



National
Qualifications
2021 ASSESSMENT RESOURCE

X810/77/11

**Business Management
Case Study**

Duration — 2 hours 45 minutes

It is recommended that you spend 15 minutes reading the information provided before responding to the questions.

You will find the questions in the question paper X810/77/21.



* X 8 1 0 7 7 1 1 *

BMW Group

Background

Bayerische Motoren Werke (BMW) Group is a German multinational company which produces luxury automobiles and motorcycles. It operates on a global scale, and its products are sold in more than 150 countries. With over 100 years of experience, BMW Group's production scale is vast, with it currently operating 31 facilities in 14 countries including: Germany, Brazil, China, India, South Africa, the United Kingdom and the United States.

With its headquarters in Munich, Germany, BMW Group is structured into three main divisions: automotive, motorcycles, and financial services. It operates many brand names, the most prominent being: BMW, MINI, and Rolls-Royce. It is one of the few automotive manufacturers that focuses exclusively on the premium segment with all of its brands.

Fully-electric MINI in China

After considerable time spent on research and development, BMW Group has confirmed production of a fully-electric MINI vehicle. The production of the all-electric vehicle will be primarily manufactured in China, with BMW Group setting up a new manufacturing facility through a 50:50 joint venture agreement with Chinese manufacturer Great Wall Motor (GWM). With a combined investment of around ¥5.1 billion, the new state-of-the-art production facility will be built in the densely populated Jiangsu Province, with most of the vehicles being exported to other markets outside of China.

China is at the forefront of the electric vehicle revolution, with industry-leading technology. The market for electric cars is much greater there than in any other country. However, in recent times there has been a rising level of debt in China within the private sector, which has prompted the Chinese Central Bank to tighten monetary policy.

BMW Group entered China in 1994 and currently produces China's top-selling luxury automotive brand. It is the only car manufacturer in the premium segment that produces locally in China. With approximately 600,000 cars sold by BMW Group in China every year, it is its largest global market.

China's automotive market is sternly regulated, with foreign ownership of electric vehicle businesses being limited to 50%. However, under new government rules these restrictions are expected to be completely abolished by 2022. As a result, Tesla Inc, an American company specialising in the manufacture of electric cars, has announced it will be establishing new, wholly-owned production facilities in China.

Committed workforce

BMW Group claims its employees are the foundation of its success. It offers employees comprehensive opportunities for personal development, above-average salaries and gives them continuous training. It also operates internal talent-scouting and high-potential programmes to advance certain employees' career progression.

With the demand for alternative working practices continuing to grow, BMW Group offers its employees a wide range of options so they can tailor their working hours and locations to their personal needs, where possible. All employees can exert some influence over their working hours. For example, office employees can take advantage of flexitime by altering their start and finish times. BMW Group also offers employees options, such as sabbaticals¹.

In 2019, over 36,000 employees (approximately 70% of those working outside the direct production areas) made use of teleworking, whereby employees use technology to work from a location of their choice on a mobile basis. In 2020, due to the global coronavirus pandemic, the number of employees utilising teleworking practices increased.

(Exhibit 1 shows an extract of BMW Group's alternative working practice statistics.)

[Turn over

¹A **sabbatical** is a period of unpaid leave granted to an employee by an organisation. Within the BMW Group the duration ranges from one to six months.

'Smart Factory' technology

With the production of BMW Group's electric vehicles, the company reviewed its traditional approaches to manufacturing and devised the 'Smart Factory' strategy. BMW Group's most developed manufacturing sites now combine innovative materials, self-driving systems and use of data analytics to create the most efficient production cycles.

Lightweight materials

The design of electric vehicles uses lightweight carbon fibre components which can be used in a unique bonding production technique where there is no need for screws, rivets and welding. This process also reduces the work in the paint shop making the production line much shorter: a smart factory assembly line is 110 metres long as opposed to a traditional assembly line which can measure several kilometres. As a result, the production time of a vehicle has gone from 40 hours in a conventional assembly line down to 20 hours in its smart factories.

Robotic logistics

BMW Group's manufacturing sites use self-driving robots. The robotic vehicles transport components, up to 500 kilograms, throughout the factory and are sustainably powered with recycled batteries from previous BMW electric car models. BMW Group's smart robots are equipped with multiple sensors which allow them to find their destinations independently within the factory and their navigation is not restricted by conventional rails or floor-mounted tracks on the factory floor.

Data analytics

Throughout the supply chain BMW Group gathers masses of data which is continuously analysed to improve its manufacturing. This allows BMW Group to digitise its just-in-time (JIT) inventory management system: each component in the production process can be identified with a unique code and a digital mapping programme, which can be used so that parts can be automatically ordered as required, without the need to stockpile.

Energy efficiency

Smart factory production requires 50% less power and 70% less water per car compared to traditional production. BMW Group invested in wind turbines located on-site to generate some of the electricity required.

(Exhibit 2 shows an extract of BMW Group's financial data.)

Electrification strategy

Electrification is central to BMW Group's corporate strategy, with the aim that all of its brands and models becoming fully electric. BMW Group has already invested more than €100 million in electro-mobility, with investment continuing as BMW Group's range of electric vehicles further expands. It currently produces electric models at 10 plants worldwide.

By 2025, BMW Group expects sales of electric vehicles to increase to 15–25% of its total sales revenue. However, regulation factors vary from market to market, such as the UK Government's 'Road to Zero' strategy which sets out a goal for all new cars to be effectively zero emission by 2040. The availability of incentives and the limited electric vehicle charging point infrastructure in many countries will also play a major role in determining the extent of electrification. Today, BMW Group offers the widest range of electric vehicles of any car manufacturer in the world, with 9 models already on the market.

Sustainability

Renewable energy plays a crucial role in the reduction of CO₂ emissions. In order to tackle the effects of climate change, BMW Group aims to purchase its electricity worldwide exclusively from renewable energy sources.

(Exhibit 3 shows an extract of BMW Group's key sustainability indicators.)

[Turn over

Exhibit 1**BMW Group's alternative working practice statistics**

	2019	2018	2017	2016
Number of employees	133,778	134,682	129,932	124,729

% of total number of employees				
Part-time employees	6.4%	5.6%	5.2%	5.0%
Sabbaticals	0.9%	0.7%	0.6%	0.7%

% of total number of employees (outside of direct production areas)				
Teleworking positions	69.4%	66.1%	63.3%	59.4%

Exhibit 2

Extract of BMW Group's financial data

	2019 € m
Sales Revenue	104,210
Cost of Sales	(86,147)
Gross Profit	18,063
Profit for the Year	5,022
Current Assets	90,630
Current Liabilities	85,502

Extract of BMW Group's ratio analysis

Gross Profit percentage	17.33%
Profit for the Year percentage	4.82%
Current ratio	1.1:1
Acid Test ratio	0.9:1

Other relevant statistical information

	2019	2018
Sales of electric vehicles (units)	146,160	142,385

[Turn over

Exhibit 3

Extract of BMW Group's key sustainability indicators

	2019	2018	2017
ENVIRONMENTAL			
Energy consumption per vehicle produced (MWh)	2.04	2.17	2.17
CO ₂ emissions per vehicle produced (tonnes)	0.30	0.40	0.41
Waste for disposal per vehicle produced (kg)	4.09	4.27	3.86
Share of renewable energy purchased from third parties (%)	87%	78%	81%
EMPLOYEES AND SOCIETY			
Share of women in management positions at BMW Group (%)	17.5%	17.2%	16.0%
Expenditure on donations by the BMW Group (€000)	14,847	15,829	16,205
Average days of non-core training per BMW Group employee (days)	3.3	3.4	3.4

[END OF CASE STUDY]

Acknowledgement of copyright

Case study Case study on BMW is adapted from BMW website and annual reports 2014–2017. Reproduced by kind permission of BMW Group.