

We specify working capital targets for the individual companies in the DEUTZ Group in order to optimise the capital tied up in the business. These overall figures are then broken down and specific targets for inventories, trade receivables and trade payables are allocated to the relevant individual employees.

We are pursuing long-term growth objectives. In order to secure the financial basis for this, we have made the management of capital expenditure a central element in the management of tied-up capital: clearly specified budget figures set out the framework for the level of capital expenditure and development expenditure; actual requirements are derived from the medium-term planning of unit sales and the resulting requirements in terms of capacity and technologies. Annual budget meetings are held to coordinate individual projects, development expenditure and planned capital expenditure with the groupwide financial planning process and to record the outcomes. An additional detailed review is carried out before projects are actually approved. To this end, we use standard investment appraisal methods (internal rate of return, amortisation period, net present value, the impact on the income statement and cost comparisons). A project with an appropriate budget is only approved if there is a clear positive outcome from this investment appraisal.

## BUSINESS PERFORMANCE IN THE DEUTZ GROUP

### ECONOMIC ENVIRONMENT

**Global growth rate at prior-year level** Worldwide economic growth remained at a moderate level last year. The International Monetary Fund (IMF)<sup>1)</sup> is expecting global economic growth of 3.1 per cent for 2016 as a whole, compared with 3.2 per cent in 2015.

The economy of the eurozone grew by 1.7 per cent in 2016, which was slightly weaker than the increase of 2.0 per cent in 2015. Germany's economy stepped up the pace of growth slightly, expanding by 1.7 per cent year on year (2015: growth of 1.5 per cent). The Spanish economy again performed very encouragingly with a growth rate of 3.2 per cent, which was the same as in 2015. France was also on a par with the previous year with growth of 1.3 per cent. Italy's growth increased slightly from 0.7 per cent in 2015 to 0.9 per cent in 2016.

The US economy expanded by 1.6 per cent (2015: 2.6 per cent). This slowdown in the pace of growth was due to declining levels of capital investment. The economy in China held steady over the course of the year thanks to more expansionary economic policy. Gross domestic product (GDP) rose by 6.7 per cent over 2016 as a whole, compared with 6.9 per cent in 2015. The Russian economy remains in recession; South America's performance was weaker than originally anticipated.

<sup>1)</sup> IMF World Economic Outlook Update, January 2017.

Overall, the economic environment was characterised by a variety of risks and uncertainties in 2016, such as the vote for Brexit in the United Kingdom, and these will continue to have an impact this year. China is in a state of transition with a lower growth rate than in previous years and a shift away from the strong export model. The economic effects of the outcome of the US election cannot yet be gauged.

**Mixed picture in DEUTZ's customer industries** The situation varied significantly across DEUTZ's main customer markets in 2016. According to DEUTZ's own estimates, demand for construction equipment rose by around 5 per cent in both Europe and China. However, unit sales of construction equipment fell by approximately 5 per cent in North America. The European agricultural machinery sector contracted again, with demand declining by 5 per cent in 2016.<sup>2)</sup> Unit sales of light and medium-duty trucks in China improved by around 7 per cent according to DEUTZ's own estimates.

### IMPACT OF ECONOMIC CONDITIONS ON BUSINESS PERFORMANCE

**Uncertainties hold back investment activity** Overall, the economic environment was characterised by a variety of risks and uncertainties in 2016 that will continue to have an impact this year. The tendency is therefore for a wait-and-see stance as far as investment activity is concerned. Moreover, prices for oil, commodities and agricultural goods were again at a very low level in 2016, although they did rise over the course of the year. However, higher prices would encourage investment in the relevant areas – and thus would benefit business at DEUTZ.

While the global economy grew by 3.1 per cent in 2016, revenue at DEUTZ rose by 1.0 per cent. The economy in the eurozone expanded by 1.7 per cent in the year under review. Against this backdrop, the situation varied significantly across DEUTZ's main customer markets in Europe. Whereas demand for construction equipment rose, there was a decline in the agricultural equipment sector. Nevertheless, DEUTZ was able to increase its unit sales of engines for agricultural equipment applications because demand in the previous year had been very low due to customers using up their inventories. In 2014, they had purchased significant volumes of engines ahead of a new emissions standard. DEUTZ's revenue in its largest market, EMEA (Europe, Middle East and Africa), rose by 3.3 per cent in 2016.

Economic growth in the United States slowed to 1.6 per cent in the reporting year (2015: 2.6 per cent). DEUTZ's revenue in North America fell by 13.0 per cent. This was largely caused by declining unit sales of engines for construction equipment in North America and by rental companies' reluctance to invest.

Momentum in China, our key international market, slowed again, with economic growth of 6.7 per cent (2015: 6.9 per cent). However, the markets for construction equipment and for light and

<sup>2)</sup> Konjunkturbulletin of the German Engineering Federation (VDMA), February 2017.

medium-duty trucks stabilised following sharp decreases in previous years. DEUTZ's revenue in the Asia-Pacific region rose by 15.9 per cent thanks to the positive impact of new customer projects.

## RESEARCH AND DEVELOPMENT

### Research and development expenditure (after deducting grants)<sup>1)</sup>

€ million (R&D ratio in %)

2016	50.4	(4.0)	
2015	40.8	(3.3)	
2014	53.1	(3.5)	
2013	52.6	(3.6)	
2012	62.1	(4.8)	

<sup>1)</sup> Spending on research and development after deducting grants received from major customers and development partners.

**R&D spending stepped up as planned** Expenditure on research and development in 2016 amounted to €53.5 million (2015: €49.5 million). After deducting grants received from major customers and development partners, expenditure was €50.4 million (2015: €40.8 million). The R&D ratio (after deducting grants), i.e. the ratio of net development expenditure to consolidated revenue, increased as planned to 4.0 per cent (2015: 3.3 per cent). The rise in R&D expenditure compared to the low level of spending in the prior year was largely attributable to the expansion of our product range and the continuous improvements to current engine series. In the year under review, 18.1 per cent of development expenditure after deducting grants was capitalised (2015: 31.9 per cent).

R&D spending by the DEUTZ Compact Engines segment after deducting grants came to €47.7 million (2015: €38.2 million) and that of the DEUTZ Customised Solutions segment came to €2.7 million (2015: €2.6 million).

**Stage V ready** In previous years, we had completely overhauled our engine portfolio in connection with the introduction of the EU Stage IV/US Tier 4 emissions standards. Our latest 'Stage V ready' TCD engines in the 2.9 to 16.0 litre capacity range are already equipped to meet the next European emissions standard, EU Stage V<sup>1)</sup>, which comes into effect in 2019. The diesel particulate filters needed to ensure compliance are now available as standard or as an option for engines with a capacity up to 7.8 litres. A diesel particulate filter meeting the new emissions standard will be introduced for all the other engines that will not require much additional space for installation. It is not yet known whether a further emissions standard will be introduced in the USA.

**Expansion of the product portfolio** We plan to enhance our product range with further developments. One of these is the D/TD/TCD 2.2, a three-cylinder engine that we are developing on the basis of the existing four-cylinder engine with a 2.9 litre capacity. In addition, we will offer smaller engines not only in a diesel variant but also in a liquefied petroleum gas (LPG) variant. The latter is a particularly interesting option for forklift trucks and other material handling applications. We are also currently developing a completely new 5 litre engine with four cylinders. The TCD 5.0 will supplement the DEUTZ product range in the 100 to 150 kW power range and is, at the same time, the first step in renewing our medium-duty engine series. The design of the engine's underlying technology features minimum pipework, fewer components, strict separation between the hot and cold sides to avoid the need for heat protection measures and a reduction in performance losses from the oil and water circuits. Another feature is its overhead camshaft.

**Preliminary development work at a high level** Exhaustive research and development will continue to form the basis for innovative products and services from DEUTZ in future. We have recently expanded our activity in the field of alternative fuels. As well as looking at natural gas, we are also focusing on hydrogen and fuels that are generated from renewable sources, and we have taken steps to expand our work with universities and other research institutes. A key focus of our preliminary development work is the combination of internal combustion engines and electric motors (hybridisation). We have also continued to concentrate on data transfer and analysis (Industry 4.0) so that we can offer our customers new services in the future.

**Intellectual property rights safeguard our know-how** We protect our know-how from unauthorised outside use by means of patents, patent applications and utility models. In 2016, we submitted 14 new patent applications, eight of which were in Germany. We now hold a total of 147 patents registered in Germany and 178 registered elsewhere.

## PROCUREMENT

Last year was characterised by an overall recovery in the commodities markets. Key purchasing objectives were achieved, such as reducing costs, ensuring continuity of supply, optimising quality and implementing embedded material group strategies.

**Commodity prices rising** While prices had continued to fall in the primary markets in 2015, the trend was reversed in 2016. Overall, all the average prices for the year were slightly higher than the ranges that had been forecast. However, commodity prices have only a limited influence on the price at which DEUTZ procures parts from suppliers because there is a very high element of value added.

<sup>1)</sup> Regulation (EU) 2016/1628 of the European Parliament and of the Council dated 14 September 2016.