exentis group

Annual Report 2018

Exentis Group –
Inventor and pioneer of 3D Mass Customization®

Exentis has a 3D technology platform that is protected by many patents:

Exentis is the only 3D printing company in the world that is able to handle large-scale production: **Industrialized Additive Manufacturing.** Offering free choice of materials.

Exentis is a **technology company** that develops comprehensive production solutions for its customers within **development projects** and **also** handles **the production** of components and semi-finished goods. It particularly focuses on **developing customized materials**.

Customers then **decide** whether **Exentis** should **make the components** or whether they should acquire their own production licence and **complete the manufacturing work at theirown site.** In the latter case, Exentis supplies the process expertise, the Exentis 3D production unit(s), printing screens, pastes, services and, if necessary, the operating personnel as a one-stop shop.

The Exentis **3D printing technology is highly flexible** and can be used in a wide variety of environments: for industrial parts made of metal and ceramics or for manufacturing pharmaceutical or 3D bioprinting products in a clean room.

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Letter to the shareholders

Dear shareholders,
Dear friends of our company,

Ralf P. Brammer
President of the Board of Directors

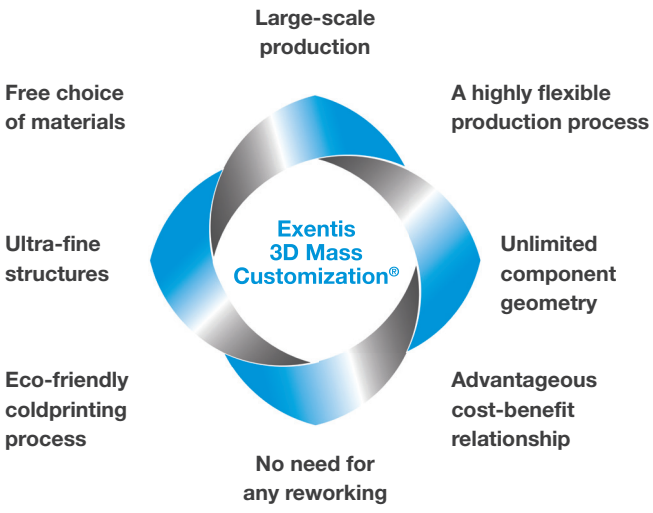
Exentis was able to continue its successful track record with its 3D screen printing technology, Exentis 3D Mass Customization®, during 2018. The technological benefits of our additive manufacturing process are once again reflected in outstanding figures, illustrating the effectiveness of the system. Despite our young age, we have proven as an industrial company that we have clear unique features that the market understands and is demanding:

- Turnover tripled to CHF 9.02 m (+187%)
- Operating results/EBITDA quadrupled to CHF 2.58 m (+309%)
- Turnover margin of 28.6% (+8.7%)
- Net profits doubled to CHF 2.05 m (+138%)
- Cash and cash equivalents doubled to CHF 2.41 m (+105%)
- Balance sheet total increased by 50% to CHF 32.02 m (+ 50%)

These notable successes are taking place in a market that is predicted to have significant growth potential. The current report from SmarTech Publishing estimates that the economic output of the global market for additive manufacturing was worth CHF 9.3 bn in 2018. This represents an increase of 18% over the previous year. As a result, Exentis has grown ten times faster than the overall market. The prospects are very promising too. SmarTech is expecting turnover of CHF 42 bn in the 3D printing market by 2027.

The four major trends contributing to this process are: (a) demand from all sectors of business, particularly the aerospace, health, renewable energy and automotive sectors; (b) the strategic adoption of 3D printing technology by large international corporations that wish to accelerate their production and boost the use of additive manufacturing; (c) the combination of additive manufacturing technologies with existing machine tools and processes to enable complex and more varied applications in many sectors – i.e. the promotion of hybrid process chains consisting of generative, conventional and fully automated processes; (d) from the point of view of Exentis, the major issue is the rediscovery of materials specially developed for individual customers.

OUR PATENTED 3D SCREEN PRINTING TECHNOLOGY



Exentis combines many core areas of expertise and they will enable us to register above-average growth in this market. These skills include our unique ability to produce items on a large scale with our 3D screen printing technology; no other company anywhere in the world can do this. The capacity for each 3D production unit therefore totals several million parts a year. Compared to any other generative process, Exentis technology allows for a broad selection of materials – ranging from metals to ceramics and even polymers. Exentis has already issued licences for the production of pharmaceutical tablets and human tissue too – i.e. applied 3D bioprinting. In our view, being able to handle any classes or combinations of materials will become the crucial differentiating factor in the 3D printing market, while 3D production units will become less important in the long term. The crucial element will be the ability to handle materials and 3D printing processes.

Another core area of expertise has caught the attention of users and customers recently: rapid tooling. While injection moulding, which enables similar quantities of items to be produced as the Exentis 3D screen printing technology, does not allow anything like the same degree of design freedom for components and producing a tool takes several months and costs several hundred thousands of Swiss francs, Exentis can do this in just a few days – sometimes in 24 hours and at a fraction of the cost. Why? The screens are the tools at Exentis. If changes are made to components, Exentis manufactures the customized screens directly in-house. This flexibility in our additive manufacturing process represents a new degree of freedom for our customers in the face of rapidly changing product geometries. This capability was not available in the past.

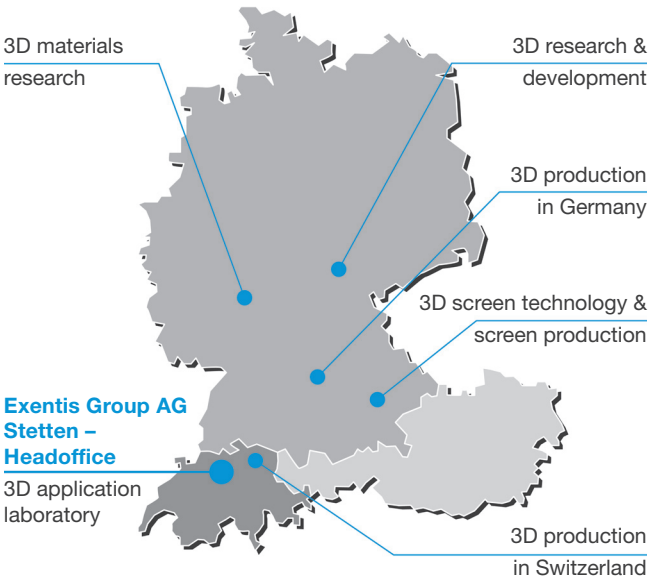
Letter to the shareholders

You will have noticed that we have gone far beyond the comparative market of 3D technologies when discussing core areas of expertise. That is deliberate. Technologies comparable to ours are also found in conventional – subtractive – manufacturing processes like milling or grinding, forming processes like pressing or moulding or, as described above, injection moulding.

The global market for these established production processes is worth CHF 12 trillion, i.e. 12,000 billion Swiss francs. The share of 3D turnover only amounts to one thousandth of this at the moment. However, our future market is also the established one. According to a survey by the Fraunhofer Institute for Manufacturing Engineering and Automation, 43% of the experts questioned expect additive manufacturing technologies to play a well-established role in future. One quarter of those questioned describe additive manufacturing processes as a key technology. As a result, 3D printing will be integrated in existing production systems in the foreseeable future. This is a market that should be exploited for the Exentis 3D screen printing technology.

Exentis is in a good position to achieve this. Exentis is the first in the world to offer extensive Industrialized Additive Manufacturing – but not by placing a series of 3D printers next to each other, but using a technology that allows one Exentis 3D unit to produce millions of components. To express matters simply, we are not wishing to manufacture engine blocks or turbine wheels. We are focussing on complex geometries in sizes ranging between a micro-needle and a catalytic converter. However, we prefer flatter structures, because they can be manufactured more quickly.

EXENTIS 3D DEVELOPMENT AND PRODUCTION SITES



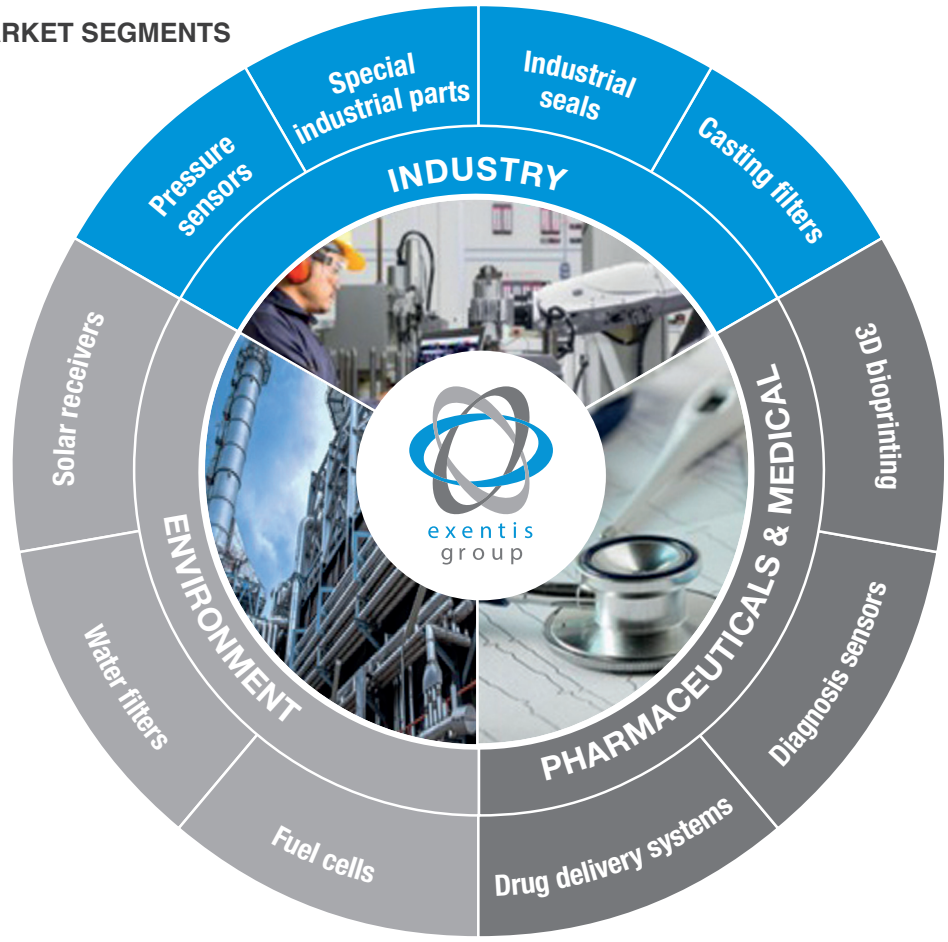
There are many advantages to using our technology. Almost every 3D process prevents any excess materials or waste. However, in contrast to most production processes in the young 3D industry, which create energy and environmental problems or often employ lasers, Exentis 3D Mass Customization® uses a cold printing process and has little or no negative effects on the environment or the operator. The environment and sustainability are serious issues for us. We have therefore dedicated a complete chapter to this important topic in this annual report.

Overall, we have made a good start to 2019. Our own screen development and production facility near Munich for our main market in Germany has started operating. A leading 3D location for pharmaceuticals and bioprinting has developed in Jena and we have supplied the development and production licences for this in the form of a one-stop shop, together with the process expertise, the Exentis 3D production units, screens, pastes, services and even highly qualified operating personnel.

The 3D production systems supplied to Jena are the first in the world to have certification for manufacturing 3D products in clean room conditions.

This means that the Exentis 3D printing technology can be used anywhere, for clean room applications or for industrial parts made of ceramics, glass, metals or polymers.

EXENTIS MARKET SEGMENTS



Letter to the shareholders

We will maintain our market position as a technology company and our purely B2B business model. Exentis offers customers product solutions in the form of development projects. They primarily involve developing the customized materials and processes. Customers then decide whether they wish to have their components made by Exentis or acquire their own production licence and complete the manufacturing work at their own premises.

This opens up dual sourcing strategies where Exentis guarantees the ramp up and the basic production and the customer also establishes its own production facility at its company, in parallel or at a later date.

We are planning to achieve a great deal during the second half of this year. Our application laboratory in Stetten is bursting at the seams. This is why we are enlarging it to more than one thousand square metres at the same site for laboratory and production-related development work.

We will establish production capacity in southern Germany and this will enable us to produce more than ten million parts for our customers each year.

In the context many cooperation arrangements with universities, we will create new materials and products that have never existed before.

We also want to “gently” tackle internationalisation with our cooperation and technology partners beyond the German-speaking region by following our customers’ demands.

Our order book contains a large number of development projects that allow us to plan our turnover during the next few years.

We have set up a new business development department at Management Board level. We believe that customers have the right to enjoy services on the same technological level. The Exentis business model has everything for us to successfully pursue this course.

On behalf of the Board of Directors, I would like to thank all the employees and the Management Board members for their daily commitment, their passion and their desire to establish the unique Exentis technology as the standard in the market for Industrialized Additive Manufacturing processes.

Market environment

The global market for additive manufacturing reached a figure of CHF 9.3 bn in 2018. The market registered impressive growth of 18% compared to the previous year.

One key factor in this positive growth was the development of new applications for 3D printing, as companies are continuing to discover areas where their 3D technologies offer value added, alongside traditional manufacturing processes.

Major corporations and international groups are also entering the market and initiating further investment projects and research activities.

There are more and more sectors too that are increasingly embracing 3D printing. For companies involved in additive manufacturing, these trends provide welcome confirmation of their efforts and also offer further opportunities for bringing new technologies, applications and innovations on to the market.

As already mentioned in the letter to the shareholders, the market study by SmarTech Publishing believes that the global market for additive manufacturing will grow to more than CHF 42 bn by 2027 and reach a watershed – because more and more companies from different sectors will view additive manufacturing as more than just a rapid prototyping manufacturing process. The technological development stages already underway offer the opportunity of printing a larger number of materials and even bigger objects more quickly. The constant growth in new market players will also increase the level of demand in the market.

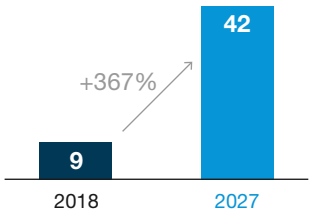
Based on the findings of the leading sector experts at Ernst & Young, 3D printing is an “essential element” in Industry 4.0, providing the link between advanced production or operating techniques and intelligent digital technologies; this is being described as the fourth industrial revolution. 3D printing is a forward-looking technology with significant growth and development potential.

The global market for additive manufacturing will grow to CHF 42 bn by 2027.

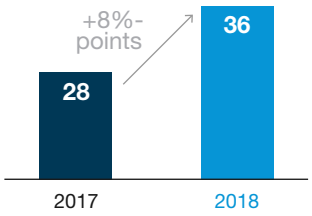
Governments in the world’s leading industrial nations have also recognised this development potential. Investment programmes running into billions have been launched during the last few years. The European Union has classified additive manufacturing as a priority area. Development and research funds amounting to CHF 180 million have been channelled into the ongoing development of 3D technologies. The government in Washington has launched a 3D printing initiative, which is being subsidised to the tune of one billion US dollars. Singapore and China are following close behind with investments amounting to CHF 500 m over a period of 4 years and CHF 145 m over a period of 7 years. Many other industrial nations have initiated similar subsidy programmes.

However, industrial companies themselves account for the far more significant share of this growth. General Electric, for example, has already invested CHF 100 m in its subsidiary, Concept Laser, a machine maker for the additive manufacturing technology

MARKET GROWTH [in CHF bn]



SHARE OF METAL PRINTING IN THE 3D MARKET [in %]



of selective laser melting. General Electric expects half of its products to be directly or indirectly affected by additive manufacturing in future. 3D production processes are currently being used for engine nozzles. The pipeline and potential for 3D-printed components at General Electric are worth billions.

The BMW Group in Munich has also invested more than CHF 11 m in a new Additive Manufacturing Campus. The car manufacturer wants to continue developing its expertise in additive manufacturing processes – both for polymers and metals. Companies like Ford and Siemens are other examples of multi-national groups involved in the 3D market.

The pace of ongoing developments in this 3D technology was high again in 2018. The analyses of the sector experts at AMFG were able to identify some key developments and trends in the 3D market in 2018. These key developments are explained in greater detail below.

3D metal printing continued its growth course in 2018 – new processes were created and developments continued for existing technologies. The growing number of companies active in this sector reflects the increase in the number of innovations in this field.

3D printing for polymers also continued to make headway. While metal printing has attracted a great deal of attention in the press during the last few months, the constant growth of the polymer market hardly produced any headlines. However, the growing number of industrial applications has had a positive effect on the demand for polymer components.

Another important factor here has been the development of high-performance polymers, which retain their mechanical properties even in very challenging, industrial environments.

Software applications are playing an increasingly important role in all areas of the workflow as part of the industrialisation of additive manufacturing. While software has always been a crucial factor in the design and simulation of components, the production of components for industrial use requires software that matches the specific requirements of the additive manufacturing process. As a result, the software solutions for design and product development became more sophisticated in 2018 and used technologies like generative design and topology optimisation. However, design and simulation solutions were not the only key factors in software. As production departments wish to manage and scale their 3D production capability, the workflow software, which can map and manage the production process, became a key component in the production process too.

Partnerships can help accelerate the market penetration of 3D technologies.

Another key development in 2018 involved automation across different segments. While additive manufacturing offers ground-breaking benefits for production, a few areas in the production process are still manual. Automation solutions were therefore developed to reduce process times considerably.

Market environment

Partnerships and acquisitions can help accelerate the market penetration of 3D technologies. These developments were felt in the complete sector. Examples worth mentioning were the takeover of Concept Laser and Arcam by General Electric (2017), the acquisition of 3DSIM by ANSYS (2017) and the takeover of LPW by Carpenter Technology Corporation (2018).

More privately funded companies are active in the current market environment for additive manufacturing than firms listed on the stock exchange. One typical feature of the additive manufacturing industry is the number of privately funded start-ups or those supported by venture capital; they represent most of the companies in the market place and account for 74% of the market, while 26% are listed companies. Most of the listed corporations are either established industrial companies or chemical or engineering firms that are not exclusively operating in the 3D market. A few new market participants were floated on the stock exchange, including Nano Dimension, Titomic and Sigma Labs.

Exentis 3D Mass Customization® technology in the current market environment

The figure below illustrates the comparison between the Exentis 3D Mass Customization® technology and other 3D printing technologies. The assessment performed here is based on the degree of complexity of the printed components and the output capacity per 3D production unit. Injection moulding has been included in the list as the reference point and to generally locate the Exentis 3D Mass Customization® technology in comparison with traditional production methods.

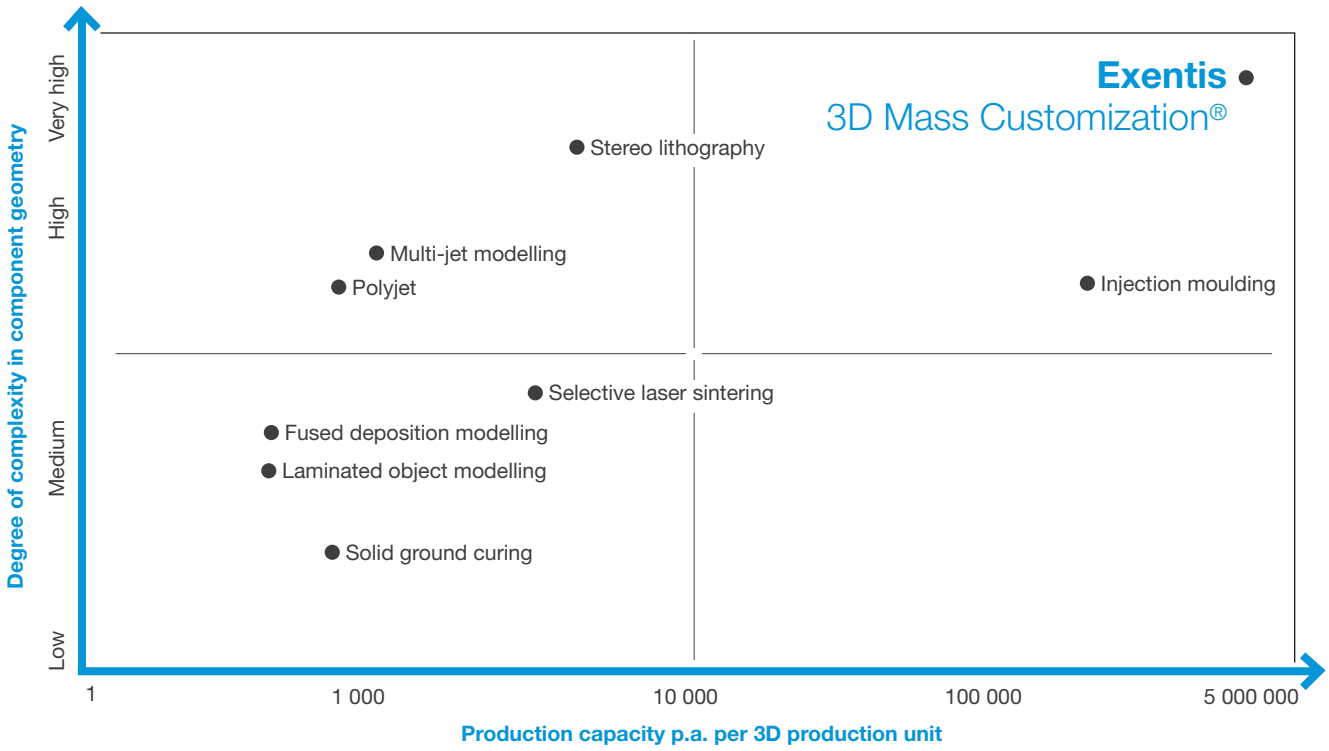
The results of the technology comparison show that large-scale or mass production with a free selection of materials is not available in any of the other 3D printing technologies. The benefits of the Exentis 3D screen printing technology also go further than traditional production processes (e.g. injection moulding), as highly complex component geometries can be handled.

This also offers the Exentis Group an outstanding, unique feature in the market place developing Exentis 3D Mass Customization®, Industrialized Additive Manufacturing, the unique and fully patented 3D screen printing technology.

More privately funded companies are active in the current market environment for additive manufacturing than firms listed on the stock exchange.

The future trends for additive manufacturing

It is already clear that 3D technologies will challenge and change global production, logistics and business models. An article in the Global Trade Review specialist journal even goes one step further; it suggests that 3D printing could replace as much as 40 percent of global trade by 2040 because of the disruptive changes to logistics and supply chains. Additive manufacturing is already changing global trade and production processes: production is moving closer to customers, transport times are being cut, customized production is being facilitated and warehousing is being reduced.



The current additive manufacturing market environment reflects the increasing maturity of its processes and provides a positive outlook for the future. Ernst & Young predicts that growth rates will be higher than 10%.

The ongoing developments in technology described below confirm the ongoing, above-average growth in the 3D market in future. Firstly, more 3D-printable materials are being developed all the time. The list of materials suitable for 3D printing was small in the past and far from the wide range of materials that are often used in parts production.
The greatest shift within the sector is taking place in the move from plastic to metal printing. The workmanship for polymers is adequate for prototypes and special components and this will continue in future. However, the production of metal parts is a trillion-dollar market and therefore far more important. A survey in 2018 revealed that, although plastic was still the material most frequently used, its share fell from 88% to 65% in 2018 alone. The share of metal printing, in contrast, rose from 28% to 36%. Based on this development, it seems likely that metal printing will already overtake plastic printing in 2020 or 2021 and account for more than half the overall 3D printing market.

The continual increase in printing speeds will remain a crucial factor in future too. While the printing time can vary depending on the complexity of the shape, the quality of the final component and the materials that are used, the 3D printers now available in the market are already twice as fast as those a few years ago.

Other large corporations will enter the 3D printing market in future. This will attract even greater media attention and create a situation where existing players will press ahead with innovations at an even faster pace. The large corporations also introduce their own research investments, a large number of customers and selling power – and expand the overall existing market, rather than challenging the turnover of companies already present in the market place.
3D printing will be used more frequently in all production areas during the next few years. However, most parts will still be manufactured using casting, forging, stamping, pressing or similar procedures. However, even 1% of this global industry, which accounts for several trillion Swiss francs – the volume of metal parts produced every year alone accounts for one trillion Swiss francs – is a very large market for this “young” sector.

Business model and strategy

Exentis business model

Exentis Group AG basically offers its customers two possibilities for manufacturing their product idea on a 3D large scale using the Exentis 3D screen printing technology, the patented Exentis 3D Mass Customization®.

Exentis can manufacture the components or the customer completes the industrial production directly at its premises. A development project always precedes this process to guarantee the best possible success for the customer.

The following text describes the development project and the customer's decision to "make or buy" in greater detail.

Development project

The development project is the central process stage between the customer's product idea or the customized assignment and subsequent large-scale 3D production. The findings generated by the development project are crucially important for the Industrialized Additive Manufacturing at a later stage.

A number of Exentis specialists work together during the development project. They first develop complex 3D models of the later component, for example. The goal is initially to clarify whether a new component can be produced by combining various individual components, shapes or functions in the 3D printing process, so that the new product is much more efficient and functional than one or several of the previous components. Traditional manufacturing processes are normally not able to handle these kinds of degrees of complexity or geometries – for example, hollow structures to reduce weight or component web thicknesses that are not wider than a twentieth of a millimetre.

Once the object's design has been completed, extensive simulation work and statistical process checks take place regarding stability, critical geometric areas and the feasibility of large-scale production at a later stage.

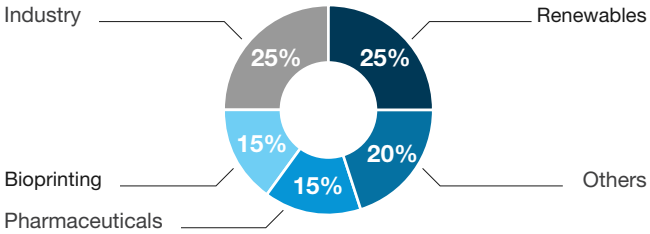
Our own Exentis subsidiary then develops and produces the 3D printing screens. They are optimised in terms of application technology, coating thickness, resolution capacity, mesh geometry and material.

Exentis offers dual source concepts internally through production in two countries.

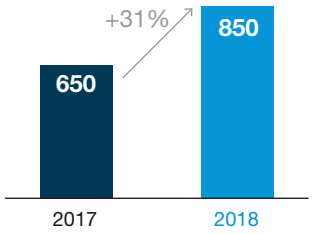
Exentis has the special metal or plastic screen materials manufactured in Japan and therefore not only has a strategic source, but also the technical ability to optimise the printable structure with a limiting resolution of less than 25 micrometres. The mesh material and screen coating are tailored to the substance needing to be printed within the project-related screen development work. As a result, Exentis achieves component surfaces that require almost no reworking and therefore a very long serviceable life for the screens.

The material or paste is developed during the next stage. Material scientists, chemists and engineers work together to create the specifications set by the customer as regards hardness, robustness, degree of porosity and the surface features that are required.

PATENT PORTFOLIO



PATENT CLAIMS



This can take place very quickly if the customer uses the varied printable materials at Exentis – more than 100 different ones are available. The material development work takes more time, but is more individual if special requirements like electrically conducting ceramics or multi-material components are needed.

Once the paste systems have been produced, the suitable printing parameters and the multi-dimensional sintering curves are developed for the component, if metal or ceramic pastes are used. The customer then receives sample parts that are subjected to extensive quality assurance procedures.

Once approved, the process parameters and the technologies to be used are documented. The customer receives cost/benefit analyses for purchasing the parts from Exentis or manufacturing them at its own premises. Most customers opt for a dual source strategy. That is to say, the customer commissions Exentis to start the production work until a specified number has been reached and establishes its own Exentis 3D screen printing production at its premises alongside this. Exentis is also able to offer the customer dual source concepts internally to guarantee maximum reliability for deliveries.

Industrial 3D production of customer components at Exentis

Exentis will have various production sites in Germany to serve the main market there and in Switzerland from the middle of 2019 onwards. These production sites will be guided by the production parameters developed for Industrialized Additive Manufacturing at the central application laboratory at Exentis headoffice in Stetten near Zurich. Exentis provides its customers with a set price for producing each individual component. Variations or material changes to the final component are possible using the “rapid tooling” facility – i.e. adapting the printing screens, within 1-3 days. As a result, Exentis customers can have smaller numbers of parts produced in a flexible and prompt manner; this would not be possible with conventional production methods and the associated lengthy and costly toolmaking procedures.

Industrial 3D production at the customer’s premises in the form of a one-stop shop

Once customers have decided whether to manufacture the parts at their premises themselves or ask Exentis to produce their components too, Exentis serves them from a single source.

Exentis accompanies customers from their product idea to 3D products manufactured a million times over.

The component geometries, the paste systems and the screens as well as the process parameters have already been defined and tested by now. Exentis then offers its services as a one-stop shop. That is to say, Exentis supplies everything that is required for customers to manufacture the components at their premises alone. The first step is to issue a production licence for the specific component so that the customer can use the extensively patented Exentis 3D screen printing technology to manufacture its own items.

Business model and strategy

Despite all the flexibility of the Exentis 3D screen printing systems, it is necessary to specially tailor the 3D screen printing units to the components. This depends on the output quantity that is required or the special production environments, e.g. the production of biotissue in a clean room or highly efficient production lines for industrial parts. Exentis supplies the necessary paste systems, screens, process technology and training courses for the specific application and, if necessary, the operating personnel to start production. The sophisticated configuration of the sintering furnaces completes the range of services provided by Exentis for industrial parts.

The Exentis strategy

The benefits of the Exentis 3D screen printing technology create considerable value added for customers. The overriding goal is therefore to anchor the patented Exentis 3D Mass Customization® process as the new industrial standard for industrial additive manufacturing.

Exentis is focusing on the market, materials, technology development and independence at this stage of its corporate development.

Although Exentis has received numerous project enquiries from the USA and Asia, Exentis will initially focus on the core countries of Germany, Austria and Switzerland during the next few months. If, however, enquiries are made about individual promising projects from elsewhere in Europe, Exentis will not close its doors to them and “gently” pursue a process of internationalisation by completing the project.

As regards pastes, more than 100 different materials can be printed at the moment. The company is focusing on applications with ceramic and metal materials here for its own industrial 3D production too.

As market trends show, more and more major companies are partly replacing their conventional production by additive solutions.

Exentis has successfully issued licences for fully developed technology fields, for example, for renewable energy sources, pharmacy or 3D bioprinting. Exentis believes that third-party companies, which handle their specific markets independently of each other, are able to more quickly and extensively establish the Exentis 3D screen printing technology in the market. This is the reason why Exentis is pursuing the role of a technology company for the time being, which can also offer its customers its own services in the field of industrial parts.

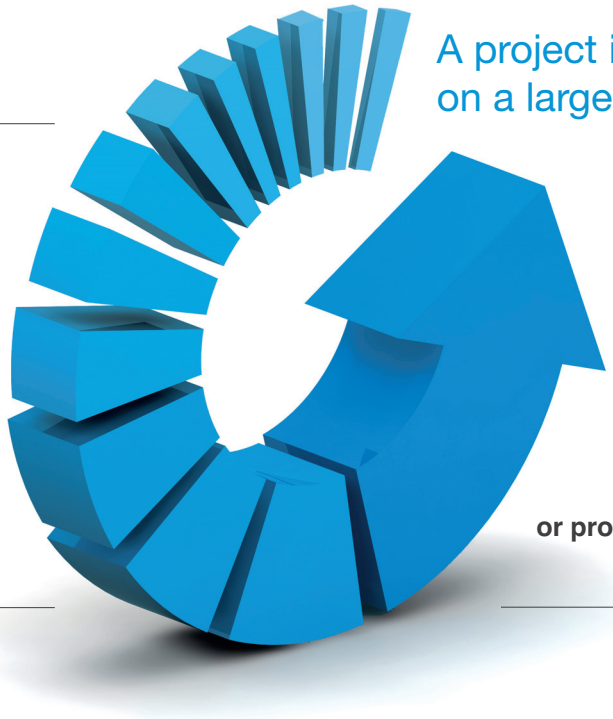
Exentis places great importance on its independence as a company. As market trends show, more and more major companies are partly replacing their conventional production by additive solutions. As Exentis has the most promising technology for Industrialized Additive Manufacturing at the moment, Exentis believes that it can develop this on its own and tap into the existing potential.

FROM THE PRODUCT IDEA TO LARGE-SCALE PRODUCTION

Discussing the product idea or the challenge

Presenting 3D solution options

Agreeing a development project



A project idea manufactured on a large scale in 3D

Submitting the process technology, sample parts and a cost/benefit analysis

Exentis supplies parts or production takes place at the customer's premises

Exentis 3D Mass Customization®

The Exentis DNA – i.e. the complex interplay of fields of expertise, ranging from the initial material composition to industrial production and delivery of the 3D-printed components – essentially contains six cornerstones, which are used at Exentis in a process developed over decades, extensively patented and known as Exentis 3D Mass Customization®.

The consistent objective is to solve customer tasks and provide innovative customer solutions with functional value added using mass production and the Exentis 3D screen printing technology.

Technological cornerstone 1: Selecting the material

The specific material requirements for the component are defined with the customer during the first stage. Selecting the right material is extremely important in terms of guaranteeing the component features. In addition to metals and alloys based on steel, copper, aluminium, refractory metals or rare earths, the 3D screen printing process can be used for ceramics, glass, polymers, organic materials and biomaterials. At the same time, different materials can be combined in the form of lamellar structures thanks to the layer design. Composite materials complete the range that is available.

Particular importance is attached to selecting the initial powder material for ceramic or metal substances so that the components have the properties specified by the customer after going through the complete process chain. By selecting the suitable morphology, grain size distribution and particle form of the powder, it is possible to deliberately set the sinterability, porosity, conductivity and mechanical properties.

It is essential to pre-treat the powder, for example, through calcination, and check its specific purity, because this has a huge effect on the chemical properties and the ability to print them.

The Exentis DNA involves the complex interplay of fields of expertise.

The powder's properties not only affect the features of the sintered component, but directly how the powder can be processed too – e.g. to achieve extremely fine structures with wall thicknesses of 60 micrometres, the diameter of human hair. The grain size distribution, morphology and particle shape also finally determine which screens can be used to print the paste systems. Abrasive particles place different requirements on screens than softer materials.

Technological cornerstone 2: Paste system development

The production of paste systems, i.e. making powders suitable for printing, is the crucial element in the high-tech 3D printing process known as Exentis 3D Mass Customization®. This might be called the "Coca-Cola formula" of the Exentis 3D screen printing technology. It is possible to process components made of ceramics, metal and polymer systems or biomaterials with the 3D screen printing process. In most cases, the starting material is a powder and paste systems are made from this by inserting a series of additives.

When processing polymer systems and biomaterials, it is necessary to know all about the processing window as regards temperature, humidity, oxygen content and light-sensitivity. These parameters need to be individually defined for each system and do not permit even the slightest tolerances if the required properties are going to be reproduced on an industrial scale.

One major advantage of the 3D screen printing technology is the wide selection of materials that can be used or combining them. It is possible to create both composite and laminar structures; a different material can be used for each printed layer. It is essential to know all about how materials combine in order to guarantee the defined material properties in the component.

It is essential to know all about how materials combine in order to guarantee the defined material properties in the component.

There are clear links between selecting materials and the skills for producing pastes. Rheology, i.e. how substances flow, which deals with the moulding and flowing properties of matter, helps steer the pastes in the right direction if the correct materials have been skilfully chosen.

By selecting suitable binding agents, plasticisers and other additives, it is also possible to modify the viscosity of the pastes too.

This is adapted to the structure needing to be printed, the screens and the printing height. When adjusting the rheological behaviour of the pastes, the possibility of using templates instead of screens or combining the two tools in one production process, in order to maximise the printing height, plays a major role. It is not only necessary to consider the processing aspects when making the pastes, but also what is required in the component after sintering.

The chemical composition, porosity, mechanical and physical properties as well as the surface quality can be markedly affected by supplying additives to modify the pastes in the direction required.

Technological cornerstone 3: Screen production for specific components

The production of highly accurate screens for 3D screen printing on a large scale involves complex requirements as regards the resolution capacity, perfect flow of the paste, sharpness of edges, durability, a stable aspect ratio and the highest degree of reproducibility in the vertical structure.

Thanks to a strategic cooperation arrangement with the global technological market leader for polymer screen meshes in Japan, Exentis has unrivalled access to high-quality meshes as the basis for manufacturing each individual Exentis production screen.

The combination of a statically optimised screen frames, high-performance meshes from Japan and a separation-compliant clamping technology creates a lining quality that allows for a long serviceable life for the screens in the manufacturing process.

Exentis 3D Mass Customization®

The ongoing screen production process involves a photo-polymer coating in clean room conditions with the narrowest of tolerances for the thickness of the application and surface roughness. The specific, final layout is then completed with high-resolution plots and this creates detailed structures with predefined aspect ratios.

Completed by technical and visual checks in the quality control department, the Exentis screen leaves the in-house, industrial screen production department and becomes a value-adding tool for each Exentis 3D production system.

Technological cornerstone 4: 3D screen printing process

The conventional 2D screen printing technology has been an established and accepted procedure in manufacturing industry for decades, e.g. for the large-scale production of solar cells, printed circuits boards and car glass.

By integrating the z axis in the industrial manufacturing process via the Exentis 3D Mass Customization® process and in-house developed production systems, 3D screen printing is now able to make full use of its thick film expertise and enables layer thicknesses of

THE EXENTIS 3D SCREEN PRINTING TECHNOLOGY

Selecting the certification regime	Material development	Paste system production	Screen development and production
• Industrial parts • Aerospace industry • Automotive • Pharmaceutical product requirements • Bioprinting • Medical engineering products	• Metal, ceramics, polymers, biomaterials • Morphology • Grain size/distribution • Particle form • Granulates • Purity • Pre-treatment • Quality assurance	• Viscosity • Binding agents • Plasticisers • Additives • Liquefiers • Solvents • Storage • Pre-treatment • Quality assurance	• Wire mesh material • Wire angles • Mesh diameter • Mesh size • Screen tension • Frame • Pre-treatment • Templates • Screen resolution of up to 30,000 dpi • Quality assurance

less than 20 micrometres up to more than 150 micrometres. This level is viewed as the standard for the following functional materials: ceramics, metal, glass and organic substances.

The parameter landscape for the pure 3D printing process is extensive with 70 criteria needing to be set separately. The main parameters here include the distance, screen elevation unit, squeegee speed, squeegee angle, squeegee material, phase position, shore hardness, mesh tension, EOM thickness, shore depth figure and matching the paste rheology.

The challenge for ensuring a high-quality industrial 3D screen printing production process lies in mastering the reciprocal effects of the parameters mentioned above and is based on the models of dynamics and interfacial physics.

As a screen-printing process, the Exentis 3D technology is predestined for high z axis values and extremely high-resolution capabilities in the range below 20 micrometres.

COMBINES A LARGE NUMBER OF FIELDS OF EXPERTISE

3D screen printing parameters

- Printing parameters
- Squeegee material/angle
- Printing speed
- Paste consistency
- Drying technologies
- Quality assurance

3D screen production unit

- Full automation in multi-layer operations
- Multi-table or inline layout
- Suitable for large-scale industrial production
- Printing cycle time of 2 - 3 seconds
- Integrated material drying
- Quality assurance

Sintering for industrial parts

- Dwell time
- Temperature
- Cooling
- Air, inert gas
- Shrinkage
- Geometry
- Tray material
- Documentation
- Traceability
- Quality assurance

Exentis 3D Mass Customization®

This is the equivalent of two hundredths of a millimetre or one third of the thickness of newsprint. It is therefore a process that enables extremely fine and precise component dimensions and geometries.

Technological cornerstone 5:
Specific 3D production systems for components
Thanks to Exentis 3D Mass Customization®, new production concepts are being developed at Exentis based on the 3D screen printing technology; they will increase productivity a great deal and now enable annual production of more than 5 million components per individual production system for selected products. Exentis designs, develops and documents the production systems, which are then exclusively and individually built at special machine manufacturers. No individual production unit is therefore the same as any other. Printing heights, process speeds, quality assurance systems, drying lines, the paste feed and output quantities are all newly optimised for each component.

New kinds of Exentis manufacturing concepts allow 3D production systems with millions of components per annum.

As the 3D screen printing technology is a cold printing process and therefore does not need a high-temperature printing chamber, as required in other processes, each printed layer is dried to enable the adhesive application of the next layer. This takes place using infrared radiation (IR) for metal and ceramic materials.

In addition to using IR to dry the layers, the process times for structuring plastic components, for example, by using an ultraviolet (UV) light-sensitive polymer system, can be significantly optimised. The hardening process to form the finished component takes place using UV-induced polymerisation and does not require any subsequent heat treatment. It is then possible, for example, to turn polymers or even conductive pastes into 3D structures. By selecting sinterable combinations of materials, miniaturised components, e.g. electrodes can be mass-produced in one manufacturing stage.

Biomaterials require different production conditions to ceramics or metals. Clean rooms with appropriately certified production systems are required to complete large-scale production. Exentis has appropriately authorised management, documentation and production systems, which satisfy all the common requirements for manufacturing medical and pharmaceutical products.

Permanent monitoring of the workpiece properties using electronically controlled optical systems with high-resolution cameras is available for quality control purposes. An enclosure, which can be air-conditioned and specified, if necessary, enables the use of sophisticated materials in chemical and technological terms, paste systems as well as drying and hardening processes.

Automated screen changes handle layout changes within the component geometry and even optional changes of pastes to vary the functions of components. Exentis has screen change systems, which can be timed in the production process using management software without any operator.

Technological cornerstone 6: Multi-phase sintering

In addition to selecting materials, making paste systems and screens and the 3D screen printing process for 3D production systems for specific components, multi-phase sintering is another important area of expertise to achieve the desired component properties.

The materials only develop their relevant features when they are sintered. New molecular compounds are created, crystal structures are formed and the material obtains its density.

Sintering is basically a two-stage process. The first stage involves debinding. The additives dissipate completely from the so-called green bodies during this phase. This is the name of the completely printed components, which are made with additives in the low-energy and material-efficient cold printing process to achieve improved processing capability and the ideal bonding of the paste systems.

During the second sintering stage at significantly higher temperatures, compacting and diffusion-controlled bonding of the material particles take place; they finally give the component its pre-defined rigidity and density.

Some materials undergo phase transformation during sintering and this can be deliberately controlled or bypassed to adapt the physical and mechanical properties as well as the density to the customer's requirements.

The latest methods are used to examine these thermal reactions in order to design the sintering programmes and specific sintering curves for components in a cost-effective manner and give the components their specific properties.

Exentis has experienced experts who can transform this fundamental data into optimised sintering curves. This not only allows for the temperature curve, but also atmospheric conditions like inert gas or oxygen, oxidising and reducing gases and their pressure parameters in each case. This is the only way to reproduce the necessary component, material and surface properties in the industrial manufacturing process with high quality levels.

These six cornerstones of the comprehensively patented process technology, Exentis 3D Mass Customization®, guarantee the uniqueness of the Exentis 3D screen printing technology. They also help anchor the process and achieve technological and economic success with the additive manufacturing technology.

Sustainability

Exentis 3D Mass Customization®

Excellent compliance and a well-developed risk management system are standard elements at many companies nowadays. But what about dealing with the environment? Are corporate processes responsible and geared towards future generations? Do business models and technologies allow improvements to the status quo? The umbrella term sustainability combines topics that preserve the environment and future and create even greater quality of life. Responsible actions are a major issue at Exentis – for customers, employees and shareholders to the same degree – and for the environment.

Additive manufacturing, particularly for large-scale industrial production, is viewed as a disruptive technology. It will significantly change the way that products are made. It is therefore necessary to draw up aspects and principles, which do justice to the significance of market shares that will grow far above average, at an early stage.

We will consider four different levels of responsibility at Exentis:

1. Material efficiency

Material efficiency plays a major role in establishing additive manufacturing. The technology is fundamentally different from subtractive processes like milling or grinding, where sometimes up to 90% of the initial material is removed to achieve the necessary geometry for the component. This is material that can rarely be recycled productively and therefore has to be thrown away. The same applies to moulding processes like stamping. Here too, significant material waste is produced. This is a weak point in established manufacturing processes.

All 3D technologies have one thing in common: material efficiency for the structure of the components. Only the amount of material, which is necessary for the component, is processed and not the quantity that the manufacturing procedure requires. However, most 3D printing processes are currently restricted to the production of prototypes or small-scale series. From an industrial point of view, no relevant quantities of materials are being saved.

Things are very different at Exentis. The ability to handle large-scale production makes all the difference. One customer, for example, currently manufactures palm-sized special automobile parts by stamping and needs about 3,000 tonnes of special steel for this every year. Approx. 78% of the material is “stamped out” in the current manufacturing process and is thrown away. At a component level, that does not seem very much. However, in terms of annual production, manufacturing the identical components using Exentis 3D Mass Customization® means saving 2,340 tonnes of steel or preventing one hundred 40-tonne trucks from transporting the material – each of them can carry about 24 tonnes. This means preventing 200 shipments, delivering them and disposing of them. This example of just one component already shows the degree of responsibility that Exentis assumes in material consumption. If Exentis Industrialized Additive Manufacturing is used, there is no need for extensive pre-machining and post-production work and the manufacturing process is significantly streamlined.

2. Savings in energy and water

In 3D manufacturing processes, e.g. selective laser sintering, powder is melted by a laser. The powder is

compressed so that the individual particles melt with each other and the formative structure is created.

This 3D printing or sintering procedure is repeated for each layer until the object has been vertically constructed. This may involve several hundreds of layers.

Industrialized Additive Manufacturing by Exentis is very different. The Exentis 3D screen printing technology is a cold printing process. It does not manufacture individual components, but sometimes thousands at the same time. This means the elimination of elaborate cooling processes that normally involve water cooling. However, the energy balance is even more positive. Instead of sintering processes for individual components, Exentis combines thousands of industrial components and sinters them in a final and separate process stage. This saves energy and relieves the environment.

3. Logistics chain optimisation

By producing screens overnight or within a few days for complex geometries, clients can tailor the component quantities and geometries that are produced precisely to the needs of their final customers. No "production for stocks" takes place. On the contrary, "Exentis 3D Rapid Tooling" makes it possible to supply a wide variety of product options promptly, flexibly and at attractive prices for the first time. Compared to injection moulding, for example, which allows similar output quantities as Exentis 3D Mass Customization®, there is no need for the time-consuming and costly production of tools or moulds. Both of these often take months to complete. The just-in-time manufacturing of the products for the customer minimises demand for storage and warehouse costs. Spare parts, for example, in the automobile industry, no longer need to be stockpiled for decades. They can be produced using 3D printing, when required.

Exentis firmly believes that the rollout of Industrialized Additive Manufacturing will trigger a radical rethink. Why should we continue to produce huge quantities of components in low-wage countries, if it is possible to restrict or prevent the international transport of the goods by a re-regionalisation of industrial production, in addition to the benefits mentioned above?
This is another significant advantage of handling resources in a responsible and sensible manner.

4. Rethinking industrial systems

Industrialized Additive Manufacturing systems will not replace traditional ones. Increasing use will probably be made of hybrid process chains in the foreseeable future, which combine additive and conventional production processes. The opportunities presented by Industrialized Additive Manufacturing allow a redefinition of cost structures and therefore a reformulation of industrial systems, which do not depend on making products from semi-finished goods. On the contrary, the workable raw material and the generative power of additive manufacturing will play a major role in redesigning value creation systems, ecological assessments and associated production patterns.

Overall, Exentis believes that it has a responsibility to draw attention to effects related to sustainability and itself play a leading role in establishing new additive production paradigms that are suitable for future generations.

Business performance in 2018

The 2018 financial year was dominated by the strategic expansion of the Company and the successful growth of the Exentis Group.

Priority was placed on establishing an organisation with appropriate growth capacity, as well as expanding and further developing the technology.

The following statements not only relate to 2018, but also developments until mid-May 2019 to enable as complete a picture of business performance as possible.

Creating capacity for growth

Growth investments in the companies

The key issue at the beginning of 2018 involved preparing the Company for its growth goals. This was the reason for streamlining the organisation by disposing of or merging non-operating subsidiaries and intermediate holding companies.

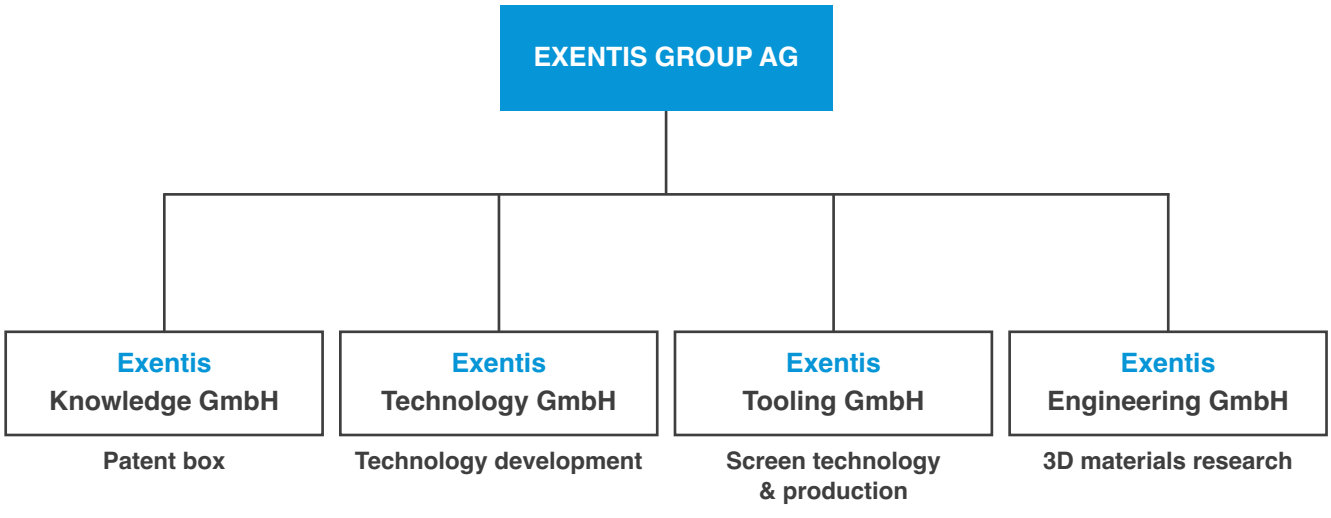
After optimising the corporate structure, Exentis Group AG now has the following set of companies (see diagram below).

The new corporate structure of the Exentis Group is characterised by clearly defined fields of activity and responsibilities as well as a clear legal structure.

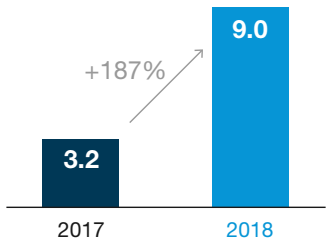
Exentis Group AG, Operating Holding, Stetten

Exentis Group AG, the Group's operating holding company, manages and coordinates the operating business of the entire Exentis Group. It is the central company at the headoffice in Stetten with full decision-making powers for the Group.

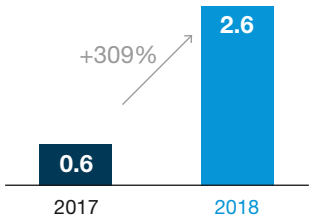
ORGANISATIONAL CHART FOR THE GROUP



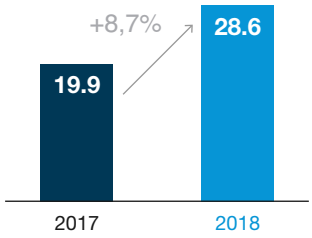
TOTAL TURNOVER [in CHF m]



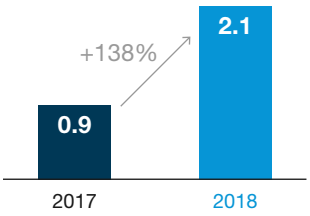
EBITDA [in CHF m]



EBITDA MARGIN [in %]



NET PROFIT [in CHF m]



In addition to the organisational changes, deliberate investments were made to expand the development and production capacity. The space for the research and development laboratory at the Stetten site alone was significantly enlarged. The expansion of the laboratory makes it possible to complete the development work for customers' new applications even faster.

Alongside the investments in the application laboratory at Stetten, the manufacturing capacity to handle large-scale production was also expanded. Production facilities for 5 million or 10 million components will be available to complete customer projects at the business locations in Switzerland and Germany by the middle of the year.

The current management team has been broadened by the business development and financial skills of Messrs Urs Hirsiger and Klaus Radakovics. Urs Hirsiger, the Member for Business Development and Management, will continue to press ahead with establishing a comprehensive business development department, a so-called "one-stop shop" for customers. Klaus Radakovics is taking over the position of Chief Financial Officer and he has advocated a slim, but efficient financial and administrative department.

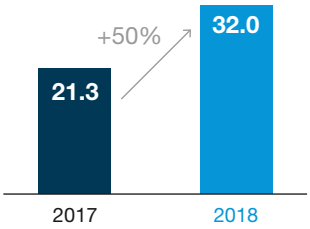
The Exentis Group will significantly expand the size of its workforce during 2019 and 2020 to acquire and process the many development products and production orders from a wide variety of industries. This will primarily involve the development project management and technical screen-printing departments. New positions will be gradually established in the administration department and in the support functions so that the Exentis Group can comply with its administrative and organisational requirements. In principle, all the positions and vacancies will be subject to continuous planning and checks in line with needs to ensure that the organisation and culture remain slim and efficient.

The increase in personnel resources within the Exentis Group by recruiting trained material scientists as technical project managers and screen-printing specialists as operators on the Exentis 3D production units is guaranteed by using a wide variety of recruiting strategies and channels.

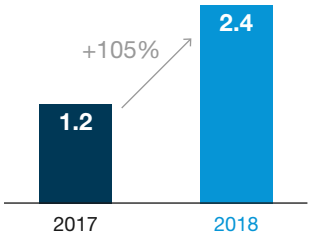
Establishing these development and production resources through personnel is designed to significantly reduce the average time required for development projects and offer customers large-scale production even faster.

Business performance in 2018

BALANCE SHEET TOTAL [in CHF m]



CASH AND CASH EQUIVALENTS [in CHF m]



This opens up another business field because Exentis screen printing specialists or technical service employees are already operating the Exentis 3D production units at customers' premises as part of service agreements.

The business development department also faces a significant increase in resources. During the course of the year, our potent business development organisational structure will guarantee even faster market penetration of the Exentis 3D Mass Customization® technology. The first experienced business development employees were already successfully hired during the first quarter of 2019.

The expansion and enlargement of the application laboratory based on demand enable the simultaneous development and production of components at the site in Stetten.

Individual services will initially be provided by designated specialists on the basis of consultancy assignments. If these services exceed the normal annual salary for the sector, these specialists will be offered a permanent employment relationship. We have already been able to successfully fill vacancies in the compliance and quality management departments in this manner.

Exentis Technology GmbH, Operating Subsidiary, Jena

The Free State of Thuringia in Germany offers an outstanding setting for attracting innovative technologies. There are not only generous start-up and research subsidies, but also many universities and a unique, innovative climate here.

The universities of Jena, Erfurt and Ilmenau are located here – but also the Fraunhofer Institute for Ceramic Technologies and Systems. This forms a unique, geographical innovation cluster for material development work. This innovative environment is designed to ensure that Exentis Technology can develop new issues within development projects to prepare them for series production.

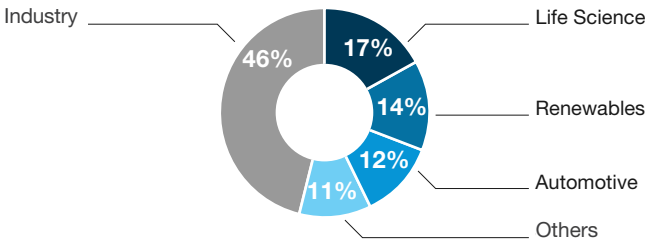
Exentis Technology has moved into extensive laboratory and production space at the Jena Pharmapark site so that it can press ahead with many development projects in conjunction with local research institutes in future.

The development of the site in Jena has been further accelerated during the last few months and will be complete by the middle of 2019. More workers are being hired too, primarily engineers with doctorates in the fields of material sciences, physics and chemistry.

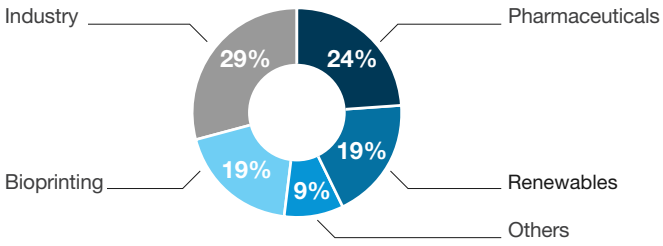
Exentis Tooling GmbH, Operating Subsidiary, Velden

One major area of expertise in the Exentis DNA is the production of high-quality and permanently usable screens.

DEVELOPMENT PROJECTS
ORDER BOOK OR PROJECT PIPELINE



CASH AND CASH EQUIVALENTS [in CHF m]



The Exentis Group set up its own company to develop and manufacture screens, Exentis Tooling GmbH, in southern Germany in 2018 to ensure consistently high quality when producing screens and templates.

Customers are increasingly and clearly understanding that tools, which require a great deal of time and expense, are unnecessary if the Exentis 3D screen printing technology is used. On the contrary, the Company offers to produce screens within 24 hours so that necessary design changes to the component can be directly introduced and completed.

In the Exentis 3D Mass Customization® screen printing technology, the screens are nothing more than the tools in other manufacturing technologies. However, the Exentis screens can be made within a few hours and have their own integrated CAD computer technology and are far cheaper than traditional tools for conventional manufacturing processes. This ensures a high degree of flexibility for the Exentis Group and its customers with very fast response times to customer requests for changes.

Exentis Engineering GmbH, Operating Subsidiary, Hillscheid

Pure research on the Exentis 3D Mass Customization® screen printing technology is continuing in Hillscheid. The experienced research team is not only working on groundwork for further patent claims, but also customized, special materials and applications.

By smoothly transferring technology among the other subsidiaries, the Group is able to use the latest technology development stage and ongoing advances at any time.

Exentis Knowledge GmbH, Non-Operating Subsidiary, Stetten

Exentis Knowledge GmbH exclusively serves as the central “patent box” and pools all the patents and patent claims within the Exentis Group.

The number of patent claims made by the Exentis Group almost doubled during 2018 from 471 patent claims to 879 on 31 December 2018. This positive development represents a strong technological signal and is the result of ongoing investments in the Exentis Group’s technological and process developments in 3D screen printing technology.

The 879 registered patent claims can be broken down into 48 patents and a large number of utility models.

As a technology company, it is essential to make deliberate and professional investments in ongoing research work and technological developments. This is why a large number of further patents are currently being prepared to extensively safeguard the ongoing technological and process developments in the Exentis 3D Mass Customization® production technology.

Business performance in 2018

Broadening technology leadership

Further developing the Exentis 3D Mass Customization® technology

A major element in the continual development of technology leadership for Exentis involves deliberate investments in further technological advances. Based on the continuing technological investments during 2018, production volumes per 3D production unit were significantly increased again, more printable material classes were introduced and even more complex component geometries were handled.

The development projects launched in 2018 prove how the 3D screen printing technology can be used as an Industrialized Additive Manufacturing process across different sectors and how varied the demand is. For example, solutions for components from the medical engineering, sensor technology, aviation, power engineering sectors, but also from general industry or thermal management were processed. Our ability to produce the material properties in each case plays a major role here.

Delivery of the world's first 3D production unit with an inline and clean room design

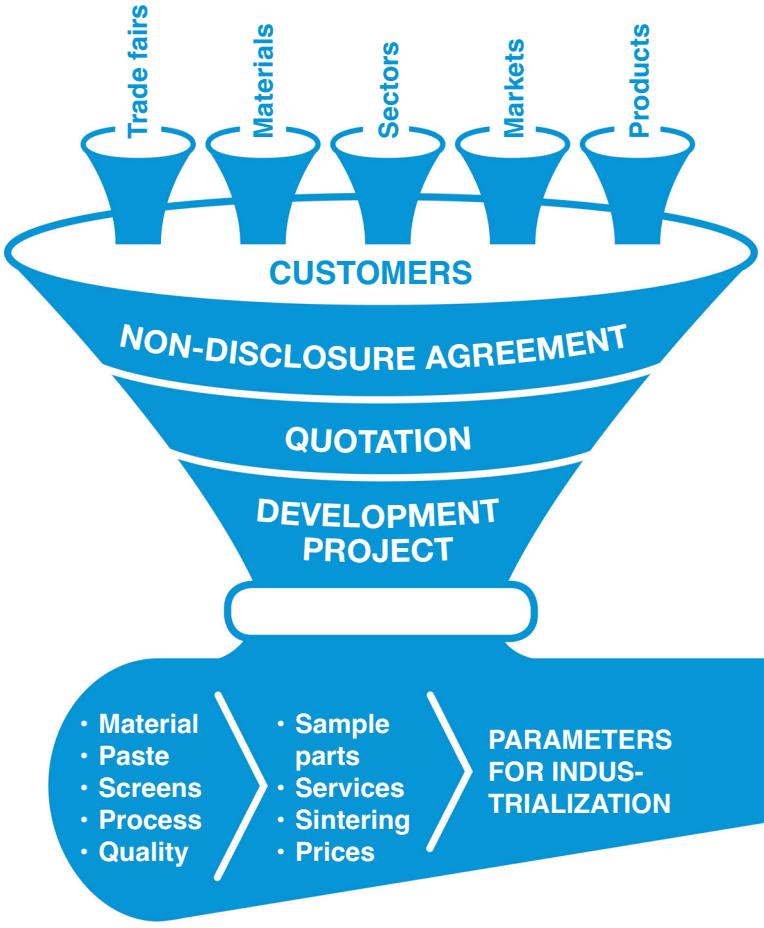
The Exentis Group completed a two-fold innovative step by delivering the world's first inline 3D production unit with a clean room design.

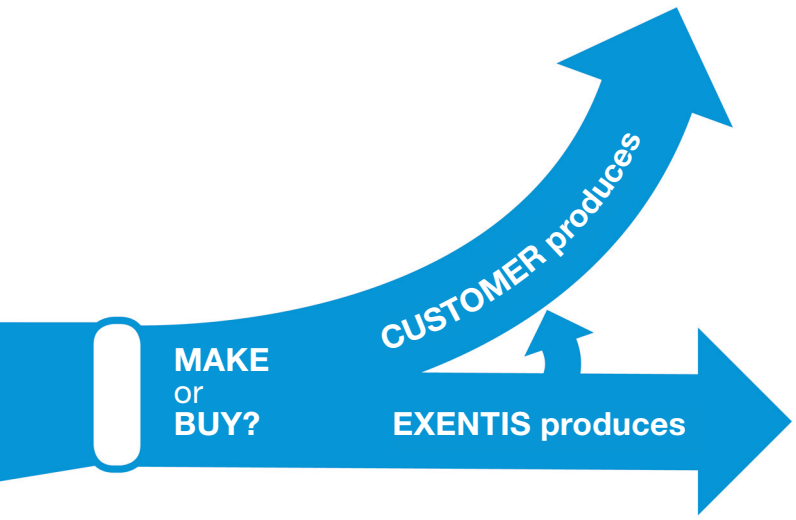
Combining the inline concept and the clean room design enables the 3D production of pharmacological items or the 3D printing of human tissue in a protected clean room environment.

Expanding research cooperation arrangements

The Exentis Group was able to continue deepening its cooperation with universities and research institutes during 2018. The partnerships were concluded in the major expertise areas of material development, process technology and engineering services and even included attracting projects. The cooperation partners include the Swiss Federal Laboratories for Material Science and Technology, Empa, the Fraunhofer Institute for Manufacturing Technology and Advanced Materials in Germany and other university chairs, including the Swiss Federal Institute of Technology (ETH), the North-West Swiss University of Applied Sciences and the Friedrich Schiller University in Jena.

EXENTIS PROCESS MODEL





Establishing an extensive business development department

Setting up a “one-stop shop” for customers

Business Development is crucially important for the Exentis Group.

Successful business development in Exentis’ view is based on an interdisciplinary approach and focuses on customers or customer requirements. Technical training and excellent specialist expertise are the basic requirements when recruiting employees for business development. As a result, the business development employees in the Exentis Group can communicate with their customers at the same technological level.

Exentis acts as a proactive service provider for customers. Exentis is breaking new, innovative ground, primarily in the fields of its market image and customer communications. The organisation has short and highly valued communications routes for customers with clearly defined and highly efficient responsibilities within the organisation through its “single point of contact” customer communications.

Regardless of whether customers decide to have Exentis produce the components or acquire their own production licence and manufacture the items at their own premises, all the services are made available to customers as a “one-stop shop” service. This includes extensive process and operational expertise, the Exentis 3D production units tailored to the production volumes and component requirements, the printing screens individually manufactured by Exentis and defined pastes as well as employee training courses and the operating personnel, if required. There is an “all-round-carefree-package” for all Exentis customers.

Technology rollout via licensees

After issuing licences for 3D-printed pharmaceutical products in 2017, it was possible to successfully issue licences for 3D bioprinting in 2018. The licence partners handle the successful marketing and make use of their existing sector network for this purpose.

One major issue in deciding to issue licences for the 3D bioprinting field is the significantly longer times needed to certify the 3D-printed biomaterial products compared to products that are printed on the basis of conventional metals or ceramics.

Business performance in 2018

Attending selected trade fairs

The strategy introduced in 2017 of attending, making forum contributions and guest speeches at selected trade fairs was continued in 2018 too. The experience and findings gained from attending trade fairs in 2017 were used to plan trade fairs in 2018.

The Exentis Group attended the following trade fairs as an exhibitor or speaker:

- Additive Manufacturing Forum in Berlin
- Additive Manufacturing Expo in Lucerne
- Swisstech in Basel
- Rapid.Tech + FabCon 3.D in Erfurt
- Formnext in Frankfurt

The responses and customer enquiries from attending the trade fairs and the current market environment show that the Exentis 3D Mass Customization® technology continues to be the only 3D printing technology in the market that is suitable for large-scale production. It is important to make customer contacts and examine possible cooperation within development projects with the many interested visitors at the trade fairs.

Consistently pursuing the chosen path.

The Exentis Group's presence at trade fairs will continue to be vitally important for the Company's ongoing development. It will help increase the awareness of Exentis Industrialized Additive Manufacturing, for example.

Outlook

Consistently pursuing the chosen path

The Exentis Group successfully passed many milestones in 2018. The results achieved strengthen the Board of Directors and the Management Board to consistently continue on their chosen path.

The major guarantees of success along this common path are:

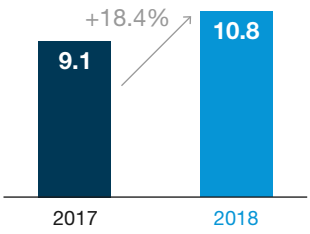
- Recruiting highly qualified employees
- Investing in the ongoing development of the technology
- Creating further growth capacity
- Establishing extensive business development services
- Deepening existing and new sales and technology cooperation arrangements

You can discover more about us on YouTube at "Exentis Group"

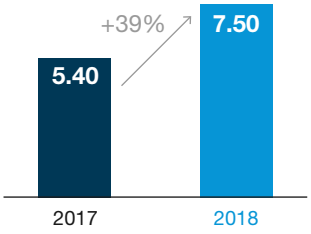
Corporate Governance

Corporate governance report

NUMBER OF SHARES [in m]



SHARE PRICE [in CHF]



Group structure

Exentis Group AG is the pioneer and inventor of the 3D screen printing technology, the patented Exentis 3D Mass Customization®. The innovative 3D screen printing technology enables Exentis Group AG to be the only 3D technology company in the world to handle industrialized large-scale production through Industrialized Additive Manufacturing. The process combines the free design of components with ultra-fine structures with the option of large-scale production for a wide range of materials. Important fields of application for Exentis 3D Mass Customization® are manufacturing industry, renewable energy sources as well as the pharmaceutical and medical fields.

The Company's headoffice is located at Im Stetterfeld 2, 5608 Stetten, Switzerland.
The consolidated group of companies encompasses the following (as of in May 2019):

- Exentis Technology GmbH, Jena, Germany
- Exentis Tooling GmbH, Velden, Germany
- Exentis Engineering GmbH, Hillscheid, Germany
- Exentis Knowledge GmbH, Stetten, AG

You will find detailed information about the consolidated group of companies in the audited financial statement.

Shareholders

About 75% of the share capital of Exentis Group AG was owned by the founder, important individual shareholders and management on 31 December 2018. The remaining 25% of the share capital is held by many individual shareholders.

Capital structure

The share capital of Exentis Group AG amounted to CHF 1,078,670 on 31 December 2018 and consisted of 10,786,700 registered nominal shares with a par value of CHF 0.10 per share. The share capital had been fully paid in on 31 December 2018.

At the time of preparing the 2018 financial statement in mid-May 2019, the share capital amounted to CHF 1,105,210 consisting of 11,052,100 registered nominal shares with a par value of CHF 0.10 per share. The share capital had also been fully paid in.

The shares carry full voting and dividend rights. There are no preference shares. Exentis Group AG did not hold any treasury shares on the balance sheet reporting date of 31 December 2018. Each share entitles the shareholder to one equal vote.

Annual shareholders' meeting in June 2018

The annual shareholders' meeting for Exentis Group AG was held on 29 June 2018. Those attending voted on the following agenda items:

1. Approving the annual accounts for Exentis Group AG for the 2017 financial year and report by the auditor from BDO AG
2. Use of 2017 balance sheet profits
3. Exonerating the members of the Board of Directors for the 2017 financial year
4. Electing the members of the Board of Directors for a period of 3 years according to the articles of association
5. Selecting BDO AG as the auditor
6. Authorised capital

All the agenda items were unanimously adopted by the shareholders attending the meeting. The meeting also decided to appoint Maximilian Büttiker and Dr Marco Siegrist to the Board of Directors for Exentis Group AG under agenda item 4.

The long-standing member of the Board of Directors, Bruno Koller, resigned his position in order to fully focus on the operational business as CEO. The Company would like to thank Mr Koller for his exemplary commitment and his outstanding contribution to Exentis Group AG.

Issue price for Exentis shares

The value of one Exentis Group AG share was CHF 7.50 on 31 December 2018; technically, the Company was therefore worth CHF 80.9 million.

Advisory Board

The Board of Directors for Exentis Group AG appointed an independent advisory body, the Exentis Advisory Board, in July 2018. It will help accompany and advise the Board of Directors and the Management Board too on selected topics for strategic purposes and as a sparring partner.

It will gradually include renowned persons, who, by combining integrity and their own corporate success, can pass on experience and establish relations in their own networks as stakeholders in the Company.

It was possible to attract Dr Gero Büttiker as the first external member of the Advisory Board. Dr Büttiker has been working as a successful entrepreneur and investor in the steel industry and related sectors for decades. The Advisory Board, which also includes the Board of Directors, met every month during the second half of 2018 and discussed major strategies to continue developing the Company.

Board of Directors

The Board of Directors is the Group's highest management body and normally performs its duties as a committee. The Board of Directors at Exentis Group AG consists of four members, who were unanimously elected at the 2018 annual shareholders' meeting without any dissenting votes or abstentions. Maximilian Büttiker and Dr Marco Siegrist joined the Board of Directors as new members.

The responsibilities of the Board of Directors are regulated in the Swiss Code of Obligations and also in the statutes of Exentis Group AG. In order to perform its duties towards the Management Board, the Board of Directors has access to the management information systems, regular meetings with the Management Board, internal checks and ongoing management discussions as well as an internal risk management system.

The members of the Board of Directors are elected by the normal annual shareholders' meeting for a period in office of three years. The President is elected by the members of the Board of Directors for a period in office of three years. There are no restrictions on re-election for the members or the President of the Board of Directors.

Ralf P. Brammer, President of the Board of Directors

- Responsible for coordinating the Board of Directors and the Management Board
- Ralf P. Brammer has extensive expertise in establishing and managing young companies. He is an entrepreneur, has been on numerous Boards of Directors, and was CFO in the financial services industry with a focus on capital markets and value management
- Studied industrial engineering, information technology; MBA (Seattle, USA)

David L. Deck, Member of the Board of Directors

- David L. Deck has a profound knowledge of financial management and a broad network in the field of corporate finance
- Involved in establishing many companies in the fields of medical engineering, biotechnology and innovative production methods

Maximilian Büttiker,
Member of the Board of Directors

- Maximilian Büttiker has had many years of experience in and a broad knowledge of steel production and the financial sector
- Worked for many years at management level for a steel group in the USA and Canada in the machining sector; and successfully introduced CRM and SAP in the sales department
- Worked for a large Swiss bank in corporate and investment banking for many years. Supported and finalised several transactions in the SME field and in-depth experience in the M&A and structured finance fields
- Master's degree in communication sciences & media research from the University of Fribourg

Dr Marco Siegrist,
Member of the Board of Directors

- Dr Marco Siegrist has extensive experience in introducing challenging innovative projects driven by materials in industry
- Prize-winner of many young entrepreneur awards
- Manages change processes in industry as a management consultant and interim manager
- Master's degree in material sciences and doctorate in metal physics and technology at the ETH Zurich

This expansion of the Board of Directors enables Exentis Group AG to tap into further special expertise in the field of materials science and provides extended access to medium-sized and industrial customers.

Management Board

The members of the Management Board are responsible for the following departments:

Dr Srdan Vasic, Chief Technology Officer

- Dr Srdan Vasic is responsible for the corporate DNA of the Exentis Group, particularly developing material and paste systems
- Manages development projects and sintering processes. He is head of the application laboratory and is responsible for the following companies: Exentis Technology GmbH, Exentis Tooling GmbH, Exentis Engineering GmbH and Exentis Knowledge GmbH.
- His experience combines material and process expertise with exceptional links to customers. He formerly worked for Oerlikon Balzers Coating AG, Novartis, the Swiss Federal Institute of Technology and the Swiss Federal Laboratories for Material Science and Technology (Empa)
- Graduate materials engineer with a doctorate

Urs Hirsiger, Head of Business Development

- Urs Hirsiger has had more than 25 years of international management experience in the industrial sector, primarily in establishing global sales structures and product portfolios
- He has held various management and CEO positions at Vortex Solutions, Extrude Hone, Tornos, Alphasem, GF Machining Solutions, Vaillant and Hunkeler
- Business economist and executive MBA from Lorange Institute of Business Zurich and corporate governance for the Board of Directors at the Swiss Board School University in St. Gallen

Klaus Radakovics, Chief Financial Officer

- Klaus Radakovics has extensive management and project experience at international banks, consultancy and auditing companies like KPMG, Synpulse or the Austrian Trade Commission in Chicago
- His skills cover all the tasks in the financial and administration department. Broad experience in risk management, financial modelling and corporate valuation
- Master's degree in finance and accounting at the University of St. Gallen, business management degree from Vienna University of Economics and Business and a certified valuation analyst (CVA)

Financial Report

CONSOLIDATED PROFIT AND LOSS STATEMENT

[in CHF]	Notes	01.01.2018 – 31.12.2018	01.01.2017 – 31.12.2017
Revenue	4.1	9 019 402	3 172 746
Cost of goods sold		(2 716 926)	(162 865)
Gross profit		**6 302 476**	**3 009 881**
Other revenue		288 798	417
Personnel expenses	4.2	(1 654 805)	(736 291)
Administrative expenses	4.3	(2 356 144)	(1 642 976)
Operating profit before amortisation/depreciation		**2 580 325**	**631 031**
Depreciation and amortisation expenses		(895 743)	(478 271)
Operating profit		**1 684 582**	**152 761**
Revenue from the sale of subsidiaries	3.2	1	767 331
Financial income	4.4	30 241	165 250
Financial expenses	4.4	(300 620)	(82 925)
Profit before taxes		**1 414 204**	**1 002 417**
Income taxes	4.5	636 172	(128 526)
Net profit		**2 050 376**	**873 891**
Of the profit after tax, the following were attributable to:			
Shareholders in the parent company		2 050 376	874 241
Non-controlling shareholders		–	(350)

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

[in CHF]	Notes	01.01.2018 – 31.12.2018	01.01.2017 – 31.12.2017
Net profit		**2 050 376**	**873 891**
Non-reclassifiable amounts			
Actuarial gains and losses from defined benefit obligations	6.1.6	(94 980)	28 885
Reclassifiable amounts			
Currency conversion of foreign business operations		164 099	(113 887)
Other result		69 119	(85 002)
Other comprehensive income		**2 119 495**	**788 889**
Of the comprehensive income the following were attributable to:			
Shareholders in the parent company		2 119 495	789 239
Non-controlling shareholders		–	(350)

CONSOLIDATED BALANCE SHEET

[in CHF]	Notes	31.12.2018	31.12.2017
Assets			
Fixed assets kept for disposal		–	–
Property, plant and equipment	5.2	2 382 316	1 514 075
Intangible assets	5.1	15 526 687	16 262 628
Other financial assets		11 004	–
Deferred tax assets	4.5	567 955	–
Non-current assets		**18 487 962**	**17 776 703**
Accounts receivable		8 036 824	2 227 641
Other receivable		106 735	104 726
Inventories (prepayment)		914 458	–
Revenue not yet invoiced		2 054 334	–
Accruals		13 500	18 758
Cash and cash equivalents	5.5	2 409 243	1 174 471
Current assets		**13 535 094**	**3 525 596**
Assets		**32 023 057**	**21 302 299**

[in CHF]	Notes	31.12.2018	31.12.2017
Liabilities			
Common stock	5.3	1 078 670	910 786
Profit-neutral change in equity		(298 757)	(367 876)
Reserves and additional paid-in capital		25 772 879	18 655 386
Loss carry forward		(769 744)	(2 820 120)
Equity attributable to Exentis shareholders		25 783 048	16 376 526
Non-controlling shareholders		–	1 650
Shareholders' equity		**25 783 048**	**16 378 176**
Pension provisions	6.1	367 192	230 224
Financial liabilities		357 905	1 870 532
Deferred tax liabilities		1 641 547	1 863 228
Non-current liabilities		**2 366 644**	**3 963 984**
Accounts payable		394 559	437 862
Other liabilities		472 648	156 631
Prepaid expenses	5.4	3 006 157	365 646
Current liabilities		**3 873 364**	**960 139**
Liabilities		**6 240 008**	**4 924 123**
Liabilities and shareholders' equity		**32 023 057**	**21 302 299**

CONSOLIDATED CASH FLOW STATEMENT

[in CHF]	Notes	01.01.2018 – 31.12.2018	01.01.2017 – 31.12.2017
Cash flow from operating activities			
Net profit		2 050 376	873 891
Correction to net losses by the expenses/earnings not affecting liquidity:			
Depreciation and amortisation		895 743	478 271
Changes in the consolidated group of companies	3.2	(324)	(767 331)
Other non-cash transactions		(591 599)	(107 890)
Changes in assets and liabilities			
Increase/decrease in accounts receivable		(5 809 183)	(2 224 728)
Increase/decrease in inventories and turnover revenues not yet invoiced		(2 967 792)	
Increase/decrease in accruals, other accounts receivable and paid or owed taxes		3 249	(46 799)
Increase/decrease in accounts payable		43 303	16 544
Increase/decrease in accounts payable with related companies and persons		–	–
Increase/decrease in accrued expenses, current provisions and other liabilities		3 093 496	(474 163)
Cash flow from operating activities		**(3 283 730)**	**(2 252 206)**
Cash flow from investing activities			
Interest received		30 241	
Payments for property, plant and equipment		(1 023 832)	(1 089 857)
Payments for intangible fixed assets		(150 000)	(23 907)
Changes to the consolidated group of companies		–	(161)
Cash flow from investing activities		**(1 143 591)**	**(1 113 925)**
Cash flow from financing activities			
Incoming payments from the issue of Company equity instruments (net minus payments of commission)	5.3	7 136 192	5 957 108
Incoming payments from loans received from third parties		–	–
Incoming payments from loans received from associated parties		–	–
Repayments of loans		(1 360 709)	(1 399 616)
Interest paid		(67 280)	–
Cash flow from financing activities		**5 708 203**	**4 557 492**
Net increase in cash and cash equivalents		**1 280 882**	**1 191 361**
Cash and cash equivalents at the beginning of the financial year		1 174 471	19 480
Effects of changes in exchange rates		(46 109)	(36 370)
Cash and cash equivalents at the end of the financial year		**2 409 243**	**1 174 471**

CONSOLIDATED STATEMENT OF EQUITY CHANGES

[in CHF]	Common stock	Profit-neutral changes to equity	
Figures on 31.12.2016	**626 000**	**(282 874)**	
Net loss			
Currency effects		(113 887)	
Actuarial gains and losses from defined benefit obligations		28 885	
Overall results			
Share capital increases (less capital increase expenses)	202 931		
Changes to consolidated group of companies	81 855		
Figures on 31.12.2017	**910 786**	**(367 876)**	
Net profit			
Currency effects		164 099	
Actuarial profits and losses from defined benefit obligations		(94 980)	
Overall results			
Share capital increases (less capital increase expenses)	167 884		
Participation programmes			
Changes to consolidated group of companies	–		
Figures on 31.12.2018	**1 078 670**	**(298 757)**	

	Reserves and additional paid-in capital	Loss carry forward	Equity	Ratio of minority shareholders	Equity with Group shareholders
	12 933 064	**(3 694 011)**	**9 582 179**	**3 791 160**	**5 791 019**
		873 891	873 891	(350)	874 241
			(113 887)		(113 887)
			28 885		28 885
			788 889	(350)	789 239
	5 722 322		5 925 253		5 925 253
			81 855	(3 789 159)	3 871 014
	18 655 386	**(2 820 120)**	**16 378 176**	**1 650**	**16 376 526**
		2 050 376	2 050 376		2 050 376
			164 099		164 099
			(94 980)		(94 980)
			2 119 495		2 119 495
	6 968 308		7 136 192		7 136 192
	149 185		149 185		149 185
			–	(1 650)	–
	25 772 879	**(769 744)**	**25 783 048**	**–**	**25 783 048**

Notes on the consolidated financial statemens

1. General statements

Exentis Group AG (“Exentis”) is an independent, premium provider of intelligent mass production solutions with its patented 3D screen printing technology, the Exentis 3D Mass Customization®; this offers individual component geometries for large-scale production for a wide selection of materials. The Group focuses on customised product solutions, which Exentis either handles and produces itself or the customer by means of a production licence. These solutions particularly include customised products for the automotive, industrial or renewable energy sectors.

Exentis is convinced that it can offer customers value added with its specially selected or in-house developed product solutions using a wide range of materials and optimised printing concepts. Guided by the requirements of its customers, Exentis offers 3D printing solutions to optimise product specifications, design and performance and increases in profits for customers. The financial year is equal to the calendar year for all the companies that are part of the consolidated group. The valuation used in the consolidated accounts is based on historical purchase and production costs. The profit and loss statement is structured according to the total cost method. The accounts for the parent company and its subsidiaries are included in the consolidated accounts, based on standard accounting methods.

Amounts in the consolidated accounts are listed in Swiss francs (CHF), unless otherwise noted. Both individual and total figures represent the value with the smallest rounding difference. If additions are made to the individual figures, slight differences may occur compared to the totals that have been reported.

The Board of Directors of Exentis Group AG voluntarily commissioned the preparation of these financial statements and approved them on 14 May 2019.

2. Principles of accounting

2.1. Standards used

The consolidated accounts have been prepared in line with the International Financial Reporting Standards (IFRS) and in accordance with the stipulations in Swiss law. The accounting methods used in the consolidated accounts valid on 31 December 2018 comply with the methods used in the previous year, apart from the exceptions explained below.

The following new or amended IFRS had to be applied for the first time in the 2018 financial year:

Standard / Interpretation		Effects
IAS 40	Investment Property: Transfers of Investment Property	None
Various	Annual Improvements to IFRS 2014 – 2016 (Collective Standard)	No major effects
IFRS 2	Share-Based Payment	None
IFRS 4	Use of IFRS 9 “Financial Instruments” together with IFRS 4 ”Insurance Contracts”	None
IFRS 9	Financial Instruments	No major effects
IFRS 15	Revenue from Contracts with Customers	No major effects
IFRS 15	Clarification of IFRS 15 Revenue from Contracts with Customers	No major effects
IFRIC 22	Foreign Currency Transactions and Advance Consideration	None

The following new or amended standards or interpretations have already been passed by the IASB, but did not need to be used in the 2019 financial year. The Company will not apply the new rules prematurely.

Standard / Interpretation		To be used from	Expected effects
IAS 16	Leasing	01.01.2019	Probably not applicable
IAS 23	Uncertainty over Income Tax Treatments	01.01.2019	None
IFRS 17	Insurance Contracts	01.01.2021	None

2.2. Accounting estimates and discretionary decisions

When using the consolidated balance sheet and assessment methods shown here, managers have to judge circumstances, make assessments and assumptions related to the carrying amounts of assets and debts, which cannot necessarily be established from other sources. The estimates and the assumptions underlying them are based on past experience and other factors considered to be relevant. The actual values may differ from the estimates.

The assumptions underlying the estimates are subject to regular review. If a change only affects one period, changes to estimates are only considered at this time. If the changes affect the current and the following reporting periods, they are considered in this period and the following one.

Please find below the most important cases where discretion has been exercised, which managers have used as part of applying the Company’s balance sheet and assessment methods, as well as the most important effects of exercising discretion on the amounts reported in the consolidated accounts. The most important assumptions regarding the future and the other main sources of valuation uncertainty at the end of the reporting period are also specified, which could create a significant risk that would make it necessary to extensively adjust the asset and debt figures that are disclosed within the next financial year.

- As regards the assumptions underlying the assessment of the technology/applications, we believe that there is a major valuation uncertainty regarding the development and market launch date. The Company has made assumptions about the market entry for the various projects. The Company has estimated developments regarding the market entry of the different applications, which form the basis for assessing the technology. The assessment of the technology depends on whether the assumptions made re-

garding the market entry can be met. Based on a sensitivity analysis, the Company assesses the risk of value impairment for the technology because of possible delays to the market launch as follows: if the market entry is delayed by more than 24 months compared to the Company's plan, the value in use will continue to exceed the carrying amount.
- As regards the revenue recognition of income from sales of production systems, the degree of completion is estimated on the basis of the external production of the most important components.
- As regards recognising deferred tax assets for losses carried forward, the future revenue potential is set by the Company and deferred tax assets are estimated for what will probably be off-settable losses carried forward.
- When assessing accounts receivable and work that has not yet been invoiced, the Company estimates the default risk on the basis of the information available about the customers.

3. Major accounting methods

3.1. Principles of consolidation

The consolidated accounts contain the statements for the parent company and the companies that it controls (subsidiaries). The Company controls another firm if it:
- can exercise authority to dispose of the holding company,
- is exposed to fluctuating profits from its holding, and
- can affect the profits because of its disposal powers.

Control of subsidiaries is exclusively derived from holding the majority of voting rights in the companies concerned within the Exentis Group.

Subsidiaries are included in the accounts for the first time when they are acquired. That is the time when the Company achieved control over its subsidiary. If control is lost, subsidiaries are removed from the consolidated group.

The initial consolidation of subsidiaries takes place according to the acquisition method. It envisages an assessment of the assets acquired and debts taken over by the parent company using their fair values at the time of the acquisition. The purchase costs for the acquisition match the fair value of the consideration given. If the purchase costs of the acquisition plus the value of the shares of other shareholders and the fair value of any shares held before achieving control (gradual acquisition) exceed the fair value of the identified assets and liabilities, the Company estimates the goodwill. Conversely, the Company recognises the difference as directly affecting net income after again reviewing the purchase price allocation.

Goodwill from acquisitions is not amortised according to schedule, but its value is reviewed every year (impairment test) and is amortised to its lower realisable amount if its value has fallen.

Internal Group transactions, balances and unrealisable profits from supply and performance relations between the companies in the consolidated group have been fully eliminated. The same applies to unrealised losses, unless the transaction indicates a fall in value of the asset that is carried forward.

3.2. Changes in the consolidated group

The holding in Exentis Automotive AG was sold for one symbolic Swiss franc during the year 2018.

The aggregate carrying amounts of the sold net assets and the inflow of cash from the sale of the subsidiary can be summarised as follows:

	CHF
Cash and cash equivalents	325
Assets kept for disposal	
Other assets	595
Other current and non-current liabilities	920
Total net assets sold	
Proceeds from purchases	1
Loan claims towards former subsidiary	0
Proceeds from sales	1
Total inflow of cash from sale of company	(324)

3.3 Information on subsidiaries

Subsidiary	Main business	Located	Share of voting rights 31.12.2018	Capital share 31.12.2018
Fully consolidated subsidiaries				
Exentis Knowledge GmbH	Marketing its own and outside technological expertise using industrial property rights	Stetten	100%	100%
Exentis Engineering GmbH	Research and development into its own and outside 3D technologies	Hillscheid (DE)	100%	100%
Exentis Technology AG	Development and sale of licences for 3D screen printing machines	Baar	Merged	
Exentis Automotive AG	Issuing licences and selling 3D screen printing machines for automotive applications	Baar	Sold	
Exentis Technology GmbH	Project development and production of industrial 3D components	Jena (DE)	100%	100%
Exentis Tooling GmbH	Development and production of 3D screen technology	Velden (DE)	100%	100%

3.4. Revenue recognition

Revenues are assessed at the fair value of the consideration received or to be received and are reduced by expected customer returns, discounts and other similar deductions. The Company generates revenue from completing development projects, developing and marketing paste system and screen technologies, 3D printing of customer products and issuing production licence agreements and making available 3D process technologies and 3D production units. Revenue is recognised according to IFRS 15 as soon as control of the goods and services has passed to the customer. This can take place at a point in time or over a period. As regards the development and marketing of the paste system and screen technology (sale of production systems), revenue is recognised over the development period, as the customer controls the asset value that is generated. This involves customised production units; alternative use is not possible. When

production systems are sold, individual payment deadlines are agreed, which differ from the revenue recognition over the development period. The Company uses the following revenue recognition principles:

Recognising revenue at the time when control passes	Recognising revenue over a period
• Development projects (milestones)	• Sale of production systems (making available 3D process technologies and production systems)
• Production and development licence agreements (when signed)	
• Sale of paste systems and screen technologies (when supplied)	• Services and maintenance of 3D production systems (over the term of the contract)
• 3D printing of customer projects (when supplied)	

The guarantee risk for the Company is low. It is true that normal guarantees are provided, but the Company can make use of the suppliers' guarantee systems for any technical guarantee cases. Customers will also probably purchase maintenance contracts from the Company for the production systems.

3.5. Income taxes

The expense on income tax represents the total current tax expense and deferred taxes.

Current or deferred taxes are recognised in the profit and loss statement, unless they are connected to items that are either recognised under Other results or directly under Equity. In the latter case, the current and deferred tax is also recognised under Other results or directly under Equity. Deferred taxes, which result from the first entry of a corporate merger on the balance sheet, are considered as part of the revaluation of the net assets in the acquired company.

The current tax expenses are determined on the basis of the taxable income for the year. The taxable income is different from the annual profits in the consolidated profit and loss statement because of expenses and revenue that is taxable in later years or is never taxable or deductible for tax purposes. The Group's liability for current taxes is calculated on the basis of current tax rates or those due to apply in the near future.

Deferred taxes are recognised for the differences between the carrying amounts of assets and liabilities in the consolidated accounts and the relevant tax values. Deferred tax liabilities are generally recognised on the balance sheet for all temporary taxable differences; deferred tax assets are recognised if it is probable that taxable profits will be available to offset the losses from reversing deductible temporary differences. The Company does not estimate any deferred tax assets and liabilities for temporary differences, which result from the initial recognition of goodwill or from a business transaction that is not a corporate merger and does not affect the tax results or the results according to IFRS at the time of its initial recognition.

The carrying amount of deferred tax assets is reviewed on the reporting date every year and their value is reduced if it is no longer probable that adequate taxable income will be available to fully or partially realise the claim.

Deferred tax liabilities and assets are determined on the basis of expected tax rates or tax laws that will probably apply at the time of settling the debt or realising the asset.

3.6. Intangible assets

3.6.1. Technology

The Company has an intangible asset in the form of the 3D screen printing technology in conjunction with numerous patents. The asset was assessed when IFRS were used for the first time. This value is used as the purchase price. Amortisation is recognised as an expense on a straight-line basis over the expected period of usage of 20 years; the amortisation starts when the first revenue is recognised. The expected period of usage and the amortisation method are reviewed on each reporting date. The Company takes into consideration any changes in estimates prospectively.

The Company reviews on each reporting date whether there are any indications that the value of the technology has been impaired. Possible indications for impairment can come from a delay to the market entry of the products to be manufactured using the technology or unexpected difficulties in developing the products for commercial viability. If any such indications are identified, the Company checks whether it is possible to generate a net inflow of liquid funds by selling parts of the technology or individual patents or by using them internally, so that at least the carrying amount of the asset is covered. If this is not the case, the Company recognises impairment in value in the profit and loss statement amounting to the difference to affect the net income.

There were no indications to suggest possible impairment for the technology in the current financial year or the previous one.

If the reason for the impairment, which was recognised in the past, no longer applies in part or completely in the following period, the carrying amount of the asset must be increased to affect net income. The appreciation in value must be restricted to the value that would have resulted if no impairment had been recognised for the asset or the unit generating the cash flow in previous years. The realisable net inflow of cash through the asset in cash and cash equivalents may not be exceeded by the appreciation in value either.

3.6.2 Goodwill

The goodwill resulting from a corporate merger is recognised on the balance sheet at the purchase costs minus any necessary impairment in value and must be reported separately on the consolidated balance sheet.

For the purposes of checking for any impairment, the goodwill is divided into the Group units generating cash and cash equivalents through the acquisition, if there is an expectation that they can create a benefit from the synergies in the merger.

Units generating cash and cash equivalents, to which one part of the goodwill has been assigned, must be checked at least once a year for any impairment. If there are any indications of impairment for a unit, it may be necessary to complete impairment tests more frequently.

Impairment occurs if the realisable amount of a cash-generating unit is less than its carrying value. The realisable amount is the higher figure arising from the value in use and fair value minus any disposal costs. The expenditure on any impairment primarily diminishes the carrying amount of the goodwill assigned to a cash-generating unit. Any remaining amount must be proportionately assigned to the other non-current assets in the unit on the basis of their carrying amounts.

Impairment of goodwill is directly recognised in the profit and loss statement. Impairment of goodwill may not be reversed in future periods.

3.6.3 Research and development costs

Research costs are not capitalised, but recognised as expenses at the time when they are incurred. Development costs are only capitalised as an intangible asset if an intangible asset can be identified, which provides a future economic benefit, and if the costs of this asset can be reliably determined.

3.6.4 Other intangible assets

Patents and trademarks are reported on the balance sheet at their purchase or production costs minus any accumulated amortisation. The balance sheet entries for intangible assets from corporate mergers like trademarks, patents and customer relations are made at purchase costs that match the market value at the time of acquisition, minus any accumulated amortisation. The scheduled amortisation for patents is based on the duration of the industrial property rights.

3.7 Non-current assets kept for disposal

A non-current asset or a group of disposable assets must be classified as kept for disposal if the associated carrying amount or a group of disposable assets is realised mainly through a disposal transaction, rather than through continued usage. This condition is only considered to have been met if the non-current asset or a group of disposable assets is immediately available for sale in its current state and the sale is highly likely. In this sense, it must be assumed that the disposal transaction, to which management has committed itself, must be concluded as quickly as possible after this kind of classification. Any impairment from the initial classification is recognised in the profit and loss statement. Assets kept for disposal and a group of disposable assets are no longer amortised.

3.8 Inventory (advance payments)

The valuation of advance payments for unfinished products is made using the lower value arising from the purchase costs and net sales value. The purchase costs for acquired inventories are determined after deducting allowances and price discounts. A similar degree of completion is used as for the sales transactions in question. The net sale value is determined as estimated sales revenue in the normal course of business, less the estimated costs until completion and the estimated costs required for the sale.

3.9 Property, plant and equipment

The office and business equipment, IT systems and technical installations and machines covered by property, plant and equipment are recognised at their purchase or production costs less accumulated depreciation and any impairment in value.

Depreciation is calculated according to the linear method over a period of use of 3 – 20 years. The expected periods of use, residual values and depreciation methods are reviewed on each reporting date and all the necessary estimation changes are taken into consideration prospectively.

Type of unit	Period of usage employed
IT equipment and furniture	3 – 8 years
Production machines	5 – 8 years
Tenant improvements	8 – 20 years
Advance payments for machines	No depreciation

Property, plant and equipment must be removed from the balance sheet at the time of their disposal or when no further economic benefit is expected from them. The profit or loss arising from the sale or decommissioning of any property, plant or equipment is determined as the difference between the sales revenue and the carrying amount of the asset and is recognised to affect net income.

3.10 Accounts receivable

The Company capitalises accounts receivable at the time when an enforceable claim is incurred. Initial recognition takes place at their fair value plus any transaction costs. The following assessment takes place at amortised purchase costs according to the effective interest method.

Impairment of accounts receivable is recognised if the cash value of the expected inflow of cash does not cover the carrying amount of the account receivable. When assessing whether any impairment exists, the Company is guided by the payment behaviour of the debtors and other information received, which might indicate economic difficulties for the debtor. The cash value is determined using the effective interest rate for the financial asset. If the reason for any impairment made in previous years disappears, an appreciation must be made to the minimum figure arising from the realisable amount and the amortised purchase costs to affect net income.

3.11 Cash and cash equivalents

Cash and cash equivalents are assessed at their purchase costs. These are cash on hand assets.

3.12 Provisions

Provisions are formed if the Group has a current liability (of a legal or factual nature) arising from a past event and it is probable that the fulfilment of the liability is linked to the outflow of resources and a reliable estimate of the amount of the provision is possible.

The provision amount is the best estimate that is required on the reporting date to meet the current liability. Any inherent risks and uncertainties in the liability must be considered. If a provision is assessed on the basis of the estimated cash flows required to meet the liability, these cash flows must be discounted, if the interest effect is fairly large.

If it can be assumed that outside third parties will reimburse parts of or all the economic benefits required to settle the provision, this claim is capitalised as an asset, if the reimbursement is almost certain to happen and its amount can be reliably estimated.

3.13 Financial liabilities

Financial liabilities are recognised if a Group company becomes the contractual party for a financial instrument. Its acquisition valuation is set at the fair value less any transaction costs.

3.14 Currency conversion

The annual accounts of fully consolidated subsidiaries, whose functional currency is not the Swiss franc, are converted to the corporate reporting currency of Swiss francs using the modified reporting date exchange rate method. The conversion of the assets and liabilities takes place at the exchange rate on the reporting date. Items in the profit and loss statement must be converted at the average annual exchange rate. Equity items are converted at historical exchange rates at the times when they accrued for the Group. The currency difference emerging from any conversion is recognised under Other results without affecting them. The accumulated currency conversion differences recognised under Equity are written off when a Group company leaves the consolidated group of companies to affect current results.

The Group's reporting currency is Swiss francs (CHF).

[CHF / EUR]	31.12.2018	31.12.2017
Annual average exchange rate (converting revenue and expenses)	1.15487	1.11157
Final exchange rate for year (converting assets and liabilities)	1.12690	1.17015

3.15 Employee pension scheme

The actuarial calculations of the expenses and obligations arising from defined benefit obligations are performed by qualified experts according to the projected unit credit method. The last actuarial assessment was made on 31 December 2018. The current service costs, the past service costs from changes to the scheme and plan settlements as well as the administrative costs are recognised under Personnel expenses and the interest costs on the net liability are recognised under Financial expenses. Actuarial profits and losses are listed under comprehensive income.

3.16 Public sector grants

Any grants promised by the public sector, which are not specifically earmarked for the purchase of property, plant and equipment, are realised as Other income over the term of the relevant support programmes. An entry is made, as soon as it is conceivable that the Company will provide the services and the support was agreed.

4. Information on the consolidated profit and loss statement

4.1 Revenue from contracts with customers

The breakdown of Group revenue from contracts with customers for the financial year (without earnings from financial investments) can be summarised as follows:

[in CHF]	01.01.2018 – 31.12.2018	01.01.2017 – 31.12.2017
Revenue from the sale of production systems	5 214 153	706 283
Revenue from services and licences	3 805 249	2 466 463
Subtotal	9 019 402	3 172 746
Less revenue reductions (discounts)	–	–
Total	**9 019 402**	**3 172 746**

Revenue from external customers comes from the sale of production systems, the provision of services and the sale of licences. Revenue from services and licences is recognised at a particular time, revenue from turnover from the sale of production systems is recognised over the production period. The proportionate revenue per period is measured using the external completion of the most important components in the production systems by the suppliers.

4.2 Summary of personnel expenses

[in CHF]	01.01.2018 – 31.12.2018	01.01.2017 – 31.12.2017
Wages and salaries	1 298 565	516 144
Social security expenses	113 576	95 883
Plans with defined benefits/employee benefit	156 068	73 952
Other personnel expenses	86 596	50 312
Total	**1 654 805**	**736 291**

4.3 Other operating expenses

The classification of the remaining operating expenses for the financial year can be summarised as follows:

[in CHF]	01.01.2018 – 31.12.2018	01.01.2017 – 31.12.2017
Rental expenses	142 169	98 455
Vehicle expenses	44 288	17 945
Maintenance and energy expenses	64 291	41 466
Levies, fees and insurance expenses	28 359	14 373
Consulting, accounting and Board of Directors expenses	1 532 868	1 289 904
Advertising, sales and travel expenses	182 036	4 298
Travel and representation expenses	116 542	66 545
Electricity, water, waste disposal	7 465	2 409
Administrative expenses	218 163	50 698
Other operating expenses	19 963	56 883
Losses from disposal of fixed assets	–	–
Total	**2 356 144**	**1 642 976**

4.4 Financial earnings and expenses

[in CHF]	01.01.2018 – 31.12.2018	01.01.2017 – 31.12.2017
Interest on bank accounts	(214)	(716)
Interest on loans	(67 280)	(82 209)
Total interest expenses	(67 494)	(82 925)
Foreign currency losses (net)	(233 126)	–
Total financial expenses	**(300 620)**	**(82 925)**
Interest earnings on financial assets	30 241	10 064
Foreign currency profits (net)	–	155 186
Total financial earnings	**30 241**	**165 250**

4.5 Income taxes

4.5.1 Income taxes recognised in the profit and loss statement

[in CHF]	01.01.2018 – 31.12.2018	01.01.2017 – 31.12.2017
Current taxes		
Income tax earnings/expenses during the current financial year	(20 515)	(52 140)
Deferred taxes		
Deferred tax expenses recognised in the current year	656 687	(76 386)
Tax expenses recognised for the current period	**636 172**	**(128 526)**

No income taxes were directly recognised for Equity or Other Results during the financial year or in the previous year either.

The tax expenses for the financial year can be reconciled as follows for the net income for the period:

[in CHF]	01.01.2018 – 31.12.2018	01.01.2017 – 31.12.2017
Pre-tax earnings	1 414 204	1 002 417
Tax expenses on earnings with a tax rate of 22%	(311 124)	(220 531)
Deferred tax income on the capitalised technology (12.5%)	88 732	44 366
Amortisation of deferred tax assets due to loss	–	(120 753)
Effects of non-tax-deductible expenses and earnings	306 378	168 813
Effects of profits, for which no deferred tax liabilities were recognised	–	–
Effects of losses, for which deferred tax liabilities were recognised	567 955	–
Tax rate differences	(15 769)	(421)
Income tax expenses recognised in the profit and loss statement	(636 526)	(128 526)

An average income tax rate of 22% (22% in the previous year) was assumed to determine the current taxes on the profits generated. This expected average tax rate matches the weighted average of tax rates for the consolidated companies.

4.5.2 Deferred tax assets and liabilities

Please find below an analysis of deferred tax assets and liabilities. The deferred tax liabilities concern the intangible asset, the tax value of which is below the IFRS carrying amount.

[in CHF]	01.01.2018 – 31.12.2018	01.01.2017 – 31.12.2017
Deferred tax assets	567 955	–
Deferred tax liabilities	(1 641 547)	(1 863 228)

Deferred tax assets

Tax losses carried forward	567 955	–
Gross amount	**567 955**	**–**
Valuation adjustments	–	–
Balancing figures	–	–
Balance sheet value	**567 955**	**–**

Deferred tax liabilities

Intangible assets	(1 641 547)	(1 730 279)
Property, plant and equipment	–	(132 949)
Gross amount	**(1 641 547)**	**(1 863 228)**
Valuation adjustments	–	–
Balancing figures	–	–
Balance sheet value	**(1 641 547)**	**(1 863 228)**

Deductible temporary differences, unused tax losses and unused tax credits, for which no deferred tax liabilities were recognised, can be presented as follows:

[in CHF]	01.01.2018 – 31.12.2018	01.01.2017 – 31.12.2017
Tax losses	114 472	3 947 204
Total	**114 472**	**3 947 204**

4.6 Earnings after income taxes

The annual earnings can be attributed to the shareholders as follows:

[in CHF]	01.01.2018 – 31.12.2018	01.01.2017 – 31.12.2017
Shareholders in the parent company	1 643 557	874 241
Non-controlling shareholders	–	(350)
Total	**1 643 557**	**873 891**

The annual earnings include the following expenditure:

4.6.1 Impairment and appreciation of assets

[in CHF]	01.01.2018 – 31.12.2018	01.01.2017 – 31.12.2017
Impairment on accounts receivable	–	–
Appreciation on accounts receivable	–	–
Impairment on deferred tax assets	–	(142 272)
Total	**–**	**(142 272)**

4.6.2 Amortisation/depreciation

[in CHF]	01.01.2018 – 31.12.2018	01.01.2017 – 31.12.2017
Planned depreciation of property, plant and equipment	176 469	100 055
Planned amortisation of intangible assets	719 274	378 216
Impairment on financial assets	–	–
Total	**895 743**	**478 271**

4.6.3 Research and development costs recognised as expenses

[in CHF]	01.01.2018 – 31.12.2018	01.01.2017 – 31.12.2017
Research and development expenses	(113 102)	(95 595)

5. Information on the consolidated balance sheet

5.1 Intangible assets

The carrying amounts for intangible assets on the reporting date can be found in the following table:

[in CHF]	01.01.2018 – 31.12.2018	01.01.2017 – 31.12.2017
Technology (including patents)	13 353 549	13 922 823
Goodwill	89 803	89 803
Rights	2 083 333	2 250 000
Software	1	2
Total	**15 526 687**	**16 262 628**

Forward-looking statements, which were used to value intangible assets, are based on current estimates and assumptions in line with current knowledge. These forward-looking statements are subject to risks, estimates, assumptions, uncertainties and other factors, which may or may not occur, and can create a situation where the actual events differ significantly from the implied forecasts or are missing and the values of the intangible assets would then need to be adjusted.

There is significant uncertainty about assessing intangible assets, based on forecasts and estimates of future revenue. A number of factors have a major influence on the assessment and some of these factors are outside the Group's control.

Annual impairment test on 31 December 2018

The realisable amount for the cash-generating unit is estimated on the basis of value in use calculations. Specific product risks are considered by means of deductions in the cash flow. Assumptions about market entry dates, future competition, the product profile and the market share of the products are included in the cash flow forecasts used.

The cash flows after taxes have been discounted based on a discount rate after tax, which reflects the current market estimates of the interest rate and the specific company or product risks, for which the estimated future cash flows were not adjusted.

The values attributed to the assumptions match the estimate performed by the Board of Directors with regard to the future developments and are based on internal planning scenarios as well as external information sources and market information. No impairment for carrying amounts had to be recognised on 31 December 2018.

[in CHF]	Technology	Software	Rights	Goodwill	Total
Acquisition and production costs					
Figures on 31.12.2016	**14 292 862**	**4 456**	**–**	**89 803**	**14 387 121**
Accruals	23 907		2 250 000		2 273 907
Accruals from in-house developments					
Acquisitions through corporate mergers					
Disposals	(20 185)				(20 185)
Figures on 31.12.2017	**14 296 585**	**4 456**	**2 250 000**	**89 803**	**16 640 843**
Accruals	150 000				150 000
Accruals from in-house developments					
Acquisitions through corporate mergers					
Disposals			(166 667)		(166 667)
Figures on 31.12.2018	**14 446 585**	**4 456**	**2 083 333**	**89 803**	**16 640 843**
Accumulated amortisation and impairment					
Figures on 31.12.2016	**4 330**	**–**	**–**	**–**	**4 330**
Amortisation expenses	379 616	4 454			384 070
Disposals	(4 330)				(4 330)
Impairment					
Others					
Figures on 31.12.2017	379 616	4 454	**–**	**–**	384 070
Amortisation expenses	719 274	–	–	–	719 274
Disposals					
Impairment					
Others					
Figures on 31.12.2018	**1 093 035**	**4 454**	**–**	**–**	**1 097 490**
Carrying amount on 31.12.2018	**13 353 549**	**1**	**2 083 333**	**89 803**	**15 526 687**

5.2 Property, plant and equipment

The carrying amounts for property, plant and equipment on the reporting date can be found in the following table:

[in CHF]	31.12.2018	31.12.2017
IT equipment and furniture	145 288	102 305
Production machines	1 596 279	1 137 721
Tenant improvements	64 840	33 220
Advance payments for machines	575 908	240 828
Total	**2 382 316**	**1 514 074**

[in CHF]	Technology	Software	Rights	Goodwill	Total
Acquisition and production costs					
Figures on 31.12.2016	**14 292 862**	**4 456**	**–**	**89 803**	**14 387 121**
Accruals	23 907		2 250 000		2 273 907
Accruals from in-house developments					
Acquisitions through corporate mergers					
Disposals	(20 185)				(20 185)
Figures on 31.12.2017	**14 296 585**	**4 456**	**2 250 000**	**89 803**	**16 640 843**
Accruals	150 000				150 000
Accruals from in-house developments					
Acquisitions through corporate mergers					
Disposals			(166 667)		(166 667)
Figures on 31.12.2018	**14 446 585**	**4 456**	**2 083 333**	**89 803**	**16 640 843**
Accumulated amortisation and impairment					
Figures on 31.12.2016	**4 330**	**–**	**–**	**–**	**4 330**
Amortisation expenses	379 616	4 454			384 070
Disposals	(4 330)				(4 330)
Impairment					
Others					
Figures on 31.12.2017	379 616	4 454	**–**	**–**	384 070
Amortisation expenses	719 274	–	–	–	719 274
Disposals					
Impairment					
Others					
Figures on 31.12.2018	**1 093 035**	**4 454**	**–**	**–**	**1 097 490**
Carrying amount on 31.12.2018	**13 353 549**	**1**	**2 083 333**	**89 803**	**15 526 687**

5.3 Common stock

[in CHF]	31.12.2018
Common stock on 31.12.2017	910 785.80
Capital increases during the reporting year	167 884.20
10 786 700 fully paid-up nominal shares	1 078 670.00

	Number of shares	Par value CHF
Figures on 31.12.2016	6 260 000	626 000.00
Changes compared to the previous year	2 847 858	284 785.80
Figures on 31.12.2017	9 107 858	910 785.80
Changes during the reporting year	1 678 842	167 884.20
Figures on 31.12.2018	**10 786 700**	**1 078 670.00**

The shares have a par value of CHF 0.10, each with one voting right, and are entitled to dividend payments.

	Number of shares	Par value CHF
Authorised capital – Article 3d	4 166 150	416 615.00
Total	**4 166 150**	**416 615.00**
Contingent capital (employee shares Art. 3c)	2 881 352	288 135.20

5.4 Deferred income

[in CHF]	31.12.2018	31.12.2017
Deferrals for preparation of the financial statement [1]	37 265	22 191
Deferrals for auditing [1]	30 000	30 000
Deferrals for other advice [1]	–	–
Accruals for work not yet performed [2]	–	216 000
Deferrals for outstanding tax payments [4]	73 490	85 722
Deferrals for outstanding invoices [3]	2 643 220	–
Other current accruals and deferrals [4]	222 182	11 734
Total	**3 006 157**	**365 646**

[in CHF]	[1] Advisory services	[2] Outstanding work	[3] Outstanding invoices	[4] Others	Total deferred income
Figures on 31.12.2016	–	425	–	47 690	**48 114**
Estimate of additional provision	52 191	216 000		97 456	**365 646**
Usage		(425)		(47 690)	**(48 114)**
Release					
Effects from currency differences					
Figures on 31.12.2017	**52 191**	**216 000**	**–**	**97 456**	**365 646**
Estimate of additional provision	67 265		2 643 220	272 392	**2 982 877**
Usage	(52 191)	(216 000)		(74 176)	**(342 367)**
Release					
Effects from currency differences					
Figures on 31.12.2018	**67 265**	**–**	**2 643 220**	**295 672**	**3 006 157**

5.5 Cash and cash equivalents

For the purposes of the consolidated cash flow statement, cash and cash equivalents involve cash balances and credit in bank accounts.

[in CHF]	31.12.2018	31.12.2017
Cash and cash equivalents and cash banks	2 407 922	1 172 847
Cash holdings	1 321	1 624
Total	**2 409 243**	**1 174 471**

6. Other information

6.1 Pension provisions (benefits for employees after the end of their working relationship)

In the case of defined benefit pension plans, the costs for providing the benefits are determined using the projected unit credit method; an actuarial assessment is performed on each reporting date (most recently on 31 December 2018). Revaluations consisting of actuarial profits and losses, changes arising from the use of the asset ceiling and the yield from the plan assets (excluding interest on the net liability) are directly recognised under Other results and are therefore directly part of the consolidated balance sheet. The revaluations recognised under Other results form part of the retained earnings and are no longer reclassified in the consolidated profit and loss statement. Past service costs are recognised as expenditure if the change to the plan occurs.

The net interest is calculated by multiplying the discount rate by the net liability (pension obligation minus plan assets) or the net asset, which is calculated if the plan assets exceed the pension obligation, at the start of the financial year. The defined benefit costs contain the following elements:

- Service costs (including current service costs, past service costs and profits or losses from the change or reduction to the plan)
- Net interest expenditure or earnings on the net liability or the net asset
- Revaluation of the net liability or the net asset

The Group reports the first two elements in the consolidated profit and loss statement under Administrative expenditure (Personnel expenditure).

The defined benefit obligation recognised on the consolidated balance sheet represents the current shortfall in the Group's defined benefit pension plans.

Payments for contribution-related pension schemes are recognised as expenditure if the employees have performed the work that entitles them to the contributions.

6.1.1 Legal framework and responsibilities

Employee pension schemes (in Switzerland) must be handled by a pension company that is separate from the employer. Swiss law, which prescribes minimum benefits, applies, as personnel subject to these rules are only employed in Switzerland at the moment.

Occupational benefit schemes for employees in Switzerland to protect against the economic consequences of old age, invalidity and death are provided by the fully reinsured collective pension institution known as "Bâloise-Sammelstiftung für die obligatorische berufliche Vorsorge" (Basel collective foundation for obligatory occupational benefit schemes). The highest body at this pension institution consists of an equal number of employee and employer representatives.

In line with IAS 19 (IFRS), the pension plan must be classified as "defined benefit". The insurance scheme is defined in the rules of the collective pension foundation, in the affiliation contract and in the pension plan related to this affiliation.

The employer and employee contributions are generally defined as a percentage of the pensionable salary. The old-age pension is calculated from the retirement assets existing at the time when the pension is taken and they are multiplied by the conversion factors set in the rules. The employee has the opportunity of drawing the old-age benefits as a lump sum. The invalidity and spouse pensions are defined as a percentage of the pensionable salary.

The assets are invested by the collective pension foundation known as "Bâloise-Sammelstiftung für die obligatorische berufliche Vorsorge".

6.1.2 Risks for the employer

The institution can change its funding system (contributions and future benefits) at any time. As long as the reinsurance agreement exists between Bâloise-Sammelstiftung and Bâloise Life Insurance Company, the latter is obliged to eliminate any shortfall in line with pension law (Art. 44 BVV2/Swiss law).

Bâloise Life Insurance Company can, however, terminate the reinsurance agreement, so that the insured risks become the responsibility of the employer again. Depending on the conditions of the current partial liquidation rules, a shortfall in line with pension law and risks associated with longevity (current pensions) can be transferred too.

6.1.3 Special events

There were no plan amendments, curtailments or settlements during the current reporting period.

6.1.4 Assumptions and methods for the sensitivity analysis

Sensitivity analyses were performed on the most important assumptions used to calculate the liabilities. The discounting factor and the assumption of the development of salaries were increased or reduced by set percentage points. Mortality sensitivity was calculated by reducing or increasing mortality by a flat-rate factor, so that life expectancy for most age categories was increased or reduced by about one year.

6.1.5 Asset-liability matching

The Group has taken out a full insurance policy with Bâloise collective pension scheme in Switzerland to cover the insurance and asset risks.

6.1.6 Funding arrangements

Contributions in percentage rates of the pensionable salary are collected from employees and the employer to fund the benefits.

Statutory provisions

An employee pension scheme must be handled by a pension institution that is separate from the employer. The law prescribes minimum benefits.

[in CHF]	2018	2017
Deriving the financial situation on the balance sheet		
Cash value of the liability on 31.12.	1 193 228	834 674
Fair value of the asset on 31.12.	826 036	604 451
Liability/(credit) on 31.12.	367 192	230 223
Adjustments (asset ceiling)	–	–
Pension provision (net) on 31.12.	**367 192**	**230 223**

[in CHF]	2018	2017
Components in the pension expenses		
Current service costs, reduced by contributions from employees and administrative costs	121 718	72 000
Past service costs	–	–
Interest expenditure on pension liabilities	6 644	4 804
Interest earnings on plan assets	(4 894)	(3 225)
Administrative expenditure	417	373
Expenditure recognised in the profit and loss statement	**123 885**	**73 952**
Revaluation of pension plans (actuarial gains/losses on obligation)	122 418	(26 735)
Profits from plan assets (without interest)	(27 438)	(2 150)
Expenditure/(earnings) recognised under Other results	**94 980**	**(28 885)**
Changes to the pension obligation		
Pension obligation on 1.1.	834 674	745 000
Interest expenditure on pension obligation	6 644	4 804
Current service costs	121 718	72 000
Contributions by employees	54 596	55 896
Benefits paid out	52 761	(16 664)
Benefits earned	–	–
Administrative expenditure	417	373
Actuarial profits/(losses)	122 418	(26 735)
Pension obligation on 31.12.	**1 193 228**	**834 674**
Changes to the plan assets		
Plan assets on 1.1.	604 451	476 000
Interest earnings on plan assets	4 894	3 225
Contributions by employees	54 596	55 896
Contributions by the employer	81 896	83 844
Earned/(paid out) benefits	52 761	(16 664)
Profits on plan assets (without interest)	27 438	2 150
Plan assets on 31.12.	**826 036**	**604 451**

[in CHF]	2018	2017
Actuarial assumptions		
Discounting interest rate on 1.1.	0.70%	0.60%
Discounting interest rate on 31.12.	0.90%	0.70%
Expected wage increase rate	1.50%	1.50%
Expected future pension increases	0.00%	0.00%
Average life expectancy at age 65 – men (number of years)	22.26	22.26
Average life expectancy at age 65 – women (number of years)	24.32	24.32

6.2 Further information on financial instruments

6.2.1 Capital risk management

The Group manages its capital with the aim of ensuring that all the Group companies can operate as a going concern and also maximise the earnings of its shareholders by optimising the relationship between equity and outside capital.

The Group's capital structure consists of net debts and the Group's equity. This consists of the equivalent value of issued shares, the capital reserves and the balance carried forward.

The Group is not subject to any capital requirements imposed from outside.

The net debt ratio on the balance sheet reporting date can be summarised as follows:

[in CHF]	31.12.2018	31.12.2017
Debts (without deferred tax liabilities)	(4 598 461)	(3 060 895)
Cash and cash equivalents	2 409 243	1 174 471
Net debts	(2 189 218)	(1 886 424)
Equity	25 783 048	16 378 176
Ratio of net debt to equity	8.5%	11.5%

6.2.2 Liquidity risk management

Ultimately, the responsibility for liquidity risk management lies with the Board of Directors, which has established an appropriate concept to manage the current, medium-term and long-term funding and liquidity requirements.

Funding risk (liquidity risk)

The Company is currently still in the development and set-up phase, which is why the operational cash flows together with the cash flow from investment activities are creating an outflow of cash. The Board of Directors has therefore drawn up and introduced funding to safeguard the ongoing development work. The ability to continue the Company depends on whether it generates the funds required to finance the development costs needed in the future and the purchase costs of the production units and whether the development and licence partners can and will meet their obligations. As significant third-party orders are being implemented and sufficient funds have been attracted through the capital increases already performed, the Board of Directors believes that there is no major threat to the Company's ongoing existence.

6.2.3 Market risks

Currency risks

Changes to exchange rates can lead to value losses in financial instruments and negative changes in future cash flows from planned transactions. Because of the current focus of the Group's business on Switzerland, the main currency risks exist in the exchange rate between CHF and EUR. The effect of any change in the exchange rate of +/- 10% is estimated to be approx. +/- CHF 100,000 based on the transactions planned so far and the financial instruments that are available.

Interest rate risks

Interest rate risks exist because of potential changes in the market interest rate and can create a change in the fair value for financial instruments with a fixed interest rate and interest payment fluctuations for financial instruments with a variable interest rate. The following table shows that there is no major interest rate risk for the Company at the moment.

The following table shows the contractual residual terms of the Group's non-derivative financial liabilities. The table is based on non-discounted cash flows from financial liabilities on the earliest date when the Group could be obliged to make a payment.

[in CHF]	Weighted average effective interest rate	Less than 1 month	1 – 3 months	3 months to 1 year	1 – 5 years	Over 5 years	Total	Carrying amount
31.12.2017								
Non-interest-bearing		–	437 862	522 277			960 139	960 139
Finance leasing								
Variable interest-bearing instruments								
Fixed interest-bearing instruments	1.5%	–			1 863 228		1 863 228	1 863 228
Total		**–**	**437 862**	**522 277**	**1 863 228**		**2 823 367**	**2 823 367**
31.12.2018								
Interest-free		–	394 559	3 478 805			3 873 364	3 873 364
Finance leasing								
Variable interest-bearing instruments								
Fixed interest-bearing instruments	1.5%	–			357 905		357 905	357 905
Total		**–**	**394 559**	**3 478 805**	**357 905**		**4 231 269**	**4 231 269**

6.3 Categories of financial instruments

[in CHF]	31.12.2018	31.12.2017
Financial assets		
Cash and cash equivalents	2 409 243	1 174 471
Financial assets valued at amortised purchase costs	8 143 559	2 351 125
Financial liabilities		
Financial liabilities valued at amortised purchase costs	357 905	1 870 532

The fair value of the financial instruments roughly matches their carrying amount. There were no value adjustments or overdue payments on financial receivables.

6.4 Business transactions with related companies and persons

Account balances and business transactions between the Company and its subsidiaries, which are related companies, were eliminated during the consolidation process and are not explained in these notes. Details of business transactions between the Group and other related companies and persons are specified below.

Related companies pre-financed expenses to fund the Company's activities as of the reporting date and they have accrued to subsequent accounting years in this statement.

	Sales of goods and services		Purchase of goods and services	
[in CHF]	2018	2017	2018	2017
Consulting services by related persons	–	–	1 135 071	812 902
Contribution of goods by related persons			–	75 000

The following balances were outstanding at the end of the reporting period:

	Sales of goods and services		Purchase of goods and services	
[in CHF]	2018	2017	2018	2017
Outstanding consultancy services by related persons	–	–	–	36 928

Loans to or from associated companies and persons

	Loans to related companies		Loans from related companies	
[in CHF]	31.12.2018	31.12.2017	31.12.2018	31.12.2017
Shareholder Deck	–	–	–	1 118 229
Shareholder Schöni	–	–	–	129 845
Total	**–**	**–**	**–**	**1 248 074**

The Company's shareholders provided loans to the Company to fund the expansion.

6.5 Share-based remuneration

The employee share purchase plan is designed to create long-term incentives for managers, current and future employees to achieve long-term profits for shareholders. Shares are offered to the participants at their par value within the plan and are created by a contingent capital increase. The participant receives the right to the shares over a period of up to 3 years. The shares are managed in a blocked deposit until they accrue and cannot be sold. The Board of Directors determines those who are entitled to receive the shares and the number of shares assigned.

[in CHF]	2018	2017
Shares issues as part of the employee share purchase plan	40 000 shares	–
Average fair value	CHF 5.40/share	–
Personnel expenses recognised from share-based remuneration	149 185	–

6.6 Future obligations (operational leasing)

Operational leasing covers the renting of the business properties and the leasing of vehicles. The future minimum leasing payments from irrevocable operating leasing agreements consist of the following:

[in CHF]	31.12.2018	31.12.2017
Within 1 year	104 476	73 660
Within 1 – 5 years	60 134	218 496
After 5 years	–	54 624
Total minimum leasing payments	**164 610**	**346 780**

6.7 Employees

The average number of employees was 12. The following number of employees worked for the Company on the balance sheet reporting date.

[in CHF]	31.12.2018	31.12.2017
Employees	18	7
External advisers/freelancers	15	10

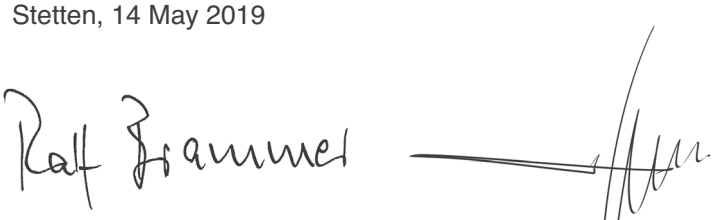
The advisers and freelancers called in by the Company from outside do not work primarily for the Company; the details provide the number of persons.

6.8 Events after the balance sheet reporting date

The following events occurred after the balance sheet reporting date and should be mentioned:

- The existing management team has been further expanded to include the business development skills of Mr Urs Hirsiger. Mr Urs Hirsiger, as a member of the management team, will help to establish a department that will seek to address customers requirements regarding materials. Mr Hirsiger will also continue to establish an extensive business development department, something which has already been started, a so-called “one-stop shop” from the customer’s point of view.
- Investments were made in expanding the development and production capacity at the Stetten business site during the first few months of 2019. The space for the research and development laboratory alone was expanded by more than 800 square metres. The expansion of the laboratory will allow the development of new applications for customers and faster production of pilot and small series.
- With the growing number of 3D development projects and the licencing of further 3D production systems, a focus on protecting the Company’s expertise (intellectual property) is becoming increasingly relevant. For this reason, the existing Swiss company, Exentis Knowledge GmbH, will pool all the patents and act as the central Exentis patent box from now on.

Stetten, 14 May 2019



Ralf P. Brammer,
President of the Board of Directors

David L. Deck,
Member of the Board of Directors

Auditor's Report to the Board of Directors on the consolidated financial statements of Exentis Group AG in Stetten AG

In accordance with your instructions, we have audited the accompanying consolidated financial statements of Exentis Group AG, which comprise the consolidated balance sheet as at 31 December 2018, the consolidated income statement, the consolidated statement of changes in equity, the consolidated cash flow statement and notes to the consolidated financial statements (pages 37-63) for the year then ended.

Board of Directors' Responsibility

The Board of Directors is responsible for the preparation of these consolidated financial statements in accordance with International Financial Reporting Standards (IFRS) and the requirements of Swiss law. This responsibility includes designing, implementing and maintaining an internal control system relevant to the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error. The Board of Directors is further responsible for selecting and applying appropriate accounting policies and making accounting estimates that are reasonable in the circumstances.

Auditor's Responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audit. We conducted our audit in accordance with Swiss law and Swiss Auditing Standards and International Standards on Auditing. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control system relevant to the entity's preparation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the existence and effectiveness of the entity's internal control system. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made, as well as evaluating the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the consolidated financial statements for the year ended 31 December 2018 give a true and fair view of the financial position, the results of operations and the cash flows in accordance with International Financial Reporting Standards (IFRS) and comply with Swiss law.

Zurich, 14 May 2019
BDO Ltd

Christoph Tschumi
Swiss Certified Accountant

ppa. Sebastian Woschitz
Swiss Certified Accountant

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