APRIL 30, 2019

VOLKSWAGEN GROUP -BOARD REPORT

THE CFO CASE STUDY

THE INNOVATORS
AFRICAN LEADERSHIP ACADEMY
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INTRODUCTION

EXECUTIVE SUMMARY

This report has detailed the prioritization and evaluation of issues facing Volkswagen group. We have prioritized the issues based on urgency as follows:

1. Paris Accord and Environmental Legislation
2. Product Portfolio Rationalization
3. Strategy and Cost Optimization
4. E-Mobility strategy
5. Strategic Sourcing of cobalt in Africa

After evaluation, The Innovators have come up with the following recommendations for VW AG.

1. VW AG should slim down their product portfolio by selling the volume segment and using the profit to accelerate the growth of the premium and super premium segments.

2. VW AG should obtain cobalt ethically and legally as to maintain their reputation and quality of output.

3. VW AG should reject the bids that they have with 3 other suppliers and instead sign a contact with Panasonic to invest in Electric Vehicles.

4. Centralise all functional units of the group (R&D , IT, sales and production), this will save the group a total of €28,953 Billion.

5. The group should invest their capital on Research & Development of Modular electric drive matrix technology

Background Information

Volkswagen (VW) is a german multinational automotive manufacturing company, which has been in business for 82 years. It currently has 12 subsidies which consisting of cars brands such as Audi, Porsche, Skoda, and SEAT, covering cars in the volume, premium, and super-premium segments. As a major automotive manufacturing company (global market share of) it faces stiff competition from BMW, Toyota and Mercedes Benz.

The 2017 Paris accord, which gave birth to a new wave of emissions regulations, caused the company to question its sustainability. These tightened regulations meant that all automotive manufacturing companies had to lower their engine emission to 99gCO2 km-1 in order to avoid the lofty penalty of 600 million euros. These changes were difficult for cars in the premium and super-premium segments as they have a more powerful emission-producing engine. As a result, the VW group would experience a shift in leadership through decentralization in order to ensure that the company is able to stay profitable. To tackle to the issue at hand, VW AG invested 19.5 million euros on research and development to replace, test and design brand new engines for their cars. This accelerated the companies E-mobility strategy using Electric Vehicle Battery (EVB) and the Modular Electric Drive matrix.

TERMS OF REFERENCE

Volkswagen group is a public limited group, primary listed on the Frankfurt Stock Exchange and secondary listing on the Luxembourg Stock Exchange, has requested the services of The Innovators, a consulting group, to engage and analyse its issues and offer recommendations to the board which will allow them to address
their issues.
Please note that the following are the most critical recommendations from "The Innovators" to Volkswagen AG. This is done on the basis of how interconnected the case studies are to each other. These two recommendations also affect all case studies which is why we felt that they need to be justified:

The Innovators recommend VW AG to sell the volume segment for a number of reasons that include the following:

- The profit made from the volume segment is 90% less than the profit made from the premium segment and 99.2% less than the profit made from the super premium segment.
- Direct Factory Overhead costs for the volume segment is €2912.72 billion more than the costs for the premium segment.
- By focusing on fewer segments, VW can accelerate product development across fewer models and can stay competitive in the segments that they have already established themselves in.
- VW AG can tap into the hidden 160 billion euros by slimming down its portfolio.
- VW AG would require fewer employees because fewer cars are produced, resulting in cost reductions.

The innovators recommend the money gained from selling the volume segment should then be directed towards (MEB) Modular Electric technology based on the following reasons:

- the platforms will accommodate any further tightening beyond 2023.
- It will be attractive to customers and significantly reduce the amount of car in the super premium and premium segment that are over the threshold.
- The engine will only require 8 months to design and build in time for engine replacements to commence

PRIORITIZATION OF ISSUES

The list below states the urgency of each issue from greatest to least:

Paris Accord and Environmental Legislation
Failure to meet CO2 emissions requirements (needs to be lower than 99gCO2 km-1) will lead to a flat penalty of 600 Millions euros every year.)

Product Portfolio Rationalization
Because of VW AG's complex product portfolio, they are not able to reach their maximum revenue and are missing out on 160 billion euros of "hidden value".

Strategy and Cost Optimization
The VW AG board is facing conflicting opinions on whether their brand image as the peoples car should be abandoned in order to sustain long term profitability in the group.

E-Mobility strategy
VW AG risks investing in E-mobility cars and partnering with Panasonic while the future potential of the sector is argued to be very limited.

Strategic Sourcing of Cobalt in Africa
VW AG risks breaking laws and tarnishing their brand image if they are to reduce their costs by obtaining the 55,000 metric tons of cobalt needed from unethical means such as artisanal miners.

DISCUSSION OF ISSUES

ISSUE 1: PARIS ACCORD AND ENVIRONMENTAL LEGISLATION

STATEMENT OF ISSUE

The 2017 Paris accord resulted through the alliance of states that believed that regulatory standards on car emissions should be tightened.This was to be enacted in 2016 and would later be tightened again in 2024. The enactment of the accord will require car engines to be lower than 99gCO2 or else the manufacturer will be fined €600 million which will grow by 1% in perpetuity. VW engineers have predicted that meeting the new standards will cost the group €19 500 million (For R&D, designing, testing and refitting engines)so that they can accommodate changes required to meet current and future tightening. The group has the option to modify their engines at a cost of €11,750 million by building the modular electric drive (MED) technology platforms. Alternatively, the company could decide not to take any further actions and keep making a profit of €500 million in 2019 growing by 1%. The company will then focus more on exporting into the African market and the support of car dealers will allow them to leverage the trade discounts to boost sales and yield a net value of €1000 million.

IMPACT ANALYSIS

- They would not bear the cost of paying fines if they build a modular electric drive matrix for their engines, as it will allow their engines to be lower than 99gCO2 km.
- The group has to spend €19,500 million euros from its current account which will be directed to Research & Development of the Modular electric drive matrix technology.
- If the company does not take any action and go focus on exporting to Africa, this may affect the company's premium & super premium as their isn't as much of a demand for them as compared other continents. This is because most of the African countries are 3rd world countries and cannot afford to the premium and super premium segment brands.

RECOMMENDATIONS + JUSTIFICATIONS

1. VW AG should invest €19, 500 million of their capital in modular electric drive matrix technology platforms which will allow VW to allow changes altered to meet current and future tightening of car emissions. This links to one of VW Key performance indicators -KPA5- "Manage remaining fallout from "diesel issue", as thousands of investor lawsuits are still pending and prosecutors continue to look into the roots of the scandal"

PROS	**CONS**
They would not have to pay a fine of 600 million	This comes at a cost as the business has to spend 19,500 million euros from its current financial year.
As a group VW cannot afford to have any more dents towards its global image.They will do anything to ensure that they avoid getting into any scandals, so investing in	

the modular electric drive platform should save the group from any foreseeable future regulations	

2. Volkswagen should cease the production of the volume sector and sell the volume sector brands to their competitors. This is because the margins in this sector are very low as compared to the other sectors. The group also has 6800 factory overheads which is roughly double the amount of factories that produce the premium and super premium segment (half capacity). By selling the volume segment of the group can focus those funds on the work of EVB batteries.

In selling the volume segment the group must ensure that they include labour unions and think into ways they make the transition for the employees as easy as possible. This includes ensuring that they are compensated and those rentrenched from the company are linked with other companies. The group could possibly most of their staff into the manufacturing of the Super premium and the premium segment which could possible help VW save expenses on recruiting skills that might be needed when the group increases the demand of these two segments.

Pros	**Cons**
VW's volume segment gross profit is only €2,961 million, which means that selling this segment would allow them focus on their more profitable segment.	Ceasing production for the volume segment will mean that the group will have to make peace with not adhering to the main purpose why the group was made in the first place.

ISSUE 2: PRODUCT PORTFOLIO RATIONALISATION.

STATEMENT OF ISSUE:

VW AG is looking to slim down on their non-core assets which can be achieved by removing some departments or subsidiaries (E.g. removing Renk and Ducatti which are not as valuable). This would allow VW AG to stay competitive across all car models in this fast pace growing market. Through portfolio simplifications, Goldman Sachs is convinced that all companies in the European auto sector can tap into 160 billion euros that had previously been hidden. Through this, VW AG realized that their product portfolio was much too complicated and was in desperate need of simplification to uncover their most profitable core assets. Two goals emerged from the management accounts: Reducing the price of cars in the volume segment and cease production for cars that are not making a substantial profit.

IMPACT ANALYSIS

- If VW keeps working on wider segments, competitors that a more focused on specific segments will have a competitive advantage over them.
- Due to the wide range of the segments targeted by VW, they are missing out on a potential 160 million euros worth of profit.
- The ceasing of the volume segment will mean that the business that VW will have lost its overriding founding purpose and identity which might be detrimental to the group's brand.

RECOMMENDATIONS + JUSTIFICATIONS

1. VW AG should slim down its product portfolio by selling the volume segment of the company and focusing on the premium and super premium segments. In doing so, VW can transfer their surplus (gained from their selling of the volume segment) to the production of cars in the

premium and super premium segment. Or, the money can be used to accelerate product development in both of those segments.

PROS	CONS
By focusing on product development in fewer segments, VW can stay competitive in the segments that they have already established themselves in.	VW AG would lose customers in the volume segment because they are no longer producing cars for the volume segment.
VW AG will be able to transfer the Direct Overhead Costs for the volume segment (3,550.45 million euros) to the premium and super-premium segments to accelerate development.	
VW AG can tap into the hidden 160 billion euros by slimming down its portfolio.	

2. VW AG should sell subsidies like Ducati and Renk which have limited value. The revenue made from these sales would allow VW AG to accelerate development for car models that are already successful in the market, giving them a positive edge over their competitors.

PROS	CONS
Both Ducati and Renk are not car companies, which could be a reason why the company should sell the subsidies.	VW AG would lose their reputation as the "people's car".
VW AG will be able to improve their current car models to stay competitive in the market.	VW AG would lose customers purchasing cars from the volume segment.
VW AG would have a more narrow portfolio, allowing them to focus on the development of their core assets.	

ISSUE 3: STRATEGY AND COST OPTIMIZATION

STATEMENT OF ISSUE

Volkswagen AG (VW), has a goal of achieving long term profitability for the group. The executives of Volkswagen are considering two ways of improving profitability: cost optimization and narrowing their target market. To reduce costs, they want to centralize functional units, reducing administration costs by 2%, sales costs by 1.5%, and selling costs by 2.5%. In addition to this, AG VW has been exploring the idea of narrowing down their target market by mainly producing cars for the premium and super-premium segments to secure a higher operating margin. However, ceasing production for cars in the volume segment would result in Volkswagen (VW) overriding the founding purpose of the group, which the top executives argue is an essential part of the brand's history and identity.The Innovators have thus determined strategies to help the VW group achieve its goal for longer-term profitability.

IMPACT ANALYSIS

1. Producing volume segment vehicles drags the groups operating margins below 6.75% average.
2. If VW AG ceases production for cars in the volume segment, they risk giving up their identity as the people's car, tarnishing their reputation.

RECOMMENDATIONS + JUSTIFICATIONS

1. Volkswagen needs to sell the volume segment in order to attain longer-term profitability. This is because the volume segment is producing 1,829 million more cars than the super-premium is, yet their revenue is €7,673.79 million less. Furthermore, the volume segments direct factory overheads is €2,659.88 million more than the super-premium segment. By moving away from the volume segment, VW AG would be able to cut costs by millions of euros while making little to no dent in their revenue.

PROS	**CONS**
Profit produced from selling the volume segment can be used to produce more cars in the premium and super-premium segments.	VW AG would lose all customers purchasing in the volume segment.
Direct Factory Overhead costs will reduce by €2,659.88 million.	Volkswagen would lose its inclusive reputation as the “people’s car”, which may result in a decrease in customer loyalty.
VW AG would require fewer employees because fewer cars are produced, resulting in cost reductions.	Labor Unions will retaliate if VW AG does not compensate for all employees that they fired.

2. The group should centralize their functional units under the Head Quarters as this will reduce the cost of sales, administrative and selling costs. This will result in €192 million admin savings, €2977.5 million cost savings, and €586.05 million distribution savings. This will support the group's decision to sell the volume segment as these levels of reduction will be more than archived; leaving the group with more capital to address pressing issues that they are facing.

Calculations done using 2017 Actual figures (millions) : Reference Appendix 1

cost of sales reduction of 1.5%:
188140 x 0,985 = 1853179
This will save the group €28,221 Billion

Selling Costs reduction 2.5%
22,710 x 0,975 = 22,142 Billion
This will save the group €567 million

Admin expenses reduction of 2%:
8,254 x 0.98 = 80801
This will save the group €165 million

PROS	CONS
With the reduction, VW AG will be able to save a total of €28,953 Billion	VW AG will have to compensate for all employees who will lose their jobs through rehabilitation programs.
Communication will be easier and faster due to the close proximity of all functional units.	

ISSUE 4: E-MOBILITY STRATEGY

STATEMENT OF ISSUE

Volkswagen's focus on the modular electric drive (MEB) lies at the core of the groups 2025 E-mobility strategy. Through this strategy the group aims to sell a minimum of 3 million all-electric cars (50 models across all categories) which will allow it to overtake Tesla to become the world number 1 electric vehicle producer. In partnership, Volkswagen appointed Panasonic on a fixed 5 year plan to supply the group with EVBs. However this all changed after the company realised that the future potential for electric cars was not going to yield as much growth and profit for the group. The group therefore placed fewer EVB orders as part of its adjustment strategy. There competitor (Tesla) had a better battery range of 240 km which is exclusively manufactured by Panasonic for Tesla. They argued that they would rather bet their capital on the fuel efficient combustion engine Technology.

IMPACT ANALYSIS

- Tesla, Volkswagen's competitor, will keep being the leader in the sale of electric cars, not allowing them to meet their full potential if they venture into that market.
- The focus on MEB will save the significantly reduce the amount of premium and super premium that are over the $CO2$ threshold. I will

RECOMMENDATIONS + JUSTIFICATIONS

1. The group should reject bids that it has with 3 other suppliers and instead sign a 3 years (6 month) rotation with break clauses contract with Panasonic. This will allow the group not to incur long term costs as the contract is not binding (contract allow break clause). The use of the JIT inventory management system will allow company to reduce storage costs and opportunity costs.

Pros	Cons
The Panasonic battery is the cheapest in the market with a market price of 390 Euros.	Volkswagen is most likely to experience limited growth in this sector, and might not be getting as much profit. This is because Tesla's 240 km range battery gives it a comparative advantage on the market.

If Volkswagen finds that they are not profitable anymore (due to forecast of limited future of the electric cars market) in the market, they would be able to pull out of contract agreement	
Panasonic's 5 million maximum capacity per annum will still meet the short projected demand by VW.	

EV Production:

	2018	2019	2020	2021	2022	2023	2024	2025
Volumes in millions units/year	0.1	0.3	3.5	4	4.5	5	5.5	6

Total Expenditure from EV's by respective suppliers

Supplier	Unit Price (€)	2018	2019	2020	2021	2022	2023	2024	2025
Panasonic	390	39	177	1365	1560	1755	1950	2145	2340
S2	400	40	120	1400	1600	1800	2000	2200	2400
S3	450	45	135	1575	1800	2025	2250	2475	2700
S4	500	50	150	1750	2000	2250	2500	2750	3000

Please note that values are in millions E.G. 1560 = €1,560 Billion

Each forecast was calculated using the Ev Production forecast and the units Price given in the Case Study

From the table we can conclude that from a financial point of view this Panasonic is the best supplier for VW. This is based on: affordability, quality of battery, Durability of the Battery and condition of the contract (break clause) which allows VW to renew it every 6 months. However, the problem with Panasonic is that after 6 years they won't be able to meet the demand which might means that VW might be forced to look for other suppliers. This can however be avoided should Panasonic decide to implement operation strategies that will allow them to meet the demand of the group

2. The funds being spent on electric cars, should be reduced and redirected to R&D for MEB(Matrix Technology Electric Drive) as it can be applicable. Volkswagen could also shift focus towards working on hybrids which reduces emissions and they don't have to invest as much into batteries and EV's. Also, Tesla's electric batteries have the longest range (240km), putting all of their competitors at a disadvantage because their 125km.

Pros	Cons
They can be ahead in the production of cars with fuel combustion engines having a new	The money previously invested in the electric cars is being lost.

modular electric drive matrix which will allow a reduction in CO2 emissions.	
They can invest their money in improving the current model to be more attractive to customers.	

ISSUE 5: STRATEGIC SOURCING OF COBALT IN AFRICA

STATEMENT OF ISSUE

The VW AG group needs 55,000 metric tonnes of cobalt supply for the production of its units which is increasing by 25% each year. To meet these needs, they are trying to find a sustainable supply of cobalt at a low cost. They strategically sited one of their plants in Rwanda because of its political stability, economic prosperity, and most importantly because of its proximity to the DRC (where the mining giants operate). In the DRC, there are legal mining companies, such as Glencore and Vale, and there are artisanal miners who supply cobalt illegally. Following the legal route, VW AG would be able to meet their volume requirements; however, this would mean increasing their costs . On the other hand, taking the illegal route would mean that their costs would be lowered, but the supply of cobalt would not be sufficient to meet the demand required by VW AG to produce their desired quantity of product.

IMPACT ANALYSIS

1. VW getting supplies from the Artisanal miners could tarnish the brand reputation if it is found out by external stakeholders.
2. A tarnishment of the brand image will cause VW to lose potential customers and customers loyalty, leading to loss of revenue and profit. This may also lead to other stakeholders such as investors and shareholders to pull out of investments.
3. VW AG would not be able to produce their desired quantity of product due to lack of cobalt supplied by the artisanal miners.
4. Legal issues will arise costing VW AG more in the long run.

RECOMMENDATIONS + JUSTIFICATIONS

1. VW AG should obtain their resources from legal companies (Gencore, Vale, China Molybdenum and Gecamines) as this will maintain their brand reputation. Because all legal companies are held to certain product standards, this would ensure that VW AG receives quality cobalt, which may not be guaranteed if they were to obtain resources from the artisanal miners. In addition, their cost for cobalt would decrease if they were to sell the volume segment and only focus production in the premium and super-premium segments.

PROS	**CONS**
VW AG would be able to meet their demand for cobalt.	It will cost more than it would have from the artisanal miners
Ensures that VW AG maintains their reputation.	

VW AG avoids dealing with costs of legal issues.	

APPENDICES

APPENDIX 1: SWOTs ANALYSIS

Strengths

- Has a global reach, operates in 153 countries.
- Has competitive products tailored to many market segments (wide product portfolio) this also allows the group to focus on synergy between the brands.
- They benefit from economies of scale, allowing them to be competitive in the market.

Weaknesses

- Diesel scandal and cobalt dilemma tarnished VW AG's global reputation.
- Lack of development of electric car products may hinder the company's long term sustainability plan.
- A huge amount of their product portfolio is not eco-friendly. The groups super premium (Porsche, Bugatti, and Lamborghini) produces excessive amounts of CO_2 which are harmful to the environment.

Opportunities

- Opportunity to expand into unexploited markets as they have only served 117 countries in total.
- The group can acquire competences and skills through acquisitions.
- Room to produce Eco-friendly vehicles - shifting to manufacturing eco-friendly vehicles (with the aim of reducing CO_2 emissions) may help the company fulfil its social responsibility. The group can also use this as a marketing strategy.

Threats

- Faces strong competition such as Toyota, Ford, and Renault Nissan
- Emission regulations risk VW AG's long term sustainability and profitability.
- Further Fines in the foreseeable future might hurt the groups reputation and global image.