

Sustainability Report 2017

Environmental. Economic. Social.



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Dear Readers,

Sustainability has been a concern of Ingenieurgesellschaft Auto und Verkehr GmbH (IAV GmbH for short) since it was founded in 1983. For example, in 1984 we developed the "Bi-Mot Bus", which made possible fuel savings of 22 % compared to conventional buses. This was followed two years later by the "Öko-Polo" (Eco-Polo), with sensational fuel consumption of only 1.7 liters per 100 kilometers. And so it went on, for instance with a hybrid vehicle (1998) and the One-Liter Car (2002) by Volkswagen, to which IAV made significant contributions.

Today, almost all our projects are closely connected to the topic of sustainability. For example, our engineers are increasing the efficiency of internal combustion engines to the thermodynamic limit, developing hybrid and all-electric powertrains and looking at alternative fuels that permit climate-neutral mobility. So you could say that as one of the leading engineering service providers to the automotive and mobility industries, IAV's business model is essentially based on increasing efficiency and environmental compatibility. We are also thinking beyond individual forms of mobility and are working on new concepts that connect different modes of transport in an intelligent and

user-friendly manner. And not only that: we are also increasingly using our know-how, built up over more than three decades, for other areas in which sustainability is a priority. For example, IAV is working on new control concepts for wind turbines that will increase efficiency and allow new locations to be developed.

In all of our projects, the digitalization mega-trend plays a decisive role. Increasingly complex control units and vehicle functions make for greater efficiency and an even more pleasant driving experience. Connectivity integrates the vehicle seamlessly into the user's digital ecosystem. Simulation, virtual reality and virtual prototypes accelerate development and give rise to better development results. And in our "Digital Lab", we focus on new forms of working together aimed at developing new product ideas and business models.

For us, however, sustainability also means setting standards and taking responsibility by means of our behavior towards our surroundings, our staff, our business partners and our environment. Our approach is characterized by three terms: social, ecological and economic.

For example, for decades we have fostered intensive worker participation for our staff and as part of the collective bargaining agreement we offer them not only attractive pay and plenty of training opportunities but also numerous fringe benefits. We are unique in offering a collective agreement for students, creating a general framework for the different phases of academic education. In surveys, therefore, IAV is regularly rated as one of the most attractive employers in the field of engineering services.

Today ecology plays a central role in our development projects. But it is not just with our customer and in-house projects that we are making an important contribution to sustainability. We are also doing this with our wide range of test and trialing equipment – for example by avoiding tests in sensitive ecosystems. In the 2017 financial year, for instance, we put our climate roller dynamometer for altitude testing into operation in Berlin. As the only automotive engineering partner in Europe, we are thus able to test passenger cars and light commercial vehicles under high-altitude pressure and temperature conditions with simulated test drives. This makes it unnecessary to transport large numbers of prototypes to conduct test drives

in regions such as the Alps or the Himalayas. In addition, our environmental policy ensures that ecological aspects are taken into account in all investment decisions so as to minimize the consumption of energy and resources. We regularly carry out energy audits and are continuously improving our energy efficiency. In addition, IAV is currently implementing an environmental management system to ISO 14001, which we plan to have certified in 2019.

The management team focuses on long-term organic growth and trusting cooperation with our customers. As a result, since we were founded 35 years ago we have been able to grow into a global group of companies with around 7,000 employees and a turnover of around € 800 million. Economic sustainability also means for us that all management boards in the IAV Group work within the framework of corporate governance and that we strictly adhere to our mission statement and our Code of Conduct in all decisions.

With this sustainability report for the 2017 financial year, published for the first time, IAV GmbH recognizes the central importance of this topic for our day-to-day operations. This report has been prepared in accordance with the Global Reporting Initiative (GRI) standards in the "Core" option [102-54] and relates to the parent company IAV GmbH. The domestic and foreign subsidiaries will be included in the medium term. In future, CSR reports will be drawn up on a regular basis [102-52].

Sustainability has many facets for IAV, all of which contribute to our long-term development as a company. Without the trust of employees, customers and society we cannot be successful, which is why we place great importance on excellent management. This also applies to our use of natural resources: we want to help protect the climate and the environment and to leave behind a viable planet for future generations. This is also at the heart of our day-to-day work. Based on science, research and world-class engineering, we are developing solutions for intelligent and sustainable mobility that reconciles the demands of people and the environment.



Kai-Stefan Linnenkohl
President and Chief Human Resources Officer



Matthias Kratzsch
President and Chief Technological Officer
(interim)



Katja Ziegler
President and Chief Commercial
Officer (interim)

02 IAV – The Company



IAV – The Company

The IAV Group has been developing innovative concepts and technologies for future vehicles for more than 35 years. Our core competences include production-ready solutions in all areas of electronics, power-train and vehicle development as well as in the field of mobility services.

Both our technological capability and the attitude of the people behind it make us a successful partner in the field of automotive engineering. As a result, almost all prestigious automobile manufacturers and suppliers worldwide are IAV customers. They expect us to provide technological impulses for the future and cutting-edge development services.

Sustainability increasingly plays an important role in this. In order to ensure the required environmental compatibility and comply with customers' wishes, IAV intensively works on hybrid vehicles as well as electric, hydrogen and gaseous-fuel vehicles and on optimizing gasoline and diesel engines in terms of fuel consumption and emission reduction.

Other key issues in automotive engineering are the maximum safety for passengers and other road users, as well as comfort and

driver assist systems. One of the great future trends is vehicle connectivity and digitalization, which affect passenger cars and commercial vehicles alike. In the mobility field, IAV is also looking into the intelligent interconnection of different modes of transport.

In the context of technology transfer, there is growing demand for our know-how in the area of energy generation and supply, such as for controlling energy distribution and wind energy systems.

In every customer project, IAV aims to cooperate with the customer based on a contract for works and services. We provide our services primarily in our own development, test and trialing facilities and workshops. Our premium standards regarding our results are also reflected in the quality of our office workstations and technical facilities. All employees have their own workstations, where they can carry out the required activities in a focused and successful manner.

With more than 7,000 employees, the IAV Group is one of the leading engineering partners to the entire automotive industry. The group's parent company is Ingenieurge-

sellschaft Auto und Verkehr GmbH, whose head office is in Berlin [102-03] (IAV GmbH for short) [102-01]. More than 6,000 members of staff are employed at IAV GmbH. At our development centers in Berlin, Gifhorn and Chemnitz/Stollberg and at eleven subsidiaries in Europe, North and South America and Asia we work for our customers on-site on international and complex projects [102-06]. The increasing interconnection of international locations is being consistently enhanced for this purpose.

IAV is structured as a group of companies. The parent company is IAV GmbH, a private limited company under German law [102-05]. The IAV Group is made up of the international subsidiaries and specialized subsidiaries IAV Fahrzeugsicherheit GmbH, Consulting4Drive GmbH and TRE GmbH as legally independent companies [102-45]. During the 2017 financial year, the sales office in Italy (IAV GmbH branch office) was closed [102-10].

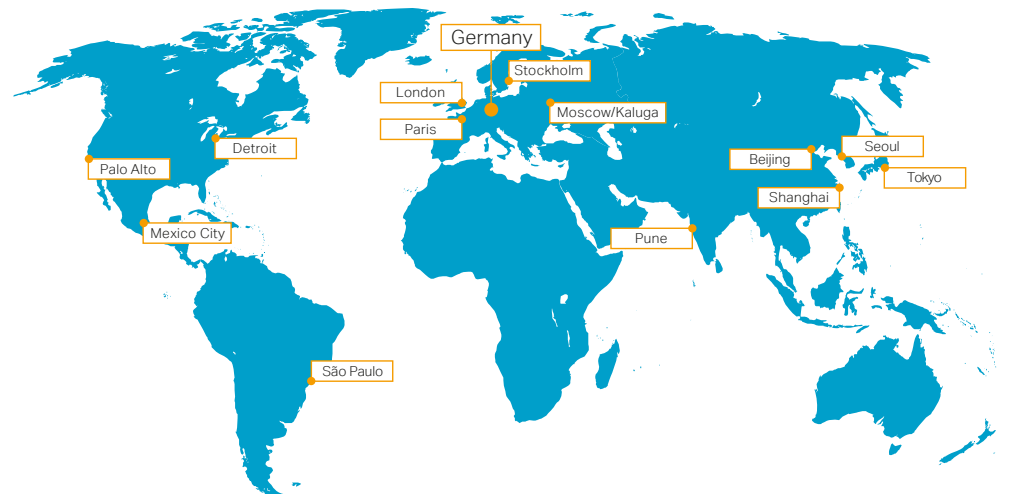
IAV operates on a global scale and is represented in twelve countries [102-04]:

- In Germany IAV operates three development centers (Berlin, Gifhorn and Chemnitz/Stollberg) and ten development sites within IAV GmbH.
- In South Korea, China, Japan, Russia, France, the United Kingdom, India, Mexico, Brazil and the United States, the IAV Group is represented by subsidiary companies.

All companies in the IAV Group are legally represented by independent managing directors. The IAV Group is a customer-focused and market-oriented service provider. Problem solutions for the customer and technological innovations are the cornerstones for successful performance on the market. We are proud of our high level of innovation and the quality of our technical solutions in automotive engineering. With great attention to detail, an eye for the whole picture and ingenuity, IAV develops impressive solutions: on-time, within budget and of outstanding quality.

High-quality work processes and work results are of equal importance for safeguarding the future of the company. The shareholders, the management and the employees thus place qualitative growth at the center of all the company's activities.

IAV GmbH, whose head office is in Berlin, directs all the companies in the IAV Group



centrally [102-03]. Top management defines the strategy and focus of the operational and central areas worldwide.

In addition to the operational development activities, IAV GmbH also performs group-wide tasks. Besides the general management of the portfolios, these include financing, group controlling, accounting, legal affairs, marketing, corporate communications and IT services.

The shareholders of the group are manufacturers and suppliers from the automotive industry. [102-05]

Shareholder	Share
Volkswagen	50 %
Continental Automotive GmbH	20 %
Schaeffler Technologies AG & Co. KG	10 %
Freudenberg SE	10 %
SABIC Innovative Plastics B.V.	10 %

**Key figures for IAV GmbH
(based on German Commercial Code [HGB])**

	2017	2016	2015
Total earnings	€ 767 m	€ 701 m	€ 669 m
Increase in fixed assets	€ 29 m	€ 66 m	€ 50 m
Operating result	€ 27 m	€ 29 m	€ 25 m
Equity ratio of GmbH	42 %	40 %	42 %
GmbH staff	6,111	5,747	5,553

IAV GmbH (group parent company) is the main service provider in the group and, with its positive development, is the primary contributor to the group result. [\[102-07; 102-08\]](#)

Since 2012, IAV has invested about

€ 250 m

on enhancing its own infrastructure and is planning further investments of a similar level so as to secure further growth.

In 2017, a total of approximately 2,500 m² of office space was added to the Berlin and Weissach sites.

2.1 Corporate Structure, Management, Corporate Governance

As a limited liability company, IAV GmbH has a structure consisting of the Management Board and a Supervisory Board, together with the shareholders' meeting. Coordination within the IAV Group between IAV GmbH and the subsidiaries is achieved by regular exchange of information. The respective management boards act in the framework of corporate governance and ensure compliance with laws and internal policies. In the Code of Conduct, the Management Board has set out the topics that constitute the benchmark for its own actions, as well as for the actions of executives and employees. Essential company guidelines, such as the Code of Conduct, apply to all the companies in the IAV Group.

In the 2017 financial year, the IAV GmbH Management Board consisted of the following board members: [\[102-29\]](#)

Kurt Blumenröder
President and CEO

Michael Schubert
President and CFO

Kai-Stefan Linnenkohl
President and CHRO

The Management Board and the twelve-person Supervisory Board, with co-determination and worker participation based on parity, exchange information on a continuous basis. The Management Board regularly provides information on the business situation and the company's development. [\[102-18\]](#) The Management Board reports twice a year to the Supervisory Board and to the Advisory Board, which is composed exclusively of representatives of IAV GmbH's shareholders, in the form of an Advisory Board meeting. 50 % of the Supervisory Board consists of representatives of the shareholders and 50 % is made up of employee representatives, two of which must be women. The next election of employee representatives will take place in 2018. [\[102-24\]](#)

2.2 Mission Statement

[102-16] The IAV Group has drawn up a mission statement, to which all employees and executives are committed.

Every single decision must be examined to make sure it meets these goals, ideals and corporate culture. This philosophy is a benchmark for and forms the basis of the company's long-term objectives and day-to-day operations.

2.3 Code of Conduct

IAV is committed to the principles of a social market economy. We impress through performance, act within the law and comply with our society's ethical principles. Fair competition is equally self-evident for us. Our values are based on the United Nations' Universal Declaration of Human Rights.

[102-16] As a central instrument for communicating our corporate values, the Management Board and the employee representatives have jointly signed a Code of Conduct.

Complementing IAV's mission statement and the values for cooperation and management, the Code of Conduct, as a higher-level policy, reveals possible risk and conflict areas and provides basic behavioral guidelines. The Management Board sees itself as a promoter of the behavioral

Our **Code of Conduct** is also published on our website and can be consulted by all employees, customers, suppliers and interested parties.

→ www.iav.com/Code_of_Conduct

An overview of our Code of Conduct is shown on the next page.

guidelines laid down in the Code of Conduct and is committed to ethical and sustainable behavior. The behavioral guidelines are applicable to all employees, executives and members of the IAV Group's management. IAV's Works Council supports the Code of Conduct and the measures taken by the Management Board.

IAV conveys the contents of the Code of Conduct (CoC) by means of training courses and a web-based workshop. The courses are compulsory for executives and all employees at IAV as well as partners that work for IAV for at least three months, on a one-off basis when they join the company. [412-02]

In addition, all employees are trained specifically on the issues of data protection, occupational safety and health protection, as well as information security.

Just as our environment is constantly evolving, we are also constantly

developing our Code of Conduct in a careful manner.

Our Code of Conduct will be an integral part of contracts, to the extent possible.

[102-11] IAV has set itself the target of dealing responsibly with potential risks and for years has conducted continuous and structured risk management in which all key business areas are involved. [102-31] The Management and the Supervisory and Advisory Boards are notified regularly or on an ad-hoc basis about opportunities and risks.

[102-15] Within the context of IAV's risk policy, higher-level goals are set, for which risks are then identified and evaluated. Effective risk identification is based on well-defined, uniform methods and the assignment of responsibilities for risk assessment within the company. There is regular communication to management regarding the risk situation.

The Code of Conduct summarizes the behavioral guidelines under the following areas of responsibility: [\[412-02\]](#):

IAV CODE OF CONDUCT

Social Responsibility

- Corporate social responsibility/sustainability
- Human rights
- Equal opportunities and respect
- Environmental protection
- Product safety
- Safety at work
- Donations and sponsorship
- Political interests
- Employee representation

Market Economy Responsibility

- Fair competition
- Accounting and financial reporting
- Customs and export control
- Fair purchasing
- Dealing with insider information

Corporate Responsibility

- Conflicts of Interest
- Sideline activities
- Participation in company
- Preventing corruption
- Use of advisors

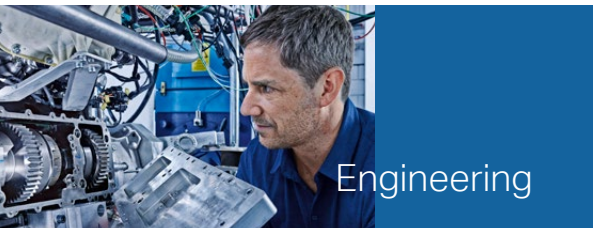
Responsibility for Employees, Partners and IAV

- Data protection
- Dealing with confidential information
- IT security
- Industrial property rights
- Protection of company property
- Responsibility for the company's image
- Management culture



03 Engineering and Products

Engineering and Products



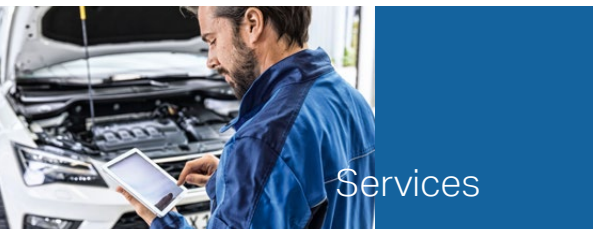
Engineering



Products



Consulting



Services

[102-02] As an internationally acknowledged and established provider of development services, our company's activities focus on development projects with our customers from various sectors. Added to this, IAV operates a small-scale customer and technology-specific product business. It complements our engineering work and permits customized solutions which our customers regard as an integral part of the services we provide.

As a leading engineering partner to the automotive industry, IAV is expected to deliver results of the highest standard. The reliability of our development results and products is taken as given. In development and production, we follow the generally accepted code of engineering practice as well as the state of the art in science and technology.

Our range of expertise is second to none. It extends from developing new powertrain and vehicle concepts to testing and launching the production-ready solutions. In this context, we offer all development steps on a one-stop shop basis and leave nothing to chance when it comes to future technologies. Below, we present the four pillars of our service portfolio.

In the 2017 reporting period, no incidences were identified in which there was any failure to comply with product safety laws and regulations. [419-01]



Engineering

Our engineering work focuses on the automotive and mobility industry. Among other aspects, we develop conventional and alternative powertrains, transmissions, interior and exterior, driver assist systems as well as electric and electronic components for passenger cars and commercial vehicles. As a development partner with expertise in the entire vehicle, we offer our customers a portfolio of services on a one-stop shop basis and assist them throughout the value chain.

Among the aspects that currently dominate our work are combustion engines with optimum efficiency and minimum emissions. To achieve these goals, we champion innovative combustion systems (for example pre-chamber ignition) and cutting-edge systems for exhaust gas aftertreatment which we constantly improve using simulation. Besides gasoline and diesel engines, hybrid and all-electric powertrains also play a key part at IAV: for example, we are developing an efficient energy management system for hybrid vehicles and e-drives which will set standards in terms of efficiency and safety.

Alongside fuel consumption and emissions, analyzing a vehicle's entire environmental footprint is also gaining significance. With detailed life cycle assessments (LCA), we provide our customers with an objective basis for comparing different product alternatives.



Products

From practitioners for practitioners: this is the philosophy behind IAV's range of products. Benefiting customers, our development tools are packed with over 30 years of engineering experience. They have proven their worth in numerous volume production projects and are always on the cutting edge of technology. Most of our tools not only make the engineering process faster but also better and more reliable in terms of quality.

But we also supply small batches of electronic components, such as displays for agricultural machinery and telemetric systems. And we never compromise on quality: our engineers work in the same professional way as they do in their volume production projects. This involves the use of state-of-the-art development tools and rigorous testing before the start of production.

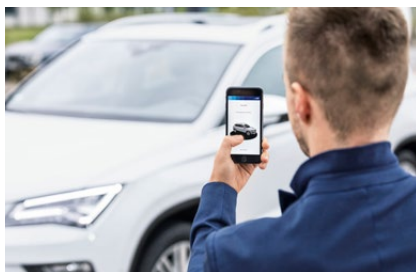




Consulting

In an increasingly complex world, excellent support in engineering is essential. IAV can draw on over 30 years of experience and the expertise of more than 7,000 members of staff. This knowledge is channeled into all of our projects and is one of IAV's key unique selling points.

With our consulting4drive subsidiary, we also have our own consultancy. It speeds up innovations by integrating market-relevant novelties and technologies into business models. It helps to open up markets by analyzing and evaluating market potentials, rapidly turning opportunities into measurable business success. It boosts its customers' performance, for example by using existing resources to realize up to 20 % more projects and achieve time and/or cost savings of up to 25 %. And it optimizes costs in product development, sourcing and manufacturing.



Services

IAV's customized services can be divided into the categories of mobility services, product life cycle management, support and engineering cloud.

Within our mobility services, we can provide our customers with a comprehensive portfolio – from car-sharing to fleet management, from updates to personalization. This also includes new services: the passenger car as a wallet and shopping cart, the car as a cloud service, the car as an entertainment platform, the car as a personal assistant.

In the area of product life cycle support, IAV assists its customers from assessing ideas and technologies to product development and variants, from updates and servicing to recycling and disposal. In other words: we give our clients the best possible support throughout the entire life cycle and in each individual phase.

At support level, we provide assistance in selecting and managing suppliers, among other services. This also includes aspects, such as qualification and homologation as well as new concepts in the field of aftersales.

The engineering cloud is one of our most topical issues; as one of the world's leading engineering companies, high-performance computing is essential for us. Today, there is no other way of coping with the vast amount of data, computations and simulations or future development requirements.

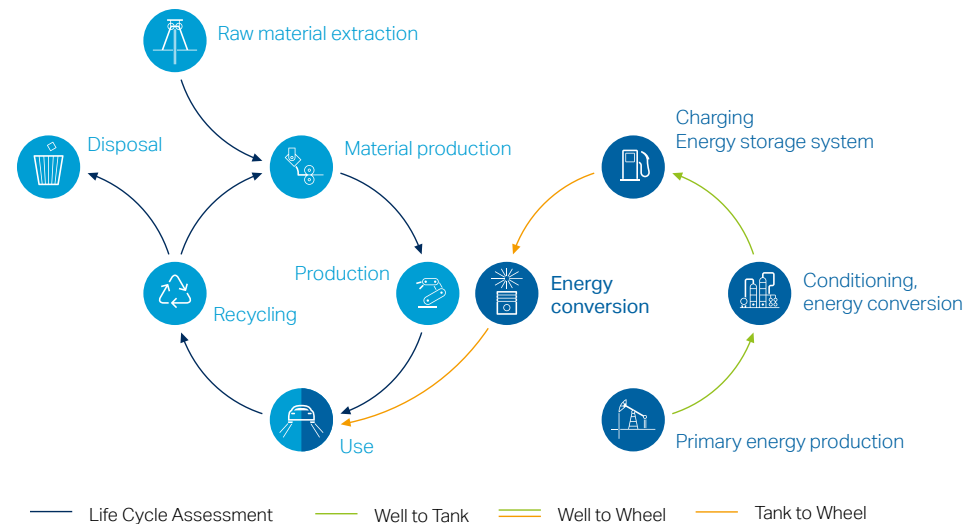
Sustainable Engineering

In most cases, the impact products and services have on the environment can either be mitigated by reducing fuel consumption or by optimizing energy management. This is an area in which we have already carried out numerous projects and studies.

Our expertise in energy management not only benefits energy consumers but energy companies as well. We investigate and simulate ways of implementing innovative solutions, such as autonomous energy containers, which can be used in economically underdeveloped regions or developing countries as a source of electricity for agriculture, as a basic supply of energy or for medium-term disaster relief. However, they can also be used in industrialized countries as a grid stabilizer or charging station for electric mobility and, being modular in design, they are easily scalable and versatile in application. Our engineers offer an all-embracing package for designing and optimizing the system, which is made up of photovoltaics, battery, wind power and emergency electricity generator as well as simulation of ambient conditions on location. This also includes a cost/benefit analysis and sustainability assessment of the overall system.



LCA cycle



Life cycle phases using the example of a vehicle

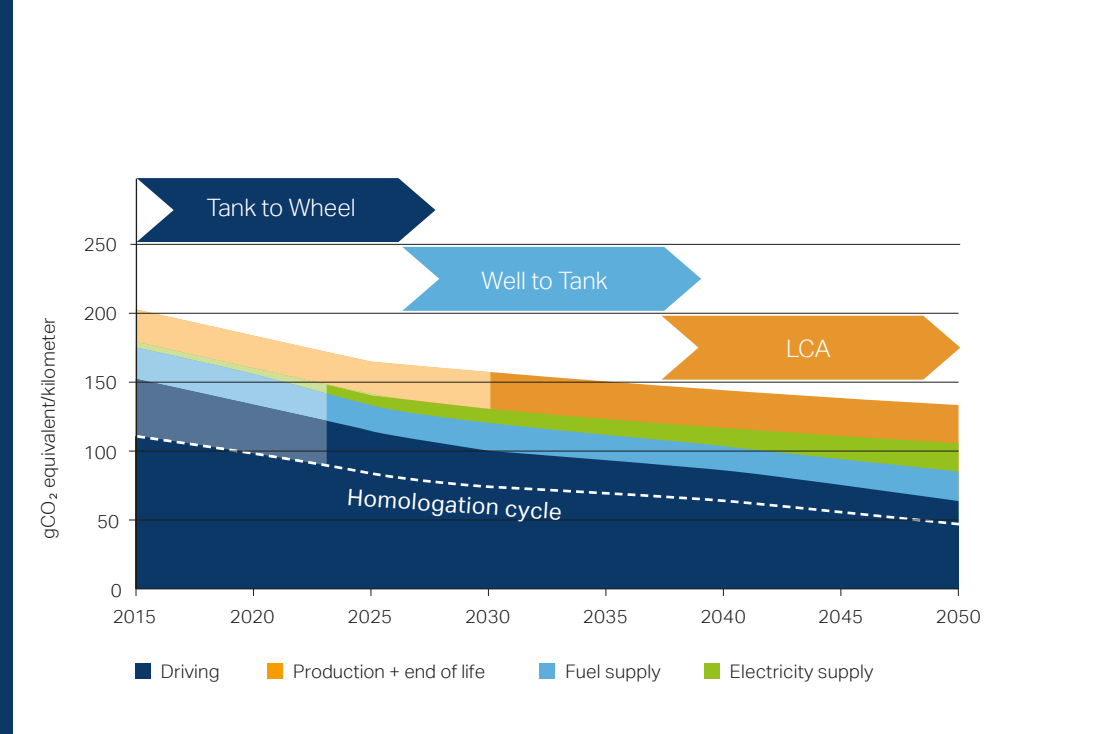
Engineering with Life Cycle Assessment (LCA)

Reducing ecological impacts of products and services using life cycle assessment (LCA)

In our society, ecological issues are becoming more and more significant. Increasingly, our customers are taking this trend into account by evaluating and enhancing their products, services and business processes in respect of their ecological sustainability. The results obtained are used by vehicle manufacturers and component suppliers. Policymakers are also gradually changing course – from evaluating emissions at present in less representative driving cycles to measuring real-world driving emissions on real roads, and even by factoring in the supply of fuel or energy.

To meet the growing demand for all-embracing assessments, IAV has continued to extend and concentrate its expertise in the field of life cycle assessment (LCA). The LCA method provides the basis for analyzing the emissions and consumption of resources of complex products, such as vehicles or vehicle components, over the entire product life cycle – from production and usage to recycling – and assesses them in terms of the impact they have.

The results of investigations reveal the priorities of tomorrow's development activities from an ecological perspective. This puts us in a position to identify



Forecast of fleet emissions in the EU

optimization potentials and develop the best possible technological solutions.

Findings from the life cycle assessments are not only used for product development. They also serve as a basis for predicting fleet emissions. Studies of this type are conducted both for internal purposes as well as on behalf of automobile manufacturers. They illustrate which powertrain technologies are best suited to meeting the statutory CO₂ limits. These scenarios take into account a large number of factors, such as the use of renewable energies, changes in production technologies, fuel-saving technologies, social and economic changes as well as legislative amendments. As a result, IAV can show its customers which concepts they

should systematically continue to develop in order to meet the legal requirements. This also applies if the statutory requirements will be extended to cover the other life cycle phases (for example fuel supply or recycling).

In its analyses, IAV also takes account of the link between LCA and economic and social aspects as well as legislative changes. The connection between LCA and economics over the entire vehicle life cycle is actively analyzed in several projects. Quantifying social criteria (such as the number of people employed throughout the entire product life cycle) will also gain significance.

04 Sustainability Strategy

Ecological. ♻️
Economic. 💰
Social. 👥

Sustainability Strategy

[102-26] Besides economic values, great importance is also attached to social and ecological values at our company. For the IAV Group, these values are central elements of our corporate philosophy. The values and ten principles of the UN Global Compact and the values from the German Corporate Governance Code guide our activities. Our corporate values and code of conduct pick up on these principles.

To do justice to this, we endeavor to evaluate our services, business processes and products in terms of their sustainability and define appropriate activities for improving them. In future, the (long-term) planning and coordination of activities as well as the way in which the subject of Corporate Social Responsibility (CSR) is addressed at IAV GmbH will be placed in the hands of a central department. Overall responsibility for this will lie with IAV's top management.

IAV not only wants to set standards and take responsibility in terms of the services it provides but also in respect of its approach to business partners and the environment. As a responsible member of society, we practice a culture of respect, appreciation and tolerance within the environment in which we work.

Top management makes sure that the management systems applied are implemented and regularly adjusted for the entire company. The demands of clients and other stakeholders are key motivators for continual improvement in this regard. Top management follows the principle of good and sustainable corporate governance.

[103-03]

IAV is in direct and constant dialog with its environment and takes this dialog very seriously, increasingly also in relation to matters of CSR. Communication takes place at all company levels: in customer projects, by participating in research projects with government and private partners as well as through IAV's involvement in associations and working groups. We benefit enormously from the intensive dialog we have with our advisory board members on strategy, technology and social orientation. In this context, regular strategy events take place with the representatives of our key accounts and top management. Participation in leading trade shows and conferences also provides the IAV Group with valuable discussion platforms. We regularly inform our customers and the interested general public in our "automotion" customer

magazine as well as on our website where we report on the latest technological developments.

IAV attaches importance to actively integrating its employees and their representatives into shaping and meeting the company's responsibility toward society. Involving employees and works council members is part of our corporate culture and gives us valuable input. The management regularly informs members of staff about ongoing developments and the business situation. Among other channels, communication takes place through the "IAVinside" staff magazine, which is published once a quarter, as well as through the intranet on a regular basis. Held at regular intervals at all German sites, the management reports at staff meetings on the company's business situation and challenges. Members of staff can use these opportunities to put direct questions to the management.

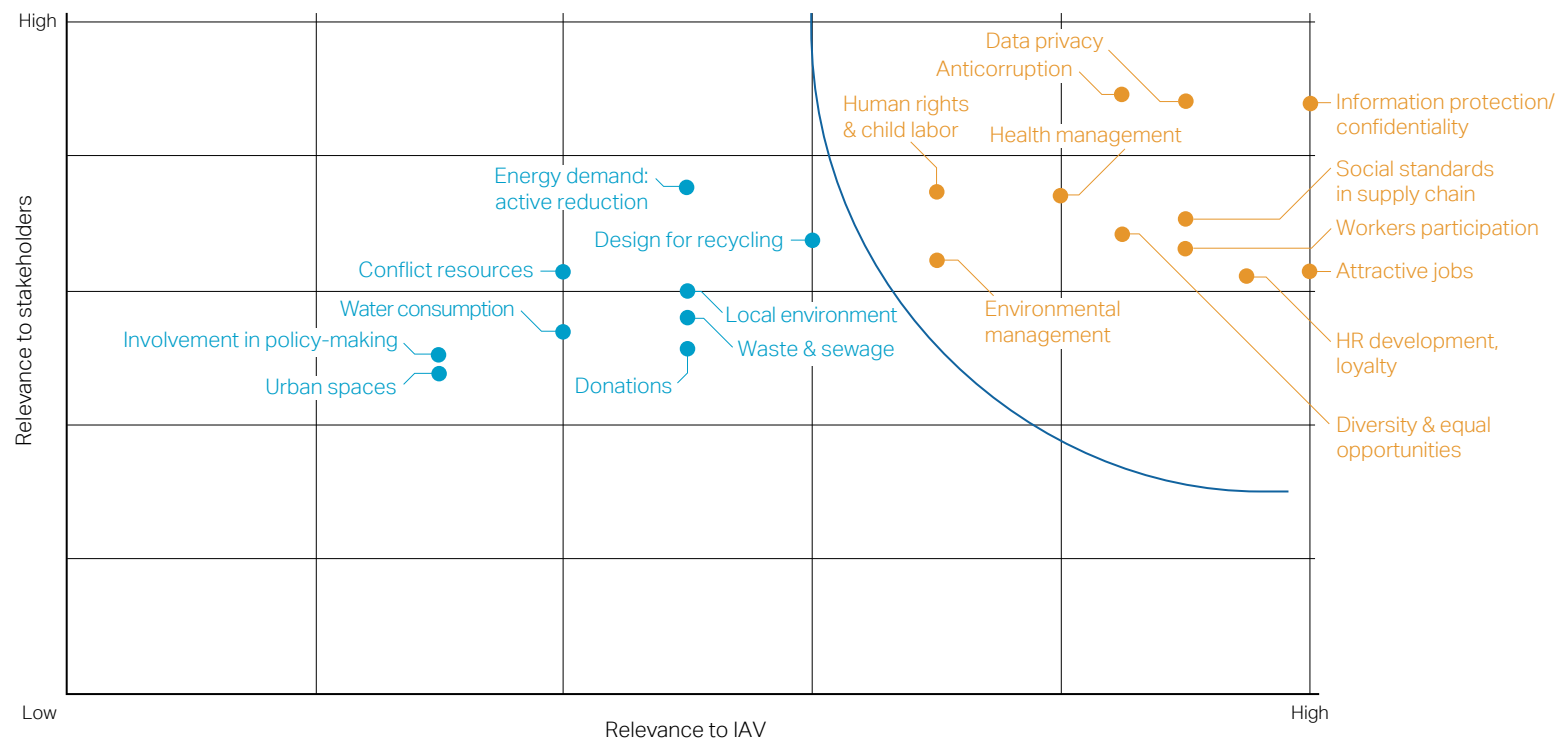
List of Key Aspects

[102-47] Within the stakeholder analysis, aspects of the Global Reporting Initiative (GRI) standard were presented to assess relevance and, if necessary, complemented by respondents. Risks are assessed in the dimensions of relevance to the stakeholders and IAV.

This resulted in the following priorities:

- Data privacy
- Combating corruption
- HR management (HR development, attractive jobs, diversity and equal opportunities)
- Vendor management (social standards; environmental standards in the supply chain)
- Environmental management (environmental protection, energy efficiency, consumption of resources)

Key aspects 2017 (excerpt) for IAV





05 Social Responsibility

Social Responsibility

The people in our company are key to our success. They determine the prosperity of IAV.

A main feature
of our workforce is
**cultural
diversity.**
More than 80 nationalities are
represented in our globally
operating company.

We treat all staff equally, regardless of gender, age, skin color, religion, marital status, sexual orientation, origin, physical or mental disability. Personal dignity, privacy and personality rights are respected by everyone. Our interaction with one another is honest and characterized by respect and responsibility.

Every member of staff plays his/her part in this. That is why long-term staff development is a top priority at IAV. To this end, we try to create above-average framework conditions for our employees.

IAV has had constant organic growth in its workforce and turnover for years. This is

invariably achieved with a long-term vision and on a sustainable basis. For instance, since its foundation in 1983 the company has not made any forced redundancies in this highly competitive environment.

Numerous macroeconomic crises have been overcome because of long-term staff planning and policy. For example, during fluctuations in capacity utilization we are helped by flexible working time accounts and working time arrangements as well as an in-house labor market fit for purpose.

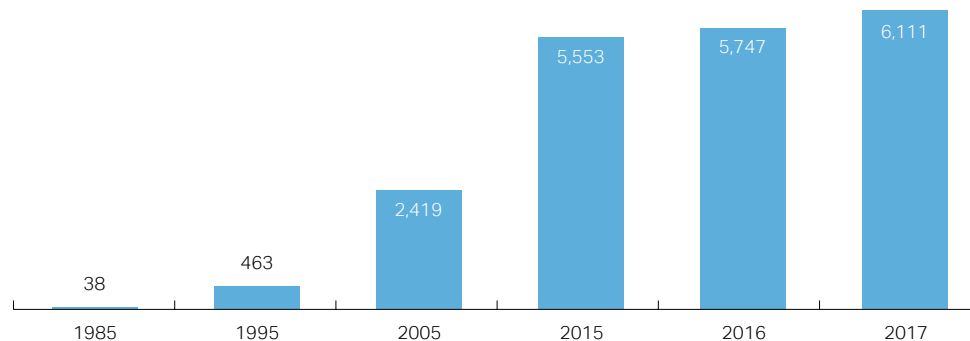
5.1 Remuneration and Collective Agreement

The IAV pay system is based on the principles of fairness and transparency.

Even in 2017, we are still one of the few development service providers with a collective agreement and employee participation at every site/in every region.

In 1989, we were the first development service provider to conclude a general and collective pay agreement, and for decades we have cultivated intensively practiced

Full-time staff at the end of the year





IAV is one of the most attractive employers in the engineering services segment. This is substantiated by good rankings in surveys:

- Focus: "Best Employer in Germany"
- trendence "Germany's Top 100 – Engineering"
- kununu "Top Automotive Company"

co-determination and employee participation in partnership. Within IAV GmbH, the collective agreements extend to every member of staff. [102-41]

The staff include senior executives, employees not covered by collective pay agreements, staff on the negotiated pay scales, agency workers, student workers, diploma students and interns. [102-41]

The period of validity, terms and conditions are negotiated in collective bargaining between employee representatives and the management.

As part of the IAV GmbH collective agreement on the company pay agreement negotiated in 2016, it was agreed to increase pay and apprentices' remuneration in two stages. On March 1, 2017 the increase of 2% came in, in accordance with the second stage. The collectively agreed remuneration table was cancelled with due notice on November 30, 2017. At the time of this report, the parties were negotiating a new collective pay agreement.

Numerous fringe benefits, such as the company pension scheme and supplementary components like reduced rates for

public transport tickets, special terms and conditions for cell phones and car leasing, complete an attractive package for our employees. On special occasions such as a wedding, starting a family or an anniversary, we offer special bonuses such as special leave days or personalized gifts.

5.2 Collective Agreement for Students

Special emphasis must be placed on our collective agreement for students, which is unique in Germany. Its intention is to create a general company framework for students in the different phases of their academic education. The aim of the training period is to enable the students to become familiar with and proficient in IAV's workflows and methods. It comprises a period of study and in-company practice. The collective agreement contributes to youth development and enhances the students' loyalty by creating career prospects.

The collective agreement also covers our PhD students, students combining a degree course with work placement, and apprentices.

The large number of students who work at IAV as a trainee, student worker or during their final paper, underlines our aspiration to develop young employees as much as possible through our own training.

Hours of training courses per employee	2017	2016	2015
	Hours per employee	Hours per employee	Hours per employee
Total	12.0	12.1	15.8
Technical training	6.7	6.9	8.7
Multidisciplinary training	5.3	5.2	7.1

5.3 Employee Excellence Through Ongoing Further Training

We are the technology leaders in our fields of business and have acquired a leading position internationally – primarily thanks to the highly skilled people who work for IAV. That is why the further and continuing training of our staff has always had high priority. In future we will be further intensifying our efforts. In the financial year, 73,381 hours were invested in the continuing training of our staff, on both multidisciplinary (career-specific and in-house) training and technical (external) training [404-01].

In the process of digitalization, IAV is increasingly promoting skills in fields such as artificial intelligence, Big Data analytics and IT security. To enable us to reinforce our leading role as engineering partner in future, we are boosting our recruitment activities in the areas of software and IT. At the same time we are investing a great deal in the depth and breadth of our employees' skills. In our Digital Lab we are exploring inter alia

new mobility concepts and at the same time trying out new working methods and forms of work.

With our in-house "Staff Transformation" project, we are ensuring that we prepare our employees in good time for new challenges and skill them individually for new activities.

In our annual staff orientation interviews, we focus on the skills development of staff. What skills will be required in the future? What skilling and continuing training measures could be suitable? The staff orientation interviews are offered to all IAV employees covered by collective agreements. In the 2017 financial year, the take-up rate was 67 %. [404-03] We also use the meeting to co-define duties and targets and review performances. The employees have the opportunity to give open feedback to their supervisors and their impression of team development – this, too, is part of our corporate culture characterized by openness, fairness and partnership.

5.4 Staff Development

Flexibility, continuity and further training are the fundamentals of our company. We appoint managerial staff extensively from our own ranks.

IAV attaches particular importance to offering each individual a plethora of personal development and career opportunities. There is great scope for the development of talent and managerial staff in our dynamically growing company.

Our career model comprising leadership, project and specialist careers is being constantly developed, and adapted to new forms of work and working methods.

We complement our comprehensive skilling measures for our talented staff with varied components such as our in-house mentoring program.

Average number of full-time and part-time employees at IAV

	Average 2016*	in % of total
Number of men	4,874	85%
Number of men part-time	166	3%
Number of men full-time	4,708	82%
Number of women	869	15%
Number of women part-time	258	5%
Number of women full-time	611	11%
Total	5,743	-

* Data from the report under § 21 EntgTranspG (German Transparency of Remuneration Act) from the IAV GmbH Business Report 2017



5.5 The Advancement of Women

IAV aims to have a proportion of women in management positions commensurate with the staff structure. To this end, we have established inter alia a mentor model, designed to prepare women at an early stage for a new leadership role.

IAV has established various measures on equality and equal pay for its staff. A key instrument is the existing company pay agreement, in which every member of staff is categorized on the basis of job requirements, irrespective of gender. [405-02]

IAV GmbH's shareholders' objective is to raise the share of women on the Supervisory Board. In the 2017 financial year, there were

no women in the management. Existing measures and further conceptual ideas have been drawn together in an overall concept with the aim of raising the share of women.

On top of that, for the period until June 30, 2022 the top management has decided a target of 6 % for the share of women in management positions on the first management level and 2 % for the second management level. [405-01]

To enable even more skilled women to feel addressed by IAV in the future, we give targeted support to formats or network organizations that address this group.

On the university and school level, too, we support numerous initiatives and formats

that help increase women's interest in technical issues.

5.6 Staff Loyalty

Generally speaking, there is a high degree of staff identification with our company. This is substantiated largely with a staff turnover rate (< 5 %) that is very low for the sector, and long years of service with the company. [401-01]

Numerous company sports groups at each of our Development Centers and sites, along with joint events, such as the company-wide soccer or beach volleyball tournament and the joint participation in running events, contribute to a marked sense of community.

Through summer or Christmas parties for the workforce and team events co-funded by the company, we likewise create an attractive working environment for our staff.

We regularly gauge the mood among our employees by staff surveys. In follow-up review meetings and workshops, we develop approaches for improving our cooperation.

5.7 Support At Individual Stages of Life

Our staff are supported by various instruments to achieve an optimum balance between job and private life.

With the protection of our “Flexible Working Time” company agreement, our employees can basically influence their working hours. Separate provisions have been drawn up for employees on call, doing shift work or service work.

Our company agreement on mobile working shows the commitment of management and the General Works Council to the objective of changing the IAV work and leadership culture in the long term and promoting an atmosphere of trust in the company.

Mobile working enables employees to work off IAV company premises and thus enable a flexible arrangement of working time and place of work.



Mobile working gives staff greater individual scope and security of planning in balancing work and private commitments. This creates greater scope for the employees' creative and productive phases as well as better work processes, which altogether produce added value for company and staff alike.

In addition, our employees throughout Germany have the option of using services from a family service provider. These family-supporting services are available to all our staff and provide a broad spectrum, ranging from childcare, emergency care and holiday care, through nursing care assistance to house hunting. [\[401-02\]](#)

5.8 Staff Recruitment

IAV is also rated by external students and professionals as one of the most attractive employers in the sector. This has been substantiated for years by studies on employer attractiveness, for example by Focus, trendence and kununu.

A career portal of modern design accessible by cell phone enables us to offer anyone interested a profound insight into our corporate culture and values. The portal provides a clear overview of the broad spectrum of positions vacant at IAV. Our streamlined, transparent application process results in short processing times. Awards such as that from potentialpark confirm our professional employer branding.

IAV is strongly committed to arousing interest among schoolchildren in technology.

The company supports many school projects and initiatives not only with funding but also by mentor schemes.



IAV has close links with the research landscape through a large number of joint ventures with higher education institutes and support for numerous student projects such as Formula Student, Eco Marathon and the CaroloCup. Thus, in so many ways we play our part in a good transfer of knowledge between research and practice. With these exciting projects we offer students incentives to apply their knowledge to the real world and to expand it.

Every year we are involved in more than 50 student career fairs, providing students through excursions with profound insights into our work as an engineering partner. All these activities make it easier to recruit young talents.

5.9 The Hermann Appel Prize

The founder of IAV, Prof. Dr. Hermann Appel (1932-2002), defined our company's DNA. He broke new ground time and again. His outstanding ideas created the foundations for so many developments in science and business. His is a path that we consistently embark on.

Every year we acknowledge outstanding scientific degree theses and doctoral theses by awarding the Hermann Appel Prize.

We accept applications from Bachelor's degree, Master's degree and PhD students who wrote outstanding theses on vehicle and powertrain development, as well as future mobility.

Altogether we award
**€ 15,000 in
prize money.**

A panel of judges comprising representatives of industry and science assesses the theses and decides on the winners per category.

The prizes are handed out by the chairman of the panel of judges, Prof. Steffen Müller (Berlin University of Technology), at a gala evening ceremony in Berlin.

5.10 Promoting Knowledge Transfer

As a company we organize several specialist conferences, such as the Berlin Powertrain Symposium and the Hybrid and Electric Vehicle Conference. Every year these events bring together the leading experts from business and science. They also help establish IAV as a recognized expert in the sector and strengthen the network. In addition, IAV is involved in many of the sector's benchmarking groups; it is also the go-to expert for government committees on technological issues.

We promote and support an open exchange of knowledge. Many in-house formats such as our Know-how Forum, podcasts and Wikis encourage the transfer of knowledge above and beyond divisional borders, fostering open specialist discussions.

5.11 Health Management

Our objective is to keep a constant eye on the health, efficiency, ability to cope with pressure, motivation and satisfaction of staff, as well as to take measures whenever necessary to achieve the following key aims:

- to maintain and promote health in the long term
- to maintain and restore fitness for work
- to reduce work-related health risks
- to prevent disability and chronic illness
- to make the workplace safe and healthy



In this context we offer our employees numerous facilities in the socio-cultural and functional working environment:

- needs-oriented provision of ergonomic office furniture such as height-adjustable tables and back-supporting office chairs
- areas for communal use such as break rooms, kitchenettes, meeting points etc.
- creative spaces and other responsive office concepts conducive to creativity and productivity
- bicycle stands
- adequate lighting at every workplace created by a high proportion of window areas and smart lighting
- a comfortable atmosphere created by panel heating and static cooling systems

In addition, IAV provides specific sports facilities to help staff unwind from everyday stress and strain at work and from physical challenges.

Safety At Work

Our utmost priority is health and safety at work. Every employee is entitled to a safe and healthy work environment. In keeping with this principle, IAV complies with the applicable safety standards and regulations. In addition, these standards and regulations form the basis for managing health and safety at work throughout the company. In

this we observe applicable specific standards and our aim is to obtain certification under ISO 45001.

We try to prevent accidents at work, occupational illnesses and work-related health risks through training and occupational health and safety measures. [403-01]

The health and safety requirements are integrated in our organizational structure and processes, and are put into practice at our sites. In this way risks are systematically ascertained, assessed and minimized at source. In our work we take it for granted that it is our duty to comply with all relevant legal provisions governing health and safety at work and the corresponding accident prevention regulations.

The aim is to reduce the risk of accidents to zero.

Accidents at work, occupational illnesses and work-related health risks are continually reduced by training and occupational health and safety measures. Our executives are obliged to actively and responsibly help implement health and safety management.

By applying an active information and dialogue policy between supervisors, sections, staff representatives, company doctors and third-party firms, we create the

Occupational safety statistics

Occupational safety at IAV	2017	2016
Accident rate ¹	3.39	3.64
Online tuition relating to occupational safety	6,021	6,224
Hazard assessments ²	320	288

¹ Number of industrial accidents with at least three lost days of work per 1,000 full-time employees

² The figure quoted is the total number of safety assessments recorded so far

conditions for the development of safe processes and to ensure a high level of safety at work.

At every Development Center and practically every IAV Office, occupational health and safety committees work together with employer and employee representatives to constantly improve health and safety at work. [403-01]

Risk Assessment and Assistance

[403-04] IAV staff are given the requisite assistance from safety officers and company doctors based on the risk assessment. Test drivers, for instance, can select the scope of examinations they require from an exhaustive catalog of check-ups. Our occupational safety team assists and advises staff and supervisors in selecting the appropriate programs of measures.

Accidents at Work

[403-02] An important figure in occupational safety is the accident rate. The statistics used are the recordable accidents at work per 1,000 full-time employees in a calendar year. The number of full-time employees is worked out in line with DGUV V2 (German Statutory Accident Insurance). The accident statistics cover occupational accidents with at least three lost days of work in line with DGUV V2.

In 2017, IAV GmbH had an accident rate of 3.39 accidents at work per 1,000 full-time employees. In addition, no employee of IAV GmbH has been fatally injured in a work-related incident or been sick with an occupational illness.

A full-page background image showing four mountaineers in silhouette, ascending a steep, snow-covered mountain ridge. They are wearing backpacks and using ropes. The background features a vast, hazy mountain range under a clear blue sky with a few wispy clouds.

06 Societal Responsibility

Societal Responsibility

IAV's aim is to set standards and assume responsibility – not only with its products and services, but also in the way it behaves in relation to its business partners and the environment. As a responsible member of society, we therefore practice respect, appreciation and tolerance when dealing with the people around us.



6.1 Working in Partnership

Some of IAV's added value comes from its business partners. Purchasing is based on defined processes and role-based decision-making powers. Vendor management is an integral component of our purchasing

policy and an operational tool for successfully managing the relationship between suppliers and IAV.

Enforcement of CSR standards along the entire supply chain is not yet systematic. IAV has initiated a number of different measures designed to ensure systematic enforcement, and is working on implementing them.

IAV ranks suppliers in terms of availability, confidentiality and integrity, as well as expertise and performance.

Suppliers that have an influence on performance processes are selected very carefully. The first step in the selection process is a supplier's self-assessment questionnaire. This contains questions on compliance, responsibility and sustainability. Suppliers are approved only if they meet our requirements. [\[102-09\]](#)

[\[102-45\]](#) In reaching business decisions, IAV strives to rule out conflicts between work duties and personal interests. Decisions must not be influenced by special interests or factors bearing no relevance to the matter at hand.

6.2 Human Rights and Child Labor

Human rights form the basis for responsible coexistence between people. IAV promotes respect for human rights and refuses to be involved in human rights violations. The Universal Declaration of Human Rights is our reference framework. All forms of forced labor, child labor, modern slavery and human trafficking are strictly prohibited at IAV, and IAV demands the same from its business partners.

IAV sources products and services from business partners with a strong focus on highly skilled employees. The vast majority of our suppliers are based in Germany and the rest of Europe. The laws in force in the European Economic Area prohibit child labor. In all cases, we make sure we respect the laws of the countries in which we operate. When buying in products and services, we regularly inspect business partners and production locations.

This enables us to have a transparent supply chain and helps prevent child labor.

In the 2017 financial year, IAV GmbH was a member of 18 associations:

- ASQF e. V.
- Bundesvereinbarung Logistik e. V.
- CAN in Automotion (CiA) e. V.
- Deutsches Verkehrsforum e. V.
- DIN Deutsches Institut für Normung e. V.
- FIB – Freudeskreis des Institutes für Verbrennungsmaschinen Braunschweig e. V.
- Förderverein Industriemuseum Chemnitz e. V.
- Förderverein Technologiestiftung e. V. (TSB)
- ITS Automotive Nord e. V.
- Marketing Club Berlin e. V.
- Mobility Transformation Center
- Open Hybrid LabFactory e. V. (OHLF)
- SD Card Association
- Trägerverein Wissenschaftlich-Technisches Zentrum für Motoren- und Maschinenforschung Roßlau e. V.
- VBKI Verein Berliner Kaufleute und Industrieller e. V.
- VDA Verband der Automobilindustrie e. V.
- Verband Deutscher Maschinen und Anlagenbau e. V.
- Verein Wirtschaft in der Metropolregion e. V.

6.3 Political Lobbying

IAV defends its interests within the public opinion-forming process but does not engage in systematic lobbying.

Opinion-forming activities take place in compliance with statutory rules on openness and transparency and are centrally monitored. In the case of personal political

activities, no reference may be made to any function or position at IAV.

[102-13] IAV is actively involved in a large number of associations.

In addition, numerous employees and executives are members of various task forces and committees.

6.4 Data Protection

IAV respects the right of individuals to decide what happens to their own personal data.

IAV is committed to the principle of data economy/minimization. IAV respects the right of individuals to access, block or delete their data.

When processing personal data of employees and partners, IAV complies with data protection rules and provisions.

IAV has appointed a Data Protection Officer to protect these interests.

General security measures for processing personal data at IAV are presented in a data protection policy.

In addition, the company runs training and awareness-raising sessions to familiarize employees with the necessary data protection knowledge.

IAV is focused on the further development of its company-specific data protection and data security measures, and the integration of new data protection requirements into its business processes. Our data protection team provides advice to the organizational units and specialist departments to work toward implementing data protection. The data protection team liaises with those responsible for the planning, establishment



6.5 Compliance and Ethics

IAV's aim is to set standards and assume responsibility – not only with technology, but also in terms of our conduct and interaction with colleagues, business partners and the environment. IAV stands for responsible management in terms of corporate governance and compliance. The executives of IAV and all the company's employees have a duty to comply with legislation and internal rules and regulations. We expect the same integrity from our business partners, and this is a precondition of any lasting business relationship.

Central responsibility and coordination in this matter are provided at Management Board level by the Chief Compliance Officer. In the 2017 financial year, IAV did not identify any cases of non-compliance with laws or regulations [\[419-01\]](#); nor did it identify any non-compliance with rules or voluntary codes of conduct [\[206-01\]](#). In addition, no formal complaints were submitted in the 2017 financial year. [\[419-01\]](#)

Compliance has become a key part of good management. IAV is guided by the principles of the German Corporate Governance Code (*Deutscher Corporate Governance Kodex, DCGK*) and the UN Global Compact. [\[102-12\]](#) Under the DCGK principles and statutory provisions, the company bodies have to ensure compliance with laws and corporate policies. In its business activities, IAV respects national and international

and launch of processing systems for personal data, and supports them with the associated documentation requirements.

Within the framework of agreements on outsourced data processing with service providers and customers, the data protection team provides guidelines and agreement templates and assists with negotiations.

In the event of queries relating to data protection law, the data protection team investigates the underlying issue. Where necessary, technical or organizational measures and processes are modified and those affected and/or the supervisory authority are informed of the results and measures.

The management receives regular reports about all activities and measures. The reports are subject to internal confidentiality rules.

The focus for the coming financial year is on implementing the General Data Protection Regulation (GDPR) within the company. To achieve compliance, we will review our existing data protection policy and the relevant processes and systems, and introduce and carry out appropriate measures.

It is not possible to list any justified complaints in the area of data protection because of confidentiality issues. [\[418-01\]](#)

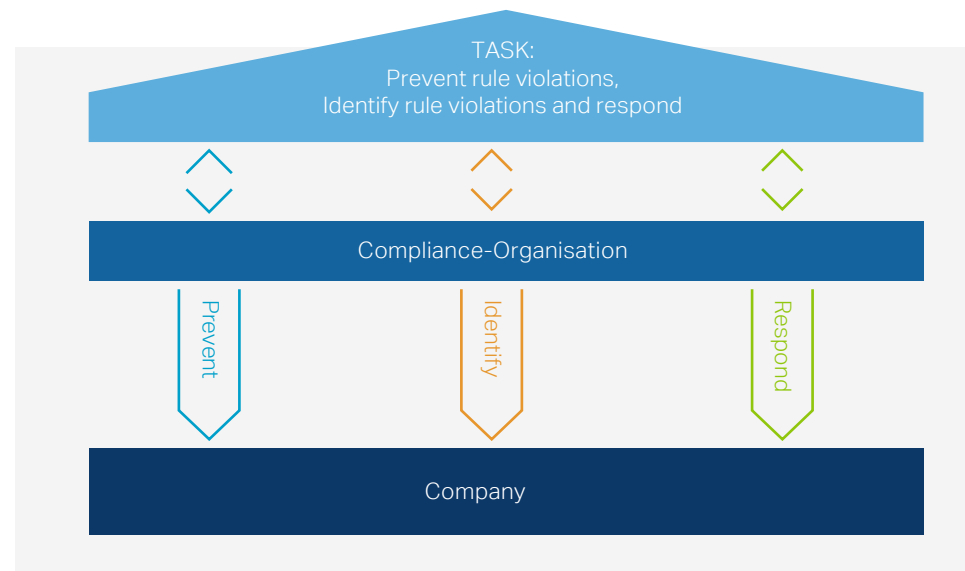
standards and legislation, particularly those regarding human rights.

IAV Compliance Management System

To fulfill its managerial responsibility, the Management Board has set up steering and controlling instruments. Among other things, it introduced a compliance management system (CMS) for the entire company in 2013. The CMS has been continuously improved and monitored since then. To ensure that the compliance management system works, it is subjected to an ongoing risk analysis of compliance issues. It involves both internal IAV divisions and committees and, where relevant, external consultants. [307-01] [419-01]

The Compliance Management System is used as a systematic safeguard against risks and negative consequences of rule violations for the company, its management, executives and employees. It covers IAV GmbH and its wholly- and majority-owned subsidiaries. In the event of particularly serious incidents, the Management Board informs the Supervisory Board promptly and introduces corrective measures.

The Compliance Management System is based on the IAV Code of Conduct. The Code of Conduct is accompanied by internal compliance guidelines, internal processes, policies and the employment contracts in force. The areas covered by the guidelines



Integrated approach within the company

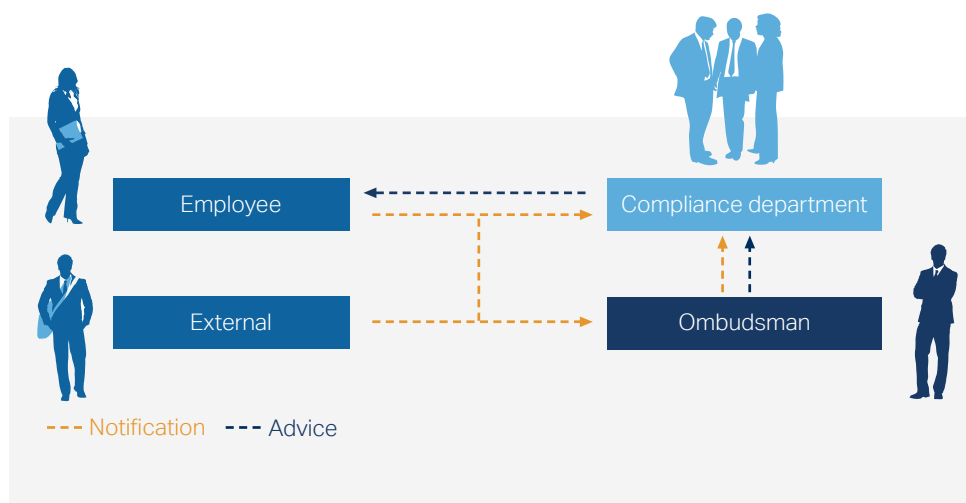
are based on the results of the risk analysis and the content of the Code of Conduct. At regular intervals – at least once a year or ad hoc as required – the compliance guidelines are reviewed and, if necessary, updated.

A hybrid centralized/decentralized organizational structure was chosen to implement the Compliance Management System.

Another central element of IAV's Compliance Management System is the compliance information system, which is used to receive and process notifications. It enables employees and business partners to notify an independent office of potential violations of rules on a confidential basis. These

notifications can be submitted to the compliance officers or to an external ombudsman – an independent lawyer not tied to IAV. Employees can also talk to their direct supervisor, the HR department or Works Council at any time.

For a compliance management system to be successful, managers and staff need to be informed of its content during mandatory training sessions and activities. In addition, employees receive specific web-based training on the topics of data protection, occupational health and safety and information security.



Information paths in the IAV compliance information system

Our executives receive special training on compliance risks in everyday business operations and on corruption in particular. Face-to-face training sessions help executives understand, recognize and manage their own role and function as managers with regard to compliance risks. [205-02]

In addition to the training activities, a number of communication channels are used to raise awareness of compliance. For instance, the compliance team publishes a compliance newsletter on current case law and compliance topics.

A statistical record is kept of staff trained as a percentage of all employees and included in the number of training days per employee. [412-02]

Anti-Corruption

IAV advocates fair, unbiased competition. Competition and antitrust legislation must be complied with. Any agreements with competitors that could restrict or prevent competition are prohibited. This applies in particular to agreements with competitors on prices, pricing strategies, bids, capacity, terms and conditions or market share.

When IAV started implementing its compliance system, it carried out a risk analysis and evaluated the corruption risk for IAV GmbH. This risk analysis is evaluated and updated at regular intervals. If a corruption risk changes, the company takes continuous steps through awareness-raising measures such as training sessions, manuals and guidelines and monitors their implementation.

An evaluation of the Compliance Management System, particularly in the 2017 reporting period, found no significant corruption risk for staff or the Management Board based on the IAV portfolio. [205-01]

All IAV executives and the monitors they appoint have received anti-corruption information through the Compliance Management System (100%). This also includes the Works Council as a monitoring body. [205-02]

All IAV employees are given access to anti-corruption information when they join the company. Under "employees" we include executive staff, employees covered by collective agreements and those who are exempt from collectively agreed terms, agency staff, student workers, degree candidates and interns. There were no confirmed cases of corruption during the reporting period.

IAV did not dismiss any employees or issue any warnings on corruption grounds during the reporting period. No legal proceedings were brought against IAV or its employees on corruption grounds during the reporting period.

In 2017, no contractual relationships were terminated or not renewed for corruption reasons. [205-03]

Anticompetitive Practice and Violations of Antitrust Laws

IAV is committed to fair and transparent practices in business competition and has drawn up compliance guidelines on this issue and communicated them within the company.

IAV is not facing any legal cases because of anti-competitive practices or violations of antitrust laws.

IAV is not aware of having been the subject of any antitrust inquiry during the 2017 reporting period. [206-01]

In 2017, there were no pending cases for anti-competitive practices, nor was IAV a party to or subject of administrative penalty proceedings. IAV did not identify any cases of noncompliance with laws or regulations. [419-01]

6.6 Funded Projects

Funded projects give IAV the opportunity to pursue developments and research co-financed by (public) funds. [201-04] In the 2017 financial year, IAV's funded projects were supported with € 5.4 million of public funds. These projects are in-house developments, some of which have a potential market launch date a long way in the future. Publicly funded proprietary engineering projects serve the interests of society and

make a contribution to its technical progress. For IAV, the funded projects help us expand our expertise and extend our know-how lead. They are becoming increasingly important in the age of digitalization and technological and environmental change. This is also reflected in the range of technological fields involved in the funded projects.

The following is a selection of projects dealing with environmental issues:

eco4wind

The basic architecture used to control variable-speed wind turbines has remained practically unchanged for twenty years. As turbines become more powerful, this is presenting an increasing restriction.

The eco4wind project is pursuing a fundamental redesign of the current open-loop and closed-loop control architecture for wind turbines. By adding a new, innovative core module – the model-based real-time control system – to the existing turbine automation system, the project is opening up new possibilities in terms of improved reliability/supply stability, efficiency and longevity for renewable wind energy.



ecoPtG

This research project aims to identify and prioritize factors that influence the cost of hydrogen production. Technology transfer from highly specialized fields, including automotive engineering, is being used to apply methods, algorithms and – where possible – technical components to the development and operation of electrolyzers. The key development objective, besides ensuring component durability and safety, is to minimize unit costs. For instance, inverters from the automotive sector could be used to supply the electrolyzers with energy, making hydrogen technology more competitive.



EMBATT2.0

If electric vehicles are to achieve broad market penetration, it is important to reduce the production costs of battery systems to less than € 200 per kilowatt-hour and to increase the energy density to more than 450 watt hours per liter – so as to achieve cruising ranges suitable for most daily requirements, and ensure high levels of reliability. Until now, in particular, it has not been possible to achieve the required energy densities. The development task is to find new potential solutions using active materials with higher energy densities and improved cell and system packaging.

In addition, the project researched and compared the environmental impacts of different battery concepts using the life cycle assessment method. Battery design has a significant impact on the carbon footprint of battery electric vehicles (BEVs) because around 40% of total emissions are generated during the manufacture of high-voltage batteries. The production processes are, in turn, dominated by the extraction of energy-intensive metals and, in some cases, conflict minerals (cobalt, nickel, titanium, lithium). Thanks to the life cycle assessment calculations and the choice of more environmentally friendly technologies, IAV was able to present a battery concept that cuts greenhouse gas emissions by nearly 50%.



SmartFarm

The SmartFarm project (using data to optimize self-consumption) aims to develop tools for the cost-effective layout of plant components for small and medium-sized farms. In addition, the project will optimize the farm's self-consumption, feed-in and current withdrawal from a business perspective.

xME

This project aims to systematically research and evaluate the usability of methyl ethers (DME and OME) as alternative fuels in diesel engine processes (passenger cars, trucks, rail vehicles). Methyl ethers are considered to be ideal diesel fuels because they have comparable ignition and combustion properties and do not produce soot. Because of their simple molecular structure, they also make ideal storage systems for renewable energy. The project aims to investigate the effect of the fuel properties on fuel mixture formation (injection, disintegration and vaporization), combustion behavior and emissions, both in passenger cars and commercial vehicles.

6.7 Sponsoring and Donations

Sponsoring is a part of IAV's corporate culture in the context of its corporate social responsibility. Our sponsoring policy ensures a uniform sponsoring culture in terms of the aims that IAV pursues with its donations and sponsoring activities. Every request is assessed and decided on by an independent in-house committee.

Through our sponsoring activities, we support individuals, groups, organizations and events with money, benefits in kind and

services. IAV makes donations to and sponsors selected non-profit organizations and causes. Donations and sponsoring activities are carried out by the sponsoring committee run by the Communication & Marketing department. This ensures transparency and rules out conflicts of interest. IAV does not arrange donations or sponsoring activities that could damage the reputation of IAV. Using donations or sponsoring to bring about a particular decision, for instance a contract from a customer, or for political, religious or ideological purposes, is prohibited.

We do not see donations as sponsoring because donations are made without any direct (contractual) benefit in return – usually for charitable causes, emergency aid etc. Nevertheless, donations are also governed by our sponsoring policy. Membership fees do not come under sponsoring and are managed through a separate decision-making process.

IAV did not make any political donations in the reporting period.

Examples of Sponsoring Activities

IAV sponsors a wide range of events and activities. When it comes to sponsoring, the

focus is on enthusiasm for engineering and mobility. We want to appeal to a wide range of beneficiary groups.



University Projects:

- Formula Student: Teams of students build a racing car and compete with one another once a year on the Hockenheim racetrack → www.formulastudent.de
- Symposia organized by students or student body meeting

Community Projects:

- "Little Scientists" ("Kleine Forscher"): In supporting the kindergarten initiative "Little Scientists' House" in Gifhorn, we help fire children with enthusiasm for engineering. → www.haus-der-kleinen-forscher.de/nc/de/netzwerk/lokales-netzwerk-land-kreis-gifhorn/

Examples of Donations

IAV has a set budget for supporting social projects. This sum (2017: € 10,000) is usually donated to one selected project. In 2017, the IAV donation went to a project by terre des hommes.

IAV is supporting an aid project run by terre des hommes in Burkina Faso, which is training young women to be car electricians, motorbike and bicycle mechanics and vehicle painters.

Burkina Faso is one of the poorest countries in the world. Until now, farming has been practically the only way of earning an income, so it is difficult for young people to develop future prospects. Only a few girls and women have a chance to gain school qualifications or do an apprenticeship. ATTous-Yennenga, a partner of terre des hommes, is training 150 girls and women from difficult social backgrounds to be car electricians, motorbike and bicycle mechanics and vehicle painters at two training centers in the cities of Ouagadougou and Koudougou. The young women are also given support when it comes to finding a job. Since these technical occupations were previously the preserve of men, ATTous is fighting alongside the women to break down prejudice – in society and among potential employers.



07 Environmental Responsibility



Environmental Responsibility

IAV is aware of its responsibility to the environment, to society and to its employees and consciously sets itself the task of combining business success with ecologically responsible conduct, with special emphasis on the economical use of resources and the avoidance of environmental impacts. Our aim is to exploit, throughout the company, all possible energy-saving potentials in the operation of our buildings, plants and vehicles.

IAV's environmental policy ensures that ecological aspects are taken into account at

an early stage in investment decisions in order to restrict to a minimum the consumption of resources and emissions from our buildings and other facilities. The development projects which we carry out on behalf of our customers comply with all current and future legal requirements.

No cases of non-compliance with environmental legislation and standards [307-01] or with voluntary codes of conduct were discovered during the 2017 reporting period.

7.1 Environmental Protection

It is our aim to use our expertise and our innovative power to support IAV's business partners and customers in developing resource-efficient technologies. Our activities are geared at all times toward the development of cutting-edge, economical and environmentally friendly products.

[103-02]

We pay strict attention to environmental protection and are continuously seeking potentials for improvement in all our working

processes. Natural resources must be used rationally and economically, and unnecessary environmental pollution must be prevented. Active environmental protection is a matter of course to us, while the improvement of our own energy efficiency is a fixed component in the provision of our services. Our use of simulation systems and diverse test benches and dynamometers enables us to eliminate a large number of high-impact flights, vehicle movements and prototypes. IAV thus makes an active contribution to environmental protection. The use of modern communication media (video-conferencing, web meetings etc.), avoiding many business trips, is a further bonus for environmental protection.

[\[103-02\]](#)

We conduct regular energy audits and consistently implement measures to enhance efficiency. New IAV buildings are constructed and operated in conformity to state-of-the-art energy standards. [\[103-02\]](#)

More detailed information can be found in the sections on "Sustainable engineering".



7.2 Environmental Management System

Global change is one of the greatest challenges of our age, the prime focus being on climate-protection and the sustainable use of resources. These topics play a central role at IAV. We focus on developing new technologies and are continuously optimizing our operational environmental protection practices and our resource efficiency.

[\[103-02\]](#)

IAV is currently implementing an environmental management system in conformity to ISO 14001 in order to improve and

concentrate our activities in the field of environmental protection, and is targeting certification of this system in 2019. An important element in attaining this is the publication of IAV's updated environmental policy in its integrated management manual. Here we refocus the orientation of our own environmental protection activities, while simultaneously expanding our scope to include upstream and downstream processes at our suppliers and service providers. [\[103-02\]](#)

Our intention here is to determine all inputs, outputs and environmental effects over the entire life cycle of all processes, products,

buildings and facilities in order to attain greater transparency and a substantiated basis for the future planning and development of energy efficiency. The protection of the environment, reduction of life cycle costs and the assurance of health, comfort and well-being in our buildings are the principal aims of our sustainability strategy. [\[103-02\]](#)

7.3 Ressourcenbedarf und Effizienz

As a company active in the field of automotive engineering services, IAV operates a diverse range of test facilities, computing capacities and vehicles. We also maintain several ten thousands of square meters of office and workshop space for our employ-

ees and the practical tasks at hand. IAV GmbH successfully passed an energy audit to DIN EN 16247, Part 1, in 2016. This audit result is valid until August 2020.

A total energy consumption of some 290 million MJ resulting from our business activities was recorded for the year 2017. The greater part of this, at around 36 %, was made up by electricity, followed by nearly 34 % for fuel for the operation of our engine test beds and IAV's vehicle fleet. Nearly 28 % was accounted for by thermal energy needed for the air-conditioning of our buildings. Energy recuperation and feedback into IAV's internal grid from the engine test beds enabled us to meet nearly 3 % of our total energy demand and around 8 % of total electric power demand from this source.

Energy needed for cooling and for generation of steam is not currently recorded separately, and this data is included in the figures mentioned below. There were no sales of energy or any energy feedback into the public grid in 2017. [\[302-01\]](#)

Assessing the total energy consumption and the number of employees – 6,588 (status: 31 September 2017) – results in an energy intensity rate of 44,074 MJ/employee. The consumption of energy not arising directly in relation to IAV's activities (for business trips using rail or air transport, for example) is not taken into account here. [\[302-03\]](#)

For smaller sites, in particular, billing of the various energy sources takes place only annually, and the final annual energy bills are

Index	Description	Energy consumed (TJ)	Percentage (%)
302-1 a.	Consumption of fuel from non-renewable sources (gasoline, diesel, hydrogen)	97.53 TJ	33.5 %
302-1 b.	Consumption of fuel from renewable sources (E30, E100)	0.96 TJ	0.3 %
302-1 c.i.	Electricity consumption	103.38 TJ	35.6 %
302-1 c.ii.	Consumption of energy for heating/consumption of gas	80.51 TJ	27.7 %
302-1 c.iii. and 302-1 c.iv.	Consumption of energy for cooling and generation of steam	Not separately recorded	
302-1 d	Energy sales	0 TJ	0 %
	Energy used from energy feedback	7.99 TJ	2.8 %
302-1 e	Total energy consumption	290.36 TJ	100 %

not yet completely available at the time of this report; for this reason, the data for 2016 has been included in the calculation for these locations. For individual vehicles in the fleet no recorded consumption data was available. These vehicles are therefore not taken into account. The aim is to close this gap in our statistics for the next report.

[302-01]

Data supplied by the energy utilities, such as data surveys for smart meters and final annual invoices, and our own measurements, were used in some cases for acquisition of this data. The energy content of the quantities of fuel consumed was determined using the relevant conversion factors.

[302-01]

Environmental Impact of IAV's Company Vehicle Fleet

The continuous modernization of the company's fleet of vehicles and the systematic creation of incentives for selecting vehicles with low CO₂ emissions made it possible to reduce the fuel consumption of the company's vehicle fleet and the real greenhouse-gas emissions derived from this by more than 15 % compared to the previous year.

IAV proposes the purchase of e-vehicles and vehicles with low CO₂ emissions on the basis of the company vehicle policy.



IAV currently operates
54 AC
charging stations,
each of **22 kW**
charging capacity.

The environmental impact of IAV's vehicle fleet has been modeled/calculated using information provided by the internal fleet management tools. The following background data is used for this calculation:

- Real Driving Emissions (RDE)*
- Vehicle information (make, model, fuel type, emission class)
- Mileages from leasing agreements

**editorial amendment made on July 17, 2018*

E-Mobility and Charging Infrastructure

IAV currently operates 54 AC charging stations, each with a charging capacity of 22 kW. In addition, one 150 kW DC charging station is available for e-vehicles at the Sindelfingen and Gaimersheim locations. Two charging stations are publicly accessible at our Berlin site. These charging stations serve not only our test vehicles and the purpose of testing charging technologies, they also enable our employees and our guests to charge their vehicles. IAV's charging infrastructure is continuously being expanded and is an important element in new building projects. At the Gifhorn location, for example, six new 22 kW AC charging stations with twelve charging points were provided when IAV moved into a new building. Charging of e-vehicles is free for our employees and our guests.

Measures to Increase Efficiency

IAV is pursuing a whole series of activities focusing on energy efficiency, water efficiency and waste avoidance. In addition, IAV is also implementing a raft of other measures to improve ecological, economic and social sustainability: [\[302-04\]](#)

- Analysis of life cycle costs – from the idea, via planning, construction, operation and refurbishing up to and including demolition/disposal
- Reduction of operating costs by means of process optimization and common standards
- Enhancement of space efficiency by means of optimized utilization planning and purchasing of furniture
- Greater flexibility in site/space utilization thanks to third-party utilization, including sub-letting
- Enhancement of building value via sustainable concepts for facility technology

Water Consumption

A total water consumption of some 55,600 cubic meters was recorded for the year 2017. This water was obtained solely from the municipal water utilities. There was no utilization of surface water, groundwater or rainwater. The final invoices for the year submitted by the water utilities were used for calculation of consumption. [\[303-01\]](#)

Here, again, the year 2017 is used as the reference year and the consumption figures determined for it are set as reference quantities for future calculation of the reductions achieved in water consumption. Measures already implemented for the

reduction of water consumption take the form of: [\[303-01\]](#)

- Sustainable use of rainwater via the utilization of swale infiltration at the Grossmehring location
- Reduction of water consumption via two-stage water flushing and sensor-controlled urinals

Waste Management

All varieties of waste are collected separately at IAV GmbH and disposed of in the prescribed manner. We thus make an active contribution to environmental protection. Adherence to the German Waste Manage-

ment and Product Recycling Act and the Commercial Waste Regulations is a matter of course for us. IAV employs a Company Waste Officer who, inter alia, informs the persons responsible for waste at the sites concerning any legislative changes, agrees the separation, collection and disposal of waste with them, and drafts an annual report concerning the waste disposed of. [\[306-02\]](#)

A total waste volume of around 398 tons was recorded for 2017. This was made up of just under 74 % non-hazardous and 26 % hazardous waste. [\[306-02\]](#)

Disposal is performed via certified disposal companies. Actual disposal is documented

Index	Description	Quantity E	Percentage
306-2 a	Hazardous waste	104.2 t	100 %
306-2 a.i.	Hazardous waste – reuse	7.9 t	7.6 %
306-2 a.ii.	Hazardous waste – recycling	10.2 t	9.8 %
306-2 a.v.	Hazardous waste – waste incineration	44.8 t	42.9 %
306-2 a.ix.	Hazardous waste – R12 (in acc. with Annex 2 of the German Waste Management and Product Recycling Act)	0.3 t	0.3 %
306-2 a.ix.	Hazardous waste – other waste for disposal/recycling	41.0 t	39.3 %
306-2 b	Non-hazardous waste	294.3 t	100 %
306-2 b.i.	Non-hazardous waste – reuse	17.2 t	5.8 %
306-2 b.ii.	Non-hazardous waste – recycling	160.6 t	54.6 %
306-2 b.v.	Non-hazardous waste – waste incineration	83.2 t	28.3 %
306-2 b.ix.	Hazardous waste – other waste for disposal/recycling	33.3 t	11.3 %

by means of certificates. Each individual disposal company is responsible for deciding on the mode of disposal in each case. In accordance with the German Waste Management and Product Recycling Act, reuse, reprocessing for reuse and recycling are in all cases to be preferred over any other disposal route (e.g. thermal valorization). It was possible in 2017 to reuse or recycle around 60 % of non-hazardous and around 17 % of hazardous waste. [306-02]

Here, again, 2017 is set as the reference year and the figures determined for it as relative reference quantities for future calculation of the reduction achieved in the volume of waste produced and increases in the rates of reuse and recycling. [306-02]

Leakage of Hazardous Substances

Thanks to the consistent planning, operation and maintenance of our facilities, concerned

about safety and environmental protection, there was no significant leakage of any harmful substances during the 2017 financial year. [306-03]

Transportation of Hazardous Goods

IAV has carefully defined processes for the transportation of hazardous goods. The company has appointed a Hazardous Goods Officer to assure and monitor adherence to applicable internal and external rules and for further development in this field. The officers dealing with road and sea transport are examined by the Chamber of Commerce. In addition, the Hazardous Goods Officer and other employees also possess certification for Personnel Category 1 of the IATA Dangerous Goods Regulations (DGR) and are thus authorized to ship hazardous goods by air. These officers are located at the various company sites. There is regular reporting and also ad-hoc notifications to management on this topic.

The IAV employees involved with the transport of hazardous goods are instructed in line with their tasks and activities. These employees are supported by the Hazardous Goods Officer and assisted in transporting hazardous goods.

There were no notifiable occurrences for which an accident report as defined in Annex 2 of the Hazardous Goods Officers Ordinance would have been required during the reporting period.

08 About this Report



About this Report

With this Sustainability Report for the 2017 financial year, IAV GmbH is documenting for the first time the current status and planned activities relating to sustainability.

[102-48; 102-49]

In future this report will be published annually. [102-52]

Neither IAV GmbH nor the IAV Group was subject in the 2017 financial year to the obligation to report under HGB § 289b (German Commercial Code) governing non-financial reporting. Nevertheless, we wish to use this format to give an insight into our sustainable business activities.

There was no external audit or certification. In the 2017 financial year (January 1 to December 31, 2017) [102-50] this report is not an obligatory report format, nor is it a component of the annual accounts. [102-56]

In the core statements this report relates to IAV GmbH; differing considerations are marked accordingly.

8.1 Definition of the Report Content and Topics

[102-46] The report content was defined on the basis of a stakeholder analysis and its reconciliation with the measures planned for the financial year and carried out.

The reporting draws on existing report structures and key performance indicators. Information that was lacking or demanded by the GRI standards was added.

Stakeholder Analysis

As part of the reporting, a stakeholder analysis was conducted for the first time focusing on sustainability. It was carried out [102-43] in the form of a "survey of sponsors": in-house sponsors were defined to represent a group or individual stakeholder, answering questions and giving their assessments of how crucial the aspects were from the perspective of their particular group. The primary selection criterion for the sponsors was their relevance in terms of expertise and substance.

[102-42] The stakeholders were selected on the basis of an analysis of the environment. This identified the key stakeholders with which IAV interacts. They include clients, suppliers, staff and other groups.

[102-40] Stakeholder groups taken into consideration:

- Clients
- Suppliers
- Staff
- Employee representatives
- Shareholders/Supervisory Board
- Investors
- Local authority representatives
- Competitors and counterparties
- NGOs
- Inspectors and auditors

[102-46] The key issues identified are nothing new to IAV. In the appropriate sections and corporate divisions within IAV, they were implemented, developed further, regularly scrutinized and reported to the management. Most of them were put into practice in management systems.

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8.3 List of Abbreviations

Abbreviation	Explanation
BEV	Battery Electric Vehicle
CoC	Code of Conduct
CSR	Corporate Social Responsibility
DCGK	<i>Deutscher Corporate Governance Kodex</i> (German Corporate Governance Code)
DGR	Dangerous Goods Regulations
DIN	<i>Deutsches Institut für Normung e.V.</i> (German Standardization Institute)
GDPR	General Data Protection Regulation
GmbH	<i>Gesellschaft mit beschränkter Haftung</i> (German limited liability company)
GRI	Global Reporting Initiative
HGB	<i>Handelsgesetzbuch</i> (German Commercial Code)
ISO	International Standardization Organization
LCA	Life Cycle Assessment
NGO	Non-Governmental Organization
RDE	Real Driving Emissions

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We gathered the information and data contained in this report with the utmost diligence. All the content of the report was checked by those responsible for it. Nevertheless, we are unable to rule out errors. Insofar as we make statements on the future development of our company, they are based on information and forecasts available at the time of publication. The current Sustainability Report was published on June 29, 2018 and is entitled "IAV Sustainability Report 2017".