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Critical Strategic Analysis of General Electric (GE) Aviation Business

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Abstract

This paper provides a critical strategic analysis of the General Electric (GE) Aviation business unit to evaluate its competitive position, resources, and future growth directions within the aviation industry. The study utilizes strategic frameworks, including a SWOT analysis and the Boston Consulting Group (BCG) matrix, to determine how GE Aviation has maintained its role as a market leader with a significant market share.

The analysis highlights that GE Aviation is the most profitable business unit for General Electric, primarily due to its continuous investment in innovation, advanced technology (such as additive manufacturing and digitalization), and a strong focus on high-margin aftermarket services. Key strengths include a strong global presence, diversified product portfolio in both military and commercial engines, and robust R&D capabilities. The findings suggest that despite challenges like supply chain constraints and geopolitical risks, GE Aviation's strategy of product development and investment in next-generation flight technologies (like the RISE program) positions it for sustained future growth and addresses industry demands for efficiency and sustainability. The research identifies opportunities for further expansion into the aircraft assembly business to capture more market share.

Keywords: Strategy; General Electric Aviation; Competitive Advantage; SWOT Analysis; BCG Matrix; Innovation

1. Introduction

Strategy has always been a vital element for the successful growth and development of any corporation, for now and the future. The ability to strategically position an organisation in its industry will determine its longevity. These strategies can be viewed from both an external and internal perspectives. Corporations that decide to be successful have deemed the value of strategic decisions as an essential path to continuous up rising.

The strategies over the years have put the GE Aviation business, which is one of the four major business units in General Electric as a major player in the aviation industry. The business is the top choice in military and commercial engines & control system designs. The aviation business holds one third of the market share of the aviation industry.

The invention of the light bulb by Thomas Edison after the test of over three thousand designs was the solid foundation General Electric (GE) needed. The focus on quality and innovation is second to none and the ability to keep challenging its employees to unlock new innovative technologies and deliver excellent services to their customers have put them in a class of their own. The CEO, Larry Culp stated in a letter to the shareholders, that the company is focused on rebuilding around four business units; which are power, renewable energy, aviation and healthcare as cited by (Sheetz, 2019). GE Aviation business is the most profitable business of GE and sometime referred to as the precious jewel of General Electric.

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This paper intends to unravel and analyse the strategic position of GE Aviation, its resources and value system together with its product/portfolio mix and its key future direction for strategic growth and development.

2. Strategic Position

Over a century of existence; GE Aviation has been able to position itself as the forerunner in the aviation business. One of strategy to differentiate itself from its competition was the integration of digitalization segment into the system of aviation operations, thereby creating additional value for its customers. Another strategy is to provide new technology and innovations through a new sub-business called Avionics; which are primarily manufacturing safety and controlling equipment.

The brand GE has always brought the imagination into works; with the introduction of the GE Additive segment; here 3D printing technologies enables manufacturing process easier by moulding a part as a single item which initially could have been made up of over three hundred various parts. This innovation has assisted in reducing the weight of aircrafts and fuel consumption based on the more sophisticated means of manufacturing. The investment in GE Additive has brought about the opening of a 40,000 square-meter campus which will provide manufacturing specialist for additive serial production (Boissonneault, 2019). This further cement their strategic position in the aviation industry. The GE Aviation business over the years have grown from being the manufacturer of the first America jet engine to getting involved into the commercial engine production.

GE have evolved over the years, from dwelling in various businesses of the likes of Current & Lighting, Water, Transportation. GE focuses on four main businesses; Power, Aviation, Renewable Energy and Healthcare. However, GE still has the supporting businesses, which are Additive, Capital, Digital, Lighting, Business Innovations and Baker Hughes, a GE Company. Baker Hughes, a GE company announced on 16 September 2019 that it intends to change its corporate name to Baker Hughes Company, known as Baker Hughes implying GE will cease to hold more than 50 percent of the voting power (World Oil, 2019).

The below graph shows the various GE business units with respect to revenue for the period ended 2018. The aviation business provides the most revenue and also the most profitable (Statista, 2019).

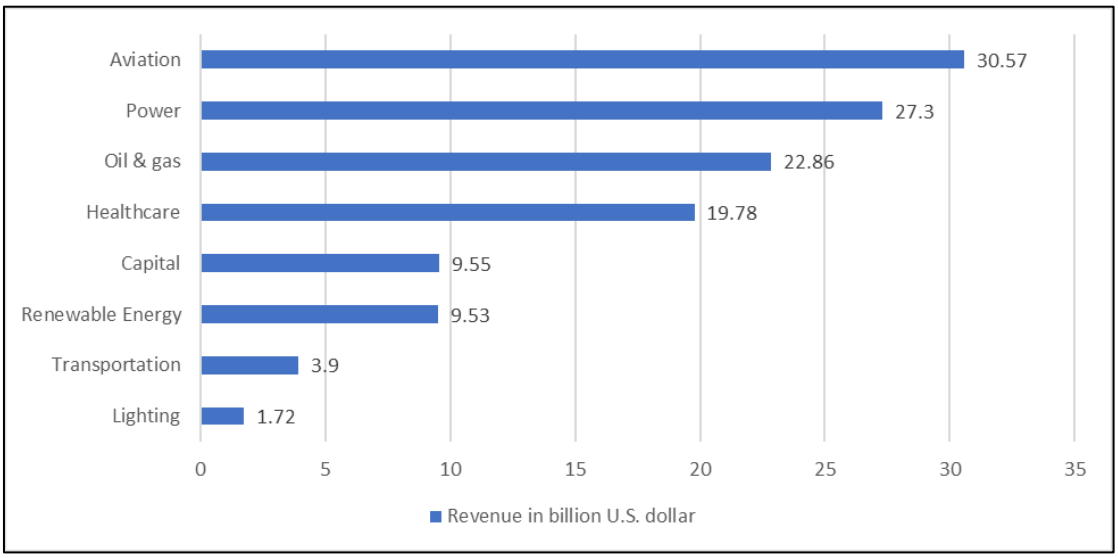

Figure 1 GE Revenue Mix 2018

Downtimes are not uncommon in business, GE presence in over five industries has however made it over the years to always have a relatively improved year over year when reviewing the company as a single corporation. Nevertheless, the aviation business has relatively always been the bedrock of the company; providing great margins and creative technological innovations.

Diversification of GE businesses has been key to their overall strategy and also their presence in 180 countries have provided the ability to penetrate different areas of the world. This makes marketing and sales easier. However, the major success of the aviation business is the highly protected intellectual property. Even though GE presence is all over

the world, the core of the manufacturing plant of the aviation business is located in only a single location to ensure their secrets for continuous innovations are managed closely.

3. Critical Evaluation of Resources and Value Systems

3.1. Resource Audit

Resources by Davis (2017) can be categorised into three forms, which are; tangible, intangible and organisational capabilities. These resources can be viewed as the internal environment and capabilities that an organisation should possess in order to gain a competitive advantage over its competition and maintain continuous growth and development. These resources determine the value added to the system.

The tangible resources in terms of physical items (equipment, buildings and inventories) are very much in the top tier of GE Aviation. The mega headquarter in Cincinnati has the state-of-the-art equipment and structures that enable to manufacturing of high-quality engines and equipment control system. The innovative culture of GE provides the robust requirements needed for added value for the whole organisation.

The human resources capabilities are what really make this business unit unique. There is a lot of focus on learning, research and development opportunities. There are two main research & development facilities which serves as the cornerstone for innovation (GE, 2019). The talent management scheme is another angle where GE Aviation has invested a lot of resources, with the total number of employees working in GE Aviation as approximately 40,000 (GE, 2019). The business is determined to improve the capabilities of the employees by providing world class training programs and facilities. The belief of growing leaders cannot be over emphasized in the GE culture as there are various leadership programs available for accelerated learning.

The competency model of GE culture can be surrounded around leadership, innovation and product development which have served as the robust value chain system needed for growth.

3.2. Value Chain Analysis

The value chain concept provides information to a corporation on how products and services can be differentiated to create value and competitive advantage by analysing a chain of events (Bhasin, 2019). These chains of events are categorized as primary activities and support activities.

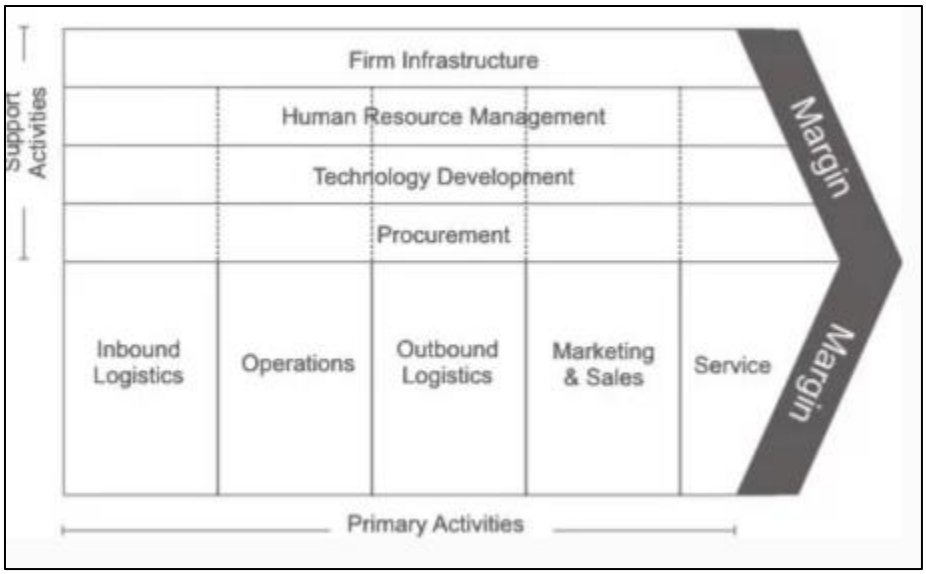

Figure 2 Value Chain Diagram

3.3. Value Chain

- **Inbound Logistics:** this activity is key for business, as the supply chain management team will be required to procure all raw materials for manufacturing of the engines. The lead time, cycle time of parts are essential

parameters needed to ensure supplier on-time delivery (OTD). Based on great OTD by suppliers; the quality of engines and parts are ensured.

- **Operations:** GE Aviation has one major factory which all parts are conveyed to. The production of spare parts, engines and control systems are done in a confined and highly restricted environment to protect copyrights and theft of intellectual property. Collating all the ideas, the aviation business unit have been able to provide top notch technology.
- **Outbound Logistics:** GE Aviation covers one third of the total market share in the aviation industry. The ability to be able to delivery these products and services when required has been the determining factor for the continuous growth. GE aviation operates and serves over 180 countries and as part of their core values which states that 'customers determine our success', they ensure these products and services are delivered at the scheduled time.
- **Marketing & Sales:** GE aviation make engines and spare parts based on orders from customers to ensure inventory is maintained at moderate levels. These actions help to free up cash in the business. With all these said; the marketing & sales team have continued to ensure contracts are signed year over year to provide robust backlogs for the business. The investment in training programs have also ensured sales representatives and team are able to negotiate deals properly.
- **Services:** In most industries, services of the business provide the biggest margin. The engines are quite expensive due to the high-quality materials used in production. Therefore, equipment is sold are lower margins but services contracts and deals are where the major profits will be obtained. Customer determine the success of any corporation. Therefore, keeping customers satisfied is key to the organisation.

3.4. External Analysis – SWOT

3.4.1. Strengths

- *Global market presence* – GE Aviation has a presence in over 180 countries, thereby new products and services can be easily be consumed by the already huge market share.
- *Advanced technology* – The innovation has brought about advanced technology for the production of engines which results to more sales and new customers.
- *Diversified product portfolio* – GE Aviation is focused on commercial, military and system control equipment. This allows for revenue in different segment of the business unit.
- *Huge investments in R&D* – the investments in research & development cannot be over emphasized. GE Aviation invest a lot to ensure they stay ahead of their competitions by always seeking better and efficient ways to get things done.

3.4.2. Weaknesses

- *Specialised products* – GE Aviation only make products based on orders. This implies lead time for new orders can be very long.
- *Bureaucracy in decision making* – due to the enormous corporation; a lot of decisions have to go through different level of approvals and authorisations thereby delaying decision making processes.

3.4.3. Opportunities: -

- *More thoughtful Mergers & Acquisitions* – M&A over the years have been the major question for GE Aviation. There is room for improvement for better M&A going forward.
- *New business segments* – GE Aviation do not assemble the aircraft with the engines and body; these are handled by the likes of Airbus and Boeing. This can be another opportunity to become a complete and full aviation corporation as engines, controls and body of the aircraft can be done by a single organisation.

3.4.4. Threats: -

- *Competitive pressure* – being the number one leader in the aviation business, various competition seeks opportunities to overtake GE Aviation. The business unit will require to put long term strategies in place to ensure continuity in development and growth.
- *Geopolitical* – the presence of the business unit in various location could also pose a threat when there is political instability in those regions or even natural disasters in terms of climate changes.

4. Critical Evaluation of Product/Portfolio Mix

Using the Boston Consulting Group (BCG) matrix (growth-share matrix) to analyse the GE Aviation business unit. It will be analysed based on industry attractiveness and competitive position.

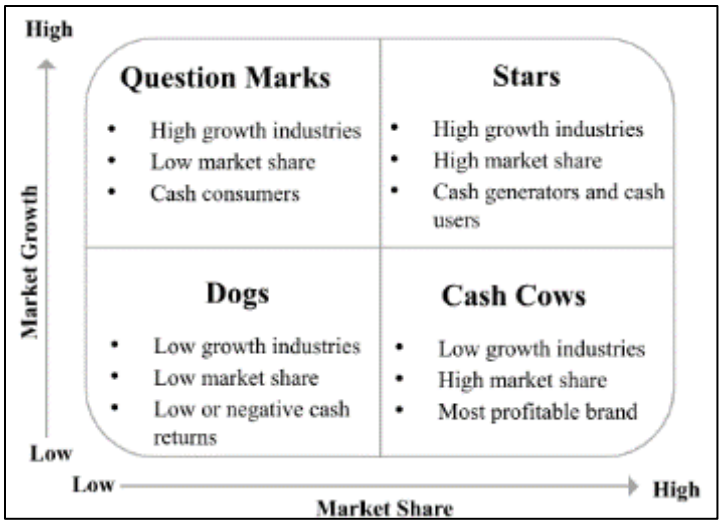

Figure 3 BCG Matrix

GE Aviation has poured out great margins over the course of the last three years. (See appendix). The profits for 2016, 2017 and 2018 have accounted for 34%, 44% and 60% respectively of the total profits in those years for the company General Electric. This clearly put the business unit as the most profitable unit and it falls in the Cash Cow category under BCG matrix. This business has a huge market share; comprising over one third of the aviation industry.

Over the years, it has been able to differentiate itself by investing in product development initiatives. This made it become the cash cow for the multinational corporation. Based on this category; GE Aviation can diversify its brand by going into the aircraft framer's business to win additional market share in that section of the industry.

5. Critical Analysis and Evaluation of Key Future Directions for Strategic Growth

The value of GE stock has dropped to two thirds of its value dated back since the beginning of 2017 (Levine-Weinberg, 2019). Despite the poor stock prices and struggling businesses like the Power business, the GE Aviation business has not looked back. It produced a year over year rise in revenue and profits; 13% and 20% respectively in 2018.

GE Aviation is known for its military and commercial engines designs. One of the major strategies was to recapture the military contract with the US army which will cover another forty years in contract years. GE Aviation beat its competitions; the Advanced Turbine Engine Company — a Honeywell and Pratt & Whitney team to win the $517 million award for the manufacturing, engineering and development phase for the ITEP (Improved Turbine Engine Program) (Insinna, 2019). Tony Mathis, vice president and general manager of GE military systems spoke to the press after the winning of the deal saying that GE Aviation are honoured to be chosen by the army to continue powering their Black Hawks and Apaches for decades to come (Insinna, 2019).

In the need to anticipate a strategic growth in the military systems segment in GE Aviation, where there is a four percent global growth opportunity due to the increase in the U.S. defence budget increase, the business transition one thousand engineers into the military programs (Wolfe, 2019).

Ansoff matrix on markets and products, provides an improved business understanding and improved decision on its product and market growth strategy (Morrison, 2012). The matrix consists of four strategies which be used for growth and development. The four strategies are market penetration, market development, diversification and product development. It is paramount that businesses understanding their markets and products before embarking on any of the strategies. Market penetration revolves around existing markets and existing products, market development

involves new markets and existing products, diversification involves new markets and new products while the final strategy, product development involves existing markets and new products. Below is a pictorial view.

Figure 4 Ansoff Matrix

5.1. Ansoff Matrix

GE Aviation business strategy can be aligned alongside the Product Development strategy. The aviation industry has continued to evolve over the years, as better aircrafts are introduced quite often. The ability to always reintroduce and reinvent new products to retain existing customers has been a major strategy for GE Aviation. They have been able to have a solid hold on that huge market share in the aviation business. The investments into research and developments have been put into great use as new technologies have been developed dating back to when the first jet engine was developed in 1941.

The future direction of GE aviation is to remain the leading supplier in the aviation industry by continuous development into new technologies that will inspire the industry for years to come.

6. Conclusion and Recommendation

The aviation business in General Electric has evolved over its existence to become the most profitable business in their portfolio and it does not show any signs of slowing down. The strategies that have been used over the years have ensured continuous growth and development. These strategies were focused on the continuous introduction of new technologies for products and services. The investments into digitalization enabled the business to surge past competition and maintain being the leading supplier in the aviation industry. The business currently accounts for sixty percent of the total net income of the multinational corporation, GE. This shows how invaluable this business is to the total organisation. To support this strategy of innovations; investments into research and development facilities have been put into place.

Strategies can also be implemented to incorporate new markets and products as Ansoff matrix explains. GE Aviation leans towards the product development category where new products are introduced for existing markets. However, there is an opportunity for new products to be developed and introduced into new markets. The GE aviation business specialises in developing engines and control systems but there is a market within the aviation industry which is the assembling of engines and control systems to produce a complete aircraft for use. This is somewhere the business can decide to expand. This strategy was implemented in their Oil & Gas business after the acquisition of Baker Hughes, making it the only organisation that possesses a full stream capability (downstream, midstream and upstream). It is also important to point out that the then acquired Baker Hughes has reacquired the GE Oil & Gas business (World Oil, 2019). So, as it is said ‘don’t fix what is not broken’. There has to be a deeper thought into this strategy so as to ensure what is the cherished jewel of the corporation remains to be that relevant and profitable.

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Appendix

SUMMARY OF OPERATING SEGMENTS

(In millions)	General Electric Company and consolidated affiliates 2018	2017	2016
Revenues			
Power	$ 27,300	$ 34,878	$ 35,835
Renewable Energy	9,533	9,205	9,752
Aviation	30,566	27,013	26,240
Oil & Gas	22,859	17,180	12,938
Healthcare	19,784	19,017	18,212
Transportation	3,898	3,935	4,585
Lighting(a)	1,723	1,941	4,762
Total industrial segment revenues	115,664	113,168	112,324
Capital	9,551	9,070	10,905
Total segment revenues	125,215	122,239	123,229
Corporate items and eliminations	(3,600)	(3,995)	(3,760)
Consolidated revenues	$ 121,615	$ 118,243	$ 119,469
Segment profit			
Power	$ (808)	$ 1,947	$ 4,187
Renewable Energy	287	583	631
Aviation	6,466	5,370	5,324
Oil & Gas(b)	429	158	1,302
Healthcare	3,698	3,488	3,210
Transportation	633	641	966
Lighting(a)	70	27	165
Total industrial segment profit	10,774	12,213	15,785

Summary of operating segments (profit/loss statement) (GE Annual Report, 2018)