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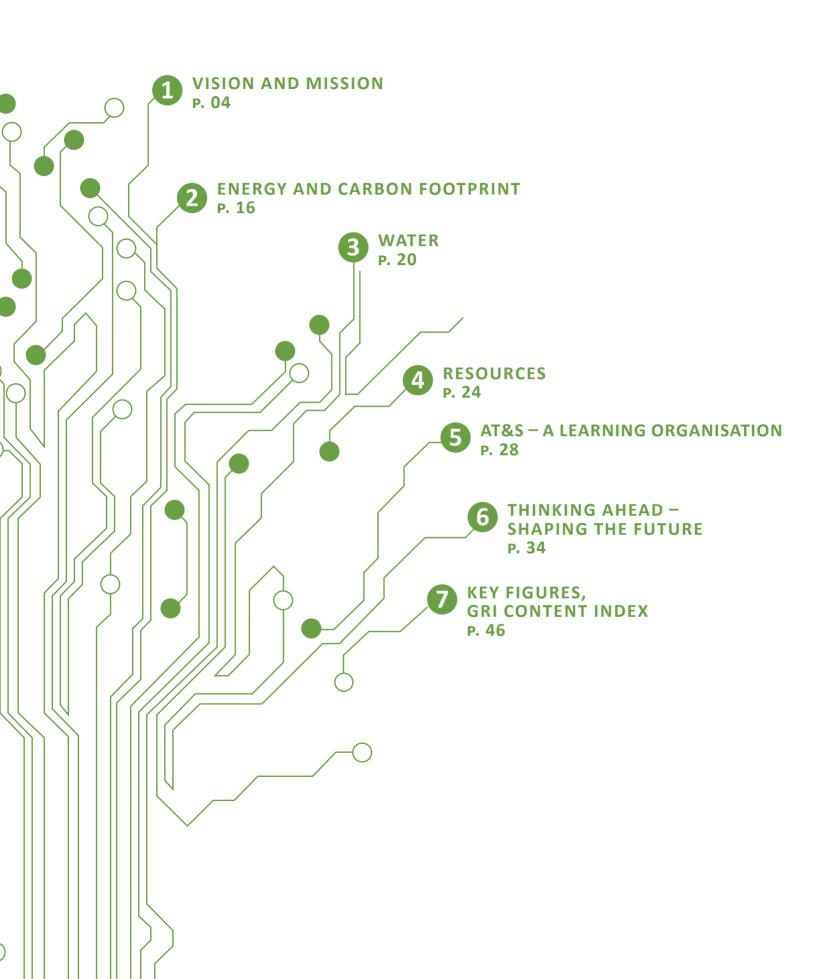
re the occupational safety of its employees? What significance does health at the workplace have for AT&S? What is done to promote the compatibility of professional and family life? How will we work in the future? Which further development perspectives does AT&S offer its employees? Are employees' ideas promoted and integrated? How does AT&S ensure diversity in the company? Which labour and environmental standards does AT&S comply with at the Asian sites? How are fair company practices promoted? Which topics will be essential for our

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there recycling processes that can make AT&S even more resource-efficient? Which initiatives are taken to avoid waste? Where is there potential left to save resources? Can AT&S cover its



# **Statement by the CEO**

Dear reader,

Another successful year has gone by for AT&S and for the third time it is my pleasure to invite you to join us in reflecting on our activities regarding responsibility and sustainability. Sustainable thinking and sustainable actions are key elements in long-term corporate success, and thanks to the untiring commitment and dedication of our employees we once again succeeded in securing stable growth in line with our values last year.

In accordance with our sustainability strategy and the focus on topics that are essential to us, we continued to work on our positive development in the area of sustainability in the past year. New technologies and extended application areas form the basis of our business activities, but at the same time also confront us with new challenges regarding energy efficiency. Consequently, we were unfortunately unable to meet our target of reducing  $CO_2$  emissions by 5% compared with the previous year. As a result of the introduction of the energy management standard ISO 50.001 and the activities based on it, remarkable savings potential was evaluated for the two Austrian sites. Similar efficiency reviews are also planned for our Asian sites. In the area of water consumption, we managed to achieve further increases in efficiency despite a challenging technical basis.

To accomplish our goals it is of course vital to react individually to the respective local situation. Due to our broad-based portfolio of technologies, we are confronted with different requirements at different sites; however, at the same time opportunities also arise. Based on best practice sharing and joint projects we aim to ensure that information is shared and synergy effects are used. Successes like these are devised, planned and implemented by our employees. That is why we attach great importance to safety, health and training and further education. European standards help us to also set the highest standards at our Asian locations. We want to be on an equal footing with our employees and continue to shape the success of our company together with them as our partners. We will only be able to meet the requirements of the market if we all work together.

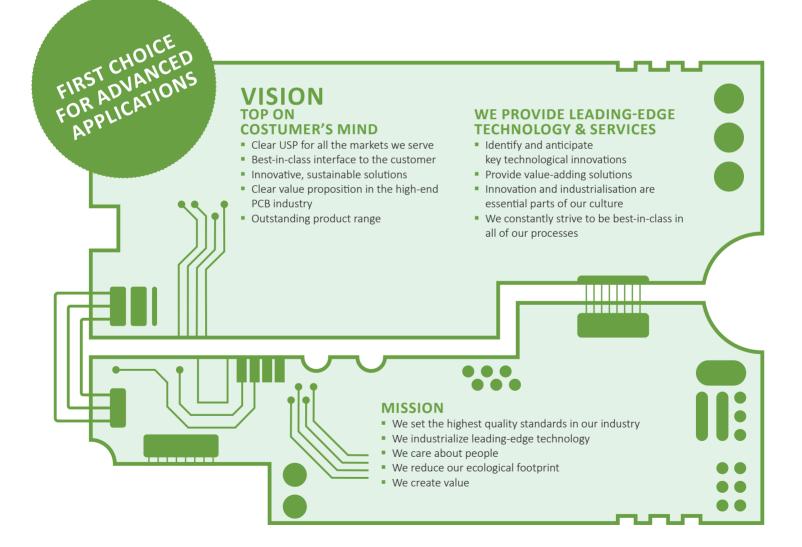
Responsibility and sustainability: These terms have become fashionable in the western world. Many systems were invented in order to institutionalise an area which, using a little common sense, should be a matter of course. Especially as a stock corporation, it must be in the interests of all of us to secure long-term success and to act as a valuable part of society. This includes healthy growth, a reduction of negative impacts on the environment, motivated and enthusiastic employees and assuming responsibility for one's immediate environment. I am convinced that our company's 29-year history is proof of our commitment to these topics

Our Sustainability Report for the financial year 2015/16 will demonstrate how we implement these ideas. We look forward to your comments and suggestions.

Sincerely,

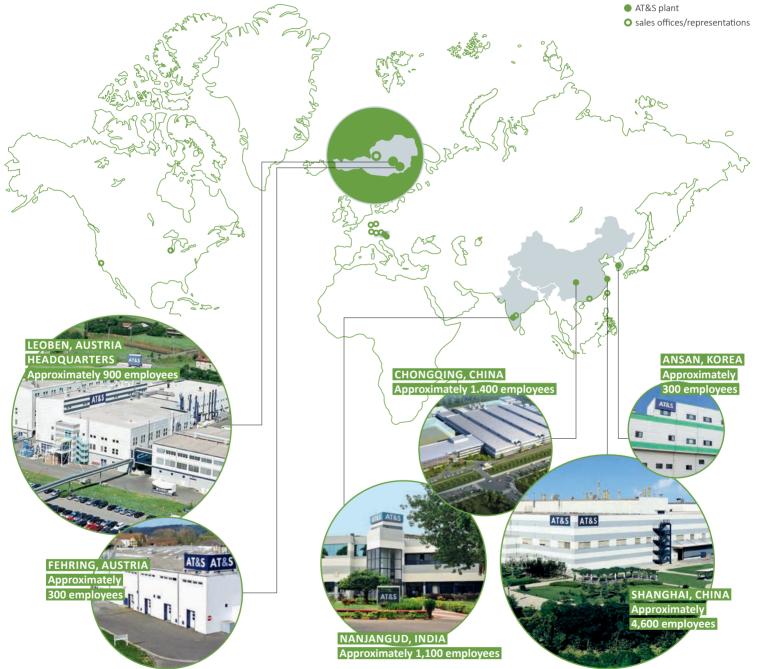
Andreas Gerstenmayer CEO

# **Vision and Mission**



# **Group sites**

- Production in Europe: high product diversity, low volume
- Production in Asia: high volume, low product diversity
- Sales network spanning three continents



## Von der Vision zur Strategie

VISION

## **TARGETS / KEY PERFORMANCE INDICATORS**

## **Expansion of technology leadership**

- Leading provider in high-end core business
- Medium term: leading provider in new business areas
- Innovation revenue rate: > 20%

FIRST CHOICE FOR ADVANCED APPLICATIONS

# Long-term profitable growth/be one of the most profitable providers in the industry

- Medium-term EBITDA margin target of 18–20%
- Medium-term revenue target of € 1 billion

## **Creation of shareholder value**

Medium-term ROCE of 12%

## The best employees and management team members

- T alent programs
- Training and continuing development
- Leadership Excellence programme

## STRATEGY

## Continuous innovation and focus on high-end technologies and applications

Developing and marketing new technologies for new applications and requirements, and introduction of existing high-end technolo-gies into developed market segments

Focus on applications and technologies with above-average growth and longterm profitability

Focus on the highest service level and customer orientation

Sustainable business development with focus on ROCE

Stable dividend policy

## Sustainable business leadership

Benchmark in the industry through reduction of:

- 5% in CO<sub>2</sub> emissions p.a.
- 3% in fresh water consumption p.a.

## Focus on innovative solutions

Industrialisation of new interconnection platforms through a combination of existing and new high-end technologies

**Operational excellence** 

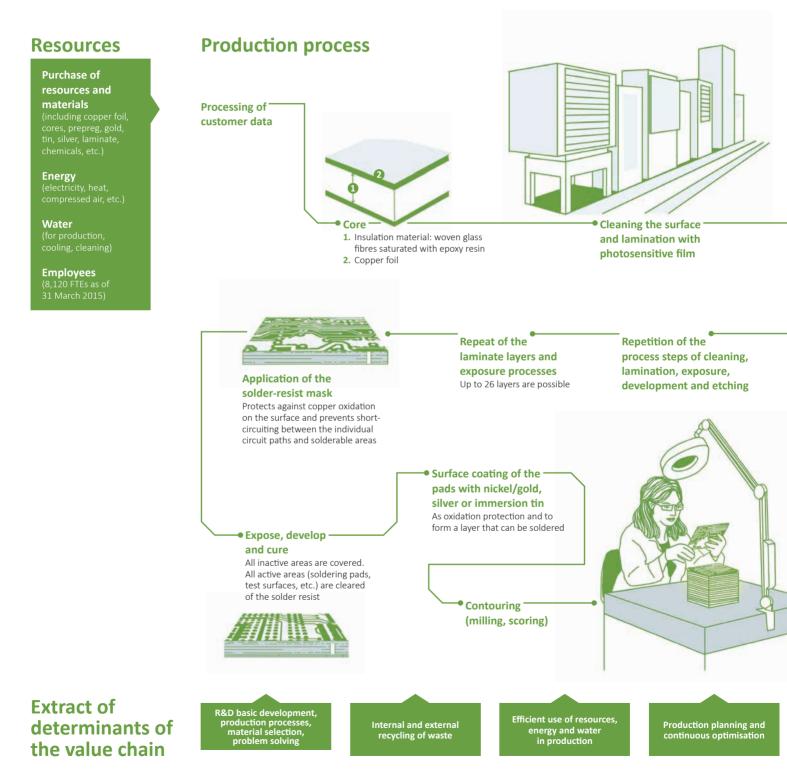
Focus on cash flow generation

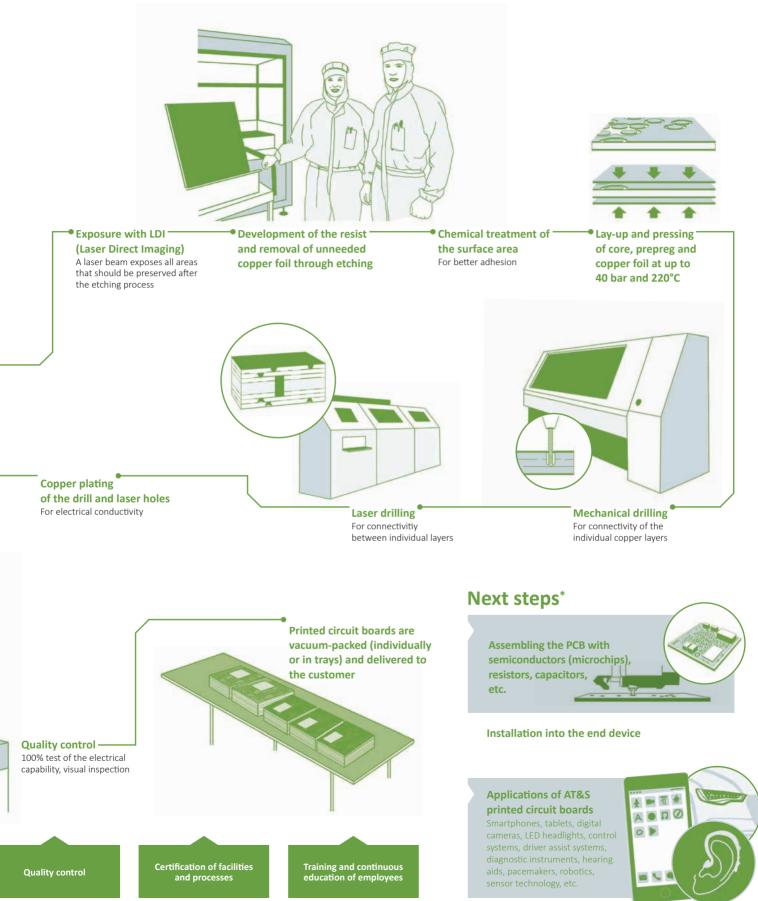
## **Capital excellence**

- Equity ratio: > 40%
- Financing costs of < 2% (in a corresponding interest rate environment)
- Payback period of debt < 3 years</li>

# Value creation chain

This is the schematic illustration of the value creation chain. Depending on the number of layers, the actual process to produce a printed circuit board can have up to 150 steps.





\* Not part of the AT&S value chain

# **Sustainability**

Conduct business responsibly and sustainably. This is a clear commitment, which AT&S has expressed again in the past financial year by means of the rigorous continuation of our corporate and sustainability strategy and the activities associated with it.

The significance of sustainability is clearly reflected in our corporate mission:

- We reduce our ecological footprint
- We care about people
- We create value

We create value that extends beyond a purely economic view. European standards at all sites, ambitious key performance indicators for resource consumption and emissions, and a clear commitment to good corporate citizenship are among the ways AT&S expresses sustainable management.

At AT&S, effective sustainability strategies centre on those areas that stand in the company's direct sphere of influence and are found

## **EMPLOYEES**

Employees have a right to an entirely safe working environment. At the same time AT&S wants its people to be ambassadors of its values, and to play an active part in fulfilling its mission.



## **CUSTOMERS & SUPPLIERS**

We would like our customers and suppliers to help us manage our supply chain so as to minimise the burden on the environment and our immediate surroundings. This applies to the procurement and use of chemicals and other materials, and to sustainable production methods and transportation.

Our customers' and suppliers' needs and concerns are regularly raised through requests for feedback, and business review meetings and audits. This enables us to work with them to solve any problems.

## **STAKEHOLDER ANALYSIS** At the beginning of our sustainability activities, we dealt with the definition of our stakeholders in great detail. In the course of this stakeholder analysis, we held workshops and interviews to evaluate the stakeholder analysis.

within the sustainability triangle of economy, ecology and social re-

sponsibility. So as to satisfy this requirement, all important stake-

holders were evaluated in a comprehensive process and the key

topics of the AT&S sustainability strategy were jointly developed

though a materiality analysis.

definition of our stakeholders in great detail. In the course of this stakeholder analysis, we held workshops and interviews to evaluate which stakeholders AT&S is in contact with, what the interaction with them looks like and what the connection is between these stakeholders and the topic of sustainability. With the help of external consultants, managers of different departments were interviewed, detailed questionnaires and requests were evaluated and the main stakeholders subsequently defined in joint workshops:

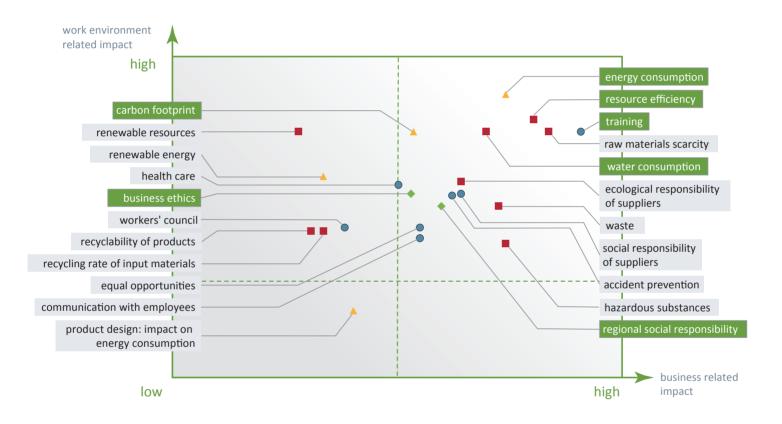
## INVESTORS

set out to present sustainability as a key success factor. By reducing our consumption of energy, water and other resources, and keeping the social impact of our operations in mind, we minimise our production costs.

Sustainable business practices are also crucial to obtaining licences to operate for our production sites. And continuing to improve our sustainability performance ensures that we retain the permits that are awarded to us.

## **MATERIALITY ANALYSIS**

The following topics emerged from the materiality analysis as the focal points of AT&S's sustainability activities:

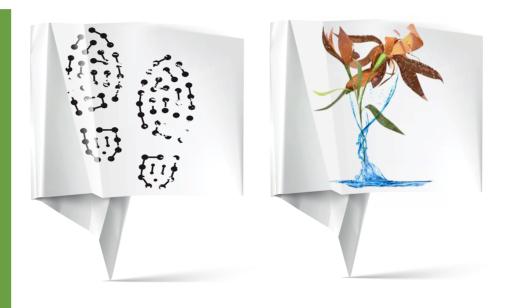


# **Our core topics and objectives**

In an effort to align ourselves to the right topics with respect to sustainability management and to work on aspects which directly or indirectly make a positive contribution to our company success, we have identified five subject areas:

**Corporate social** responsibility is a broad concept that can cover a host of different topics, especially in a global organisation like ours. In an effort to make the extent of this idea more tangible, understandable and measureable – both inside and outside the Group – we have used materiality analysis to specify five areas of activity which we intend to focus on. These five areas are vital to our core business, and we measure our progress in each by defining targets.

This not only helps us to achieve our goals; it also enables us to constantly improve the processes that lead to those objectives – and to develop as a company.



### ENERGY AND CARBON FOOTPRINT

Emissions of  $CO_2$  and other pollutants are a key issue for all manufacturing businesses.

AT&S aims to minimise its environmental footprint by reducing the  $CO_2$  emissions per m<sup>2</sup> printed circuit board attributable to production processes by five percent a year.

Achieving and adhering to this goal helps to significantly cut energy use and, as a result, delivers cost savings – making it an important step both from an environmental and economic point of view. It also motivates us to respond to find solutions to the challenges in our industry.

## WATER

Water is a vital and valuable resource. AT&S requires specially treated water for its production processes, so taking steps to minimise water consumption at our production facilities as far as possible is a leading priority. Because wastewater treatment is such an energy-intensive process, the best savings can be made simply by cutting consumption at source.

Our aim is to reduce the Group's annual fresh water consumption per  $m^2$  printed circuit board by three percent – another easy-to-measure target.

We also strive to promote sustainability in relation to production processes, and to encourage all of our employees to champion sustainability through their actions.



### **RESOURCES**

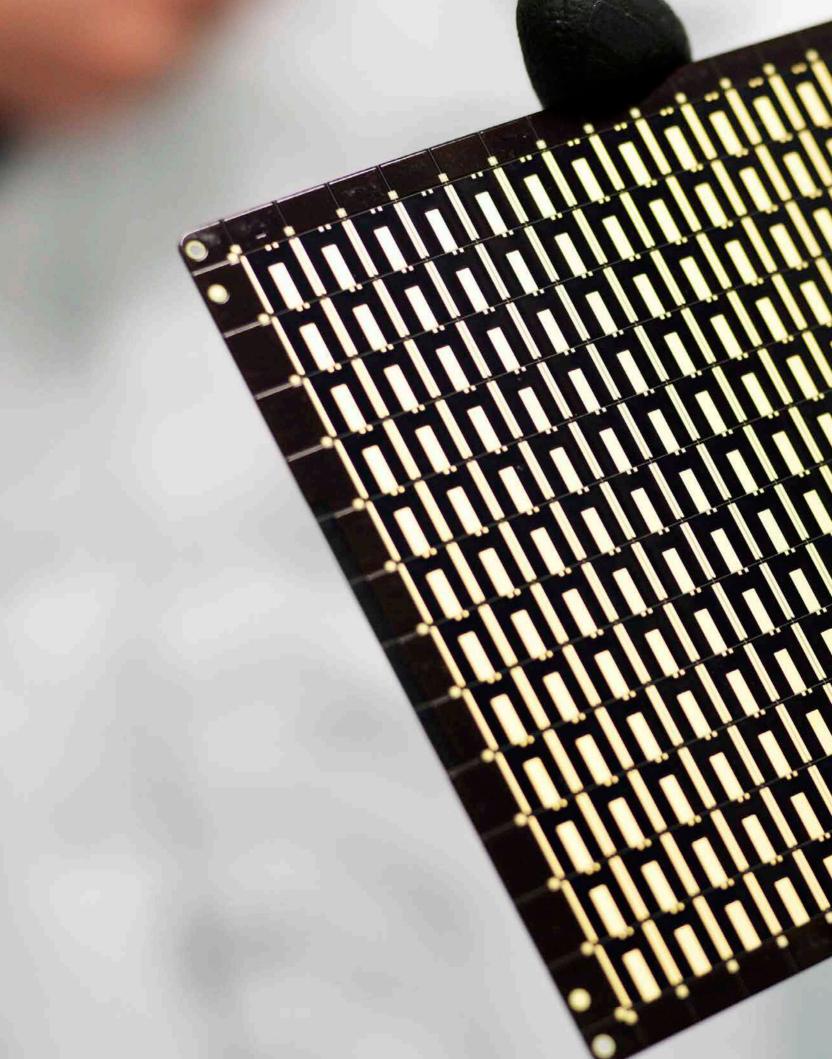
As a manufacturer of high-tech interconnection solutions, AT&S uses a variety of raw materials, many of which are extremely valuable. Making efficiency gains and improving the way we use resources are not only important in operational terms, but also significantly reduce the burden on the environment. Innovative concepts, best practice sharing between plants, and global projects are helping us to home in on individual processes and forms of resource use, and continuously optimise them. It is essential that we not only focus on the individual processes in isolation, but take the stages that come into play before and after into account, as part of a holistic approach. Due to the individuality of our plants, no globally valid strategic objec-tives are in place on the topic of resources. The focus on raw material and material optimisation is defined in plant-specific targets in accordance with local requirements and needs.

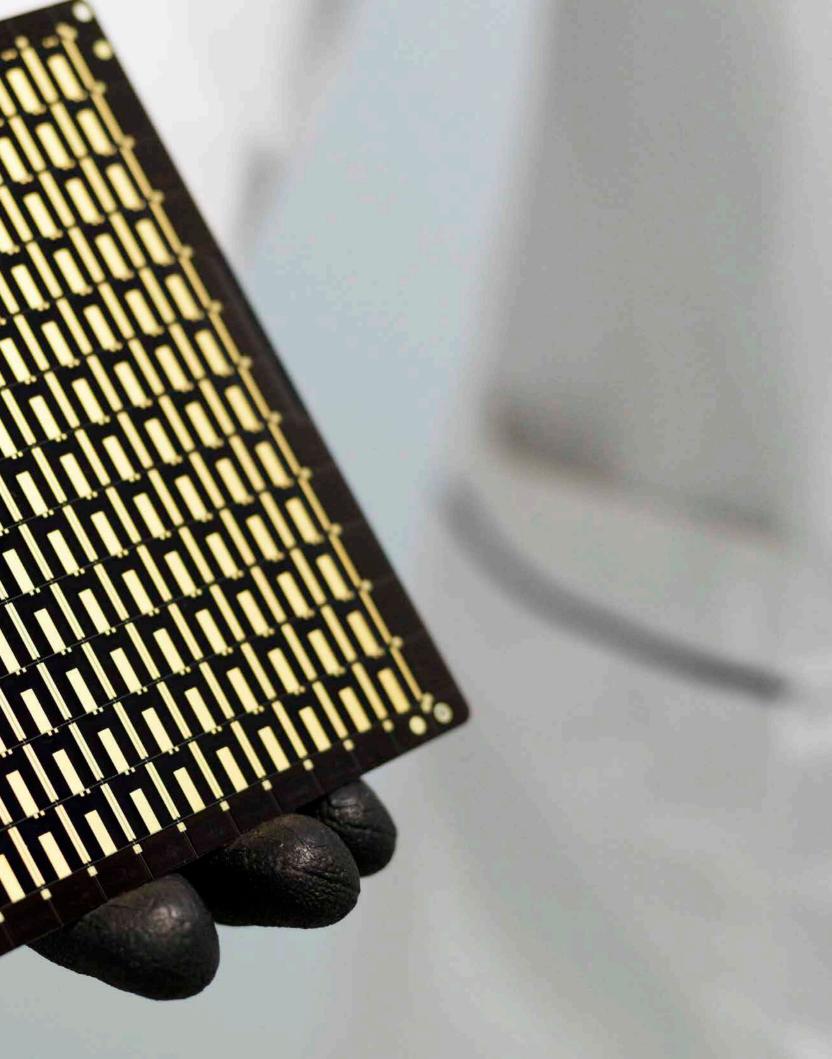
## AT&S – A LEARNING ORGANISATION

Manufacturing technologically advanced products requires targeted investments in employee training and development. This report outlines the steps we are taking to create a learning organisation at the Group and offer longterm development opportunities for our staff. Internal training schemes are used to ensure our highly specialised staff are always one step ahead. Senior management believes strongly in cultivating a strong learning environment in the group to overcome technical and social barriers.

### THINKING AHEAD, SHAPING THE FUTURE

Entrepreneurial thinking is important to us. AT&S is fortunate to have employees who bring such a high level of enthusiasm to their work. As an international company we offer an attractive working environment. To acquire and retain highly qualified staff, employers must offer an appealing place to work that values the individual, and offer something to people in the long term that goes beyond purely financial considerations. Our role in the supply chain for leading electronic products brings certain responsibilities with it. We are fully aware that our obligations towards the environment and society must also dovetail with our business and operational responsibilities. In both cases forward planning is the decisive factor. Forward planning is the key to identifying and managing overlapping interests, and creating sustainable solutions that benefit individual employees, society, the environment and the Group as a whole.





# **Energy and CO**<sub>2</sub>

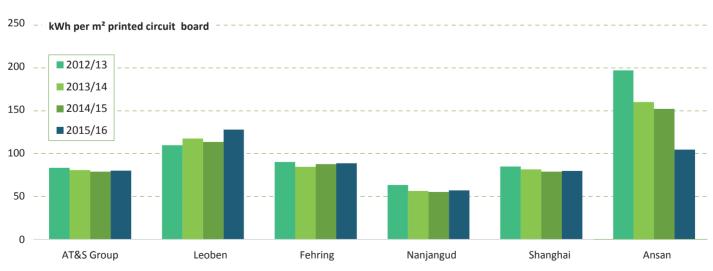
At the UN Climate Change Conference 2015 it was agreed that the states of the industrialised and emerging countries would present climate protection plans in order to limit global warming to 2 °Celsius, ideally to 1.5 °Celsius (in comparison with the pre-industrial level). However, this target can only be met if greenhouse gas emissions are reduced to zero at the latest by 2060.

## FACTS ON CO,

CO<sub>2</sub> is a formula for carbon dioxide. As an odourless, colourless, nonflammable gas, it is a completely normal part of the air we breathe at a concentration of approximately 0.04%. When carbonaceous material, for example fossil fuels such as gas, oil, diesel, petrol, etc., is burnt, CO<sub>2</sub> is created, but also physical processes like breathing produce CO<sub>2</sub>.

 $\rm CO_2$  is a "greenhouse gas", which causes temperatures to increase if the concentration in the atmosphere is too high. The gas settles in a layer of the atmosphere and reflects back the heat radiated by the Earth. This in turn leads to permanent warming and has a negative impact on the entire ecosystem. In fact, annual  $CO_2$  emissions increased by more than 80% worldwide between 1970 and 2004. (Source: www.co2frei.net)

As a globally operating company we therefore assume our responsibility and continuously make our contribution in order to reduce the negative effects of our operations. We have been doing this for many years because cutting down on energy consumption not only leads to cost reductions, but also when purchasing electric energy the lever for reducing CO<sub>2</sub> emissions is most effective.



## TOTAL ENERGY CONSUMPTION (ELECTRICITY AND HEAT)

## Heat recovery

## ISO 50.001

# Optimising air conditioning units

At all our sites we take measures to make our processes leaner, more effective and consequently also more efficient. Therefore, we have established a reporting structure for all plants which ensures that the agreed key figures apply as a target and are periodically reviewed. We thus ensure that every plant consistently works on the topics defined and that the plants can be compared.

In order document our contribution officially, we take part in the global Carbon Disclosure Project (CDP), thus publicly demonstrating our CO<sub>2</sub> footprint.

The production of increasingly complex technologies with additional, functional requirements causes the energy required per square meter of produced PCB to increase. As a result, we were unfortunately unable last year to meet our target of reducing CO<sub>2</sub> emissions by 5% compared with the previous year. However, we are working hard on implementing further significant improvements for the coming year.

## CO<sub>2</sub>-EMISSIONS



120 -- CO, emissions in kg/m<sup>2</sup> printed circuit board ------

We are right on track as an important step was taken at the beginning of last year when our two Austrian sites were certified according to the international energy management standard 50.001. As a member of the LEEN energy efficiency network, we have become part of a useful network and together evaluated significant savings potential, which we will implement in specific projects.



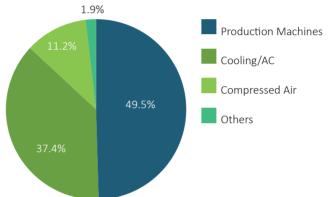
## AT&S AS A MEMBER OF LEEN

## (LEARING ENERGY EFFICIENCY) NETWORK OF ENERGIE STEIERMARK

AT&S has joined the LEEN (Learning Energy Efficiency) network of the Styrian energy provider Energie Steiermark. Together with eight other large industrial enterprises, Energie Steiermark has launched this initiative with the intention to reduce the energy consumption of companies in Styria by 3% annually. The LEEN project is based on targeted collaboration between the participating companies. At regular network meetings and joint energy audits, experiences can be exchanged and strengths can be combined better. AT&S COO Heinz Moitzi is convinced of the purpose of this network and considers it an important lever to reduce energy consumption at AT&S even further. "With the help of the LEEN network, we expect further significant savings potential to support our reduction targets. Mutual networking with the participating companies, the exchange of experience and the professional support by LEEN are very valuable in this process."

Heinz Moitzi, AT&S COO

## PERCENTUAL DISTRIBUTION OF ENERGY CONSUMPTION



A detailed analysis of how consumption is distributed at our plants shows that production machinery, cooling and air conditioning units consume roughly 86% of the electric energy. Compressed air production is another significant energy driver. These are the two areas that our teams are focusing on. Together with consultants they are developing concepts to improve our performance, either by investments in more modern facilities or by increasing efficiency.

## Thomas Rossmann, energy manager for the Austrian sites, on this topic:

"Networking with other companies gives us a clear lead in knowledge. Each of us contributes their knowledge and experience, and all of us benefit."

In the past year, we concentrated on the potential analysis as part of the recently introduced energy management standard ISO 50.001, so we implemented fewer energy saving measures in terms of quantity. The result of the analyses is convincing. A potential of 7 GWh was evaluated for the coming three years, which we will now implement step by step.

It is not only at existing plants that we attach great importance to sustainability. Recently our new plant in Chongqing, Central China, was certified by our customer. The production lines were gradually ramped up, enabling us to offer our customers high-end technologies. Thomas Mandl (TM), who works on savings projects in the area of building technology in the department BPE (Business Process Excellence) and supported the construction of the two plants in Chongqing as project manager, talks with Andreas Kraker (AK) about the specific energy-related measures we have taken at this site as well as already measures taken into account while building the plant.

**AK**: Mr. Mandl, you were the project manager responsible for the construction of the new buildings and building technology in Chongqing. What differences did you find in China compared with the European standard?

**TM**: When planning new buildings, you may assume that the technical standard in China roughly corresponds to that in Europe. However, the implementation often represents a great challenge since the understanding of quality does not always correspond to European views. But it always also depends on the customer themselves, if and how they implement efficiency and energy saving measures at the Chinese plants. When we realised the compressed air station of the first plant in Shanghai with a heat recovery plant in 2001, it was a small sensation. Today, this is the standard.

**AK:** Which role did energy efficiency play in the planning and which measures did you take?

**TM**: During the building phase of the second plant in Chongqing, we conducted an audit with an Austrian partner. We were aware that technology was not standing still and wanted to make sure that we were using the state of the art. In this audit, we evaluated significant improvements in comparison with the original plans. As a result, parts of the building technology were nearly completely reconsidered. The Chongqing plants are the most modern ones within the AT&S Group, also from a building technology point of view.

**AK:** Surely there is a certain difference in investment costs in comparison with less expensive, but more energy-intensive technologies. How do you argue the higher initial costs?

*TM:* Many of the more energy-efficient measures pay off within the first three years. Any further explanation is therefore superfluous.

**AK:** Within which time period should a new facility or a new project be evaluated for savings potential?

*TM:* That heavily depends on when the facilities start to run at full utilisation and therefore reliable data exist. The consumption should be measured and recorded continuously for at least one year. Above all, the partial load ranges in spring and autumn are particularly important, as this is when some energy savings measures have the greatest effect. What is important is that the measures introduced are also carried out in accordance with the requirements. The higher the level of technology, the more complex the operation. For this purpose, well qualified employees are extremely important.

**AK:** Where do you see the greatest potential in existing systems, where are real improvements still possible, or have we already reached the limits of feasibility?

*TM*: We are still far off the limits of feasibility. The energy management standard ISO 50.001 proposes a recurring review of the savings potential every four years. Considering that our machinery is constantly changing and changes are continuously made to the buildings, this definitely makes sense. Moreover, we have to check on a regular basis whether the measures implemented actually deliver the desired results. Of course I see considerable savings potential in the production facilities. Roughly 50% of our energy consumption is used directly for production, while the other half is required to provide the appropriate environment for production.

In general it is important to pay attention to energy efficiency in the investment process already and to consider energy-saving technologies. Lifecycle costs should definitely be part of the decision-making basis for new facilities; new buildings and their infrastructure also have to be evaluated on this basis. To upgrade at high cost or to modify at a later point would be a substantially worse alternative.

**AK:** Increasing efficiency, saving energy, managing consumptions – those are classic examples. What are you currently working on and where do you see yourself in the next three years?

**TM**: Currently we are working on energy audits for our sites in India and Shanghai with the goal to identify further major energy-saving potential. That's a clear priority. Following that, I assume that we will be able to focus on the production machines. Here we should not only examine existing processes, but increasingly also count on involving suppliers in order to ensure that the latest findings will be integrated in future machiney.

But the wheels also keep turning at our plant in Shanghai. The building engineering team around Steven Gu implemented several projects in the past year, saving roughly 657,000 m<sup>3</sup> of gas and around 2.9 GWh of electricity. This corresponds to an equivalent of approx. 3,700 tonnes of  $CO_2$  and, believe it or not, power consumption of 768 three-person households. All of these projects had an average payback period of roughly one year. This underlines the importance of these activities even more because we not only reduce ecological damage here, but also generate added economic value.

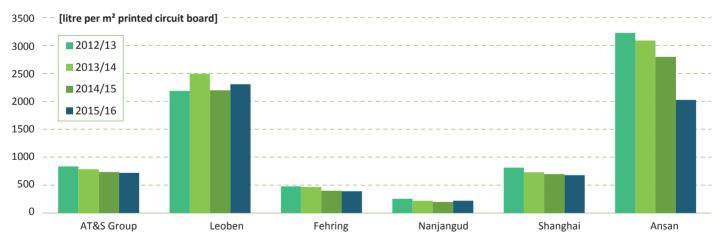
The coming year will be particularly exciting. Further energy audits are planned for our sites in Asia and they will show what hidden treasures we can still find.

# Water

Water is one of the most valuable elements of our planet. The fact that plenty of water of the highest quality is available to us as a matter of course often leads to waste and excessive consumption in our latitudes. The production of a printed circuit board consists of numerous water-intensive processes: therefore, we have many possibilities to reduce our consumption in this area, thus ensuring a more ecologically sound production process.

Local differences at the different sites, such as legal framework conditions for value limits, hardly allow any global solution. Each plant has to determine individually how to deal efficiently and effectively with the raw material water. However, all our sites have one thing in common: in addition to many other tasks, the EHS – Environment, Health and Safety department at every single site ensures at regular intervals that the key indicators and targets in water management are centrally observed and reported. Any deviation is discussed on a monthly basis, and proposals for improvement are submitted and implemented. This way we ensure that the positive trend will continue in the future.

Development of water consumption in a four-year comparison:



## TOTAL FRESHWATER CONSUMPTION

# Water One of the most valuable elements of our planet

Financial year	2014/15	2015/16	Savings in percent
AT&S Group average	734	719	-2.04%
Leoben	2198	2307	4.96%
Fehring	399	390	-2.26%
Nanjangud	197	219	11.17%
Shanghai	696	677	-2.73%
Ansan	2797	2027	-27.53%

Due to our concentration on reducing continuous consumption and to the strong commitment of the parties responsible for the process, we continued to reduce relative consumption compared with the previous year. The monitoring is ensured by monthly reporting. Process and cooling waters account for the majority of total water consumption; in contrast, the water consumption for drinking and sanitation purposes is nearly negligible.

The steps towards sustainable water savings:

- 1. Measurability of the individual areas and consumers
- 2 Evaluation of the main consumers

3. Analysing and optimising the current parameters to avoid wastage 4. Making technological changes in order to significantly change the framework conditions

Similar to the energy issue, each site is subject to different legal requirements or has different resources.



At our site in India, for example, the production facility has no municipal wastewater system or wastewater treatment plants. Here it is legally required to treat any wastewater as long as necessary to let it drain away without concern in accordance with the limit values determined by the government. This results in a very low consumption value as the recycling facility installed at the plants operates with an efficiency of more than 85%. This enables us to purify nearly all of the production water and to recycle it for production.

## Process water reduction

# Water recycling

## **Consumption monitoring**

## AT&S INDIA - NEW WASTEWATER SYSTEM WITH VAPOUR COMMISSIONED IN 2015

Due to a lack of state wastewater systems, stricter regulations for water treatment are applicable to our plant in India. It is not permitted to drain wastewater from the company premises; rather the water has to be treated on site so that it can be used for other purposes at the plant. Therefore, a new evaporation system was installed last year, making the usage of water environmentally friendly and efficient. Roughly 80,000 litres of saline water are generated in the production of printed circuit boards in India every day. The salt content of this water is similar to that of seawater, so it is not possible to drain it into the sewerage system as would be customary in other plants. The newly installed evaporation system extracts salt by evaporating water. The residual salt is dried, filled into sacks and passed on to processing companies. Every day, 300 kg of salt are produced per hour through this new system. This adds up to 2,160 tonnes of salt per year, which can be passed on to other companies in an environmentally friendly manner.

In contrast, the situation is completely different at our site in Leoben-Hinterberg, where we can cover our freshwater requirements using 10 °Celsius cold river filtrate from the adjacent river. 75% of the total water required runs through the heat exchangers as cooling water and is then returned to the river completely unaffected, but under

## WASTEWATER REGULATION IN INDIA

The Indian environmental authority stipulates that wastewater has to be treated until it can be used on a company's premises without any detrimental effects on people and the environment.

the strict control of local authorities. Only 25% is refined to ultrapure water or soft water, used up in the process and then has to be treated in the municipal wastewater treatment plant. We are also evaluating appropriate measures in this area in order to further improve total consumption.

Saving at the source

Degree of water stress by freshwater ecoregion

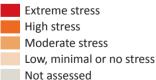
## POLLUTION AND SOIL SALINITY

In developing countries and emerging economies, wastewater is posing an increasing threat to the quality of freshwater in rivers, lakes and groundwater supplies. Intensive farming is also responsible for contamination through excessive use of fertilisers. In coastal regions overreliance on groundwater supplies causes salt water to permeate underground aquifers.

## **CLIMATE CHANGE**

As glaciers continue to melt, the volume of water flowing out of mountain regions will increase. India and Pakistan will be particularly affected. Temperature increases will change precipitation patterns and result in additional evaporation in some areas.

## Degree of water stress by freshwater ecoregion



Map from The Atlas of Global Conservation (University Press 2010). For more information, please go to: The Nature Conservation, www.nature.org/atlas.

#### POPULATION GROWTH, INDUSTRIAL AGRICULTURE AND INDUSTRIALISATION

Population growth places increased demands on existing water supplies. And changing diets are having an even greater impact on resources. In particular, large volumes of water are required to keep pace with increased consumption of meat worldwide.

Reference: Hoekstra JM, Molnar JL, Jennings M, Revenga C, Spalding MD, Boucher TM, Robertson JC, Heibel TJ, Ellison K (2010) The Atlas of Global Conservation: Changes, Challenges, and Opportunities to Make a Difference (ed. Molnar JL). Berkeley: University of California Press

Resources

Long-term global supplies of raw materials are anything but secure. For one, increased industrialisation in developing countries will be reflected in a sharp spike in demand worldwide. On top of this, as global shortages take hold the risk of restrictions to free trade also intensifies, as countries with access to the various precious raw materials might limit exports in order to cover their own demand. As a region with only limited access to the raw materials needed to manufacture printed circuit boards, this development would leave Europe particularly exposed by dependency on export markets and the consequent increase in commodity prices.

While new mines will improve the overall supply situation, dwindling deposits of these non-renewable raw materials will be under pressure

to keep pace with spiralling demand. As a result, strategic management of resources and raw materials will have to focus on efficient use, combined with worldwide expansion of recycling activities.

The chart shows how little time we have before these resources start to run out, if we continue to consume them as we have so far. These calculations are based on known, economically viable deposits. The lower end of each forecast reflects increased consumption and mining activity, while the later forecasts use calculations based on current rates of consumption and extraction. These predictions do not take into account advances in technology that will open up access to currently inaccessible resources, or price increases which will make extraction of lower concentrations economically viable.

#### COPPER (Cu) 2035 - 2044

The Fraunhofer Institute estimates that without recycling the world's copper reserves will be used up by 2030. Availability will be extended depending on the volume of secondary copper that can be recovered.

Deposits: primarily Chile

#### GOLD (Au) 2024 - 2045

Various authorities, including the Wuppertal Institute for Climate, Environment and Energy, are predicting a relatively early end for gold supplies. The US Geological Survey puts globally accessible gold reserves at around 51,000 tonnes. If production continues at the current rate of 2,500 tons per year, global deposits will be fully deplet-ed by 2031.

Deposits: primarily South Africa

## SILVER (Ag) 2020 - 2041

Most studies indicate that silver deposits will be exhausted by the early 2030s at the very latest. According to one joint study published by RWI Essen (Rheinisch-Westfälisches Institut für Wirtschaftsforschung), the Fraunhofer Institute for Systems and Innovation Research (ISI) and the German Federal Institute for Geosciences and Natural Resources, the world's silver deposits will only last for another 29 years.

Deposits: mainly China, Mexico and Australia

### PLATINUM (Pt) & PALLADIUM (Pd) 2058 - some hundred years

Experts appear to agree that supplies of platinum and other platinoids such as palladium will be sufficient for many years to come. However, their predictions vary enormously. Although the Club of Rome is pointing towards 2058 as the point where supplies of platinum-group metals will run out, other studies indicate that deposits will last for several hundred years.

Deposits: South Africa, Russia and Canada



## LEAD (Pb) 2024 - 2030

The vast majority of predictions indicate that known, economically viable deposits will only last until 2030 at the very latest. Only a handful of studies expect supplies to last significantly beyond this point. However, the importance of this particular metal for the printed circuit board industry will decline as European Union legislation severely restricts the use of lead in electronic devices.

Deposits: USA, Australia and Russia

## GALLIUM (Ga) 2143 - 2200

Gallium arsenide is used to transform electronic signals into optical ones. The market is occasionally beset by supply bottlenecks. Gallium is only found in other metal ores such as zinc, bauxite and germanium. From today's perspective, supplies of this compound are sufficient.

Deposits: mainly China

### ANTIMONY (Sb) 2020 - 2024

A weak electrical conductor, this brittle heavy metal is one of the key components of lead-free solder. It substitutes lead, which is increasingly banned from electronic devices. Studies appear to agree that supplies of this metal will soon start to dry up.

Deposits: South Africa and China and China

#### TIN (Sn) 2026 - 2028

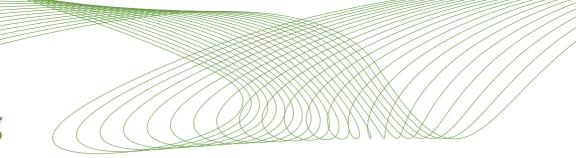
Most outlooks agree that supplies of this malleable silver metal will not be sufficient to keep pace with demand for much longer. Only very few studies add 10-30 years to the consensus timeline.

Deposits: various incl. Australia and Malaysia

#### PEAK OIL 2006 - 2030

Epoxy resins, phenolic resins and polyimides are the basic building blocks of a printed circuit board. They are all derived from crude oil. Peak oil is the term used to describe the point at which half of all the planet's known, economically recoverable oil deposits have been depleted. Depending on the study, this point was either passed a number of years ago or will be reached at some stage between now and 2030. Only a small number of studies – such as those published by OPEC – indicate that peak oil will be reached after that point. It is safe to assume that unrelentingly rising demand coupled with supply shortages will set the scene for disproportionate price increases and price volatility.

## Recycling



#### **RESOURCES**

Resources primarily comprise the materials and tools used in production: starting with the basic material laminates, a synthetic resin impregnated fibre mat, through a wide variety of metals for the production of conductor tracks or surfaces to be plated, to the chemicals used in wet processes and the packaging material for logistics.

Overview of the consumption of the most important materials:

		Financial year					
	Unit	2012/13	2013/14	2014/15	2015/16		
Gold	kg	585	484	596	593		
Copper	t	2,014	3,144	3,550	3,362		
Laminates	Mio. m²	11.2	12.5	13.4	13.5		
Chemicals	Thsd. t	86.1	87.2	92.9	96.2		

Especially when purchasing metals, we attach great importance to buying recycled materials and internally operate a recycling system ourselves. For several years now, we have sourced copper foil exclusively from recycled material. All sites have galvanic recycling plants. When using gold, we ensure that losses are kept to a minimum by implementing efficiency projects. For this purpose we use technologies like electrolysis or resin filtration.

We also attach great importance to the optimal utilisation of chemicals. The correlation between ecology and economy is evident: Various chemicals are used for dosing the copper chloride solution. By merging different processes, synergies can be utilised and savings totalling more than 50,000 litres of chemicals per year can be achieved. At our plant in Shanghai an efficient palladium recycling system has been set up. Efficient process control and continuous process improvements lead to new savings potential again and again. Based on sophisticated dosage logics and consumption minimisation, savings of more than one million euros were accomplished for gold.

At all sites, numerous projects aiming to save resources are in place. In the past financial year we reduced the consumption of materials, chemicals and tools worldwide by a value of more than 6.8 million euros.

The projects implemented are centrally collected and compared. Then it is checked whether they could also be carried out at other plants.

#### **CONFLICT MINERALS**

At AT&S we ensure that the tin and gold used for manufacturing our products come from trustworthy sources. We neither directly nor indirectly finance or support groups which accept systematic violations of human rights and breaches of international law in mining the above-mentioned raw materials in conflict regions (Democratic Republic of Congo and neighbouring countries).

AT&S acts very thoroughly regarding the origin and control chain of these raw materials. We support the initiative "CFSI" (Conflict Free Sourcing Initiative). CFSI audits and, as an independent body, reviews the metal-processing smelting works. Through a comprehensive system they ensure that the companies work under clean and humane conditions. Recovery Material usage



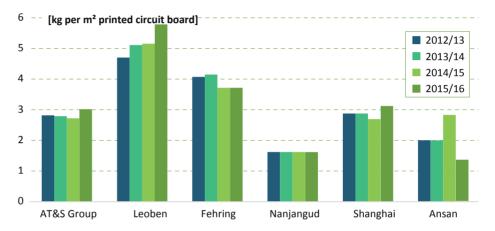
## **RECYCLING AND REUSE**

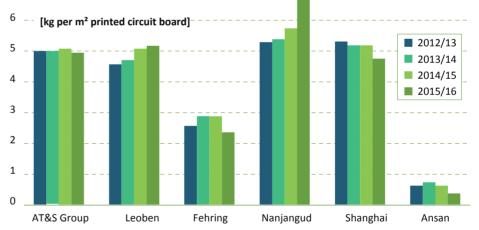
We are aware that the way we deal with waste has a direct impact on the environment. There are many possibilities to have a positive effect once some basic rules are understood and we are aware of the options. We want to help every single one in our company to make their contribution.

Waste

- Used IT equipment, regardless of whether it is a mobile telephone, laptop or monitor, is handed in to the IT department. The IT department will then determine whether a further use is possible. If not, the devices are professionally recycled. Devices that still work are donated to charitable purposes.
- AT&S attaches great importance to waste separation. We thus provide for correct and professional recycling and support our waste companies.
- The monitoring and control of our processes have top priority. Only compliance with the parameters specified on equipment prevents wastage and moreover ensures consistent quality. After all, rejects are ultimately also waste.
- Containers for liquids are completely emptied before we dispose of them. This facilitates recycling and the containers do not have to be washed out again.
- When planning the formats of PCBs, we pay attention to efficiency. Unnecessary empty spaces mean that more material is used for the same function. This will also be waste one day.
- We enhance our awareness of quality. A clean workplace, well-maintained machinery, good knowledge of the process – these are all factors that reduce rework, scrap and rejects.
- We encourage our employees to write down their ideas. Many people notice potential for improvement during their working day, especially in their own area of work. They use our internal proposal system and help us save in the right place.

## **NON-HAZARDOUS WASTE\***





## HAZARDOUS WASTE\*

<sup>\*</sup>According to local legal definitions

# AT&S – a learning organisation

We want to be the first choice for our customers, but also for our employees. In an effort to step up our technological progress and secure it on a sustained basis, but also to ensure that we are an attractive employer for our current and future employees, we attach great importance the topic of training and continuing education: because we care about people. To convey knowledge and values is not only philanthropy, but rather an economic necessity. In doing so, we create the basis for pulling together and jointly contributing to the long-term existence of our company. Our internal training and continuing education programmes are held at different levels and consist of general and site-specific training programmes.

In the past financial year, a total of roughly € 1,926 K was invested in internal training and continuing education. The increase by € 1,056 K compared with the previous year is primarily attributable to the professional training of the new employees who were recruited in the course of the establishment of the plants in Chongqing. In addition, AT&S invested in a university education for employees in China and in global leadership and Lean Six Sigma initiatives. These figures therefore reflect the importance of the qualifications of new employees and the focus that AT&S places on efficiency, effectiveness and leadership.

#### SUPPORTING YOUNG PROFESSIONALS

AT&S supports young professionals with apprenticeship programmes, internships and the supervision of master or diploma theses. At the end of the financial year, AT&S employed 27 apprentices in Austria, with roughly eleven new apprentices being hired each year. Customised trainee programmes for graduates have been initiated in order ensure the training of the next generation of printed circuit board specialists today. We facilitate the entry into our company for new employees by offering a tailor-made basic training course.

During this training, new employees are given the opportunity to get to know different areas of the company in detail, to see the correlations and to ask questions to the persons responsible for the specialist departments.

#### **PROMOTING TALENTS**

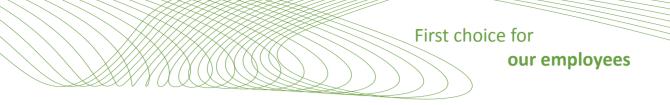
Another focus is placed on the promotion and further development of existing employees. A variety of training programmes, tailored to the needs of the individual sites, are offered for this purpose.

In the course of this development training, we focus on the existing employees of our company. Again and again, individual employees leave a particularly positive impression because of their high commitment, their approach to problems or especially innovative ideas. In keeping with the concept of promoting and challenging people, we support the development of these employees with a customised further training concept.

The "International Talent Programme" is another initiative with a global focus in order to ensure excellent performance along the entire value chain in the global network. Selected international young university graduates undergo a customised training programme designed to prepare them specifically for their upcoming tasks at one of our plants in Asia.

#### ANNUAL PERFORMANCE REVIEW

Different initiatives, measures and tools are necessary for us to live a culture of dialogue, mutual trust and innovation. The annual performance review is a core element of integrated personnel management and thus an important part of the professional development of our employees. It helps us derive individual goals from the corporate strategy as well as from company and department targets, and to



define them in accordance with the job profile and the employees' competences. The performance review is carried out once a year between the employee and the superior on the basis of clearly defined criteria. In addition to the evaluation by the superior and the agreement of goals for the coming financial year, the performance review offers a platform for an open and individual exchange.

Moreover, possible training and continuing education measures are discussed and determined, thus promoting direct contact. Furthermore, it is necessary for both sides to take the initiative to seek an open dialogue even aside from the structured and mandatory performance review whenever it appears to be necessary. This in turn requires a culture of dialogue and mutual trust, which enables innovative ideas and efficient processes.

### **TRAINING OFFER**

Additionally, an attractive and multi-faceted range of internal and external training is offered for all employees at the individual AT&S plants. After consulting with their manager, employees can individually choose and complete courses from a wide variety of training offers. This enables growth, flexibility and reliability at all levels. AT&S promotes lifelong learning: Employees may take different professional paths in their career.

Being prepared for continuous further development and mobility, as well as being open to other cultures is strongly supported in an internationally operating company like AT&S. Managers have the opportunity to attend training courses in team leadership, communication and conflict management.

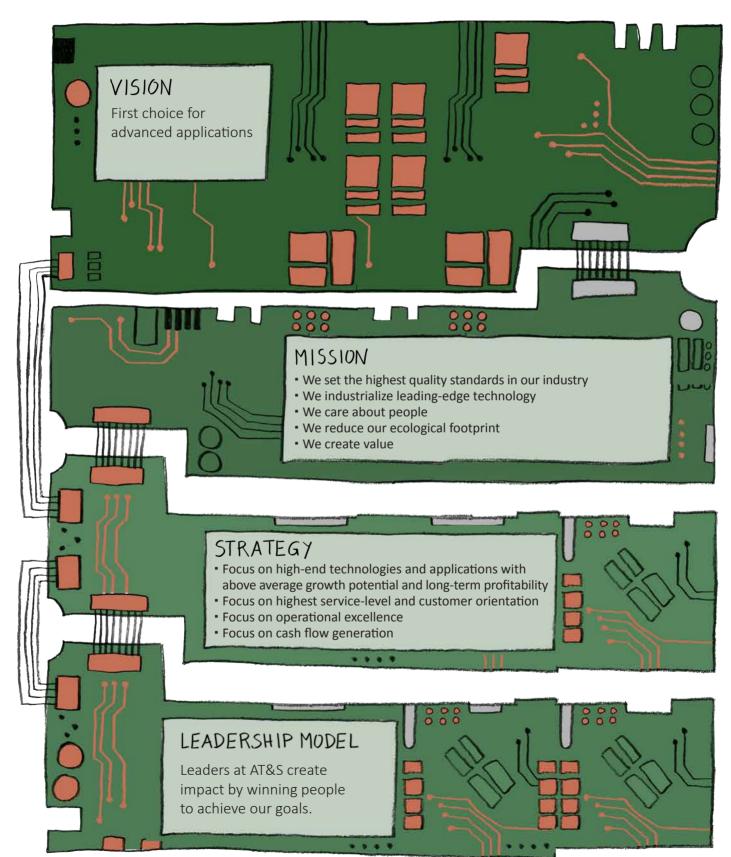
#### LEADERSHIP INITIATIVE

Derived from the AT&S vision and mission, a leadership model has been developed since we consider leadership an integral part in accomplishing our vision, mission and our strategic targets. AT&S appreciates the uniqueness of every single employee and with the leadership programme offers all managers a framework enabling them to live effective leadership.

## **Code of Conduct**

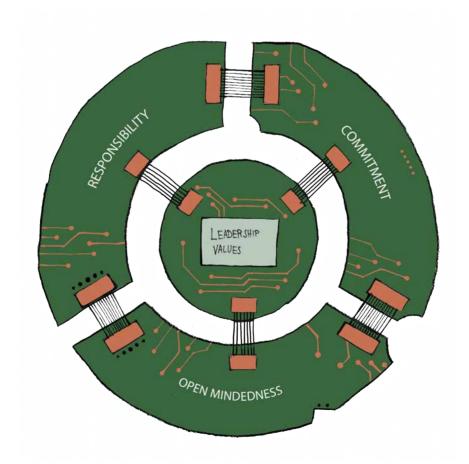
The "Global Code of Conduct and Business Ethics" of AT&S has been specified in the spirit of the ethical standards SA8000 and AT&S commits to operate in compliance with the requirements of the Electronic Industry Citizenship Coalition (EICC). In the last fiscal year, all employees have been trained for compliance to the ethical guidelines. Approximately 4300hrs of trainingtime have been spent.

## THE AT&S LEADERSHIP MODEL



The three core values of excellent leadership, OPEN-MINDEDNESS, CO-MITTMENT and RESPONSIBILITY, are the heart of our leadership model and stand for the common understanding of leadership. These values should support managers in reflecting on their daily behaviour, which in turn is the basis of lifelong learning.

In the past financial year we offered top-level managers the opportunity to attend modules focusing on communication and feedback culture – an opportunity that was readily accepted. The dialogue thus initiated and strengthened leads to better mutual understanding and provides space for reflection. Open and appreciative feedback provides fertile ground for a friction-free open and dynamic further development of the entire organisation. Due to the positive feedback we received, this initiative will be extended to the next management levels in the financial year 2016/17. Excellent leadership has a significant influence on a company's sustainable success. Therefore, the leadership programme – the further development of management in accordance with sustainability aspects – is a major focus for the financial year 2016/17 and the subsequent years. Studies have clearly shown that good leadership has a significant influence on employee commitment and retention. Hence it is our goal to create the conditions necessary for an above-average commitment to accomplishing our ambitious targets on a sustained basis. At the same time, it takes the individual responsibility of all employees – regardless of whether or not they are managers – to use this initiative and strengthen the culture of open feedback and dialogue.



## Open dialogue enables mutual understanding, trust and flow experiences



## **IPOK AT AT&S**

The topics "Lean" and "Six Sigma" have accompanied us since 2014 and the most recent issues of our AT&S People Magazine featured articles on this subject. Internally, we call the project "iPOK" (implementation of practice-oriented know-how) at AT&S. But how is iPOK implemented in the individual segments? iPOK (Implementation of Practice Orientated Knowledge) is an initiative to implement the AT&S vision and mission. One of the most important items of the programme deals with sustainability – not only in terms of implementing improvements, but also in the knowledge and exchange of information among employees.

iPOK is based on the fundamental concept of Lean Management (Toyota) and Six Sigma (Motorola). In simple terms, lean stands for 'as little waste as possible in a process' (= efficiency) while Six Sigma can be defined as 'striving for error-free processes' (=effectiveness). The combination of the two allows improving a process and, in a higher sense, also an organisation on a sustained basis.

We asked our AT&S iPOK project manager **RONALD FROSCH** which training courses have been held so far, what they are about and how every single one of us should contribute to iPOK.

## What kind of training is offered and which departments do the courses address?

**RONALD FROSCH** Our iPOK courses always consist of a theoretical part (modules as workshops) and a practical part (projects). The module **"Lean Six Sigma"** is intended for Production and Quality, the module **"Design for Six Sigma"** addresses the colleagues in Engineering and R&D, and with the **"Lean Administration"** module we cover all administrative departments as well as Sales.

#### What is the objective of the workshops?

**RONALD FROSCH** At the workshops, we provide the participants with the tools and the basic know-how so that they can then apply them in the practical part, the individual projects in their departments. This way, theory and practice are linked and personal learning success is increased. In addition, teambuilding is also an integral part. Group exercises and post-training activities strengthen the team spirit and communication across plants.

## How can you register for training and which requirements do you have to meet to participate?

**RONALD FROSCH** The department heads nominate potential candidates from their departments. We then review the list of nominees and select the suitable candidates. There are only 15 places available per training, so the nomination process is stricter than for other internal training courses. Each workshop is offered twice a year.

## Promoting talents

## lifelong learning

The prerequisites for participating in a course are an interest in improvement and personal development, logical thinking, and an understanding of complex correlations. Participants should also enjoy data and evaluations.

#### What is the added value for the workshop participants?

**RONALD FROSCH** That's clear: it's simply fun! But apart from that, the training is highly practice-oriented and the tools and methods learned can be implemented immediately. That increases the "market value" of each participant within the company: they are qualified staff for their superiors who can contribute important knowledge to their job. In the future, every employee should be given the opportunity to develop further by taking different iPOK courses and thus to qualify for new, more attractive jobs in the organization.

#### How does AT&S benefit as a company?

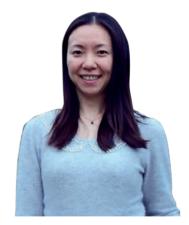
**RONALD FROSCH** iPOK supports AT&S in realizing our vision and mission. One the one hand, through improvement projects and on the other hand through training programs tailored to the respective departments in the organization (production, research & administration). Participants from all AT&S plants attend the training units, which leads to better cooperation across the plants. Moreover, we can concentrate on the central topics of our work by eliminating work steps that do not create any value.

"I really liked the iPOK training 'Design for Lean Six Sigma'. For the first time, a course was actually directly related to our AT&S procedures and processes. I have been able to immediately apply my new knowledge in my daily work." Markus Leitgeb, Program Manager R&D, AT&S Leoben



"iPOK covers strategy, processes and structures. These three terms describe the entire program very well. But I also have my own three words to describe iPOK: fantastic, helpful and really clever!"

Kelly Gu, Controlling Department, AT&S China



Thinking ahead – shaping the future

The future is a topic that concerns all of us – on the one hand, to assess risks, react accordingly and protect the company from unexpected negative influences; on the other hand, to capture, identify and influence the potential and opportunities that the future will bring.

We attach great importance to a solid risk management, but want to move even more towards shaping the future. Through long-term thinking, through innovation, through risk management and by assuming responsibility as a part of society.

#### CODE OF BUSINESS ETHICS AND CONDUCT

AT&S has its own code of ethics and conduct. The purpose of this "Global Code of Business Ethics and Conduct" is to describe the way AT&S conducts its business in an ethical and socially responsible manner. These principles apply to all activities of AT&S worldwide, to all AT&S business units and all companies that form part of the AT&S Group. The "Global Code of Business Ethics and Conduct" of AT&S was prepared on the basis of the ethics standards SA8000.

AT&S is committed to compliance with the requirements of the Industry Citizenship Coalition (EICC) in its operating activities. Integrity and adhering to legal and ethical principles are key elements to maintain the credibility, trustworthiness and authenticity of the company.

Stricter or more detailed rules may apply to certain regions, countries or functions, which will, however, generally be in line with the corporate policy. A core element of the code is that AT&S will not tolerate any form of discrimination, for example based on gender, age, religion or ethnic origin, in the employment, compensation or promotion of employees.

## GOVERNANCE, RISK AND COMPLIANCE MANAGEMENT (GRC)

The purpose of GRC managements is to ensure compliance with legal and regulatory requirements and the related risk assessment. This way, the potential and the type of risks can be better understood. Risks can be mitigated and it is ensured that the AT&S Group identifies and addresses risks in an appropriate manner.

In addition, GRC Management also ensures that business and activities are conducted in an ethical manner and with the highest level of integrity as well as in accordance with legal and regulatory requirements within the AT&S Group and all its employees. This is to promote an organisational culture that encourages people to behave ethically in line with the AT&S Code of Business Ethics and Conduct.

### **INNOVATION AND INITIATIVE**

Innovation is a key driver of our industry. In the past year, AT&S generated roughly 20% of its revenue with innovative products, which had been launched on the market in the last three years. But not only our research and development department works on developing the technologies of tomorrow. Regarding our processes, our colleagues also spend many hours reflecting on our processes, rethinking traditional ideas and consistently implementing new ideas.



## **INNOVATION AWARD 2015**

Innovations are a prerequisite for AT&S to ensure continued success and to play a role in competition. That is why the Innovation Award was presented for the second time this year. With this award we want to showcase employees who have made a significant contribution to realizing our vision "First choice for advanced applications" through their ideas and their special commitment.

The prize for the most innovative projects was presented to the three winning teams at the end of December 2015. Our congratulations once again go out to the winners. Here is a brief presentation of the three projects:

Once a year, we select the best ideas and honour them with our "Innovation Award". Last year the winners were:





## **CONNECTOR PCB**

Project managers: Joseph Zhou and Thomas Krivec Plants: Shanghai and Leoben

Thanks to this project, the PCB technology was used for the production of connectors for the first time worldwide, thus laying the foundation for the next generation of USB and charging plugs.

#### Why did the project win?

The successful market launch of this new technology significantly strengthens the position of AT&S as the technology leader. Numerous complex technological challenges were overcome and the project is a prime example of how teamwork across plants can work throughout the entire development process.



## INNOVATION IN THE ACID ETCHING PROCESS

Project manager: Christian Weiss Plant: Fehring

In cooperation with a plant manufacturer, the team in Fehring developed a solution which allows replacing dangerous hydrogen peroxide in the etching solution with oxygen. The use of pure oxygen is also a basic requirement for recovering copper later in the etching process.

#### Why did the project win?

The results of the project have a significant influence on our other plants and can therefore contribute to cost reduction and the improvement of fine-line structuring. In addition, the new solution and the elimination of dangerous substances increased employees' occupational safety.

#### **VIA FILLING**

*Project manager:* Ling Yee Bing *Plant:* Shanghai

The project carried out in Shanghai has optimized the via-filling process. Cracks and inclusions were significantly reduced while at the same time increasing the output. This gives AT&S a leading edge over competitors.

#### Why did the project win?

The team has solved a sensitive issue in the area of horizontal plating, thus realizing an important competitive advantage for AT&S. In addition, yield was also increased considerably as a result of this project.



### think global - act local

## Social responsibility

#### **OCCUPATIONAL HEALTH AND SAFETY**

We consider occupational health and safety an integral part of our mission. The high standards of our Austrian plants, our know-how and our experience are also mandatory for our international sites. All plants are certified according to the management system OHSAS 18001 and the environmental management standard ISO 14001. As a result of the introduction of the systems, accident rates have verifiably dropped. As a long-term goal, a reduction of occupational accidents of 7% per year was defined and has been met successfully in the past years. The programmes and activities that have been running since the year 2004/05 are also reflected in the figures reported. In the period from 2009/10 to 2015/16, we accomplished a decrease in occupational accidents by 52% based on one million working hours.

Moreover, numerous activities are conducted in the area of health promotion at all sites. They include smoking cessation campaigns, the "Fit to Work" campaign with a series of gymnastics elements, weekly fruit free of charge, free-of-charge vaccination campaigns, different screenings and many more.

#### NUMBER OF ACCIDENTS WITH LOST WORKING DAYS > 1 DAY OVER 1,000,000 WORKING HOURS

		Financial year			
	Unit	2012/13	2013/14	2014/15	2015/16
AT&S Group	[No.]	6	4	6	5
Leoben	[No.]	8	6	9	4
Fehring	[No.]	11	8	4	10
Nanjangud	[No.]	2	1	3	3
Shanghai	[No.]	5	4	7	7
Ansan	[No.]	13	4	8	1

#### **CORPORATE CITIZENSHIP**

AT&S was awarded as one of the most family-friendly companies in Styria this year. Today, and even more so in the future, committing to a family-friendly personnel policy is a central component in the sustainable company development of AT&S. AT&S sets high quality standards, promotes a good work-life balance and supports the professional development of its 1,286 employees in Leoben and in Fehring. Flexible working hours are considered a win-win situation for both the company and the employees. Leadership positions are offered as part-time positions and professional advancement is also possible for part-time employees.





## **SUSTAINABLYSMART ELECTRONICS FOR GENERATIONS**

The project "SustainablySMART" was initiated within the largest EU research program "Horizon 2020". Together with companies from the telecommunications, electronics and recycling sectors, AT&S develops sustainable systems, which enable multiple uses of modules in electronic devices.



Thomas Krivec (R&D), Christian Vockenberger (BU AP) and Rainer Frauwallner (BU AP) develop sustainable printed circuit board solutions for the electronics market

What happens with a smartphone that no longer works properly af- Therefore, the project "SustainablySMART" was launched in September there are already some approaches to make electronics reusable.

ter an operating time of two years? Due to high repair costs, it will 2015. The central idea of the project is to develop a modular structure of usually be disposed of. In order to counteract this waste of material, related assemblies - a kind of modular system for electronics. This means that the individual components (e.g. printed circuit boards) can be reused for other products.



#### Modular system - how does it work?

The electronic devices are produced in such a way that the components can be exchanged individually and the working parts of "scrap electronics" can therefore be reused for other devices any time. To ensure that this works, it is important that the individual modules of the electronic devices are easy to use. This is the only way to install the parts into different products several times. To enable maximum integration in minimum space, the AT&S "Embedded Component Packaging ECP<sup>®</sup>" technology for PCBs is applied.

The project "SustainablySMART" runs for 4 years and will end in the year 2020. All tasks that are implemented as part of the project are fully subsidized. The results of the project will be published at the end as part of "Horizon 2020".

#### Partner companies:

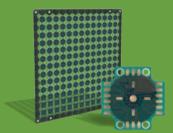
- AT&S
- Speech Processing Solutions
- Fraunhofer IZM
- ECODESIGN

Other companies involved in the project "Horizon 2020" include Fairphone and Puzzlephone, which are working on the design of a modular smartphone. Read more about Fairphone on page 20.



#### ECP<sup>®</sup> Technology

In the ECP<sup>®</sup> technology, electronic components, which are usually soldered ONTO the printed circuit board, are integrated INTO the PCB. This saves space and the components are better protected within the PCB. Through the AT&S-patented ECP<sup>®</sup> technology, the electronic modules and consequently the entire device are getting smaller and more reliable.



ECP<sup>®</sup> printed circuit board



## A COMMON GOAL HALF MARATHON AS TEAM BUILDING EVENT IN INDIA



As part of the Corporate Social Responsibility activities AT&S India sponsored prizes for a half marathon near Nanjangud.



This event was also proof of real team spirit. Around 45 employees from the AT&S Nanjangud plant participated in this event. Robert Grobbauer, Managing Director & COO of AT&S India, presented the prizes to the lucky winners. It was a very successful event with long-lasting memories for all participants.



"We believe that sport is a strong medium to build team spirit in the organization."

Robert Grobbauer, COO AT&S India

### TAKE TECH DAYS IN LEOBEN INSPIRING YOUNG PEOPLE TO TAKE UP TECHNICAL PROFESSIONS

# Without printed circuit boards made by AT&S, many mobile phone users in Europe would find that "the number you have dialed is not available", as students of the polytechnic school Judenburg learned at a plant tour in Leoben during the Take Tech Days.

Take Tech is an initiative of the Styrian Business Promotion Agency, which ensures that young people can get inspired at an early stage to take up professions in science and technology. Roughly 2,400 students and 80 companies in Styria took part in Take Tech from November 16 to 27.

AT&S participated in the initiative for the first time, thus taking the opportunity to present itself as an attractive employer, raise its public profile among young people and attract up-and-coming young specialists.

At present, AT&S trains 37 apprentices as mechatronics technicians, physics and chemistry laboratory assistants and as engineers and electricians. Next year, AT&S will again offer ten apprenticeships in Leoben and Fehring.





## FAIRPHONE AND AT&S A SUCCESSFUL PARTNERSHIP

The Dutch smartphone producer Fairphone presented the new Fairphone 2 together with AT&S in autumn 2015. The fair smartphone has an innovative modular design and high-end PCBs made by AT&S.



The two main goals in the development of the new Fairphone were to build a stronger relationship with the suppliers and to use responsibly sourced components and materials. This is where AT&S enters the scene as a manufacturer of high-end printed circuit boards. Within a unique partnership, Fairphone and AT&S have successfully pushed the development of a "fair smartphone" together. The focus is on using Fairtrade gold for the production of the printed circuit boards for the Fairphone 2.

**MARKUS MAIER**, Senior Account Engineer, is the main contact at AT&S for our customer Fairphone and has been involved in the project since the beginning. We asked him how the project came about, what the challenges were and what the future of the fair smartphones will look like.

#### The project was launched in 2014: How did the collaboration between AT&S and Fairphone come about?

**MARKUS MAIER** The partnership was initiated by our CEO, Andreas Gerstenmayer. The reason why Fairphone wanted to work with us was our excellent reputation as a high-end producer of PCBs and the fact that we are one of the most advanced players with social and ecological programs in the printed circuit board industry. This makes it an important sustainability project for AT&S.

#### What characterizes the partnership with Fairphone?

**MARKUS MAIER** For the entire development process it was very helpful to combine our know-how in the high-tech segment with Fairphone's pioneering spirit in order to launch a sophisticated and innovative modular smartphone on the market. A regular direct and personal exchange was essential to us in this process.

#### How does Fairphone cooperate with AT&S in the area of transparent sourcing?

**MARKUS MAIER** Together with Fairphone, we took a very close look at our supply chain again. One of the things we focused on was gold, or gold salt to be specific, which we also use for the production of PCBs. At the moment we are very close to using Fairtrade gold in the electronics industry for the first time.



The new Fairphone 2: case and electronics inside the device

#### Speaking of "Fairtrade gold" – what does it mean and how fair is our gold?

**MARKUS MAIER** Fairtrade gold refers to gold that has been produced under fairer and better working conditions. The workers receive a fair wage and there are better safety conditions and social projects, which make it possible to secure an adequate standard of living. The certification is carried out by the organization Fairtrade.

#### What was the main challenge for you personally in this project?

**MARKUS MAIER** The main challenge was definitely finding a way to import Fairtrade gold to China: because in China itself, the gold market is a closed system so that no gold can be imported directly to China. However, with our partner and customer Fairphone we developed a model that en-ables us to use Fairtrade gold in the production of the PCBs.

#### What was the teamwork with the colleagues from Fairphone like?

**MARKUS MAIER** The collaboration with Fairphone works very well; it is a very open and friendly business relationship. All topics are communicated openly and together we look for new paths to gradually get closer to a world of fair electronics.

#### Finally a personal question: what is your opinion on the topic of "fair smartphones"?

**MARKUS MAIER** I personally think that we could save resources in several areas. Many personal objects are often thrown out much too fast. In the electronics sector, using devices for a longer time would make a big contribution. That's why any smartphone has the potential to be the most sustainable one.

#### Fairphone at AT&S Shanghai



The Fairphone team visited our plant in Shanghai



Line tour through our production



Sampling in the chemical lab: Bibi from Fairphone examined the gold salt carefully



Mulan and Laura from Fairphone and Andreas Wippel from AT&S in the final inspection department

# **Key figures & GRI Content Index**

#### **ENERGY, CARBON FOOTPRINT**

		Financia	ıl year				Financial	year	
	2012/13	2013/14	2014/15	2015/16		2012/13	2013/14	2014/15	2015/16
Total carbon footprint	[kg CO <sub>2</sub> per m <sup>2</sup>	printed cire	cuit board]		Total energy consu		y and heat)		
AT&S Group	51	51	49	51	[kWh per m <sup>2</sup> printe	ed circuit board]			
Leoben	24	26	25	29	AT&S Group	83	81	79	80
Fehring	20	18	19	20	Leoben	110	118	113	128
Nanjangud	64	58	57	58	Fehring	90	84	88	89
Shanghai	56	54	52	53	Nanjangud	63	56	55	57
Ansan	86	74	69	47	Shanghai	85	81	79	80
					Ansan	197	160	152	105
		Financia	ıl year						
	2012/13	2013/14	2014/15	2015/16			Financial	year	
Carbon footprint from	production					2012/13	2013/14	2014/15	2015/16
[kg CO <sub>2</sub> per m <sup>2</sup> printed	d circuit board]				Compressed air co	nsumption [nm <sup>3</sup> p	er m <sup>2</sup> printe	ed circuit bo	oard]
AT&S Group	49	49	47	49	AT&S Group	60	62	59	62
Leoben	23	25	24	27	Leoben	87	96	96	108
Fehring	19	18	19	19	Fehring	62	60	63	64
Nanjangud	57	52	51	53	Nanjangud	82	69	69	71
Shanghai	54	53	51	52	Shanghai	53	56	53	55

Ansan

	Financial year					
	2012/13	2013/14	2014/15	2015/16		
Carbon footprint from transportation of printed circuit boards [kg CO, per m <sup>2</sup> printed circuit board]						
AT&S Group	2	2	2	2		
Leoben	1	1	1	1		
Fehring	1	-	1	1		
Nanjangud	7	7	6	6		
Shanghai	2	1	1	1		
Ansan	-	-	-	-		

Ansan

#### WATER, WASTEWATER

	Financial year					
	2012/13	2013/14	2014/15	2015/16		
Total freshwater consumption [litre per m <sup>2</sup> printed circuit board]						
AT&S Group	835	784	734	719		
Leoben	2186	2495	2198	2307		
Fehring	476	466	399	390		
Nanjangud	255	221	197	219		
Shanghai	812	730	696	677		
Ansan	3226	3089	2797	2027		

Financial year 2012/13 2013/14 2014/15 2015/16

Soft water consumption [litre per m <sup>2</sup> printed circuit board]						
AT&S Group	262	241	228	234		
Leoben	334	351	354	437		
Fehring	205	213	191	191		
Nanjangud	129	141	142	150		
Shanghai	270	232	218	210		
Ansan	2098	1990	1791	1595		

	Financial year							
	2012/13	2013/14	2014/15	2015/16				
Deionized water consumption	Deionized water consumption [litre per m <sup>2</sup> printed circuit board]							
AT&S Group	228	199	198	205				
Leoben	252	296	288	340				
Fehring	150	143	119	113				
Nanjangud	165	128	124	148				
Shanghai	256	213	212	215				
Ansan	-	-	-	-				

	Financial year					
	2012/13	2013/14	2014/15	2015/16		
Wastewater from produk	tion [liter p	er m <sup>2</sup> printe	d circuit bo	oard]		
AT&S Group	550	492	472	431		
Leoben	683	694	641	793		
Fehring	475	472	404	396		
Nanjangud	90	59	53	53		
Shanghai	628	546	523	452		
Ansan	3280	2885	2717	1942		

	Financial year						
	2012/13	2013/14	2014/15	2015/16			
Copper content in wastev	Copper content in wastewater [mg Cu per litre waste water]						
Leoben	0,14	0,14	0,16	0,16			
Fehring	0,06	0,06	0,06	0,05			
Nanjangud	0,91	0,81	0,98	0,80			
Shanghai	0,20	0,24	0,27	0,29			
Ansan	0,71	0,54	0,63	0,76			

	Financial year			
	2012/13	2013/14	2014/15	2015/16
Nickel content in waste	water [mg Ni	per litre wa	ste water]	
0,04	0,03	0,01	0,00	0,01
N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
0,17	0,12	0,14	0,17	0,14
0,08	0,03	0,02	0,30	0,02

Financial year 2012/13 2013/14 2014/15 2015/16

COD in wastewater [mg COD per litre waste water]					
Leoben	248	218	244	160	
Fehring	105	102	99	75	
Nanjangud	98	21	16	35	
Shanghai	77	90	71	55	
Ansan	30	34	37	50	

#### WASTE

	Financial year								
	2012/13	2013/14	2014/15	2015/16					
Total waste [kg per m <sup>2</sup> printed circuit board]									
AT&S Group	5.0	5.0	5.1	4.9					
Leoben	4.6	4.7	5.1	5.2					
Fehring	2.6	2.9	2.9	2.4					
Nanjangud	5.3	5.4	5.7	6.6					
Shanghai	5.3	5.1	5.1	4.8					
Ansan	0.6	0.7	0.6	0.3					

	Financial year							
	2012/13	2013/14	2014/15	2015/16				
Non-hazardous waste*) [kg per m <sup>2</sup> printed circuit board]								
AT&S Group	2.9	2.9	2.8	3.0				
Leoben	4.8	5.2	5.2	5.9				
Fehring	4.1	4.2	3.7	3.7				
Nanjangud	1.7	1.7	1.7	1.7				
Shanghai	2.9	2.9	2.7	3.1				
Ansan	2.0	2.0	2.8	1.4				

	Financial year			
	2012/13	2013/14	2014/15	2015/16
Hazardous waste*) [k	g per m² pri	nted circuit	board]	
AT&S Group	5.0	5.0	5.1	4.9
Leoben	4.6	4.7	5.1	5.2
Fehring	2.6	2.9	2.9	2.4
Nanjangud	5.3	5.4	5.7	6.6
Shanghai	5.3	5.1	5.1	4.8
Ansan	0.6	0.7	0.6	0.3

	Financial year				
	2012/13	2013/14	2014/15	2015/16	
Plastic packaging wast	e [kg per m <sup>2</sup>	<sup>2</sup> printed circ	uit board]		
AT&S Group	5.0	5.0	5.1	4.9	
Leoben	4.6	4.7	5.1	5.2	
Fehring	2.6	2.9	2.9	2.4	
Nanjangud	5.3	5.4	5.7	6.6	
Shanghai	5.3	5.1	5.1	4.8	
Ansan	0.6	0.7	0.6	0.3	

\*) according to local legal definitions

	Financial year						
	2012/13	2013/14	2014/15	2015/16			
Purchase of significant Materials							
Gold (kg)	585	484	596	593			
Copper (t)	2014	3144	3550	3362			
Laminates (Mio. m <sup>2</sup> )	11	13	13	14			
Chemicals Ths. t	86	87	93	96			

#### OCCUPATIONAL HEALTH AND SAFETY

Ansan

	Financial year			
	2012/13	2013/14	2014/15	2015/16
Lost working days per 10	00 employee	s [days]		
AT&S Group	112	112	146	131
Leoben	6	6	12	6
Fehring	9	9	3	3
Nanjangud	0	0	8	10
Shanghai	97	97	122	112
Ansan	0	0	0	0
		Financia	lyear	
	2012/13	2013/14	2014/15	2015/16
Number of accidents with 1,000,000 working hours				
AT&S Group	6	4	6	5
Leoben	8	6	9	4
Fehring	11	8	4	10
Nanjangud	2	1	3	3
Shanghai	5	4	7	7
Ansan	13	4	8	1
		Financia	l year	
	2012/13	2013/14	2014/15	2015/16
Regular performance rev	iews (white o	collar work	ers) [%]	
AT&S Group	95	97	97	98
Leoben	97	100	94	98
Fehring	100	98	96	100
Nanjangud	94	98	100	99
Shanghai	93	100	100	100
Chongqing	100	100	100	100

100

98 97

100

#### **EMPLOYEES**

	Financial year			
	2012/13	2013/14	2014/15	2015/16
Headcount (full-time equ	ivalent, at 31	L <b>.03.)</b>		
AT&S Group	7413	6973	7632	8758
Leoben	770	784	853	918
Fehring	372	357	371	368
Nanjangud	1022	1094	1102	1160
Shanghai	4786	4280	4385	4585
Chongqing	56	123	609	1380
Ansan	226	250	256	275
Others*)	64	63	65	73

\*) employees from sales and other offices

	Financial year			
	2012/13	2013/14	2014/15	2015/16
Average attrition rate [%]				
AT&S Group	3.4	3.3	3.0	2.8
Leoben	1.3	1.4	1.7	1.4
Fehring	1.2	0.6	0.5	0.4
Nanjangud	4.6	4.3	3.5	3.5
Shanghai	3.7	3.5	3.3	3.0
Chongqing	1.9	1.3	3.2	2.8
Ansan	3.6	4.2	3.0	2.6

#### Total number of newly hired employees in fiscal year 2014/15\*)

by age groups	16-30 years	31-45 years	46-65 years
Leoben	269	75	22
Fehring	88	13	2
Nanjangud	635	13	3
Shanghai	2601	295	1
Chongqing	702	141	3
by gender	male	female	
Leoben	175	191	
Fehring	54	49	
Nanjangud	629	22	
Shanghai	1696	1201	
Chongqing	553	293	
type of employment contract	white collar workers	blue collar workers	
Leoben	91	275	
Fehring	5	98	
Nanjangud	50	601	
Shanghai	101	2796	
Chongqing	216	630	

#### **NOTES**

The key figure "total number of newly hired employees" by age group, gender and type of employment includes the sites in China, India and Austria. This figure also includes short-term temporary workers and interns.

The production site Chongqing is currently under construction. Therefore, no consumption data are published yet.

The reporting period covers the financial year (starting on 1 April and ending on 31 March of each year).

# **GRI Content Index**

This report is in accordance with the standards of the Global Reporting Initiative G4 "core".

#### **GENERAL STANDARD DISCLOSURES**

General standard disclosures	Standard disclosure title	Reference to CSR Report and online information
Strategy and analysis		
G4-1	Statement from the most senior decision-maker of the organisation	AT&S Sustainability Report 2015/16 Page 3
Organisational profile		
G4-3	Name of the organisation	AT&S Sustainability Report 2015/16 contact/publi- cation details
G4-4	Primary brands, products, and services	AT&S Annual Report 2015/16 Page 2
G4-5	Location of the organisation's headquarters	AT&S Sustainability Report 2015/16 Page 5
G4-6	Countries where the organisation operates	AT&S Sustainability Report 2015/16 Page 5
G4-7	Nature of ownership and legal form	AT&S Annual Report 2015/16 Page 28
G4-8	Markets served	AT&S Annual Report 2015/16 Page 12
G4-9	Scale of the organisation	AT&S Sustainability Report 2015/16 Page 5
G4-10	Workforce, total number of employees	AT&S Sustainability Report 2015/16 Page 49
G4-11	Percentage of total employees covered by collective bargaining agreements	AT&S Sustainability Report 2015/16 Page 49
G4-12	Organisation's supply chain	AT&S Sustainability Report 2015/16 Page 8, 9
G4-13	Significant changes during the reporting period	AT&S Annual Report 2015/16 Page 69
G4-14	Precautionary approach	AT&S Sustainability Report 2015/16 Page 4, 10
G4-15	Externally developed economic, environmental and social charters, principles, or other initiatives to which the organi- sation subscribes	AT&S Sustainability Report 2015/16 Page 44
G4-16	List memberships of associations	AT&S Sustainability Report 2015/16 Page 34
Identified material aspects	and boundaries	
G4-17	Organisation's consolidated financial statements	AT&S Annual Report 2015/16 Page 93
G4-18	Report content and the aspect boundaries	AT&S Sustainability Report 2015/16 Page 11
G4-19	Material aspects	AT&S Sustainability Report 2015/16 Page 12, 13
G4-20	Material aspects boundaries within the organisation	AT&S Sustainability Report 2015/16 Page 12, 13
G4-21	Material aspects boundaries outside the organisation	AT&S Sustainability Report 2015/16 Page 12, 13
G4-22	Restatements of information provided in previous reports	-
G4-23	Significant changes from previous reporting periods	No changes since last report

General standard disclosures	Standard disclosure title	Reference to CSR Report and online information
Stakeholder engagement		
G4-24	List of stakeholder groups engaged by the organisation	AT&S Sustainability Report 2015/16 Page 10, 11
G4-25	Basis for identification and selection of stakeholders	AT&S Sustainability Report 2015/16 Page 10, 11
G4-26	Organisation's approach to stakeholder engagement	AT&S Sustainability Report 2015/16 Page 10, 11
G4-27	Key topics and concerns that have been raised through stakeholder engagement	AT&S Sustainability Report 2015/16 Page 10, 11
Report profile		
G4-28	Reporting period	Financial year 2015/16 (01.04.2015 until 31.03.2016)
G4-29	Previous reports	AT&S Sustainability Report 2014/15
G4-30	Reporting cycle	Yearly
G4-31	Contact point	AT&S Sustainability Report 2015/16 contact/publi- cation details
G4-32	GRI index	AT&S Sustainability Report 2015/16 Page 50
G4-33	External assurance	This report has not undergone an external assurance. The report content and data quality has been internally approved.
Governance		
G4-34	Governance structure	AT&S Annual Report 2015/16 Page 31ff
Ethics and integrity		
G4-56	Organisation's values, principles, standards and norms of behavior	AT&S Sustainability Report 2015/16 Page 34 AT&S Annual Report 2015/16 Page 80

#### **SPECIFIC STANDARD DISCLOSURES**

Specific standard disclosures	Specific disclosure title	Reference to CSR Report and online information	Identified omissions and explanations
Economics			
Economic performa	nce		
G4-EC1	Direct economic value generated and distributed	AT&S Annual Report 2015/16 Page 93ff	
Ecology			
Materials			
G4-EN1	Percentage of materials used that are recycled input materials	AT&S Sustainability Report 2015/16 Page 26	These figures include a quantitative listing of main production materials over time. A breakdown by renewable and non-renewable materials is currently not possible due to the high complexity. Laminates are not disclosed in kg but in sqm as this is the main unit which is internally used for calculation. A conversion into kg is not possible due to product variation.
Energy			
G4-EN5	Energy intensity	AT&S Sustainability Report 2015/16 Page 16	These indicators are not disclosed in absolute figures but in relation to manufactured quanitity of PCBs in sqm.
G4-EN6	Reduction of energy consumption	AT&S Sustainability Report 2015/16 Page 16	
Water			
G4-EN8	Total water withdrawal by source	AT&S Sustainability Report 2015/16 Page 20	These indicators are not disclosed in absolute figures but in relation to manufactured quanitity of PCBs in sqm.
G4-EN10	Percentage and total volume of water recycled and reused	AT&S Sustainability Report 2015/16 Page 20	At our manufacturing sites different technologies are used for water treatment and recycling. These systems are quantitatively described in the chapter.
Emissions			
G4-EN15	Direct greenhouse gas (GHG) emissions (Scope 1)	AT&S Sustainability Report 2015/16 Page 17	These indicators are not disclosed in absolute figures but in relation to manufactured quanitity of PCBs in sqm.
G4-EN16	Energy indirect greenhouse gas (GHG) emissions (Scope 2)	AT&S Sustainability Report 2015/16 Page 17	These indicators are not disclosed in absolute figures but in relation to manufactured quanitity of PCBs in sqm.
G4-EN18	Greenhouse gas (GHG) emis- sions intensity	AT&S Sustainability Report 2015/16 Page 17	There are no significant changes in the calculation method.
G4-EN19	Reduction of greenhouse gas (GHG) emissions	AT&S Sustainability Report 2015/16 Page 17	
Human Rights			
G4-HR2	Hours of training on Human rights, Aspects, Employees trained	AT&S Sustainability Report <sup>*</sup> 2015/16 Page 29	

Specific standard disclosures	Specific disclosure title	Reference to CSR Report and online information	Identified omissions and explanations
Ecology			
Wastewater and waste			
G4-EN22	Total water discharge by quality and destination	AT&S Sustainability Report 2015/16 Page 20	
G4-EN23	Total weight of waste by type and disposal method	AT&S Sustainability Report 2015/16 Page 20	All waste of all AT&S facilities will be passed on to certified waste disposal companies for external treatment of waste. The information about the further treatment and recycling rate of external disposal companies could not be collected for the reporting period.
G4-EN24	Total number and volume of significant spills	-	No significant spills have been observed in the reporting period 2014/15.
Supplier environmer	ntal assessment		
G4-EN32	Percentage of new suppliers that were screened using environmental criteria	AT&S Sustainability Report 2013/14 Page 47	There are no significant changes in the procedure.
Social			
Employment			
G4-LA1	Total number and rates of new employee hires and employee turnover by age group, gender and region	AT&S Sustainability Report 2015/16 Page 49	
Occupational health	and safety		
G4-LA6	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work- related fatalities, by region and by gender	AT&S Sustainability Report 2015/16 Page 48	The reporting by gender is not possible due to the current evaluation options. During the reporting period 2014/15 as well as in the years before there were no work-related fatalities.
Training and education	on		
G4-LA10	Programs for skills management and lifelong learning <sup>t</sup> hat support the continued employability of employees and assist them in managing career endings	AT&S Sustainability Report 2015/16 Page 28, 29	
G4-LA11	Percentage of employees re- ceiving regular performance and career development reviews, by gender and by employee category	AT&S Sustainability Report 2015/16 Page 48	
Supplier assessment	for labour practices		
G4-LA14	Percentage of new suppliers that were screened using labour practices criteria	AT&S Sustainability Report 2013/14 Page 47	There are no significant changes in the procedure.
Local communities			
G4-SO2	Operations with significant actual and potential negative impacts on local communities	AT&S Sustainability Report 2015/16 Page 38	

# **Publication details/Contact**

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#### Disclaimer

For reasons of better readability no gender-specific differentiation has been made. All statements always equally refer to both genders.

Every care was taken to ensure the correctness of the data used in this report, and its content has been subject to additional checks by the employees responsible for the various content areas.

This sustainability report contains forward-looking statements which were made on the basis of the information available at the time of publication. These can be identified by the use of such expressions as "expects", "plans", "anticipates", "intends", "could", "will", "aim" and "estimation" or other similar words. These statements are based on current expectations and assumptions, and are by their very nature subject to known and unknown risks and uncertainties. They include future market conditions and economic developments, actions by other participants on the market and attainment of synergies, as well as statutory and political decisions. Many risks and uncertainties are beyond AT&S's control and cannot be quantified with any certainty at this point in time. Recipients of this report are expressly cautioned not to place undue reliance on such statements. Neither AT&S nor any other entity accept any responsibility for the correctness and completeness of the forward-looking statements contained in this report. AT&S undertakes no obligation to update or revise any forward-looking statements, whether as a result of changed assumptions or expectations, new information or future events, or otherwise.