.

Measurement at fair value

36 Fair value is defined the price that would have to be received from the sale of an asset or that would have to be paid for the transfer of a liability between market participants as part of an orderly transaction on the measurement date. In measuring fair value it is assumed that the transaction in which the asset is sold or the liability is transferred takes place on

- the principal market for the asset or liability, or
- the most advantageous market if there is no principal market.

The Group must have access to the principal market or the most advantageous market. The fair value of an asset or liability is measured based on the assumptions that market participants would use when pricing the asset or liability. It is assumed that the market participants act in their economic best interest. A fair value measurement of a non-financial asset takes into account a market participant's ability to generate economic benefits by using the asset in its highest and best use or by selling it to another market participant that would use the asset in its best use. The Group applies measurement methods that are appropriate in the circumstances and for which there are sufficient data to measure fair value. In doing so, the use of relevant, observable input factors is maximised and that of non-observable input factors is minimised.

All assets and liabilities that are measured at fair value or reported in the notes are assigned to the following levels of the fair value hierarchy based on the lowest input factor that is material overall for measurement:

- Level 1 – (non-adjusted) prices quoted on active markets for identical assets or liabilities.
- Level 2 – measurement method in which the lowest input factor that is material overall for measurement can be observed directly or indirectly on the market.
- Level 3 – measurement method in which the lowest input factor that is material overall for measurement cannot be observed on the market.

For assets and liabilities that are recognised in the financial statements on a recurring basis, the Group determines whether reclassifications between the levels of the hierarchy have occurred by checking the classification at the end of each reporting period.

Currency translation

37 The consolidated financial statements of IVU AG are prepared in euro, the reporting currency of the Group. Each company within the Group determines its own functional currency. The items included in the financial statements of the respective companies are measured using this functional currency. Foreign currency transactions are initially converted using the spot rate between the functional and the foreign currencies on the day of the transaction. Monetary assets and liabilities in foreign currencies are converted into the functional currency at the closing rate. All exchange differences are recognised in profit or loss for the period.

The functional currency of the foreign operation IVU UK is its national currency (pound sterling). As at the end of the reporting period the assets and liabilities of this subsidiary are translated into the reporting currency of IVU AG (euro) at the closing rate (GBP/EUR = 1.1754; 2018: 1.1179). Income and expenses are translated at the weighted average exchange rate for the financial year (GBP/EUR = 1.1393; 2018: 1.1303).

The functional currency of the foreign operation IVU Chile is its national currency (Chilean peso). As at the end of the reporting period the assets and liabilities of this subsidiary are translated into the reporting currency of IVU AG (euro) at the closing rate (CLP/EUR = 0.0012; 2018: 0.0013). Income and expenses are translated at the weighted average exchange rate for the financial year (CLP/EUR = 0.0013; 2018: 0.0013).

The functional currency of the foreign operation IVU Schweiz is its national currency (Swiss franc). As at the end of the reporting period the assets and liabilities of this subsidiary are translated into the reporting currency of IVU AG (euro) at the closing rate (CHF/EUR = 0.9213; 2018: 0.8874). Income and expenses are translated at the weighted average exchange rate for the financial year (CHF/EUR = 0.8990; 2018: 0.8658).

The functional currency of the foreign operation IVU USA is its national currency (US dollars). As at the end of the reporting period the assets and liabilities of this subsidiary are translated into the reporting currency of IVU AG (euro) at the closing rate (USD/EUR = 0.8902; 2018: 0.8734). Income and expenses are translated at the weighted average exchange rate for the financial year (USD/EUR = 0.8933; 2018: 0.8467).

The exchange differences arising from translation of the functional currencies of the foreign operations to the reporting currency of IVU AG are each recognised as a separate component of equity.

Non-current assets

a) **Intangible assets**

38 Intangible assets are measured at cost on initial recognition. Intangible assets are recognised if it is likely that the company will derive future economic benefit from them and the cost of the asset can be measured reliably. Following initial recognition, intangible assets are carried at cost less any cumulative amortisation and cumulative impairment losses (reported under depreciation and amortisation). Intangible assets – excluding goodwill – are amortised on a straight-line basis over their estimated useful lives. The amortisation period and the amortisation method are reviewed at the end of each financial year. With the exception of goodwill, the Group has no intangible assets with indefinite useful lives.

39 **Goodwill:** Goodwill is initially measured at cost, which is the excess of the total consideration transferred and the amount of the non-controlling interest in the net identifiable assets acquired and the liabilities assumed. If the fair value of the net assets acquired exceeds the total consideration transferred, the difference is recognised in profit or loss. After initial recognition goodwill is measured at cost less cumulative impairment. For the purpose of impairment testing, goodwill acquired in a business combination is, from the acquisition date, allocated to each of the Group's cash-generating units that are expected to benefit from the combination, irrespective of whether other assets or liabilities of the acquiree are assigned to those units. Where goodwill has been allocated to a cash-generating unit and part of the operation within that unit is disposed of, the goodwill associated with the disposed operation is included in the carrying amount of the operation when determining the gain or loss on disposal. Goodwill disposed in these circumstances is measured based on the relative values of the disposed operation and the portion of the cash-generating unit retained.

40 **Industrial rights and licenses, software:** Amounts paid for the purchase of industrial rights and licenses are capitalised and then amortised on a straight-line basis over their expected useful life.

41 The cost of new software is capitalised and treated as an intangible asset if these costs are not an integral part of the related hardware. Software is amortised on a straight-line basis over a period of three or five years, unless it has a shorter useful life.

42 Costs incurred to restore or preserve the future economic benefits that the company had originally anticipated are expensed as incurred.

43 **Capitalised development costs for internally developed software:** Research costs are expensed in the period in which they are incurred. An intangible asset arising from the development of an individual project is recognised only when the IVU Group can demonstrate the technical feasibility of completing the intangible asset so that it is available for internal use or for sale, and the intention to complete the intangible asset and use or sell it. Furthermore, the Group must demonstrate the generation of future economic benefits by the asset, the availability of resources to complete the asset and the ability to reliably determine the expenditure attributable to the intangible asset during its development. Following initial recognition of the development expenditure as an asset, the asset is carried at cost less any cumulative amortisation and cumulative impairment losses. Amounts capitalised in previous years are amortised over the period of expected future revenue from the project (straight-line depreciation over a period

of three to five years). The capitalised amount of development costs is reviewed annually for impairment, if the asset is not yet in use, or during the year if there is evidence of impairment.

44 No development costs were capitalised in the 2019 and 2018 financial years.

b) **Property, plant and equipment**

45 Property, plant and equipment is carried at cost less cumulative depreciation and cumulative impairment losses. If property, plant and equipment are sold or scrapped, the corresponding cost and cumulative depreciation are derecognised; any gain or loss from the disposal is reported in the income statement.

46 The cost of an item of property, plant and equipment comprises its purchase price, including import duties and other incidental purchase taxes in connection the acquisition non-refundable and any directly attributable costs incurred to bring the asset to its location and in a working condition for its intended use. Subsequent costs such as maintenance and repair costs incurred after the assets have been put into operation are expensed in the period in which they are incurred. If it is likely that expenditure will result in the company deriving a future economic benefit above the originally assessed standard of performance from the existing asset, the expenditure is capitalised as an subsequent cost of items of property, plant and equipment.

47 Depreciation is calculated on a straight-line basis over the estimated useful life assuming a residual carrying amount of €0. If assets contain several components that have different useful lives, these components are depreciated individually over their respective useful lives. The following estimated useful lives are used for the individual groups:

- Hardware: 3 years
- Other office equipment: 3 to 15 years

Useful lives and depreciation methods for property, plant and equipment are reviewed periodically to ensure that depreciation methods and periods reflect the expected economic benefit of the assets.

c) **Shares in financial assets accounted for using the equity method**

48 The Group's shares in financial assets accounted for using the equity method include shares in a joint venture. A joint venture is an arrangement where the Group exercises joint control, whereby it has rights to the net assets of the arrangement rather than rights over its assets and obligations for its liabilities.

49 Shares in the joint venture are accounted for using the equity method. They are initially recognised at cost, which includes transaction costs. After initial recognition, the consolidated financial statements include the Group's share of the comprehensive income from investments accounted for using the equity method until the date on which joint control ceases.

d) **Impairment of non-current assets**

50 Non-current assets are tested for impairment when facts or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. The first step in impairment testing is calculating the recoverable amount of the asset or cash-generating unit (CGU). This is defined as the higher of the fair value less costs to sell and the value in use. The fair value less costs to sell is defined as the price that can be achieved in the sale of an asset or CGU between two knowledgeable, willing and independent parties less costs to sell. The value in use of an asset or a CGU is determined by the present value under the current use on the basis of expected cash flows. No impairment of non-current assets was recognised in the 2019 and 2018 financial years.

e) **Financial assets**

51 **Initial recognition and measurement:** On initial recognition, financial assets are classified for subsequent measurement either as at amortised cost, as at fair value in other comprehensive income without affecting profit or loss or as at fair value through profit or loss. The classification of financial assets on initial recognition depends on the characteristics of the contractual cash flows of the financial assets and on the Group's business model for managing its financial assets. Trade receivables that do not contain any

significant financing components are measured at the transaction price determined in accordance with IFRS 15. Please see the accounting policies in the section "Revenue from contracts with customers".

52 **Subsequent measurement:** Financial assets are classified in four categories for subsequent measurement:

- Financial assets measured at amortised cost (debt instruments).
- Financial assets measured at fair value in other comprehensive income with reclassification of cumulative gains and losses (debt instruments).
- Financial assets measured at fair value in other comprehensive income without reclassification of cumulative gains and losses on derecognition (equity instruments).
- Financial assets measured at fair value.

53 **Financial assets measured at amortised cost (debt instruments):** This category has the most significance for the consolidated financial statements while the other categories listed above do not play any material role. The Group measures financial assets at amortised cost if the following two conditions are met:

- The financial asset is held within the framework of a business model, the objective of which is to hold financial assets to collect the contractual cash flows, and
- the contractual terms of the financial assets lead to cash flows at specific times, which solely constitute principal and interest payments on the outstanding capital amount.

The effective interest rate is used to measure financial assets in subsequent periods and they must be tested for impairment. Gains and losses are recognised in profit or loss when the asset is derecognised, modified or impaired. The Group's financial assets measured at amortised cost contain trade receivables, cash and cash equivalents and other current assets.

54 **Derecognition:** A financial asset (or part of a financial asset or a part of a group of similar financial assets) is mainly derecognised (i.e. removed from the consolidated statement of financial position) when it is classified as irretrievable.

55 **Impairment of financial assets:** Additional details of the impairment of financial assets are contained in notes "Significant judgements, estimates and assumptions" [paragraphs (19) to (23)] and in the notes on the consolidated statement of financial position, chapter C.

Expected credit losses are recognised in two steps. For financial instruments where the risk of default has not increased significantly since initial recognition, a risk provision in the amount of the expected credit losses is recognised, which is based on a default event within the next twelve months (12-month ECL). For financial instruments where the risk of default has increased significantly since initial recognition, an enterprise must recognise a risk provision in the amount of the expected credit losses over the remaining term, regardless of when the default event occurs (total term ECL).

No allowance on the basis of a write-down matrix for trade receivables and contract assets, since there are no signs of general default risks in the Group. For financial assets at amortised cost, if there is objective evidence that the company cannot recover all amounts contractually due for loans, receivable or held-to-maturity investments, an impairment loss, or a write-down on receivables is recognised in profit or loss. The impairment loss is defined as the difference between the carrying amount of the asset and the present value of expected future cash flows using the effective interest method. The carrying amount of the asset is reduced using an allowance account. The impairment loss is recognised in profit or loss. An impairment loss previously recognised in profit or loss is reversed, also in profit or loss, if the subsequent partial recovery can objectively be linked to an event occurring after the original impairment. However, an increase in value is recognised only to the extent that the amortised cost that would have been without impairment is not exceeded.

Objective and methods of financial risk management

56 In addition to trade receivables, the main financial instruments of the company are cash and cash equivalents and liabilities to banks. The aim of these financial instruments is to finance operations. The material risks are from credit

and liquidity risks. Exchange rate risks are only insignificant due to the immateriality of foreign currency receivables and liabilities. Fair value risks relate solely to available-for-sale financial assets and are also insignificant.

57 Credit risks, or the risk that a counterparty does not fulfil its payment obligations, are managed through the use of credit lines and control procedures. The company obtains collateral where appropriate. The Group does not have a significant concentration of credit risk with either a single counterparty or a group of counterparties with similar characteristics. The maximum credit risk is equal to the amount of the reported carrying amounts of financial assets.

58 Liquidity risk arises from the fact that customers may not be able to fulfil their obligations to the company under the agreed conditions.

59 Moreover, the IVU Group endeavours to have sufficient cash and cash equivalents or corresponding lines of credit to meet its future obligations.

60 The maturities of financial liabilities as at 31 December 2019 are as follows:

	Due € thou.	Within 1 year € thou.	More than 1 year € thou.	Total € thou.
Trade payables	199	7,368	0	7,567
Other liabilities	0	10,456	0	10,456
Total	**199**	**17,824**	**0**	**18,023**

Given the short-term nature of financial liabilities, as at 31 December 2019 there are no material differences between the carrying amounts shown in the statement of financial position and the undiscounted cash flows.

61 The maturities of financial liabilities as at 31 December 2018 are as follows:

	Due € thou.	Within 1 year € thou.	More than 1 year € thou.	Total € thou.
Trade payables	102	3,171	0	3,273
Other liabilities	1	10,378	0	10,379
Total	**103**	**13,549**	**0**	**13,652**

Given the short-term nature of financial liabilities, as at 31 December 2018 there are no material differences between the carrying amounts shown in the statement of financial position and the undiscounted cash flows.

Current assets

a) **Inventories**

62 Inventories are measured at the lower of cost or the expected sales proceeds less costs yet to be incurred.

b) **Cash and cash equivalents**

63 Cash and cash equivalents comprise cash, time deposits and demand deposits. Cash and cash equivalents are defined in line with this in the consolidated statement of cash flows.

Equity

64 Equity comprises share capital, capital reserves, retained earnings and other reserves. The accumulated results reported as 'retained earnings' up to 31 December 2018 have been combined with the revenue reserve in these consolidated financial statements. The previous year's disclosure was adjusted accordingly.

65 In the previous year, €2,500 thousand was transferred from net income to revenue reserves (2018: €2,500 thousand).

66 Actuarial gains and losses from the measurement of pension commitments and unrealised gains and losses from currency translation in currency translation adjustments are reported in the other reserve.

Share-based payment arrangements

67 The fair value at grant date of share-based payment arrangements to Executive Board members is recognised as an expense with a corresponding increase in equity over the period in which the Executive Board members become unconditionally entitled to the shares. As the share-based payment agreement contains market conditions, the fair value at grant date takes into account the probability of the

condition being met and accordingly reflects the probability of different outcomes.

68 **Description of share-based payment arrangements:** Under the Long Term Incentive Plan initiated by the company, the members of the Executive Board receive shares in the company as a further variable remuneration component. The future transfer of shares is dependent on the positive development of the IVU share price, taking into account the performance of the TecDAX stock market index, and the achievement of a certain target price in the fourth quarter of 2022. The term of the programme will end on 31 December 2022. The physical delivery of the shares would then have to be fulfilled by IVU in the first quarter of 2023. In accordance with the principle of sustainable remuneration, the right to transfer and the number of shares actually transferred to the Executive Board depends on the economic development of the company. A maximum total of 180,000 shares can be granted, the minimum number is 0. IVU will settle its obligations under the Long Term Incentive Plans by repurchasing treasury shares and issuing them to Executive Board members on the settlement date.

69 **Determination of fair values:** The fair value of the share programme amounts to €1,216 thousand and was determined using the Monte Carlo simulation. The fair value of those equity instruments are measured at grant date. If a share-based payment arrangement contains a market condition, the fair value at grant date should reflect the probability that the conditions will be met and, accordingly, the probability of different outcomes. In order to do justice to this from a valuation point of view, a valuation technique was applied that takes into account various possible outcomes. In determining the fair value of the share-based payment plans, an IVU share price of €9.86, an index value of 2,873 points – in each case on the grant date – a term of 3.6 years, standard deviations of returns of 19% (index) and 35% (share price) and a risk-free interest rate of -0.62% were used.

70 **Expenses recognised in profit or loss:** Personnel expenses include expenses from share-based payments settled by equity instruments (share option programme for Executive Board members) amounting to €198 thousand (previous year: €0 thousand). In the following years until the end of the term of the programme, €339 thousand will be recognised annually in personnel expenses and transferred to the capital reserve.

Provisions for pensions

71 The IVU Group has three defined benefit pension plans. Each year, the net pension obligations (pension obligations less plan assets) are measured by recognised, independent actuaries. The cost of the benefits granted is calculated separately for each plan using the projected unit credit method. Remeasurements, comprising of actuarial gains and losses, the effect of the asset ceiling, excluding amounts included in net interest on the net defined benefit liability and the return on plan assets (excluding amounts included in net interest on the net defined benefit liability), are recognised immediately in the statement of financial position with a corresponding debit or credit to other reserves through OCI in the period in which they occur. Remeasurements are not reclassified to profit or loss in subsequent periods. The amount recognised as an asset or liability from a defined benefit plan includes the present value of the defined benefit obligation less the unrecognised past service cost and the fair value of plan assets for the immediate settlement of obligations. The plan assets consist of cash and cash equivalents. Plan assets are protected from the creditors of the Group.

Current liabilities

a) **Other provisions**

72 Provisions are recognised only when the company has a present obligation (legal or constructive) as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. Provisions are reviewed as at the end of each reporting period and adjusted to the current best estimate. If the effect of the time value of money is material, the amount of the provision is the present value of the expenditure expected to be required to settle the obligation. When discounting is used, the increase in the provision due to the passage of time is recognised as a finance cost.

In accordance with IAS 37, contingency reserves include current contractual obligations from onerous contracts. In the valuation, the contractually agreed revenue is compared with the order-related fixed and variable costs of meeting the obligations. General administrative and selling expenses are not included.

b) **Financial liabilities**

73 **Initial recognition and measurement:** financial liabilities are classified on initial recognition as financial liabilities, which are measured at fair value, as loans, as liabilities or as derivatives, which were designed as hedging instruments and are effective as such.

All financial liabilities are measured at fair value on initial recognition, less directly attributable transaction costs in the case of loans and liabilities. The Group's financial liabilities comprise trade payables and other liabilities.

Subsequent measurement: Trade payables and other liabilities are subsequently measured at amortised cost using the effective interest method.

A financial liability is derecognised if the underlying obligation is fulfilled, cancelled or has expired.

Contingent liabilities and contingent assets

74 Contingent liabilities are not reported in the financial statements. They are disclosed in the notes, unless it is highly unlikely that they will result in an outflow of economic benefits.

75 Contingent assets are not reported in the financial statements. However, they are disclosed in the notes if the inflow of economic benefits is likely.

Government grants

76 A government grant is recognised if there is reasonable assurance that the company will comply with the conditions attached to it. Government grants are recognised as income systematically in line with the expenses that they are intended to compensate. Grants received for the acquisition of property, plant and equipment are recognised in other liabilities as deferred income. The income recognised in connection with grants is reported as other operating income in the income statement.

77 The investment grants to the company from various bodies are linked to compliance with future conditions. The investment grants received from the tax authorities are subject to compliance with retention guarantees for the subsidised assets. No investment grants or subsidies were recognised as at 31 December 2019.

78 In 2019, IVU AG recognised funding under various government projects for the development of software applications in the amount of €52 thousand (2018: €469 thousand). The income is included in other operating income.

Research and development costs

79 Research and development costs amounted to €4,402 thousand in the 2019 financial year (2018: €3,464 thousand).

Leases (from 1 January 2019)

80 At the inception of a contract, the Group assesses whether it constitutes or contains a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. The Group recognises and measures all leases (with the exception of short-term leases and leases for which the underlying asset is of low value) using a single model. It recognises liabilities for lease payments and rights of use for the right to use the underlying asset.

81 **Rights of use:** The Group recognises rights of use at the commencement date (i.e. when the underlying leased asset is ready for use). Rights of use are recognised at cost less any accumulated depreciation and any accumulated impairment losses and are adjusted for any remeasurement of the lease liabilities. The cost of rights of use includes the lease obligations recognised, the initial direct costs incurred and the lease payments made at or before provision,

less any lease incentives received. Rights of use are amortised on a straight-line basis over the shorter of the lease term and the expected useful life of the lease. The rights of use are also tested for impairment.

82 **Lease liabilities:** At the lease commencement date, the Group recognises lease liabilities at the present value of the lease payments payable over the lease term. Lease payments comprise fixed payments (including in-substance fixed payments) less any lease incentives to be received. Purchase options, penalties for termination and variable lease payments were not taken into account in the financial year. In calculating the present value of the lease payments, the Group uses its assumed incremental borrowing rate at the commencement date (interest rate statistics of the Deutsche Bundesbank), as the interest rate underlying the lease cannot be readily determined. After the commencement date, the amount of lease liabilities is increased to reflect the higher interest expense and decreased to reflect lease payments made. In addition, the carrying amount of lease liabilities is revalued if there are changes in the lease, changes in the lease term, changes in lease payments (for example, changes in future lease payments resulting from a change in the index or interest rate used to determine those payments) or a change in the assessment of a call option for the underlying asset.

83 The following table shows the carrying amounts of the rights of use recognised and the changes during the reporting period:

	Property rental € thou.	Cars € thou.	Hardware € thou.	Total € thou.
As at 1 January 2019	7,287	152	104	7,543
Additions	801	130	0	931
Depreciation expense	1,122	114	40	1,276
As at 31 December 2019	**6,966**	**168**	**64**	**7,198**

84 The following table shows the book values of the lease liabilities and the changes during the reporting period as well as a maturity analysis of the leasing liabilities:

	2019 € thou.
As at 1 January	7,543
Additions	1,010
Interest accrued	47
Payments	1,292
As at 31 December	**7,308**
Of which due within 1 year	1,206
Of which due between 1 and 5 years	3,842
Of which due in more than 5 years	2,260

85 The following amounts were recognised in profit or loss in the reporting period:

	2019 € thou.
Depreciation expense for rights of use	1,276
Interest expenses for lease liabilities	126
Expenses for short-term leases (included in other operating expenses)	38
Expenses for leases with an asset of low value	0
Variable lease payments	0
Total amount recognised in profit or loss	**1,440**

86 The Group has entered into several lease agreements that include options to extend or terminate. This mainly relates to the property lease agreements for the Berlin, Aachen and Rome locations. The assessment of whether the exercise of these options to extend and renew is sufficiently certain requires significant judgements on management's part.

87 The Group's cash outflows for leases amounted to €1,285 thousand in 2019. In addition, the Group reported non-cash additions to rights of use and lease liabilities of €931 thousand in 2019.

Leases (up to 31 December 2018)

88 The determination as to whether an agreement is or contains a lease was made on the basis of the economic content of the agreement and required an assessment of whether the fulfilment of the contractual agreement is dependent on the use of a particular asset or assets, and of whether the agreement grants the right to use the asset.

89 A lease wis classified as an operating lease if all the risks and rewards of ownership substantially remained with the lessor. Lease payments for operating lease were recognised as expenses on a straight-line basis over the term of the lease.

90 The IVU Group had primarily entered into leasing agreements for motor vehicles. The terms of these operating leases were usually three to four years.

91 Finance leases in which essentially all risks and opportunities associated with ownership of the leased asset were transferred to the Group result in the capitalisation of the leased asset at the inception of the lease. The leased asset was capitalised at the lower of its fair value or the present value of the minimum lease payments. A leased asset was depreciated over the useful life of the asset. However, if there was no reasonable certainty that the Group will obtain ownership by the end of the lease term, the asset was depreciated over the shorter of the estimated useful life of the asset and the lease term.

Revenue from Contracts with Customers

92 The IVU Group mainly generates its revenue from project business. In this, it enters into agreements with customers for the development/production of software and its adaptation. These projects also include the sale of hardware and services, e.g. installation, consulting, training, maintenance and the sale of licenses.

93 Revenue from contracts with customers is recognised if control of goods and services is transferred to the customer. It is recognised at the amount of consideration which the Group is expected to receive in exchange for these goods or services to a customer. The Group has come to the conclusion that it acts as principle with its sales transactions, as it usually has control of goods or services before these are passed to the customer.

94 The significant judgements, estimates and assumptions in connection with revenue from contracts with customers are explained in sections (23) et seq.

95 For all types of contract, the Group checks whether several commitments are contained in the contract, which constitute separate contractual obligations, to which a part of the transaction price must be allocated. In determining the transaction price, the Group takes account of the effects of variable consideration, the existence of significant financing components, non-cash consideration and, if applicable, consideration to be paid to a customer.

96 The Group offers the warranties usually prescribed by law for the rectification of defects, which were present at the time of sale. These assurance-type warranties, as they are known, are recognised in accordance with IAS 37 Provisions, Contingent Liabilities and Contingent Assets. Details on the accounting policy for warranty provisions are included in section (72).

97 As a rule, the Group has no material costs for contract initiation to be capitalised, as sales take place on the Group's behalf and no direct commission is paid for these. Other contract initiation costs, e.g. stamp duties and other fees are insignificant in amount.

98 Revenue is recognised over a period of time or at a specific point in time depending on the contract and the service to be supplied.

a) **Project business**

99 For long-term project agreements that satisfy the conditions for measurement over a period of time (the service creates an asset that does not represent an alternative use for IVU), revenue from the development and sale of software products and implementations is deferred and recognised based on the percentage of completion of the project using an input-oriented method. The percentage of completion is usually determined by the ratio of costs incurred to the total planned costs. Advance payments received from customers are offset against contract assets on a project related basis and progress billings to customers are – unless they are already settled – reported under trade receivables. Changes in the project conditions can lead to adjustments to the originally recognised costs and revenue for individual projects. The changes are recognised in the period in which these changes are established, which is usually the case when supplementary agreements are concluded between the company and its customers.

b) **Sale of licenses**

100 The IVU Group recognises its revenue on the basis of a corresponding contract at a certain point in time, once the license has been delivered,

the sale price is fixed or determinable, there are no significant liabilities to customers and realisation of the receivables is deemed probable.

c) **Maintenance, consulting and training**

101 Revenue from maintenance contracts is recognised over a period of time on a straight-line basis over the term of the contract. Income from consulting and training is recognised when the service is rendered.

d) **Supply of hardware**

102 Proceeds from the sale of goods (hardware deliveries) are recognised at a certain point in time when delivery has taken place and the risks and rewards have been transferred to the buyer. The corresponding revenue is included in paragraph (163) under revenue for goods/services/works contracts.

e) **Contract balances**

103 **Contract assets:** A contract asset is the claim to receive consideration in exchange for goods or services, which were transferred to a customer. If the Group complies with its contractual obligations by transferring goods or services to a customer before the customer pays the consideration or before the payment is due, a contract asset is recognised for the contingent claim for consideration.

104 **Trade receivables:** A receivable is an unconditional claim by the Group to consideration (i.e. it becomes due automatically through the passage of time). The accounting policies for financial assets are explained in sections (51) et seq.

105 **Contract liabilities:** A contract liability is the Group's obligation to transfer goods or services to a customer for which it has received consideration (or is still to receive consideration) from the latter. If the customer pays a consideration before the Group transfers goods or services, a contract liability is recognised, if the payment is made or due (depending on which of the two occurs first). Contract liabilities are recognised as revenue as soon as the Group fulfils its contractual obligations.

Income taxes

106 Current tax assets and tax liabilities for both the current period and prior periods are measured at the amount expected in the form of a refund from the tax authorities or to be paid to the tax authorities respectively. The calculation of this amount is based on the tax rates and tax laws in effect at the end of the reporting period or that will shortly be in effect thereafter.

107 Deferred taxes are recognised using the asset and liability method on all temporary differences between the carrying amounts for assets and liabilities in the statement of financial position and their amounts in the tax base as at the end of the reporting period. Deferred tax liabilities are recognised for all taxable temporary differences with the following exceptions:

- The deferred tax liability from the initial recognition of goodwill or an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss is not recognised.
- The deferred tax liability is not recognised for taxable temporary differences in connection with investments in subsidiaries, associates or interests in joint ventures if the timing of the reversal of the temporary difference can be controlled and it is probably that the temporary differences will not reverse in the foreseeable future.

108 Deferred tax assets are recognised for all deductible temporary differences, unutilised tax loss and interest carryforwards and unused tax credits to the extent that it is likely that future taxable income will be generated against which these deductible temporary differences and the unutilised tax loss and interest carryforwards and unused tax credits can be offset.

109 The following exceptions apply:

- The deferred tax assets from deductible temporary differences from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss are not recognised.

- Deferred tax assets from taxable temporary differences in connection with investments in subsidiaries, associates or interests in joint ventures are only recognised to the extent that the temporary differences will reverse in the foreseeable future and there will be sufficient taxable profit against which the temporary differences can be used.

The carrying amount of deferred tax assets is assessed at the end of each reporting period and written down to the extent that it is no longer probable that sufficient taxable profit will be available against which the deferred tax asset can be at least partially offset. Unrecognised deferred tax assets are assessed at the end of each reporting period and recognised to the extent that it has become probable that future taxable profit will allow the deferred tax asset to be recovered.

110 Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the year when the asset is realised or the liability is settled. The tax rates (and tax laws) which are in effect or that have been announced as at the end of the reporting period apply. Deferred and current taxes relating to items recognised directly in equity are recognised in equity and not in profit or loss.

111 Deferred tax assets and deferred tax liabilities are offset against each other if the Group has a legally enforceable right to offset current tax assets against current tax liabilities and these income taxes relate to the same taxable entity, which is assessed by the same tax authority.

Sales tax

112 Revenue, expenses and assets are recognised net of the amount of sales tax, except:

- When the sales tax incurred on a purchase of assets or services is not recoverable from the taxation authority, in which case, the sales tax is recognised as part of the cost of acquisition of the asset or as part of the expense item, as applicable.
- When receivables and payables are stated with the amount of sales tax included.

The net amount of sales tax recoverable from, or payable to, the taxation authority is included as part of receivables or payables in the consolidated statement of financial position.

Segment reporting

113 For the purposes of management the IVU Group was divided into two main segments up to 31 December 2018:

- Public Transport
- Logistics

114 The Logistics segment has no longer recorded any significant growth rates in recent years and has also fallen below the thresholds of IFRS 8.13 since 2018. With the aim of focusing on the core business the former Logistics segment was dissolved as at 1 January 2019 and is therefore no longer reported separately. The promising and profitable products from the former Logistics segment were incorporated into the existing solutions for public transport and integrated accordingly into the Public Transport segment.

115 No business segments that can be used as a basis for segment reporting can be derived from the reporting structure for the 2019 financial year because the IVU Group has only one reportable segment 'IVU Total' in the 2019 financial year. Therefore, a separate segment report was not prepared. The financial information on geographical segments is presented in Note F.

C. NOTES TO THE CONSOLIDATED STATEMENT OF FINANCIAL POSITION

Non-current assets

Intangible assets and property, plant and equipment

116 With regard to the development of non-current assets in the financial year ending 31 December 2019, reference is made to the development of intangible assets and property, plant and equipment shown in the statement of changes in fixed assets.

117 On 31 December 2019 and 31 December 2018, the IVU Group carried out impairment tests in line with the concept of value in use with respect to goodwill. In line with the integration of the cash-generating Logistics segment into Public Transport as described in paragraphs (113) et

seq., the allocated goodwill was also combined. The impairment test is based on the following cash-generating unit with their carrying amount for goodwill:

Cash-generating unit	**31.12.2019** € thou.	31.12.2018 € thou.
Public Transport	11,349	8,980
Logistics	0	2,369
Total	**11,349**	**11,349**

118 The impairment test is based on the cash flow forecast for the cash-generating unit over a period of five years. Beyond the planning horizon, further cash flows were included assuming growth of 2.0% (2018: 1.0%). Furthermore, for the detailed planning period the management is planning growth in gross profit of 5.2% on average. The cash flows shown were derived from past information and contractually agreed orders for the 2020 financial year. The assumptions by management regarding business development trends in the software industry are consistent with the expectations of industry experts and market observers. Discount rates of 9.17% after taxes (2018: 8.53%) were applied. The adjustment of interest rates reflects current economic conditions (real economy developments and financing conditions). As there is significant uncertainty regarding projected cash flows and financing terms in the light of the existing economic conditions, the Executive Board of the IVU Group conducted the impairment test on the basis of a worst-case scenario of 10% and 20% lower cash flows, discount rate adjustments after taxes by 1 and 2 percentage points and a reduction of the growth rate after the end of the detailed planning period of 0.5% and 0. This also did not give rise to impairment requirements.

Investments accounted for using the equity method

119 For accounting policies, please see paragraph (48) et seq.

120 As at 31 December 2019, the carrying amount of financial assets accounted for using the equity method was €0 thousand and includes the shares in EBS, which was founded in the financial year 2019. EBS is a joint venture which the Group manages jointly. EBS mainly operates in the development of software for the planning and control of electric buses. The joint venture is not listed on the stock exchange.

121 EBS was founded in the financial year. It has no goodwill. In accordance with the agreement under which EBS was established, the Group has a future payment obligation to the company of €854 thousand. In the past financial year, the Group has already paid €100 thousand to the company for financing purposes.

122 The following table summarises the financial information of EBS for the 2019 financial year as presented in its own financial statements:

	31.12.2019 € thou.
Ownership interest	74%
Non-current assets	3
Current assets	49
Cash and cash equivalents	12
Financial liabilities	0
Non-financial liabilities	-312
Net assets (100%)	**-248**
Group share of net assets (74%)	-184
Carrying amount of the share in the Group as at 31 December 2019	**0**
	07.03.2019 bis **31.12.2019**
Comprehensive income (100%)	-373
Group share in comprehensive income (74%)	-276

In the year under review, €119 thousand in pro rata earnings to be received were recognised in the consolidated income statement. Accumulated non-recognised earnings of €157 thousand were not recognised, as the net investment in EBS is negative.

Current assets

Inventories

123 Inventories are composed of merchandise and advance payments as follows:

	31.12.2019 € thou.	31.12.2018 € thou.
Merchandise	1,118	1,204
Advance payments	1,574	942
Total	**2,692**	**2,146**

Trade receivables include value adjustments as follows:

124 Trade receivables include value adjustments as follows:

	31.12.2019 € thou.	31.12.2018 € thou.
Trade receivables	30,483	24,916
Specific valuation allowances	-372	-289
Total	**30,111**	**24,627**

125 Trade receivables do not bear interest and mature in between 0 and 90 days. The specific valuation allowances recognised developed as follows:

	2019 € thou.	2018 € thou.
As at 1 January	289	486
Charge for the year	174	42
Utilised	-42	-37
Unused amounts reversed	-49	-202
As at 31 December	372	289

126 The reversal through profit or loss results from incoming payments for receivables that had been written down individually.

127 The maturity structure of trade receivables was as follows as at 31 December:

	31.12.2019 € thou.	31.12.2018 € thou.
Neither past due nor impaired	22,087	18,690
Past due, not impaired		
< 30 days	3,475	4,249
31 to 60 days	900	261
61 to 90 days	539	302
> 90 days*	3,110	1,124
	8,024	5,937
As at 31 December	**30,111**	**24,627**
Of which current receivables	30,111	24,590
Of which non-current receivables	0	37

* Of which paid by 28 February 2020: €1,943 thousand (previous year: €123 thousand)

Contract assets/contract liabilities

128 Reported contract assets (in 2017 current receivables from construction contracts) relate to our contingent claims for consideration for complete performance of our contractual services. If the claim to receive consideration becomes unconditional because the project has been concluded or accepted by the customer, the amounts recognised as contract assets are reclassified into trade receivables. Contract assets are usually calculated by the ratio of costs incurred to the total planned costs (cost-to-cost method). This item includes directly allocable costs (staff costs and third-party services) and an appropriate portion of overheads.

129 As at 31 December 2019, there were contract assets of €14,756 thousand (previous year: €13,135 thousand).

Contract liabilities of €9,129 thousand (previous year: €7,865 thousand) include advance payments received and deliveries and services invoiced as agreed, which exceed the corresponding contract assets.

The obligations reported under contractual liabilities at the beginning of the financial year led to revenues of € 2.9 million (previous year € 2.1 million). IVU usually receives payments from customers on the basis of a settlement schedule, which is a component of customer contracts.

For further details of revenue from contracts with customers see paragraph (163).

130 There are normal warranty obligations for goods accepted under construction contracts.

Other current assets

131 Other current assets essentially consist of demand deposits, which are to secure guarantees and are not freely available. In addition, the item „Other" in 2019 includes restricted cash due to a pledge agreement.

	31.12.2019 € thou.	31.12.2018 € thou.
Demand deposits to secure guarantees	2,884	2,926
Receivables from tax credit	866	628
Prepaid expenses	362	211
Other	564	108
Total	**4,676**	**3,873**

Cash and cash equivalents

132 Cash and cash equivalents nearly exclusively consist of bank balances.

	31.12.2019 € thou.	31.12.2018 € thou.
Bank balances	29,251	21,295
Cash balances	3	3
Total	**29,254**	**21,298**

Equity

133 Please see the statement of changes in consolidated equity for details.

134 The fully paid-in share capital entered in the commercial register as at the end of the reporting period amounts to €17,719,160.00 (2018: €17,719,160.00) and consists of 17,719,160 (2018: 17,719,160) no-par value shares.

135 By way of resolution of the Annual General Meeting on 25 May 2016, the Executive Board was authorised, with the approval of the Supervisory Board, to increase the company's share capital on one or several occasions by up to 30% of the current share capital of €17,719,160, i.e. by €5,315,748, by issuing new no-par value bearer shares against cash or non-cash contributions by 24 May 2021. The Executive Board can make use of this authorisation for any legally permissible purpose. In 2018 and 2019, the Executive Board did not make use of this authorisation.

Furthermore, by way of resolution of the Annual General Meeting on 29 May 2019, the Executive Board was authorised to acquire shares in the company for any purpose permitted under Section 71 (1) No. 8 of the German Stock Corporation Act (AktG) in the context of the statutory restrictions and in line with the following provisions by 28 Mai 2024. The authorisation is restricted to the acquisition of shares with a proportional amount of the share capital of €1,771,916, i.e. 10% of the share capital of €17,719,160.

Non-current liabilities

Pension provisions

136 Pension provisions are recognised for benefit obligations (pension, invalidity, widows' and orphans' pensions) and for current payments to eligible active and former employees of IVU AG and their surviving dependents.

137 The amount of the pension obligation (defined benefit obligation) was calculated using actuarial methods on the basis of the following assumptions:

	2019 %	2018 %
Discount rate	1.30	2.02
Salary trend	2.50	2.50
Pension trend	2.00	2.00
Turnover	3.00	3.00

138 The salary trend includes expected future salary increases, which are estimated annually depending on inflation and the period of service with the company.

The net pension expenses are as follows:

	2019 € thou.	2018 € thou.
Service cost	3	11
Interest expense	94	90
Expense for the period	**97**	**101**

139 The following table shows the development of pension obligations:

	2019 € thou.	2018 € thou.
Present value of pension obligations, 31 Dec	5,452	5,170
Less fair value of plan assets	292	366
Provisions for pensions	**5,160**	**4,804**

140 The following table shows the development of pension obligations:

	2019 € thou.	2018 € thou.
Present value of pension obligations, 1 Jan	5,170	5,280
Service cost	3	11
Interest expense	102	100
Pension payments	-241	-232
Actuarial losses from changes in demographic assumptions recognised in equity (other comprehensive income)	0	92
Actuarial gains from changes in financial assumptions recognised in equity (other income)	460	-56
Actuarial losses from experience adjustments recognised in equity (other income)	-42	-25
Present value of pension obligations, 31 Dec	**5,452**	**5,170**

141 The following table shows the development of plan assets:

	2019 € thou.	2018 € thou.
Fair value of plan assets, 1 Jan	366	505
Net return on plan assets	7	10
Additions to plan assets	0	0
Payments from plan assets	-160	-160
Actuarial gains recognised in equity (other income)	79	11
Plan assets, 31 Dec	**292**	**366**

142 A quantitative sensitivity analysis of the main assumptions as at 31 December 2019 is presented below.

Assumption	Interest sensitivity		Pension trend sensitivity
Scenario	Increase by 0.50%	Decrease by 0.50%	Increase by 1.00%
Effect on defined benefit obligation (in € thousand)	-318	350	679

The above sensitivity analysis was performed using a method that extrapolates the effect of realistic changes in the key assumptions as at the end of the reporting period on the defined benefit obligation.

143 The average term of defined benefit obligations as at the end of the reporting period is 12.20 years (2018: 12.04 years).

144 The expected return on plan assets is based on a discount factor of 1.30% (2018: 2.02%). No contributions will be paid into the plan in the next twelve months.

145 The plan assets are composed exclusively of cash.

146 The anticipated payment structure for the years 2020 to 2028 is shown below:

Pension payments made	€ thou.
2018	232
2019	241

Expected pension payments	
2020	258
2021	263
2022	269
2023	272
2024	272
2025-2029	1,350

147 Defined contribution plans exist only in the form of the mandatory contributions by IVU AG to the state pension. Employer contributions of €2,354 thousand (2018: €2,131 thousand) were paid in the reporting year.

Lease liabilities

148 For information on leases including lease liabilities, please refer to paragraphs (30) et seq.

Current liabilities

Financial liabilities

149 IVU has the following credit facilities:

	Utilisation 31.12.2019 € thou.	Utilisation 31.12.2018 € thou.	Credit facility € thou.
Deutsche Bank AG	0	0	1,000
HSBC	0	0	1,000
Monte del Paschi di Siena	0	0	150

150 IVU has terminated the revocable line of credit with Berliner Sparkasse of €1,500 thousand and reduced the revocable line of credit with Deutsche Bank AG to €1,000 thousand in the financial year (previous year: €1,500 thousand). A new agreement was concluded with HSBC for a revocable line of credit of €1,000 thousand.

IVU cancelled the collateralisation of the line of credit through the blanket assignment of receivables from goods deliveries and from the issuing of licenses in the financial year. The lines of credit were not utilised in the financial year.

151 Expenses for interest and commission amounted to €152 thousand (2018: €190 thousand) in the 2019 financial year.

Provisions

152 Provisions developed as follows:

	As at 01.01.2019 € thou.	Utilised € thou.	Unused amounts reversed € thou.	Arising during the year € thou.	**Stand 31.12.2019** € thou.
Warranty	1,235	594	192	4,692	5,141
Impending loss	0	0	0	903	903
Total	**1,235**	**594**	**192**	**5,595**	**6,044**
of which current	1,235				6,044

153 The provisions for warranties relate to warranty risks from completed projects or completed deliveries. The contribution of €2.3 million covers the full risk of a project in non-European countries. Contingency reserves were formed for future loss-making business due to cost developments (full cost basis).

Other current liabilities

154 Other current liabilities are composed as follows:

	31.12.2019 € thou.	31.12.2018 € thou.
Staff-related liabilities	7,741	5,952
Liabilities from contract risks	310	1,599
Liabilities social security	80	0
Liabilities from outstanding invoices	2,281	2,788
Other	44	40
	10,456	**10,379**
Tax liabilities (sales tax, wage tax)	2,441	1,731
Total	**12,897**	**12,110**

155 The staff-related liabilities essentially include holiday entitlements, overtime obligations and special payments.

Deferred taxes / Actual income taxes

156 German trade income tax is levied on the trade income derived from income subject to corporation tax. The effective trade tax rate depends on the municipality in which the IVU Group operates. The average trade tax rate for 2019 was 15.1% (2018: 15.1%). The corporation tax rate for the 2018 and 2019 financial years is 15%.

In addition to corporation tax, there is a solidarity surcharge of 5.5% on the assessed corporation tax. Thus, the effective tax rate for the calculation of current income taxes for the 2019 financial year is 30.91% (2018: 30.91%).

157 Income tax expense for the current financial year breaks down as follows:

	2019 € thou.	2018 € thou.
Current tax expenses		
Current year and prior periods (expense -, income +)	-1,278	-1,228
Deferred tax income/expense		
Change to tax loss carryforwards	2,159	460
Software	0	-43
Tax-effective goodwill amortisation	1	-1
Right of use	-2,142	0
Change to long-term order production	-729	222
Lease liabilities	2,176	0
Change to pension provisions	-6	128
Change to other assets	29	43
Change to other provisions	284	50
	1,772	**859**
Expense - / income + from income taxes	**494**	**-369**

158 The following table shows the reconciliation of income tax expense:

	2019 € thou.	2018 € thou.
IFRS earnings (before taxes)	10,086	6,528
Tax rate	30.91%	30.91%
Notional income tax expense	-3,117	-2,018
Off-balance sheet tax additions/reductions	-56	-49
Foreign withholding taxes	75	-228
Utilisation of tax loss carryforwards	1,512	1,238
Remeasurement of German tax loss carryforwards	2,190	678
Tax expense from prior periods *	-95	-2
Effects of tax rate differences	12	8
Other	-27	4
Current tax expenses / income	**494**	**-369**

* of which: current taxes €-115 thousand (2018: €-149 thousand), deferred taxes €20 thousand (2018: €147 thousand)

159 The deferred taxes reported in IVU's consolidated statement of financial position break down as follows:

	31.12.2019 € thou.	Delta 2019	31.12.2018 € thou.
Deferred tax assets			
Goods	6	6	0
Receivables Italy	43	0	43
Other assets	66	23	43
Pension provisions	813	99	714
Other provisions	418	284	134
Lease liabilities	2,176	2,176	0
Tax losses carried forward	6,607	2,160	4,448
	10,129	**4,748**	**5,382**
Deferred tax liabilities			
Tax-effective goodwill amortisation	-1,737	1	-1,738
Right of use	-2,142	-2,142	0
Long-term order production	-2,712	-729	-1,983
	-6,591	**2,870**	**-3,721**
Deferred tax assets/ liabilities, net	**3,537**	**1,878**	**1,661**
of which affecting the income situation		1,773	
of which equity changes		105	
Carrying amount			
Deferred tax assets	3,553	1,893	1,661
Deferred tax liabilities	-15	-15	0

160 The IVU Group has the following tax loss carryforwards:

	31.12.2019 € thou.	31.12.2018 € thou.
Loss carryforward for German trade tax	23,855	29,570
Loss carryforward for German corporation tax	28,624	34,237

There are no significant foreign loss carryforwards. The German loss carryforwards do not expire.

161 During the reporting year, there was a tax audit of IVU AG for the years 2015 to 2017. One point still open is the eligibility of foreign withholding taxes. In the reporting year, a corresponding tax expense of €124 thousand was recognised for this purpose. No other significant findings resulted from the tax audit.

D. NOTES TO THE CONSOLIDATED INCOME STATEMENT

162 The income statement has been prepared in accordance with the total cost format.

Revenue from Contracts with Customers

163 Revenue is distributed to the various revenue types as follows:

	2019 € thou.	2018 € thou.
Goods/services/works contracts	41,543	39,107
Licences	19,588	14,632
Maintenance/Hosting	27,656	24,059
Total	**88,787**	**77,798**

The position "goods/services/work contracts" include returns from licenses as part of consistent work contracts.

Of the contracts for implementation projects (for details of contract assets and contract liabilities on the reporting date, see paragraphs (128) et seq.) in place as at 31 December 2019, revenue of €34 million is likely to be realised in subsequent years, of which €5 million after more than twelve months.

Of the maintenance and hosting contracts in place as at 31 December 2019, revenue of €26 million is likely to be realised in the 2020 financial year.

The company makes use of the provision in IFRS 15.121(b).

Other operating income

164 Other operating income is composed as follows:

	2019 € thou.	2018 € thou.
Income from the reversal of impairment losses	50	202
Government grants	52	469
Exchange rate gains	232	104
Other*	47	624
Total	**380**	**1,400**

Cost of materials

165 Cost of materials is distributed to purchased goods and purchased services as follows:

	2019 € thou.	2018 € thou.
Cost of purchased goods	18,195	17,740
Cost of purchased services	8,844	9,387
Total	**27,039**	**27,127**

Staff costs

166 Staff costs distribute as follows:

	2019 € thou.	2018 € thou.
Wages and salaries	33,835	28,611
Social security, post-employment and other employee benefit costs	5,877	5,269
Of which for pensions	2,354	2,131
Total	**39,712**	**33,880**

Depreciation and amortisation on assets

167 Depreciation and amortisation on non-current assets break down into the following parts:

	2019 € thou.	2018 € thou.
On intangible assets	219	534
On rights of use	1,276	0
On property, plant and equipment	750	880
Total	**2,245**	**1,414**

Other operating expenses

168 Other operating expenses can be distributed as follows:

	2019 € thou.	2018 € thou.
Selling expenses	2,684	2,661
Operating expenses	2,315	2,859
Administrative expenses	2,351	1,874
Other	2,340	2,679
Total	**9,690**	**10,074**

The position 'Other' contains risk provisions for specific contract risks amounting to €1,405 thousand (2018: €1,564 thousand). Impairments on contract assets were not included in other operating expenses in the financial year (2018: €455 thousand). The increase in administrative expenses is mainly due to the introduction of the One-Third Participation Act and the expansion of the Supervisory Board.

Earnings per share

169 Under IAS 33, the calculation of basic earnings per share is determined by dividing the consolidated net income by the weighted number of shares.

	2019	2018
Net profit / loss for the period (€ thousand)	10,580 € thou.	6,159 € thou.
Number of ordinary shares as at 1 Jan (thousands)	17,719	17,719
Number of ordinary shares as at 31 Dec (thousands)	17,719	17,719
Number of weighted shares (thousands)	17,719	17,719
Basic earnings per share (EUR/share)	**0.60 €**	**0.35 €**

170 Diluted earnings per share are calculated by adjusting the profit attributable to ordinary shareholders and the weighted average number of shares outstanding for the effects of all the dilutive potential ordinary shares arising on the exercise of share subscription rights. For this purpose, the number of ordinary shares to be included is equal to the weighted average number of ordinary shares plus the weighted average number of ordinary shares that would be issued as a result of the conversion of all the

dilutive potential ordinary shares into ordinary shares. The conversion of stock options into ordinary shares is considered effective on the date on which the options were granted.

E. NOTES TO THE STATEMENT OF CASH FLOWS

171 The reported cash and cash equivalents are not subject to any restriction by a third party. Interest and income tax payments are reported. In accordance with the resolution of the Annual General Meeting of 29 May 2019, a dividend of €0.12 per dividend-bearing share, €2,126,280.00 in total, was distributed. The composition of cash and cash equivalents is shown in paragraph (132).

F. NOTES TO SEGMENT REPORTING

172 The IVU Group applies IFRS 8 Operating Segments. This standard requires the disclosure of information on the Group's operating segments. Up to 31 December 2018, the IVU Group was divided into two segments, Public Transport and Logistics. As described in paragraph (113) et seq., the Logistics business segment was dissolved as at 1 January 2019. There was no other business segment in the financial year. Therefore, a separate segment report was not prepared.

Geographical segment information

173 The IVU Group realised 49.2%, 11.6% and 10.8% of its revenues in the financial year with customers in Germany, Switzerland and the Netherlands. The basis for the allocation is the location of the customer.

174 IVU develops software solutions for the customer groups of transport operations (buses, trains, ferries) and purchasers (associations, states, municipalities) with the aim of supporting and optimising the planning and operation of transport services with intelligent IT systems. There were no customers with whom 10% or more of total sales were transacted in the financial year.

G. OTHER DISCLOSURES

Commitments and contingencies

Rental and lease agreements (up to 31 December 2018)

175 Prior to the application of the new IFRS 16 for lease agreements from 1 January 2019, vehicles, office equipment and other equipment were rented under operating leases. In 2018 €128 thousand was incurred in lease and maintenance fees.

176 The following rental and lease payments resulted from rental and lease agreements in 2018:

Remaining term up to one year	31.12.2018 € thou.
Rent payments	1,343
Lease payments	129
Subtotal	1,472
Remaining term of between one and five years	
Rent payments	4,545
Lease payments	166
Subtotal	4,711
Total	**6,183**

Revenue from transactions with (in € thou.)	GERMANY		EUROPE		OTHERS		CONSOLIDATED	
	2019	2018	**2019**	2018	**2019**	2018	**2019**	2018
Revenue from external customers	43,695	37,460	42,474	37,818	2,618	2,520	88,787	77,798
Segment assets	92,308	70,428	7,550	6,147	1,841	1,143	101,699	77,718
Investment expenditure	982	713	39	24	32	37	1,053	774
Impairments	831	1,267	1,397	126	17	21	2,245	1,414

Letters of credit

177 As at the end of the reporting period, letters of credit of €10,882 thousand, €492 thousand of which in foreign currency (2018: €14,266 thousand, €888 thousand of which in foreign currency) were assumed by various banks for the IVU Group.

Employees

178 The average number of employees of the IVU Group was 610 in the financial year (2018: 558). The breakdown of employees by function is as follows:

	2019	2018
Project work/sales	275	261
Production/software development	239	234
Administration	96*	63
Total	**610**	**558**

* The increase is mainly due to reclassification of employees to administrative functions.

Auditing and consultancy fees

179 The auditor's fees recognised as expenses in the financial year amount to €124 thousand. In addition, expenses for other services were recorded by the auditor as follows:

	2019 € thou.
Tax advisory services	47
Tax compliance foreign countries	10
Advice relating to secondments	2
Other services	12

180 The non-audit services performed by the auditor solely relate to compliance activities, i.e. preparation of tax declarations, support within the scope of the tax audit and documentation.

Related party disclosures

181 Related parties are those with the ability to control the IVU Group or significantly influence its financial and operating policies. In addition to control, the existence of trust relationships was also taken into account in determining the significant influence of related parties on the financial and operating policies of the IVU Group.

Related companies

182 The affiliated companies included in the consolidated financial statements as well as the joint venture EBS are considered related parties. There are no other related parties.

183 In the financial year, the Group made payments of €100 thousand to the joint venture for financing purposes [see paragraph (121)].

184 Transactions between IVU AG and its subsidiaries consisted of the reallocation of license revenue, development services and allocations for services rendered that were eliminated in consolidation.

Related persons

185 The following persons are considered related parties:

Executive Board members of IVU AG:

- Martin Müller-Elschner (CEO and CFO)
- Matthias Rust (member of the Executive Board)
- Leon Struijk (member of the Executive Board since 1 February 2018)

The members of the Supervisory Board were:

- Prof Herbert Sonntag, Berlin (Chairman of the Supervisory Board and the General Committee, Member of the Audit Committee)

  Professor emeritus for Transport Logistics at the Technical University of Applied Sciences, Wildau,

  Member of the Advisory Board and Honorary Member LNBB Logistiknetz Berlin-Brandenburg e.V.,

  Representative for Brandenburg of the Allianz pro Schiene e.V.,

  Spokesperson for Logistics in the Transport, Mobility and Logistics Cluster of the Berlin Brandenburg states,

  Visiting Professor at German-Kazakh University, Almaty Kazakhstan,

  Visiting Professor at Georgian Technical University, Tbilisi Georgia.

- Ute Witt, Potsdam (Deputy Chairwoman of the Supervisory Board and Chairwoman of the Audit Committee)

  Chairwoman of the Supervisory Board of Sellutions AG,

  Vice-Chairwoman, Treasurer and Head of the Budget Committee of the Berlin Chamber of Commerce and Industry,

  Member of the Tax Committee and of the Advisory Board of the German Industry and Trade Federation, Berlin,

  Member of the Federal Commissions for Taxes in the Economic Council of the CDU, Berlin,

  Chairwoman of the Executive Board of Potsdamer Steuerforum e.V., Potsdam,

  Member of the economic advisory board of the cathedral chapter Brandenburg, Brandenburg a.d. Havel,

  Member of the examination and audit committee of Berliner Stadtmission, Berlin,

  Shareholder-liquidator of Fin-Tax policy advice GmbH.

- Ulrike Mayer-Johanssen, Berlin (until 29 May 2019)

- Dr Heiner Bente (since 29 May 2019; Member of the General Committee)

  Managing Partner, Dr Heiner Bente Consulting, Hamburg,

  Senior Advisor at civity Management Consultants, Hamburg,

  Deputy Chairman of the Advisory Board of Schürfeld Gruppe, Hamburg,

  Deputy Chairman of the Supervisory Board of birkle IT AG, Munich,

  Member of the Entrepreneurs Board of All4Labels, Hamburg.

- Prof. Barbara Lenz (since 29 May 2019)

  Director of the Institute of Transport Research at the German Aerospace Centre, Berlin,

  Professor for Traffic Geography, Humboldt University of Berlin,

  Member of the Supervisory Board of Berliner Verkehrsbetriebe (BVG),

  Cluster Spokeswoman for the Transport, Mobility and Logistics Cluster of the Berlin Brandenburg states.

- Benedikt Woelki, Berlin (since 17 July 2019) Support Account Manager IVU.suite at IVU Traffic Technologies AG, Berlin.

- Axel Zimmermann, Düren (since 17 July 2019; Member of the General Committee)

  Quality manager at IVU Traffic Technologies AG, Aachen,

  Chairman of the Works Council of IVU Traffic Technologies AG at the Aachen location,

  Deputy Chairman of the General Works Council of IVU Traffic Technologies AG.

Related party transactions

186 There were no other business transactions between related parties and companies of the IVU Group in the reporting year or the previous year.

187 In the financial year 2019, Martin Müller-Elschner, CEO, acquired 10,000 IVU shares on the market.

In the financial year 2019, Matthias Rust, member of the Executive Board, acquired 5,500 IVU shares on the market.

In the financial year 2019, Leon Struijk, member of the Executive Board, acquired 4,998 IVU shares on the market.

Remuneration of the Executive Board and the Supervisory Board

188 The Executive Board of IVU AG received remuneration of €1,548 thousand (2018: €1,388 thousand) in the 2019 financial year. The remuneration of the Executive Board comprises a fixed (€683 thousand) and a variable portion (€865 thousand). The variable portion amounted to 55.9% (2018: 44.7%) of total remuneration in the year under review. On 25 May 2016 the Annual General Meeting resolved to exempt the company from the duty to disclose the remuneration of individual members of the Executive Board for the financial years 2016 until 2020, inclusive.

189 Under the Long Term Incentive Plan initiated by the company, the members of the Executive Board receive shares in the company as a further variable remuneration component. The future transfer of the shares is dependent on the positive development of the IVU share price, taking into account the performance of the TecDAX stock market index. The term of the programme will end on 31 December 2022. The physical delivery of the shares would then have to be fulfilled by IVU in the first quarter of 2023. In accordance with the principle of sustainable remuneration, the right to transfer and the number of shares actually transferred to the Executive Board depends on the economic development of the company. A maximum total of 180,000 shares can be granted, the minimum number is 0. In addition to the remuneration information mentioned above, personnel expenses of €198 thousand were taken into account as a variable remuneration component for the long-term incentive plan for the members of the Executive Board during the fiscal year.

190 Pension provisions of €2,632 thousand (2018: €2,555 thousand) were reported for former members of the Executive Board. Furthermore, pension payments of €151 thousand (2017: €151 thousand) were made for former members of the Executive Board.

191 In accordance with the resolution of the Annual General Meeting of 29 May 2019, the number of members of the Supervisory Board increased from three to six and committees were formed for the first time. The Supervisory Board received remuneration of €101 thousand in 2019 (2018: €60 thousand).

192 The shareholdings of the members of the Executive Board and the Supervisory Board are as follows:

Executive Board	**Shares 31.12.2019**	Shares 31.12.2018
Martin Müller-Elschner (Chairman)	235,000	225,000
Matthias Rust	12,300	6,800
Leon Struijk	14,998	10,000
Supervisory Board		
Prof. Dr Herbert Sonntag	866,000	866,000
Ute Witt	1,000	1,000
Axel Zimmermann	680	n/a

Supplementary Report

193 Since 31 December 2019, there have been no events of particular significance that have affected the situation of the Group regarding earnings, finances and assets.

Disclosures on the German Corporate Governance Code

194 The 2020 declaration of compliance was issued by the Executive Board and the Supervisory Board on 13 February 2020 and can be accessed by shareholders at all times on the IVU AG homepage (www.ivu.com) under Investor Relations.

The Executive Board

Berlin, 26 March 2020

Martin Müller-Elschner

Matthias Rust

Leon Struijk

NON-CURRENT ASSETS

Development in intangible assets and property, plant and equipment 2019 (IFRS)

	HISTORICAL ACQUISITION/PRODUCTION COSTS			
I. Intangible assets	**As at 1 Jan 2019** € thou.	Addition € thou.	Disposal € thou.	**As at 31 Dec 2019** € thou.
1. Industrial property rights and licenses, software	7,757	105	120	7,742
2. Goodwill	14,626	0	0	14,626
3. Primary intangible assets	15,505	0	2	15,503
	37,888	105	122	37,871
II. Property				
1. Technical equipment and machinery	445	0	35	410
2. Other equipment, operating and office equipment	8,932	944	277	9,599
3. Advance payments and assets under construction	0	4	0	4
	9,377	948	312	10,013
III. Rights of use				
1. Real estate	7,287	801	0	8,088
2. Other equipment, operating and office equipment	256	130	0	386
	7,543	931	0	8,474
	54,808	**1,984**	**434**	**56,358**

Development in intangible assets and property, plant and equipment 2018 (IFRS)

	HISTORICAL ACQUISITION/PRODUCTION COSTS				
I. Intangible assets	**As at 1 Jan 2018** € thou.	Addition € thou.	Reclassi-fication € thou.	Disposal € thou.	**As at 31 Dec 2018** € thou.
1. Industrial property rights and licenses, software	7,653	104	0	0	7,757
2. Goodwill	14,626	0	0	0	14,626
3. Primary intangible assets	15,505	0	0	0	15,505
	37,784	104	0	0	37,888
II. Property					
1. Technical equipment and machinery	511	0	0	66	445
2. Other equipment, operating and office equipment	8,515	666	3	252	8,932
3. Advance payments and assets under construction	3	0	-3	0	0
	9,029	666	0	318	9,377
	46,813	**770**	**0**	**318**	**47,265**

DEPRECIATION					RESIDUAL BOOK VALUES	
As at 1 Jan 2019 € thou.	Addition € thou.	Currency difference € thou.	Disposal € thou.	**As at 31 Dec 2019** € thou.	**As at 31 Dec 2019** € thou.	As at 31 Dec 2018 € thou.
7,510	219	0	118	7,611	131	247
3,277	0	0	0	3,277	11,349	11,349
15,505	0	0	2	15,503	0	0
26,292	219	0	120	26,391	11,480	11,596
389	36	0	32	393	17	56
7,945	714	-3	272	8,383	1,216	987
0	0	0	0	0	4	0
8,334	750	-3	304	8,776	1,237	1,043
0	1,122	0	0	1,122	6,966	0
0	154	0	0	154	232	0
0	1,276	0	0	1,276	7,198	0
34,626	**2,245**	**-3**	**424**	**36,443**	**19,915**	**12,639**

DEPRECIATION					RESIDUAL BOOK VALUES	
As at 1 Jan 2018 € thou.	Addition € thou.	Currency difference € thou.	Disposal € thou.	**As at 31 Dec 2018** € thou.	**As at 31 Dec 2018** € thou.	As at 31 Dec 2017 € thou.
6,974	536	0	0	7,510	247	679
3,277	0	0	0	3,277	11,349	11,349
15,505	0	0	0	15,505	0	0
25,756	536	0	0	26,292	11,596	12,028
391	63	0	65	389	56	120
7,381	815	0	251	7,945	987	1,134
0	0	0	0	0	0	3
7,772	878	0	316	8,334	1,043	1,257
33,528	**1,414**	**0**	**316**	**34,626**	**12,639**	**13,285**

AUDITOR'S REPORT

Independent auditor's report

To IVU Traffic Technologies AG

REPORT ON THE AUDIT OF THE CONSOLIDATED FINANCIAL STATEMENTS AND THE GROUP MANAGEMENT REPORT

Audit opinions

We have audited the consolidated financial statements of IVU Traffic Technologies AG, Berlin, and its subsidiaries (the Group) – consisting of the consolidated statement of financial position as at 31 December 2019, the consolidated income statement, the consolidated statement of comprehensive income, the consolidated statement of changes in equity and the consolidated statement of cash flows for the period from 1 January to 31 December 2019, in addition to the notes to the consolidated financial statements, including a summary of the key accounting policies. We also audited the Group management report of IVU Traffic Technologies AG for the financial year from 1 January to 31 December 2019. In accordance with German statutory provisions, we did not audit the content of the responsibility statement in accordance with section 297(2) sentence 4 HGB and section 315(1) sentence 5 HGB under "Responsibility Statement in accordance with § 315(1) sentence 5 HGB" in the Group management report or the Group's corporate governance declaration in accordance with section 315d HGB under "Declaration on Corporate Governance as per Section 315d of the German Commercial Code (HGB)" in the Group management report.

In our opinion, based on the findings of our audit:

- the attached consolidated financial statements, in all material respects, comply with the IFRSs as adopted by the EU and the additional requirements of German commercial law in accordance with section 315e(1) HGB, and give a true and fair view of the net assets and financial position of the Group in accordance with these requirements as at 31 December 2019 and its results of operations for the financial year from 1 January to 31 December 2019; and
- as a whole, the attached Group management report provides a suitable view of the Group's position. In all material respects, this Group management report is consistent with the consolidated financial statements and with German legal requirements, and accurately presents the risks and opportunities of future development. Our audit opinion on the Group management report does not extend to the responsibility statement in accordance with section 297(2) sentence 4 HGB and section 315(1) sentence 5 HGB under "Responsibility Statement in accordance with § 315(1) sentence 5 HGB" in the Group management report or the Group's corporate governance declaration in accordance with section 315d HGB under "Declaration on Corporate Governance as per Section 315d of the German Commercial Code (HGB)" in the Group management report.

In accordance with section 322(3) sentence 1 HGB, we declare that our audit has not led to any objections to the regularity of the consolidated financial statements or the Group management report.

Basis for audit opinions

We conducted our audit in accordance with section 317 of the Handelsgesetzbuch (HGB – German Commercial Code), the EU Audit Regulation (No. 537/2014) and German generally accepted standards for the audit of financial statements promulgated by the Institut der Wirtschaftsprüfer (IDW – German Institute of Public Auditors). Our responsibility under these provisions and policies is described further in the section of our audit report entitled "Auditor's responsibility for the audit of the consolidated financial statements and the Group management report". We are independent from the Group companies in accordance with the commercial and professional regulations of European and German law and have fulfilled our other German professional obligations in accordance with these requirements. Furthermore, in accordance with Article 10(2)(f) of the EU Audit Regulation, we declare that we have not performed any prohibited non-audit services as defined by Article 5(1) of the EU Audit Regulation. We believe that the audit evidence we have obtained is sufficient and appropriate to serve as a basis for our audit opinions on the consolidated financial statements and the Group management report.

Key issues in the audit of the consolidated financial statements

Key issues pertaining to the audit are those that, based on our professional judgement, were most significant in our audit of the consolidated financial statements for the financial year 1 January to 31 December 2019. These issues were taken into account in the context of our audit of the consolidated financial statements as a whole and in the formation of our audit opinion; we have not issued a separate opinion on these issues.

The audit issues that we consider to be key are described below:

1. Measurement of contract assets and liabilities from long-term project orders and related revenue recognition

Reasons for identification as a key audit issue

A significant part of the Group's business activities is conducted through long-term project orders. As at 31 December 2019, receivables from contract assets and liabilities from long-term project orders not yet invoiced and advance payments received on the same (figures before netting) are reported in the consolidated financial statements (see note (128) of the notes to the consolidated financial statements).

Sales for long-term project contracts are generally recognized over a certain period of time according to the profit realization method based on the stage of completion, using IFRS 15 "Revenue from Contracts with Customers" as the basis. As revenue from contracts with customers can sometimes cover several financial years, there is an inherent estimation uncertainty in their accounting, particularly with regard to the expected total costs, the costs still to be incurred until completion, the estimated revenues and profit contributions and other project risks, which can be influenced by discretionary decisions of the company's officers. Revenues, estimated total costs and profit recognition may differ materially from the original estimates due to new information about the development of costs and changes in project scope during the term of a project agreement. The assessment of the stage of completion for the measurement of contract assets and liabilities from long-term project orders can be influenced by the adjustment of expected values or the consideration (or not) of expenses and thus sales revenues.

Given the inherent estimation uncertainty, particularly with regard to the expected total costs and other project risks, which are influenced by discretionary decisions, we deem the measurement of contract assets and liabilities from long-term project orders and related revenue recognition a key audit issue.

Audit procedure

Within a structural and functional audit of the accounting-related internal control system we have assessed the processes relevant to the measurement of contract assets and liabilities from long-term project orders. We tested the effectiveness of the controls implemented for the processes recognising revenue from progress billings and the recognition and allocation of staff costs to contracts at IVU Traffic Technologies AG, Berlin.

On the basis of a risk-oriented sample, we have assessed the estimates and discretionary decisions made by the legal representatives on a case-by-case basis. In particular, we have selected project orders that show significant changes in order values, cost and margin trends as well as projects with significant inventories of contract assets and liabilities. As part of the assessment of the contract analyses carried out by the legal representatives, we assessed in particular whether the requirements for the recognition of revenue over time were met for project contracts. In addition, we assessed which different types of services the contracts contain and whether these can be independently defined and thus accounted for. Our audit procedures included, among other things, reviewing the contractual basis and terms and conditions, including contractually agreed provisions for partial deliveries and services, termination rights, penalties for delay and contractual penalties, and damages. In addition to obtaining audit evidence (e.g. project and partial acceptance and contract conditions), surveys and discussions were conducted with the responsible project management on the development of the projects, the reasons for deviations between planned costs and actual costs, the current assessment of the costs expected to be incurred until completion and the estimates of order risks in order to assess the valuation of customer orders with long-term contract production on the basis of the continuously updated project plans. In addition, evidence was obtained for recorded expenses with regard to the objective allocation of expenses and their economic origin before 31 December 2019, so that they could be taken into account when measuring the progress of work. In addition, analytical audit procedures were performed with regard to the development of contract values as well as planned and actual costs and the resulting estimated total costs and margin development. An audit was carried out for contractual liabilities to check the correct offsetting of inventories according to the percentage of completion with the partial final invoices and advance payments received on the basis of the partial final invoices, as well as incoming payments in random samples.

Our audit did not give rise to any objections regarding the measurement of contract assets and liabilities from long-term project orders and related revenue recognition.

Reference to related information

Related information can be found under notes (23), (128) and (163) in the notes to the consolidated financial statements.

2. Impairment testing of goodwill

Reasons for identification as a key audit issue

Goodwill is recognized in the consolidated financial statements under intangible assets as at 31 December 2019. The recoverable amounts determined to assess impairment are based on the value of the cash-generating unit (CGU) in use as determined on the basis of the expected future cash flows, which are derived from the expected future operating results in the budget for the 2020 financial year, the detailed planning period until the 2024 financial year and the forecast perpetual annuity.

The impairment test to be performed at least once a year is a complex process based on discretionary assumptions, particularly with regard to the future development of the Group's financial position and results of operation. The outcome of these valuations is therefore highly dependent on how the legal representatives estimate future cash inflows and on the discount rates used in each case.

Given the complexity of the underlying company planning, which entails an elevated risk of accounting misstatement, and the degree of discretion displayed in measurement, we deemed the impairment testing of goodwill a key audit issue.

Audit procedure

We involved our measurement specialists in our audit procedures to assist in the assessment of the measurement method applied. We have followed the methodological procedure for carrying out the impairment test with regard to compliance with the requirements for an impairment test in accordance with IAS 36 Impairment of Assets. We assessed the assumptions regarding the future development on the basis of company planning by comparing this with the current development in the company's figures. In particular, regarding the impairment of the goodwill, we analysed the expectations of the company's officers regarding the future development and profitability of business and the underlying assumptions. With the knowledge that even relatively small changes in the discount rates used can have a significant impact on the amount of the calculated enterprise value or recoverable amount, we have compared and analysed the parameters used to determine the discount rates with externally available market data and reconstructed the calculation with regard to the resulting requirements of IAS 36.

We have also performed sensitivity analyses in order to assess a possible impairment risk in the event of a possible change in one of the key valuation assumptions.

Our audit procedures did not give rise to any objections regarding the impairment testing of goodwill.

Reference to related information

Related information provided by the company can be found under notes (21), (39), (117) and (118) in the notes to the consolidated financial statements.

Other information

The Supervisory Board is responsible for the report of the Supervisory Board, the company's officers are responsible for the miscellaneous other information. Other information includes the following:

- the responsibility statement in accordance with section 297(2) sentence 4 HGB and section 315(1) sentence 5 HGB under "Responsibility Statement in accordance with section 315(1)" in the Group management report;
- the Group's corporate governance declaration in accordance with section 315d HGB under "Declaration on Corporate Governance as per Section 315d of the German Commercial Code (HGB)" in the Group management report.

and other elements intended for the annual report with the exception of the audited consolidated financial statements and Group management report and our audit opinion, in particular the report of the Supervisory Board and the Declaration of Compliance with the Corporate Governance Code pursuant to Section 161 of the German Stock Corporation Act (AktG) and the Responsibility Statement as well as the sections "Key figures", "Letter to the shareholders", "Interview with the Executive Board", "Highlights 2019", "IVU share, key figures" with the exception of the consolidated financial statements and the Group management report. Of this other information, we have obtained a version dated 20 March 2019 up to the date of issue of this audit opinion.

Our audit opinions on the consolidated financial statements and the Group management report do not extend to the other information, and accordingly we do not offer any audit opinion or any other form of audit conclusion on it.

In connection with our audit, we have the responsibility to read the other information and to assess whether the other information:

- contains material inconsistencies with the consolidated financial statements or our findings from the audit; or
- is otherwise materially misrepresented.

Responsibility of the company's officers and the Supervisory Board for the consolidated financial statements and the Group management report

The company's officers are responsible for the preparation of the consolidated financial statements that, in all material respects, comply with the IFRSs as adopted by the EU and the additional requirements of German commercial law in accordance with section 315e(1) HGB, and that the consolidated financial statements give a true and fair view of the net assets, financial position and results of operations of the Group. Furthermore, the company's officers are responsible for the internal controls that they have deemed necessary to enable the preparation of consolidated financial statements that are free from – intentional or unintentional – material misstatement.

In preparing the consolidated financial statements, the company's officers are responsible for assessing the Group's ability to continue as a going concern. They are also responsible for disclosing matters in connection the continuation of business activities, if relevant. Furthermore, they are responsible for the accounting on the basis of the going concern principle, unless there is the intention to liquidate or discontinue the Group, or there is no realistic alternative.

Moreover, the company's officers are responsible for the preparation of the Group management report that, on the whole, provides a suitable view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and with German legal requirements, and accurately presents the risks and opportunities of future development. Also, the company's officers are responsible for the precautions and measures (systems) that they deem necessary to enable the preparation of a Group management report in accordance with the applicable German legal requirements to provide sufficient suitable evidence for the statements in the Group management report.

The Supervisory Board is responsible for monitoring the Group's accounting process for the preparation of the consolidated financial statements and the Group management report.

Auditor's responsibility for the audit of the consolidated financial statements and the Group management report

Our objective is to obtain reasonable assurance as to whether the consolidated financial statements as a whole are free from material – intentional or unintentional – misstatement and whether the Group management report as a whole provides a suitable view of the Group's position and, in all material respects, is consistent with the consolidated financial statements, audit findings and German legal requirements, and accurately presents the risks and opportunities of future development, and to issue an audit report containing our audit opinions on the consolidated financial statements and the Group management report.

Reasonable assurance is a high degree of assurance, but not a guarantee that an audit performed in accordance with section 317 HGB, the EU Audit Regulation and the German generally accepted standards for the audit of financial statements promulgated by the IDW will always reveal a material misstatement. Misstatements can result from violations or inaccuracies, and are considered material if they could reasonably be expected, individually or collectively, to influence the economic decisions that users make on the basis of these consolidated financial statements and the Group management report.

We exercise due discretion and maintain a critical approach. Furthermore:

- We identify and assess the risks of – intentional or unintentional – material misstatements in the consolidated financial statements and the Group management report, we plan and perform audit procedures in response to these risks, and obtain audit evidence that is sufficient and appropriate to form the basis of our audit opinions. The risk that material misstatements are not detected is greater for violations than for inaccuracies, as violations can include fraud, falsification, intentional omissions, misrepresentation or the invalidation of internal controls;
- We gain an understanding of the internal control system relevant to the audit of the consolidated financial statements and of the systems relevant to the audit of the Group management report in order to plan audit procedures that are appropriate under the given circumstances, but not with the objective of expressing an opinion on the effectiveness of these systems;

- We assess the appropriateness of the accounting policies applied by the company's officers and the reasonableness of the estimates and related disclosures by the company's officers;
- We draw conclusions about the appropriateness of the going concern principle applied by the company's officers and, on the basis of the audit evidence obtained, whether there is material uncertainty about events or circumstances that can give rise to significant doubts about the Group's ability to continue as a going concern. If we come to the conclusion that material uncertainty exists, we are required to refer to the relevant disclosures in the consolidated financial statements and the Group management report in the auditor's report or, if these disclosures are inappropriate, to modify our respective audit opinion. We draw our conclusions on the basis of the audit evidence obtained up to the date of our opinion. However, future events or circumstances can lead to the Group being unable to continue its business activities;
- We assess the overall presentation, structure and content of the consolidated financial statements, including the notes, and whether the consolidated financial statements present the underlying transactions and events in such a way that the consolidated financial statements, in accordance with the IFRSs as adopted by the EU and the additional requirements of German commercial law in accordance with section 315e(1) HGB, give a true and fair view of the net assets, financial position and results of operations of the Group;
- We obtain sufficient, suitable audit evidence for the accounting information of the companies or business activities within the Group in order to issue audit opinions on the consolidated financial statements and the Group management report. We are responsible for designing, monitoring and performing the audit of the consolidated financial statements. We bear sole responsibility for our audit opinions;
- We assess that the Group management report is consistent with the consolidated financial statements and the law, and the view of the position of the Group that it provides;
- We perform audit procedures on the forward-looking statements made in the Group management report by the company's officers. In particular, on the basis of sufficient and suitable audit evidence, we analyse the significant assumptions on which the forward-looking statements are based, and assess whether the forward-looking statements have been properly derived from these assumptions. We do not issue a separate audit opinion on the forward-looking statements or the underlying assumptions. There is a considerable yet unavoidable risk that future events will deviate materially from the forward-looking statements.

Among other things, we discuss with those responsible for overseeing the audit the planned scope and scheduling of the audit and significant audit findings, including any deficiencies in the internal control system that we identify during our audit.

We declare to those responsible for overseeing the audit that we complied with the relevant independence requirements and discuss with them all relationships and other issues that can reasonably be assumed to affect our independence, and the precautions taken against this.

Of the issues we discussed with those responsible for overseeing the audit, we determine which issues were most significant in the audit of the consolidated financial statements for the current reporting period and that are therefore the key audit issues. We describe these issues in our audit opinion, unless the public disclosure of such issues is prevented by law or other legal provisions.

Other legal and requirements

Other disclosures in accordance with Article 10 of the EU Audit Regulation

We were elected as the auditor of the consolidated financial statements by the Annual General Meeting on 29 May 2019. We were engaged by the Supervisory Board on 15 November 2019. We have served as the auditor of the consolidated financial statements of IVU Traffic Technologies AG, Berlin, without interruption since the 2002 financial year.

We declare that the audit opinions contained in this audit report are consistent with the additional report to the Supervisory Board in accordance with Article 11 of the EU Audit Regulation (audit report).

Responsible auditor

The auditor responsible for the audit is Dr Ingo Röders.

Berlin, 26 March 2020

Ernst & Young GmbH
Wirtschaftsprüfungsgesellschaft

Dr Röders	Weinberg
Auditor	Auditor

RESPONSIBILITY STATEMENT

RESPONSIBILITY STATEMENT IN ACCORDANCE WITH § 315 (1) SENTENCE 5 HGB*

We represent that, to the best of our knowledge and in accordance with applicable accounting principles, the consolidated financial statements present a true and fair view of the Group's net assets, financial situation and results of operation, and that the Group management report describes fairly, in all material respects, the Group's business trend and performance, the Group's position and the significant risks and opportunities of the Group's expected future development.

Berlin, March 2020

The Executive Board

Martin Müller-Elschner   Matthias Rust   Leon Struijk

* Not examined by the auditor as regards content.

FINANCIAL CALENDAR 2020

THURSDAY, 26 MARCH 2020
Publication of the 2019 Annual Report

WEDNESDAY, 27 MAY 2020
Quarterly report as at 31 March

THURSDAY, 28 MAY 2020
Annual General Meeting

THURSDAY, 27 AUGUST 2020
Half-year financial report as at 30 June

THURSDAY, 19 NOVEMBER 2020
Quarterly report as at 30 September

BOARDS

Supervisory Board

- Prof. Dr Herbert Sonntag (Chairman)
- Ute Witt (Deputy Chairwoman)
- Dr Heiner Bente
- Prof. Barbara Lenz
- Benedikt Woelki, IVU
- Axel Zimmermann, IVU

Executive Board

- Martin Müller-Elschner (Chairman)
- Matthias Rust
- Leon Struijk

Beirat

- Prof. Manfred Boltze, Darmstadt
- Alain Flausch, Brüssel (BE)
- Bert Meerstadt, Bussum (NL)
- Prof. Adolf Müller-Hellmann, Cologne
- Prof. Ronald Pörner, Berlin
- Volker Sparmann, Hofheim am Taunus

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The 2019 Annual Report can be downloaded in English and German as PDF file at **www.ivu.com**.

Contact
Investor Relations
T +49. 30. 859 06 - 0
F +49. 30. 859 06 - 111
ir@ivu.de

Editorial
Dr Stefan Steck,
IVU Corporate Communications

Layout
Eckhard Berchner,
IVU Corporate Communications

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IVU Traffic Technologies AG
Bundesallee 88
12161 Berlin
Germany

T +49.30.859 06 - 0
F +49.30.859 06 - 111
contact@ivu.com
www.ivu.com