



The VOLKSWAGEN GROUP BOARD REPORT 2019

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Contents**29/04/2019 00:55:12**

Current issues.....	2
Scenario 1: Strategy and Cost Optimization.....	2
Analysis.....	2
Problems identified.....	2
Our Recommendations for the problems above.....	3
Scenario 4: Product Portfolio Rationalization.....	4
Analysis.....	4
Problems identified.....	4
Our Recommendations for the problems above.....	4
Appendix.....	6
Future.....	8
Scenario 2: Strategic Sourcing of Cobalt in Africa.....	8
Analysis.....	8
Problems identified.....	8
Our Recommendations for the problems above.....	9
Scenario 3: E-Mobility Strategy.....	9
Analysis.....	9
Problems identified.....	10
Our Recommendations for the problems above.....	10
Survival.....	11
Scenario 5: Paris Accord and Environmental Legislation.....	11
The Automotive industry: Through VW AG.....	12
Summary of our Recommendations.....	13

Current Issues

These are the issues the board must resolve before focusing on Strategy 2025, their future.

Scenario 1: Strategy and Cost Optimisation

Our Analysis:

Herbert Diess, the new CEO of the VW Group, appointed by the Supervisory Board as the leader of group-wide R&D and Vehicle connectivity whilst maintaining his position as leader of the volume segment suggested that cost savings can be generated if the functional units of cost of sales, administrative expenses and selling costs are centralized under his authority. The table below summarizes and calculates the total expected savings.

Cost Category	Portion of costs (p)	Respective costs (C) in million euros	Total savings in million € ($p \times C$)
Cost of sales	1.5%	198500	2977.50
Administrative expenses	2%	9600	192.0
Selling costs	2.5%	23442	586.05
			3755.55

The volume segment that Herbert manages yielded a loss of €59.5 million in the first quarter of operation. In their assumptions for preparing the 2018 forecast income statement, two things were observed: (1) the volume segment contributed 51% (i.e. €6800/€13298) to direct factory overheads yet (2) it contributed only 6% (€2961/€47400) to gross profit. That decreased the operating margin to 5.68%.

Problems identified

1. The centralization of the functional units under Herbert's authority will surely guarantee the generation and accrual of the cost savings but the repercussions of doing so will negatively affect the profitability of the VW Group in the longer run. These problems are highlighted below:

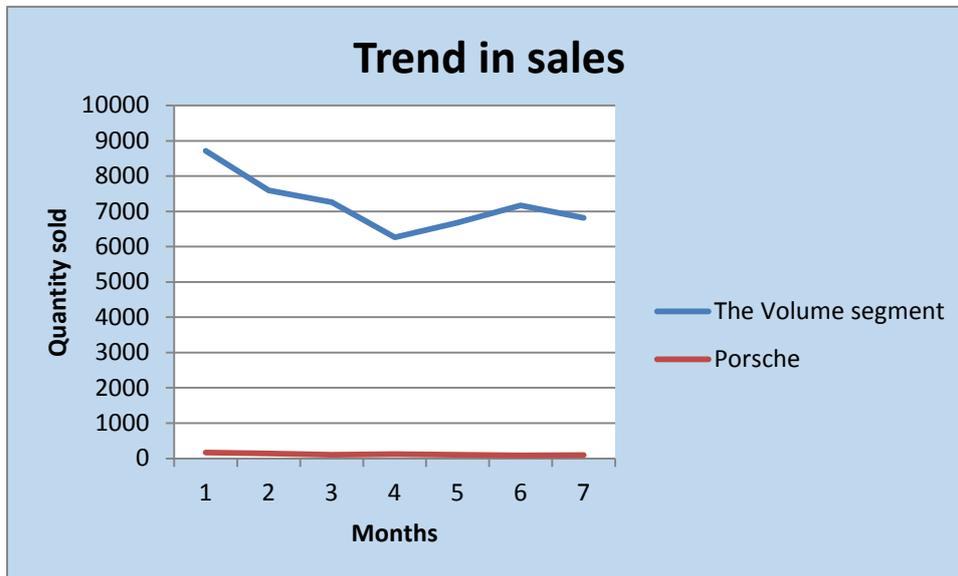
Centralization will create bottlenecks as the Sales and Human Resources managers will have to report to him and cannot implement policies that behave the VW Group if profitability is to be prioritized.

Centralization will also distract Diess and make him less efficient. If the functional units are centralized under Diess, he would become distracted as he would try to guarantee that those cost savings are accrued and, as a result, not make profitable decisions to boost gross profits from the volume segment, his utmost responsibility.

Finally, the centralization of the functional units will be in direct contradiction of KPA 3 which the VW Group had made that states VW must open up the group's insular corporate culture

and get away from rigid decision-making processes that slow the company down and impact [negatively] on profitability.

2. The next problem is the suggestion to ditch the volume segment. To back our resulting recommendation, we drew the following chart that observes the trend of buyers back in 2016 when VW was second to Toyota.



As the figure shows, there was a consistent decline in sales for the Porsche a super-premium car back in 2016 using South Africa as a representative market. The volume segment, on the contrary, had fluctuations from January through to July, and sales increased significantly from April through June, the second quarter, before declining again.

It could then mean that VW must get rid of some cars in the

volume segment because one of the major reasons why sales increased in the graph above is because the three-door Polo Vivo was ended. This data would be necessary in deciding whether to ditch production of all cars in the volume segment or holding on.

Our Recommendations for the above problems

The Volkswagen Group should not centralize the functional units under Herbert's authority but rather delegate authority to the Branch executives to implement decisions that will benefit the Group.

Also the Group should make the cars in the volume segment more profitable to consumers, this would make consumers believe that the cars are beneficial to own than to forgo. This would lead to more sales and alongside ending the production of the models that are loss-increasing and not valued by consumers, that is, models not being bought should be discontinued.

Make the volume segment more profitable to VW AG by getting management to derive the gross margins of each model in the volume segment and simply cease production of models contributing more to cost than revenue since the general performance of the vehicles in the volume segment is directly related to the individual performance of the individual models within the volume segment.

Scenario 4: Product Portfolio Rationalization

Analysis:

What is a product? What is a portfolio? What is rationalization? Hence, what is product portfolio rationalization? A product is anything made by human or mechanical effort or by a natural process; a portfolio is the official document containing the products marketed by a firm; rationalization is the act of justifying something or to interpret something from a rational standpoint. Thus, *product portfolio rationalization* is the justification of the existence of all products in a company's portfolio. Hence, portfolio simplifications should mean the reductions, on the basis of ensuring highest profitability, in the number of products marketed by a firm.

In this regard, experts at Goldman Sachs say that there is hidden treasure worth €160 billion that could be “unlocked” through such portfolio simplifications which has been made manifest by the benefits being enjoyed by Fiat and Daimler AG who have engaged in them.

Problems identified

1. A loss was made in the first quarter by the volume segment. In our investigation, we noticed that the gross margin per cent component in the price caused the loss. To prove this, we used economic logic:

If one car is sold, then sales equals price, €11549.88 and gross margin will be 15% of sales as in $15\% \times €11549.88$ which is €1732.48. Direct factory overheads will be €1762.01, thus, gross profit will be $€1732.48 - €1762.01 = (€29.53)$ —a loss.

2. The next problem is that some cars in the volume segment are creating losses for the VW Group. Some cars had been identified which were not profitable but produced and sold nonetheless.

Our Recommendations

1. We recommend an increase in the average price of cars sold. To find a price and resulting gross margin that will make VW get positive gross profits in the rest of the year, we set gross margin at 30% of sales, at most, that is,:

$$0.3 \leq \frac{2.015p - 19782.05}{19782.05}$$

$$0.3 \times 19782.05 \leq 2.015p - 19782.05$$

$$0.3 \times 19782.05 + 19782.05 \leq 2.015p$$

$$25716.665 \leq 2.015p$$

$$p \geq \frac{25716.665}{2.015}$$

$$p \geq 12762.61$$

To prove that this is what VW needs to do, we solve a quantity inequality that holds all other things constant, because we cannot assume that at this high price the same quantity will be bought in the next quarter.

$$2.015 + 2.015 - q + 2.015 + q + 2.015 + q \leq 8.6$$

$$4 \cdot 2.015 - q + q + q \leq 8.6$$

$$8.06 + q \leq 8.6$$

$$q \leq 8.6 - 8.06$$

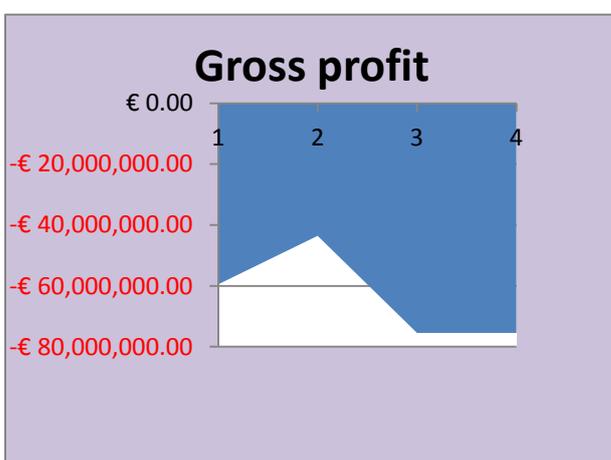
$$q \leq 0.54$$

The table below summarizes our assumptions for the rest of the year's financials.

Items	Values			
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
Quantity sold (in millions)	2.015	1.475	2.555	2.555
Price (€)	11549.88	12762.61	12762.61	10848.22
Gross margin (%)	15	30	30	30
Direct factory overheads per unit (€)	1762.0099	1762.0099	1762.0099	1762.0099

Table 1: the financials if our assumptions are used

The Volkswagen Group 2018 financials				
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Sales	€ 23,273,000,000	€ 18,824,854,028	€ 32,608,475,960	€ 27,717,204,566
Costs	19,782,050,000	13,177,397,819	22,825,933,172	19,402,043,196
Gross margin	3,490,950,000	5,647,456,208	9,782,542,788	8,315,161,370
Direct factory overheads	3,550,450,000	2,598,964,640	4,501,935,360	4,501,935,360
Gross profit	-€ 59,500,000.00	€ 3,048,491,568.05	€ 5,280,607,428.05	€ 3,813,226,009.87



However, if VW continues to sell cars at the original price holding gross margin at 15% of sales, then using our other assumptions, VW would continuously incur losses as the figure shows.

And as can be seen, the losses can be reduced if the number of cars sold is reduced—meaning that if no cars are sold, no losses are incurred. This was the suggestion of Herbert and Blume.

2. In our recommendation, there had been no change in the Group's portfolio. If the cars that increase losses are identified, then their production should be halted. However, the cars that consumers purchase most should be made more beneficial to them. As stated earlier, VW should derive the gross margins of each model to know their contribution to gross profit.

Appendix

We now shift our attention to the forecast income statement provided in the appendix to the cases.

The Income Statement for the Volkswagen Group

	€ millions	€ millions	
Revenues		245900	In this income statement, the cost savings have been added. This means the operating margin is 0.0721 or 7.21%.
Cost of sales		198500	
Gross profit		47400	
Other incomes			
Operating incomes	14500		There is a better alternative which we shall evaluate.
Cost savings accrued	3755.55	18255.55	
New Gross profit		65655.55	
Less expenses			
Distribution expenses	23442		
Administrative expenses	9600		
other operating expenses	12252	45294	
Operating results		20361.55	
Net interest and financial effect		94	
Earnings before tax		20455.55	
Net tax		2731	
Earnings after tax		17724.55	

The financials in Table 1 were substituted into the forecast for the volume segment and new totals were calculated as shown in the table below.

New Assumptions for financial statement forecast

	Totals for the volume segment (€)	Premium segment (€)	Super- premium segment (€)	End of year Totals (€)
Sales	102,423,534,552.58	83,790,000,000	64,500,000,000	250,713,534,552.58
Costs	75,187,424,186.80	58,653,000,000	38,700,000,000	172,540,424,186.80
Gross margin	27,236,110,365.77	25,137,000,000	25,800,000,000	78,173,110,365.77
Direct factory overheads	15,153,285,359.80	3,037,000,000	3,461,000,000	21,651,285,359.80
Gross profit	12,082,825,005.97	22,100,000,000	22,339,000,000	56,521,825,005.97

Table A 1: We replaced the volume segment forecast with ours to ascertain the end of year totals for the Group.

Putting this into the forecast income statement for 2018, we would see this:

Income statement for 2018

	€	€
Revenue		250,713,534,552.58
Cost of sales		<u>194,191,709,546.60</u>
Gross profits		56,521,825,005.97
Other incomes		<u>14,500,000,000.00</u>
New Gross profit		71,021,825,005.97
Less Expenses		
Distribution expenses	23,442,000,000.00	
Administrative expenses	9,600,000,000.00	
Other operating expenses	<u>12,252,000,000.00</u>	<u>45,294,000,000.00</u>
Operating results		25,727,825,005.97
Net interest and other financial effect		<u>94,000,000.00</u>
Earnings before tax		25,821,825,005.97
Net tax		<u>2,731,000,000.00</u>
Earnings after tax		23,090,825,005.97

Then, the operating margin is 0.09 or 9% which is obviously far better than what Herbert believes he can provide if the functional units are centralized under his authority. Since the 9% operating margin is above the 6.75% operating margin minimum, we can say that if our recommendation is heeded, VW AG can start its STRATEGY 2025—delivering on the world's largest e-car push—immediately.

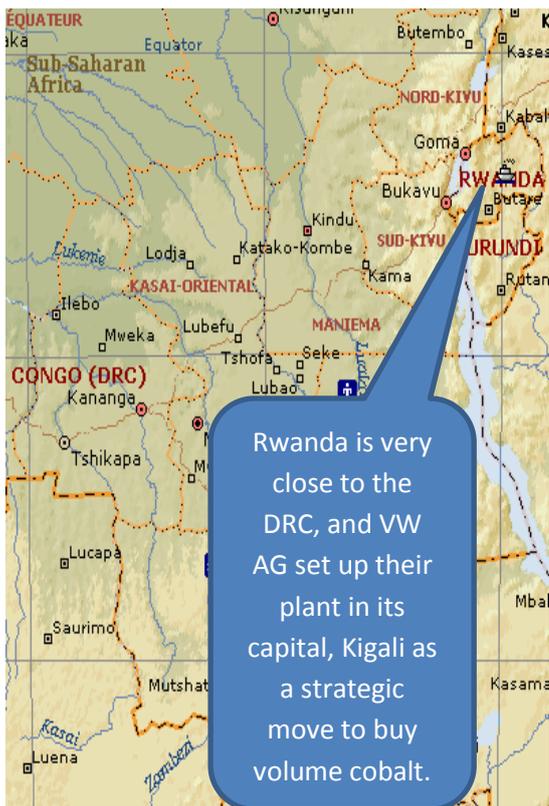
Future

This has to do with issues that VW will have to resolve now in preparation for the long-run, the future of the world.

Scenario 2: Strategic Sourcing of Cobalt in Africa

Analysis

In pursuit of *Strategy 2025*, like other industries, VW AG now contributes to the relatively high demand for cobalt, an integral mineral in producing electric vehicle batteries. For cobalt production, attention is turned to the DRC, known to supply about 60% of the world's marketed cobalt.



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Satisfaction of VW AG's need for cobalt is therefore centred on the DRC. VW's successful entry into Rwanda to launch its "integrated mobility concept and electric vehicle assembly plant" earlier in 2017 is as believed by experts' not only because of Rwanda's political stability, economic prosperity, and attractive incentives, but also for its geographical proximity to the DRC. Although the DRC proves to be the richest in cobalt, the country is known as one of the poorest countries economically and is politically unstable.

The economic depression, along with the relatively high demand for cobalt, has driven over two million citizens into artisanal mining of cobalt for industries. The simplicity of the artisanal miners' practices creates a much lower cost of purchase on the part of cobalt buyers and therefore makes it more attractive to these industries. The scrutiny of their practices however, creates doubts among industries on the standardization of the practices. On the basis of lower cost for suitable quantity of supply, VW AG currently seeks to secure supply from artisanal miners rather than giant mining

companies. Opposition however arises from mining giants and the media suggesting some sub-standard effects of engaging with artisanal miners such as encouraging involvement of child labour, mining without suitable tools and equipment or safety precautions which pose a danger to the lives of artisanal miners.

Problems identified

1. The dilemma of selecting a final source of supply of cobalt: choosing between certified mining corporations and small-scale artisanal miners. Securing supply from small-scale artisanal miners arises as an option due to the relatively lower prices alongside the availability of volume quantity. This, however, overlook the proven fact that workers in these mines do not fully conform to the accepted standards. These uncouth practices threaten the reputation and goodwill of the Group.

Our Recommendations for the problems above

1. Keep cobalt from artisanal miners in DRC out of VW AGs cobalt-procurement chain. VW AG must fully realize the effects of artisanal mining on the people and the environment seeing that this is a major ethical dilemma.

Over eighty fatalities associated with artisanal mining were reported in the past year whilst a majority of fatalities were not reported at all. The disregard for safety in artisanal mining proves to be the main cause of the deaths. Citizens risk their lives by crawling into very narrow tunnels which are hand-dug in search of cobalt. They mine with no helmets, nose masks, or safety gear. This causes them to inhale cobalt dust, which causes hard metal lung disease. Where the underground mines are not properly supported, they collapse on the miners, taking their lives instantly.

The United Nations has also confirmed the inevitable involvement of child labour in artisanal mining. Infants as young as eight years old are scavenging to produce cobalt for foreign manufacturers. We do not wish for VW AG in any way to profit from human rights abuse. The need to avoid cobalt from artisanal miners arises as the Group still needs to clear her name concerning ethics after the 'diesel issue' and as other producers are expected to also withdraw from the use of DRC artisanal mining of cobalt.

2. Secure cobalt supply contracts from mining giants. Focus must be placed on the long-term supply of cobalt. Only mining giants can guarantee a stable long-term supply in varying conditions. Political instability in the DRC, especially during periods of change of power, might fluctuate the supply of cobalt in artisanal mining where the government may attempt to gain more benefits from the country's cobalt. This may however not be the case as contracts with mining giants in volume quantities may be secured in advance. The Group retains higher security when engaging with certified mining giants. Excess quantity demanded could be catered for by engaging with multiple mining companies and cost of supply could be distributed across multiple companies to minimize service cost.

Scenario 3: E-Mobility Strategy

Our Analysis

Preparations towards *Strategy 2025* calls for Electric Vehicle Batteries, another core component to manufacturing electric vehicles. VW AG is not a producer of EVBs and must therefore secure contracts with a supplier(s). VW AGs future requirement for E-cars was foreseen in the past and efforts were made to prepare.

These efforts, however, were not adequately facilitated or prioritised simply due to an inaccurate forecast of the future need for electric vehicles. The Group's contract with Panasonic, as a result, was not utilized to the maximum since lower quantities were patronized than the contract offered. All through the period VW AG slowed down in preparation towards e-car production, and

other automobile manufacturers venturing into production of electric vehicles made progress in manufacturing as well as gaining market share in electric car production in the global market.

The diesel issue has compelled VW AG to give greater attention to electric vehicle battery supply contracts from suppliers in the field. Based upon this, various suppliers have submitted tenders to VW AG offering their products at various specifications with supply expected to commence in July 2018. Panasonic, VW AGs former supplier has also offered its services. These services however come with particular variations especially concerning quantity and price when compared to the previous contract agreement.

Problems identified

1. Deciding on which supplier can best fit the needs of VW AG. Close analysis must be made on specifications set by suppliers by measuring their abilities to match up to standards set for the future. Suppliers' capabilities must have the potential to meet the organization's goal such as the minimum quantity to produce and sell at a set period.
2. The Group has fallen behind other e-car manufacturers due to their inaccurate forecast and must now correct this to declare a concrete stand against competitors in the e-car race. The 3 million vehicles VW AG aims to sell requires a large market share in the e-car market—a challenge that must be surmounted.

Our Recommendations for the problems above

1. Secure an electric vehicle battery supply contract with Supplier 4. This decision is based on the future aims and objectives of VW AG. First of all, VW AG plans to surpass Tesla and all other electric car makers in production of e-cars. In selection of EVB suppliers, available quantity would therefore be a major concern. Panasonic wields an annual supply of 5 million units although quality is rated *excellent*. VW would have to compete with Tesla for the supply of the quantity they require from Panasonic, that is, if they want to go into a contract with them. Becoming the no.1 supplier of e-cars begins with producing enough to capture the biggest market share and this may not be possible with Panasonic. The presence of supplier 4 in USA and China could benefit the Group since VW AG is set to produce MEBs in USA and China. This would shield the Group from fluctuating exchange rates thereby protecting prices making supply more domestic and simple. Supplier 4 also represents a long-term contract which is most preferred for this project as well as quality of products rated "**very good**". The paramount benefit, however, of engaging with S4 is access to large supply quantities which is key to becoming the no.1 producer.
2. Create a market for VW's electric cars even before production begins. Marketing must precede actual production in order to give consumers an expectation of the Group's products. VW e-car-venture-plans' must have a strong social media presence and the media highly sensitized. The target market for VWs e-cars must be determined and marketing directed at them. This will prevent a repetition of VWs sales slack in the past and generate higher sales, enabling the Group reach their goal of selling 3 million e-cars annually before 2025.
3. We also recommend that the VW Group set a long-term goal of producing EVBs themselves. Producing such a core component in future would greatly improve their profit as Volkswagen's future revolves around EVBs.

Survival

This has to do with issues that threaten or create opportunities for VW AG to meet the needs of its future, that is, the Group's goal.

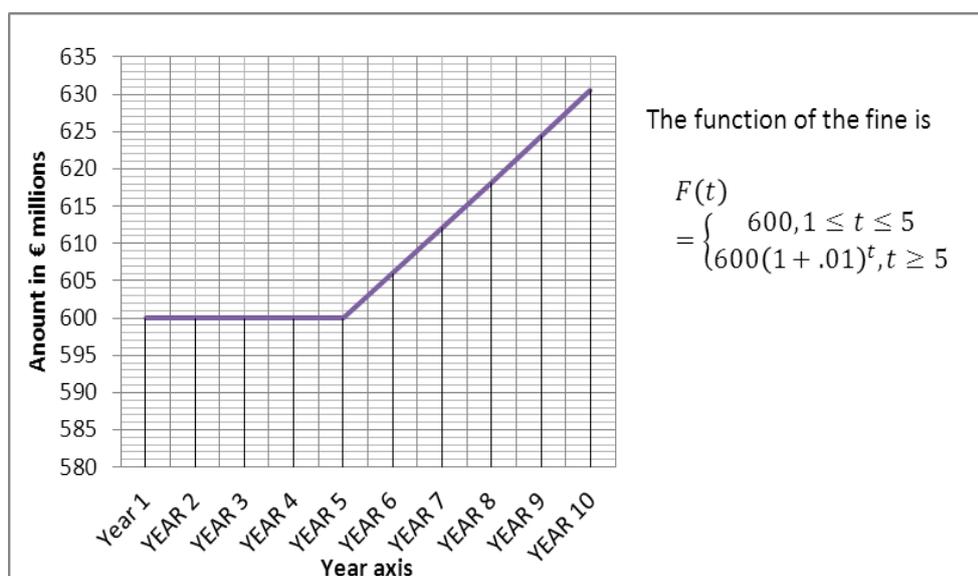
Scenario 5: PARIS ACCORD AND ENVIRONMENTAL LEGISLATION

Apparently, VWAG is caught up in a situation where it has to decide urgently between E-Vehicles and fuel-powered vehicles. This is as a result of the new emission standards that was agreed to be set by the states forming the Climate Change Alliance.

The problem lies in choosing the best method, notwithstanding increasing their profitability. The decision to make is broad and demands more attention since that determines the survival of the firm in the long run. The dilemma is whether not to take any action at all in meeting the requirement (emission standards) or abiding by the emission regulation—all of which come with certain advantages and disadvantages. Decisions, however, must be centred on choosing the most advantageous method to deal with the situation at hand and also its long term effect.

By taking no action at all, VW AG will have to pay a fine of €600 million each year for five years and thereafter a growth of one per cent in perpetuity annually for those who would not want to abide as shown in Figure 5.1.

Figure 5: The function and chart of the fine



The advantage of this is the fact that VWAG would save the huge capital cost of meeting the emission standards which is about 20 to 30 times the cost of fine. The Net Present Value of this strategy is expected to be €1000 million. However, this is only favourable for the short term. This decision would leave VW AG behind the E-Vehicles race, having to divide their resources between producing fuel-powered cars and the e-cars. Attention would also be divided and even in the long run they would have to choose which type they would stick to. This step would repeat the decision that is being taken at this moment. The Group should not regard this as a solution because of the future threats it poses.

We recommend that VWAG should produce to meet emission standards. The Engineering Director has suggested two ways of doing this. Another problem—profitability—arises out of the choice of this as a solution. The common similarity the two sub-solutions have is the fact that most of the funds to service this would mainly be used to build more modular electric drive matrix platforms which would make VWAG competitive in the e-car race. The two sub solutions are: replacement of engines which involves capital cost of €19500 million and modifying the current engines which involves capital cost of €11,700 million.

By modifying current engines, the higher-end cars would still be above the threshold attracting the fine nonetheless. VW intends to grant trade discount to African car dealers to boost sales to avoid the fine. The Net Present Value of this is expected to be in the region of €2,200 million. Ethical issues arise: although, Africa has relatively less rigorous environmental regimes, after thirty to forty years, Africa would face same environmental crises—transferring the harmful effect without solving the problem—and also reduce sales of the higher end cars **worldwide** since their sales would be centred in Africa.

We recommend replacement of existing engines even though the net present value outside of USA is -€2000 million and the capital cost of funding is also higher than that of the modification option. The NPV of this investment would rise eventually because in the nearest future, consumers will prioritize their health to money spent on fuel powered cars driving them to go green. All VWAG has to do is make their electric cars more attractive and quality and their price slightly below the average price of an e-car causing consumers to opt for their cars.

The Automotive industry: Through VW AG

A SWOT analysis Chart of VW AG and Porter's Five Forces to predict issues that will affect the Group.



With Porter's five forces, we analysed this:

Threat of new entrants	Bargaining power of suppliers	Bargaining power of Buyers	Threat of substitutes	Rivalry among competitors
New entrants will find it difficult to enter industry.	<p>1. With respect to EVBs, the Group should not rely on S4 too much as it could easily increase the cost of procuring the EVBs for the Group</p> <p>2. With respect to cobalt, the Group is vulnerable. To solve this, the Group should engage in a supply contract with multiple suppliers, turning their attention on establishing a strong relationship with the Group.</p>	As made evident in 2016 when they marketed the VW up!, buyers cannot bargain with the Group, even when the price was four times price of their competitors.	The other manufacturers will try to entice the fans of the Group, resulting in low sales for the Group.	Tesla has made a battery with the longest range, making their sales impregnable.

The summary of our recommendations

