Company Project: Jonker Sailplanes

PoTENcy

NWU® BUSINESS SCHOOL BESIGHEIDSKOOL SEKOLO SA KGWEBO

ASSOCIATION OF MBAS ACCREDITED

SOLEMN DECLARATION – COMPANY PROJECT

Solemn declaration by students

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We hereby declare that the assignment which we herewith submit to the North-West University as partial completion of the requirements set for the MBA degree, is our own work.

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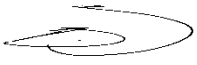
OB (Oswald) Brandt	13098489		100
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EXECUTIVE SUMMARY

This report was completed as the PoTENcy MBA Group of 2018 as fulfilment of the requirements of completing a Strategic Company Project with the main purpose: Developing a Winning Strategy.

Jonker Sailplanes is a South-African based sailplane manufacturer located in Potchefstroom and is positioned as one of the top 3 sailplane manufactures in the world. Apart from the manufacturing and selling of the product the Jonker Sailplane (JS) brand is well known in the world sailplane championships circles.

The approach followed in identifying a winning strategy was within three distinct phases. Phase one was a case study with details of the current product, marketing and manufacturing aspects of the business. Phase 2 had a specific focus in a more holistic manner through integration of various business aspects and subsequent winning strategy. The third phase deals with the implementation and viability of the strategy. Critical recommendations are made as well advice on how to manage the change.

A key factor identified throughout the three phases is the importance of ensuring that the leadership team arrange themselves and resources to ensure execution. It is specifically challenging in a smaller and entrepreneurial business to have structures and systems in place for a sustainable competitive advantage. Resources are mostly required to focus on the actual delivery of the product while the winning and growth strategy are directly depended on systemic work. This is where the risk of time and costs are becoming a reality.

The recommendations noted in this report are based on sound academic and business understanding and the reality that the alignment between strategy and the team of people required to move the business forward cannot be understated.

Key aspects reflected in the report includes: Marketing, Operations including engineering and manufacturing, Human Resources and Finance. The integration of these disciplines is presented in an integrated approach to position Jonker Sailplanes for their next take off.

ACKNOWLEDGEMENTS

The NWU Business School for granting us the opportunity to integrate our knowledge into a single value added experience.

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LIST OF ABBREVIATIONS

AMO	Aircraft Maintenance Organisation
B-BBEE	Broad-based Black Economic Empowerment
BGA	British Gliding Association
CA	Competitive advantage
CAD	Computer-aided Design
CCF	Customer Coordination File
CEO	Chief Executive Officer
CFD	Computational Fluid Dynamics
CNC	Computer Numerical Control
CPM	Critical Path Method
CSIR	Council for Scientific and Industrial Research
EASA	European Aviation Safety Agency
EBIT	Earnings Before Interest and Tax
EGC	European Gliding Championship
FAI	Fédération Aéronautique Internationale
FEM	Finite Element Model
GPS	Global Positioning System
HPC	High Performance Computer
JS	Jonker Sailplanes
MRP	Materials Requirements Planning
NWU	North-West University
OOA	Out of Autoclave
PESTEL	Political, Economic, Social, Technological, Environmental, Legal

QA	Quality Assurance
RAM	Random Access Memory
ROE	Return on Equity
RTM	Resin Transfer Moulding
R&D	Research and Development
SACAA	South African Civil Aviation Authority
SABPP	South African Board for People Practices
SWOT	Strengths, Weaknesses, Opportunities & Threats
US	United States
WGC	World Gliding Championships

LIST OF UNITS

kg	kilogram
GB	Gigabyte
N	Newton

OVERVIEW AND CONTEXT

This report was prepared by PoTENcy Group for the fulfilment of the MBA Strategic Company Project requirement for 2018. The group consist of seven professionals with diverse but complimentary backgrounds and experience. The strength of PoTENcy lies in the diversity of talent and the synergetic approach applied in building a winning strategy through a holistic and integrated management process.

Jonker Sailplanes (JS) is a South-African-based company and one of the leading sailplane manufacturers in the world. This is an extraordinary feat when considering the fact that JS was only established in 2001 and it competes against in a market, which consists predominantly of established European manufacturers that are more than 50 years old. JS succeeded in entering this market as a new player.

Although the sailplane industry is a mature market, JS is currently in a growth phase where it is moving from a being small manufacturer with a niche product to a medium-sized manufacturer that provides a wider range of products. This growth phase requires JS to make critical strategic decisions in a variety of business arenas to position the company for a sustainable future.

PoTENcy identified JS as an important player in this niche market and a leading player in the positioning of South Africa in the world sailplane industry. The process towards developing a winning strategy commenced in February 2018 when a relationship was established, an agreed scope of work was concluded, and a strategic analysis with the aim of formulating a new strategy that will ensure the continued success of JS.

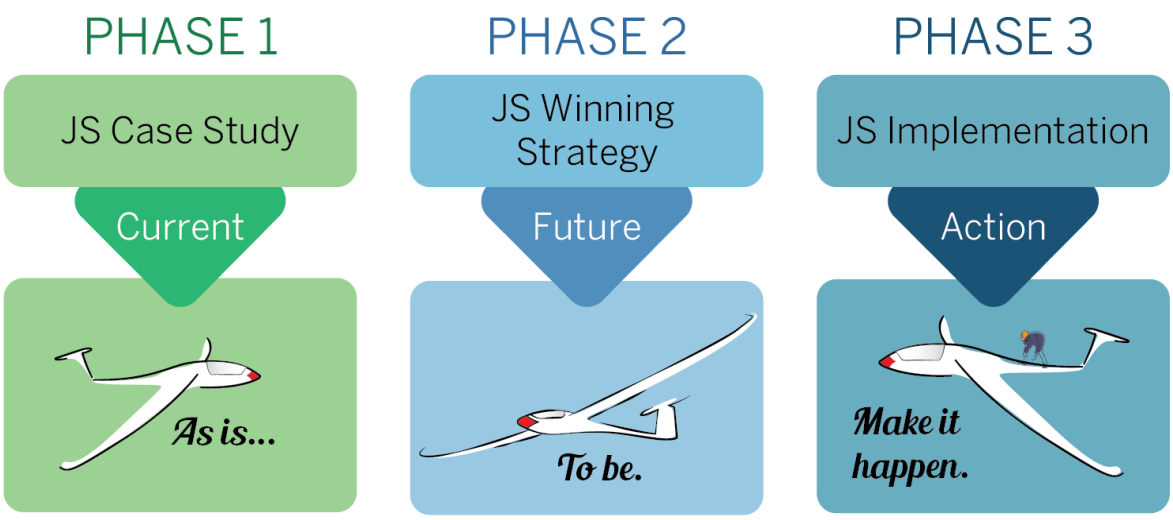
PoTENcy and the JS team spend quality time over the last 5 months to conducting an extensive study of JS to gain insights and experiences. Key time and activities included:

- Spending many hours on the JS factory floor analysing production processes.
- Numerous interviews with present and past JS employees and customers.
- Analysis of JS's internal reports and financial statements.
- Watching videos on JS's YouTube channel.
- Conducting workshops with JS's employees on different management tools.

- Literature surveys done on existing research focused on JS's activities.
- Research on new technologies that JS can potentially apply.

The report is presented in three phases dealing with the JS Case Study in Phase 1, the developing of a Winning Strategy in Phase 2 and the Implementation in Phase 3 as illustrated below.

Figure 1 Project Phases



The implementation and associated change management principles will ensure that JS moves to a position of strength in terms of continuing servicing their customers with high quality sailplanes.

JS CASE STUDY

1.1 INTRODUCTION

Jonker Sailplanes Pty Ltd. (JS) is a privately owned, South African company that designs, manufactures, and maintains sailplanes from their main facility based at the Potchefstroom Airfield (Roos, 2018). The business originally started due to a need to access top quality gliders in order to compete in competitions as there was no other manufacturer of sailplanes in South Africa and importing gliders are expensive. The original team consisted of only three engineers and three technicians who combined their knowledge to produce a sailplane worthy of competing in competitions and they were the beginning of the original JS1 success story. Today there are 16 qualified engineers and more than 110 employees working at the Jonker Sailplanes factory in South Africa. They also entered into a partnership with M&D Flugzeugbau in Germany in order to strengthen the JS team, making this company a world-renowned sailplane manufacturer.

1.1.1 An overview of the sailplane Industry

Gliding is a pastime that can be enjoyed in many different ways as it is both a recreational activity and a recognized competitive air sport (FAI, 2018). Pilots fly engineless aircraft called gliders or sailplanes by utilising naturally occurring currents of rising air also known as thermals to remain airborne (Campbell, 2004). Glider pilots usually climb to high altitudes and can glide for hundreds of kilometres and stay airborne for hours by making use of their skills, knowledge and strategic decision making (Tabery, 2004).

For those of a competitive nature it offers an extremely competitive competition environment with the Fédération Aéronautique Internationale (FAI) or International Gliding Commission (IGC) conducting gliding activities such as the International Championships and the FAI Sailplane Grand Prix (FAI, 2018). Local and national competitions are also organized in many countries, including South Africa, and there are biennial World Gliding Championships. These gliding competitions test pilots' abilities to make best use of the current weather conditions as well as their flying and decision-making skills (Tabery, 2004).

Table 1 Classes of Competition Sailplanes

CLASSES OF COMPETITION SAILPLANES	
Open	No restrictions, anything goes
18-Meter	18-Meter (59 feet) wingspan only
15-Meter	15-Meter (49 feet) wingspan only
Standard	15-Meter (49 feet) wingspan, no flaps
World	One design, all the same design
Sports	Performance handicapped class
Junior	Pilots under age 26
Feminine	All female pilots

Source: Tabery, 2004

1.1.2 History of Jonker Sailplanes

Jonker Sailplanes started as a family's dream when brothers Attie and Uys Jonker became interested in the world of gliding and wanting to build a high performance glider. This resulted in the development of the JS1 Revelation flying its maiden flight in 2006. It’s a glider capable of climbing high up in the thermals, capable of flying slowly and then reaching extraordinary high speeds when it reaches the optimal soaring altitude (Keyter, 2018).

During the 1970’s Attie and Uys’s father Tienie Jonker built a Tern (an American wood and fibreglass glider with a 15m wingspan) in their garage in Bloemhof. This soon got the attention of his young sons, Attie and Uys, who’s interest in the world of

gliding ignited (Keyter, 2018). This interest grew and by the 1980's the brothers were flying wooden gliders under their fathers' supervision and shortly after their sixteenth birthday they flew solo. However, due to competition gliders being unavailable and expensive to import the young brothers were unable to participate in gliding competitions. This inspired them to complete engineering degrees. Uys started working for Denel Aviation, South Africa's military aircraft manufacturer and Attie became a full time lecturer at the North West University (Keyter, 2018), after which Uys joined Attie to start a combined glider repair facility, as well as a wind turbine blade factory in 1999, both on the campus of the North West University (JS, 2018).

In the late 1990's, the two brothers were lecturers at the university and got back into competitions, flying air glider planes they rebuilt (Keyter, 2018). The Jonker brothers enjoyed a new heights of performance and were chosen to be part of the South African National squad for the Club Class WGC in Australia (2001) and Mushbach (2002) (JS, 2018). During the World Championships in Leszno (2004) Attie finished 5th in the 15m Class and Uys 13th in the 18m Class and the idea of a new 18m Class glider was born (JS, 2018). Being chosen for the South African gliding team the Jonker's strived to build a perfect glider. Attie began design work and in the early 2000's and the project was a success. Currently they are experts in gliding circles. Between them they have over 2000 gliding hours behind their names, and both have been crowned national champions three times as well as representing South Africa in the World Championships on numerous occasions (Roos, 2018).

The Jonker brothers' dream of creating an industry leading glider in the world of the soaring community came to life. Initially they only sought to build one or two gliders for their own personal use. After 30 000 man-hours they produced the very first JS1 prototype (Roos, 2018). They thought that the glider's efficiency would be 6% higher than any other in its class and under good circumstances, would cover a distance of 1000 km within 6 hours (JS, 2018). After the maiden flight of the JS1 on 12 December 2006, Attie Jonker entered their first glider into the combined Open/18m class at the South African National Championships in Bloemfontein and to everyone's amazement, they were victorious (Keyter, 2018).

Jonker Sailplanes formal business operations were established in 2001. Based on quality, innovation and unmatched performance, this sailplane factory in

Potchefstroom is the only one of its kind in the southern hemisphere (Roos, 2018). Jonker Sailplanes is a team effort, involving many more than just the two brothers. While Uys fills the role of managing director and Attie that of chief design engineer, Johan Bosman, an aerodynamicist, as well as an entire team at the factory whom contributes hugely to the success of the JS1 and company as a whole (JS, 2018). All executives are glider pilots and improves the operation based on the fact that they are directly involved. A huge passion for gliding is key to their success. Production of gliders have created over 100 jobs (Keyter, 2018).

1.1.3 Jonker Sailplanes Timeline

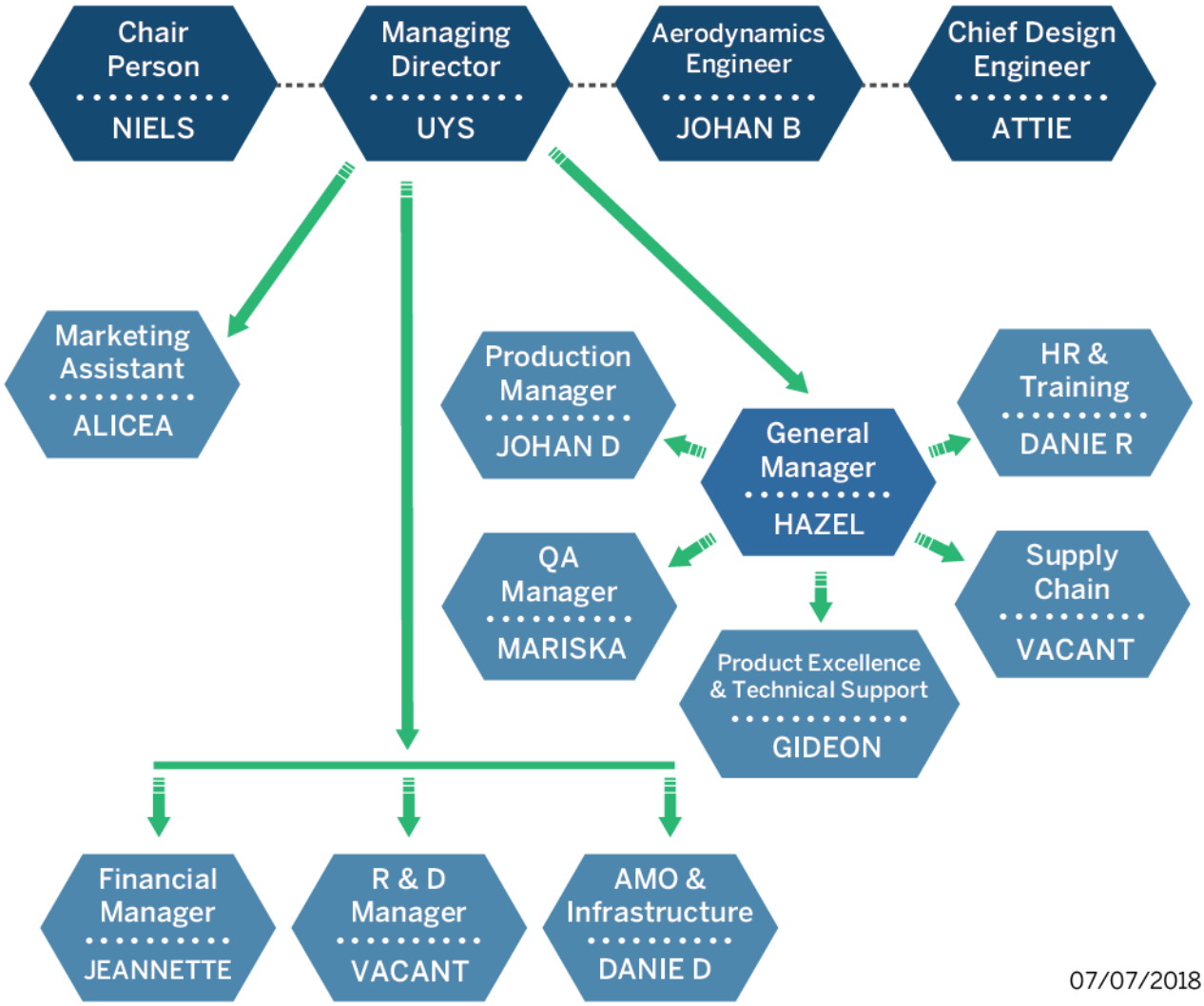
The timeline reflects of the history since 1999 when the facility and factory commence to 2018, this can be seen at the top portion of the timeline. The bottom portion reflect the gliding history since 2001 and the world championships being prepared for during August 2018. See the A3 foldout.

Figure 2 JS Timeline

1.2 THE TEAM (ORGANOGRAM)

JS is a small privately owned company consisting of three executive directors and one non-executive director that acts as the chairperson of the company. Uys Jonker is the CEO of the company and his brother Attie Jonker is the chief design engineer. Johan Bosman is aerodynamics engineer and the brain behind the CFD modelling capability, which is aerodynamic software, used in the design process. Niels Sundberg is the chairperson, whom is the owner of Sun-air Scandinavia and guides the company forward. The management structure can be seen in Figure 3 below.

Figure 3 Organogram of JS



1.3 INTERNAL ANALYSIS

1.3.1 Current strategy

In December 2013, JS developed a strategy for 2014 to 2018. This section will discuss the strategy they implemented, whereas phase two will assess the strategy and propose a strategy for the next four years.

Vision

Jonker sailplanes will be the sailplane manufacturer delivering the most sought after sailplanes **(air glider planes)** in the world.

Mission

The mission of Jonker Sailplanes is to design, produce, sell, and support the most sought after high performance sailplanes in the world by:

- Providing an outstanding customer experience
- Developing and applying state of the art technology to maintain our competitive edge
- Ensuring a satisfied, motivated, and productive workforce
- Applying best practises in all our operations
- Establishing the JS brand internationally

And as a financially viable and sustainable entity, supporting our people and community.

Core values

We honour the Lord in everything we do at JS, by being worthy ambassadors, therefore, our core values are:

- Adhering to the highest **ethical** and **moral** standards
- Approach everything we do with **integrity** and **honesty**
- Passionate and determined in expediting our **accountability** and **responsibility**
- Caring for the **well-being** of our people/employees and keeping them informed
- Treating people with **dignity** and **respect**

Objectives

JS identified five objectives for their 2014-2018 strategy

- Production effectiveness and efficiency to deliver 36 sailplanes
  - Resolve logistical constraints
  - Resolve product excellence issues
  - Product stabilisation at 10 days with 9 day recovery plan
  - Correct tools and jigging in place
  - Ensure capacity to cope with volumes
- Ensure the right capacity, roles, and accountabilities, supported by programs that facilitate the development, growth, and job satisfaction of employees
  - Ensure capacity to cope with **high** volumes
  - Personal individual career development plan
  - Performance management system in place
  - Managerial and leadership development plan in place
  - HR and training system in place
  - Productivity measurement index in place
- Capability to deliver the right product at the right time
  - Project planning and schedule system in place
  - All protocols in place
  - Funding and financial management system in place
- To build and protect our brand
  - Product life cycle and strategy plan
  - Action plan to maintain a 18 month order book
  - CPM system fully operational
  - Marketing communication plan
- To ensure accurate live reporting of financial data
  - Accurate and reliable management info <5% deviation from budget
  - Cost centre reporting in place
  - Activity based costing system in place
  - Mechanisms to ameliorate product liability risk

1.3.2 Business model

Customer Segments: The current market includes Competitor Pilots and Recreation Pilots with the ratio moving more towards competitor Pilots.

Value Proposition: The JS do offer customers quality, unique and safe configurations, but the competitive advantage is in the brand of flying a JS. This brand position is based the successes achieved by the South African sailplane competitors, but also the presence of JS Sailplanes amongst the Top 10 places during the yearly world competition.

Revenue Streams: Income is generated through sales, service and through Aircraft Maintenance Organisation (AMO) support. Additional access to financial means are facilitated through funding agreements.

Customer Relationships: The gliding community is a niche market and the JS Brand and the ambassadorship is a key relationship role fulfilled by the JS representatives.

Channels: The ordering system provides customers and new customers to configure a unique sailplane, the system allow continuous feedback on the manufacturing process. A distribution channel is created through continent agents and the European Partner M & D.

Key Activities: Research and development is key to the success and the uniquely designed tooling and equipment to achieve the desired configuration. The prototyping, manufacturing and test flight is at the core of the production unit. The maintenance and service of sold sailplanes is provided as a service and at the heart remains the participation in the sport activity using the JS brand.

Key Resources: The knowhow to design and build a winning brand is a key advantage linked closely with the positioning to the airfield and university in Potchefstroom. The access to talent and labour is a key component to ensure sustainable and innovation on a continuous basis.

Key Partners: To achieve international recognition, the key partners include their suppliers and international agents including the North West University to ensure the latest engineering inputs and testing opportunities. M&D holds the certification to allow them to sell to the European market.

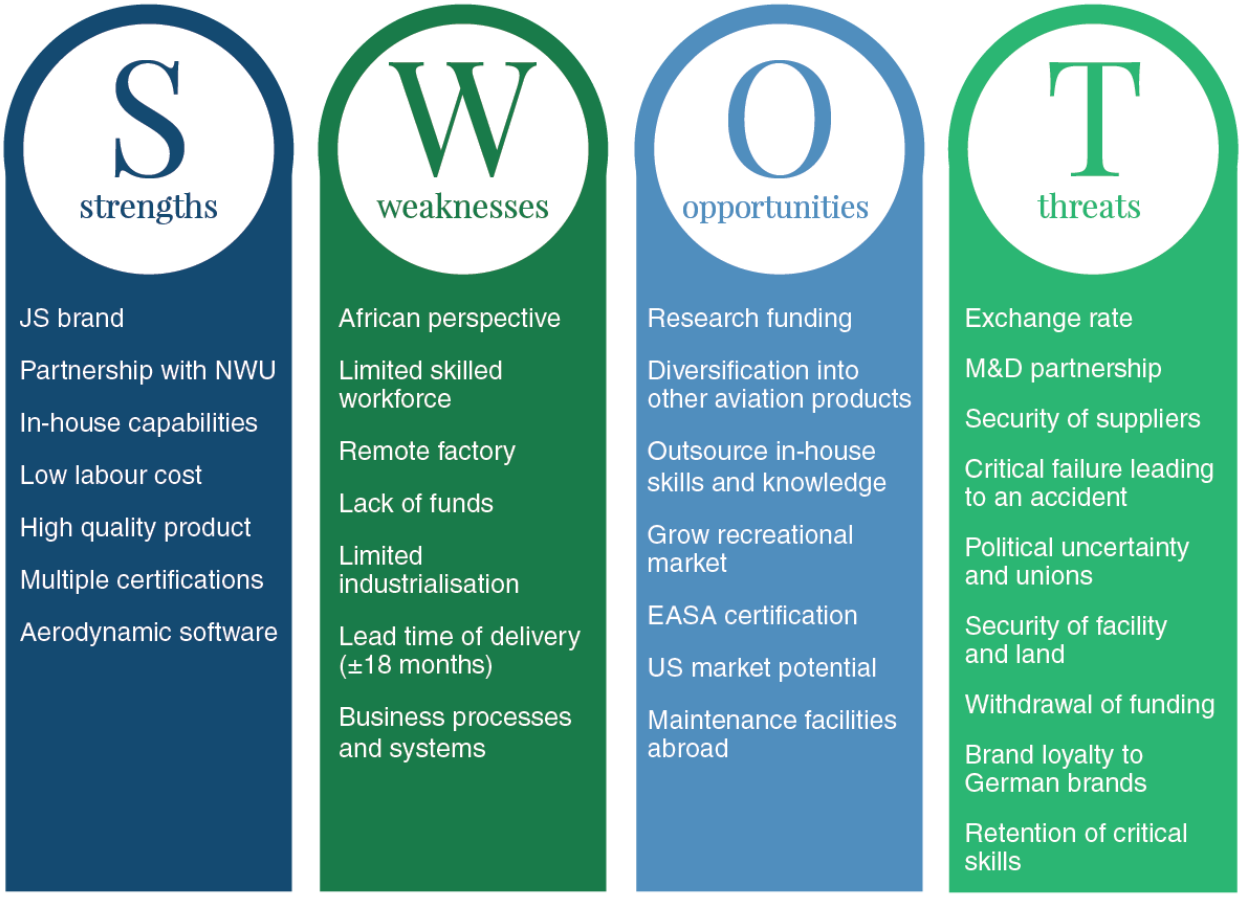
Figure 4 Business Model Canvas

Cost Structure: Salaries and wages are the key fixed costs together with the leasing of the facilities, the variable components include the tooling, materials, and participation in marketing and competing opportunities.

1.3.3 SWOT analysis

During a consulting workshop with the relevant management of JS a SWOT analysis in Figure 5 was completed.

Figure 5 SWOT analysis



From the consulting workshop and the resulting SWOT analysis the following main elements of each aspect of the SWOT analysis was identified.

Strengths

The main strength and sustainable competitive advantage of JS is the aerodynamic software that Johan Bosman designed. The JS brand is synonymous with high quality and superior performance. During competitions JS sailplanes dominate the rankings with multiple top positions in the different classes.

Weaknesses

JS's main weakness is its lead time and availability of materials. The majority of sailplane manufacturers are located in Germany and due to this specialised materials for the manufacturing of sailplanes are also located in Germany. Materials need to be imported and transported to South Africa, this increases the cost of materials compared to that ofGerman manufacturers.

Opportunities

The main opportunity for JS is to diversify into new markets or to grow existing markets. The skills and knowledge JS acquired can be applied to other sections in the aviation and related industries. This can expand their range of products beyond just sailplanes. The other opportunity is to grow the sailplane market in the United States. Currently the US market is very small compared to Europe. If JS successfully grow the US market it can break the dominance of the German manufacturers.

Threats

There are two main threats that can have major implications for JS. The first is a critical failure that lead to an accident, which will have a very negative effect on their reputation as a high quality and safe sailplane. This will result in a significant drop in sales. The second major threat is the M&D partnership. M&D hold the EASA certification that is required to sell sailplanes in Europe. If this partnership is terminated for whatever reason, JS will not be able to sell its sailplanes in Europe, which is the main market.

1.4 EXTERNAL ANALYSIS

1.4.1 PESTEL analysis

PESTEL analysis is a tool used in a business to analyse Political, Economic, Social-cultural, Technology, Legal and Environmental changes in the business environment. (Mankeltow, 2015). This tool is a contingency planning tool and this tool assists a business to understand the forces of change that could affect changes in the business environment. It is important that these tools be used and be implemented to adapt to future changes in the business environment.

Four main reasons the tool is used for are the following (Mankeltow, 2015):

- To recognize business or personal opportunities and to give advanced warnings of significant threats;
- It reveals the direction of change in the business environment and the direction of change within the business;
- It helps avoid projects that are likely to fail for reasons beyond the control of the business;
- Helps develop an objective view of the business environment.

Political

- JS receives government funding for the development of skills and research. Due to the down grade to “junk status” and the increasing debt burden of the South African economy, JS is at risk of losing the government funding, if there is changes in the budget. The funding is a substantial source of funds for JS, which is mostly used for research and development.
- Black Economic Empowerment (BEE) is difficult to comply with in the sailplane industry, as there are few interested black, investors, shareholders, and or stakeholders who is willing to invest in the sailplane industry.
- JS operates in South Africa, but most of its customer base is situated in Europe. South Africa entered into bilateral agreements with Europe concerning import and export trade.
- South Africa and Europe have different certifications for gliders, due to this JS have partnered with M&D to sell sailplanes in Europe. Future changes in trade policies may change the need for two different certifications.

Social

- Transformation in Jonker Sailplanes is slow. There is a shortage of black workers with the necessary skills, training and passion to work in the sailplane industry.
- BEE is a potential risk insofar as government funding is concerned. Even though Jonker Sailplanes is not dependent on BEE status to secure contracts, as most of its customers are overseas.
- The main social problem of the company is that a large portion of its employees are unskilled and need training that takes about 2 years.

Technology

- Technological changes may have a significant impact on the sailplane industry due to sailplanes being used in competitive sport. Innovations in composite materials and aerodynamics can give a manufacturer a competitive advantage. JS is the leader in aerodynamic technology with its in-house aerodynamic software that replace traditional wind tunnel testing, which is time consuming. By using the aerodynamic software JS reduce the design and testing time from years to a few weeks. This is an example of how changes in technology can affect the sailplane industry.

Economic

- The majority of the sailplane market is based in Europe and they pay in Euros. To offset the risk of exchange rate fluctuations JS, keep a percentage of the payments as Euros to pay suppliers.

- Highly skilled, workforce is obtained from the North West University and comprise of engineering students who volunteer their service in exchange for practical experience.

- Medium (semi) skilled workforce are more the artisans and technical employees who are difficult to retain, as the company cannot offer competitive packages to retain skilled employees. This is an economic challenge the company faces as their skilled workforce is absorbed in other companies who offer higher remuneration packages and benefits.

- Low skilled employees (labourers) are in excess, but the quality of their work is not up to standard. Jonker Sailplanes have to spend a lot of time and money training them.

- JS struggles to obtain credit from financial institutions as a result of the company not having fixed property which can be used as security for funding.

- Most of the customers have the financial ability to buy the products. JS manufactures the product on order from the customer and requires an upfront deposit, which assists with cash-flow.

- Global and local recession does not have a major impact on JS nor its customers. The customers are financially stable, and recession generally has little to no impact on their financial abilities.

Legal

- Jonker Sailplanes have to comply with local labour, safety and aviation legislation/regulations in addition to German aviation laws. There are no other risks concerning any laws at this stage.

Environment

- There are minimum risk factors concerning the environment. The gliders are not powered by an engine and therefore has no carbon emissions.
- The only negative impact the company can have on the environment is at the production stage.
- The waste material can cause damages to the environment, but this can be controlled and monitored.

1.4.2 Porter's Five Forces

Porter's tool is used to measure the market attractiveness of company's products and or services.

Bargaining Power of Suppliers

The bargaining Power of suppliers is relatively low, JS have multiple possible suppliers to choose form and are able to select the cheapest supplier. JS purchases 70% of its raw material from the cheapest supplier whether it being local or international. The remaining 30% is purchased from the other suppliers in order to maintain a good relationship with all suppliers.

Score: 4

Bargaining Power of Buyers

The bargaining power of buyers is medium. Generally, clients are not price sensitive and are willing to pay more for a superior product. JS have a higher listed price than their main competitors, due to JS's superior sailplanes for the competitive market. However, JS does not have full control of their prices and often negotiate prices with customers to secure orders.

Score 6

Rivalry amongst Existing Competitors

The rivalry amongst existing competitors is high. JS is the third largest sailplane company of the three main competitors, which include Alexander Schleicher and Schempp-Hirth. The rivalry is not only on price but also on quality and performance of the sailplanes. The Majority of rivals is located in Germany where the main market is, but JS is located in South Africa with a limited market. This put JS at a disadvantage compared to its competitors.

Score: 8

Threat of Substitute products

The threat of substitute products is medium. Although there is no direct substitute for sailplanes, there are other forms of recreation that can be a substitute for sailplanes. Gliding is an expensive form of recreation, which also require a pilot license, making it difficult to attract new customers.

Score: 5

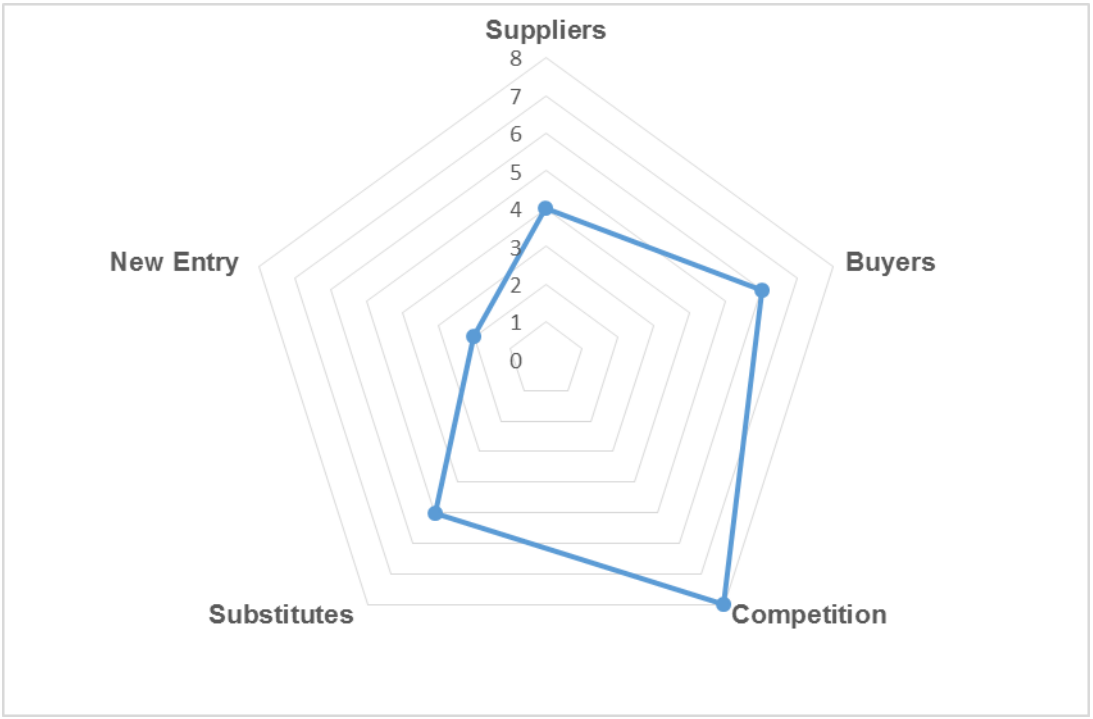
Threat of New Entries

Threat of new entry is very low. There are many barriers for new entry into the Sailplane market. The most significant barrier is the type certification that is needed to sell sailplanes, which is expensive and time consuming to obtain. Other barriers include setup costs and expertise. JS was the only new company to successfully enter the sailplane industry

Score: 2

Figure 6 below gives a visual summary of porter's five forces. From the porter analysis it can be seen that the sailplane industry is difficult to successfully enter, the industry has high competitive rivalry, and buyers have substantial power over companies. The sailplane industry is not a sought-after industry and companies need a passion for gliding to be successful in this industry.

Figure 6 Porter's five forces



1.4.3 Competitor Analysis

According to Ungerer *et al*. (2016:117) understanding the competitive position and potential strategic moves of competitors enable a company to prepare proactive decision making to enhance, improve, and change strategic advantages. Having an informed view of the competitor landscape assists a company to develop foresight about their own strategic options and choices.

Table 2 below illustrate how JS preformed against the main competitors in the sailplane industry on six key success factors.

From Table 2 it can be seen JS scored lowest of the three companies if total numbers are used, but if weighted averages are used based on the importance of the key success factor then JS is ranked second. JS's strengths are their product innovation and design quality. JS scored the lowest on financial resources and reputation. JS has a lower reputation because they are relatively new in the business compared to the other competitors. JS's reputation is increasing rapidly due to the innovative designs and high-performance sailplanes

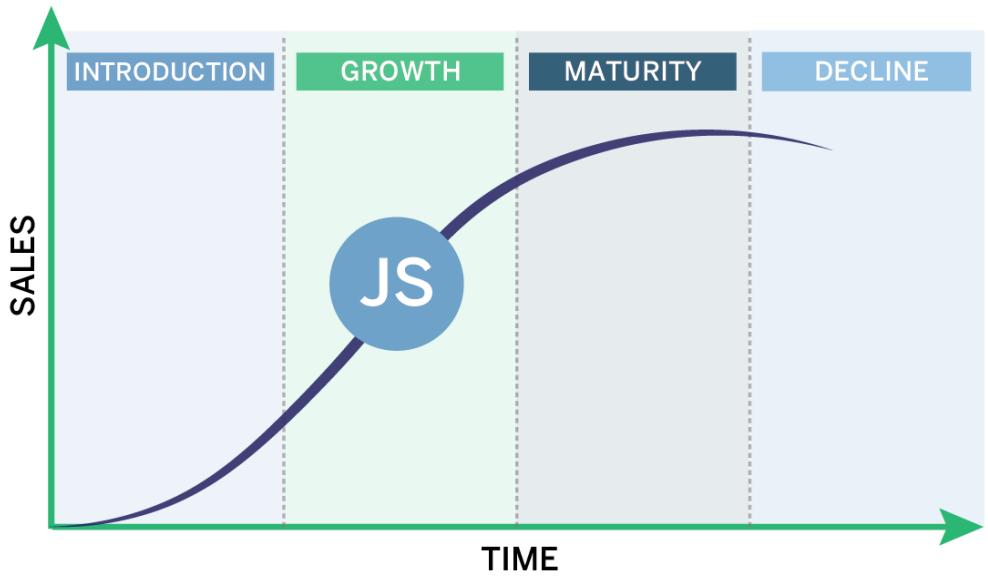
Table 2 Competitor analysis

Key success factor	Weight	Jonker Sailplanes		Alexander Schleicher		Schempp Hirth	
New product innovation	20%	8	1,6	5	1	3	0,6
Reputation	15%	5	1	8	1,2	8	1,2
Financial resources	10%	2	0,4	8	0,8	6	0,6
Product range	25%	4	0,8	8	2	6	1,5
Manufacturing quality	15%	6	1,2	8	1,2	6	0,9
Design quality	15%	8	1,6	6	0,9	6	0,9
Total	100%	33	6.6	43	7.1	35	5.7

1.4.4 JS growth curve life cycle

The sailplane industry is a mature industry that is moveing into the decline phase. In Europe there is efforts to grow the market to prolong the lifetime of the industry. Figure 7 below is an illustration of the growth curve of the sailplane industry and where JS is currently in the growth cycle.

Figure 7 Growth curve

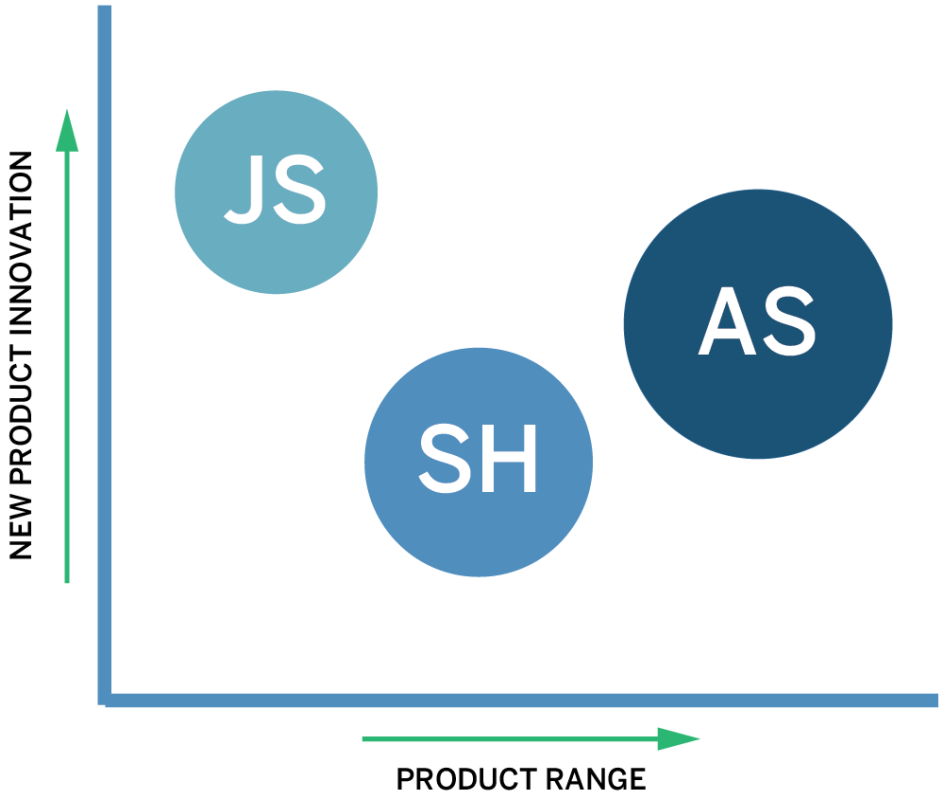


Although the sailplane industry is reaching the decline phase, as a relatively new entry into the sailplane industry, JS is growing and generally increasing its sales on a yearly basis.

1.4.5 Strategic group map

A strategic group map is used to reveal which companies are close competitors and where a company is situated in the competitive landscape (Thompson *et.al.,* 2017:93). Using the key success factors from the competitive analysis product range and new product innovation was selected as the two axis. Due to sailplane industry being a mature or declining market, it is important for companies to develop new innovative products to encourage pilots to buy a new product. A wide product range allow a company to attract a larger share of the market. Figure 8 below shows the strategic group map of the sailplane industry.

Figure 8 Strategic group map



From the strategic group map it can be seen that JS is in a prime position to increase its product range, by utilising its ability to produce innovative new products.

1.4.6 VRIO Framework

VRIO (Valuable, Rare, Imitable, and Organisation) is a business analysis framework consisting of four tests. The competitive power of a resource or capability is determined by how many of the tests it can pass (Thompson, Strickland, Janes,

Sutton, Peteraf & Gamble, 2017). JS's main competitive advantage is its CFD modelling capability. The results of applying the VRIO framework to JS's CFD modelling capability are provided below.

Test 1: Is the resource (or capability) competitively valuable?

JS's CFD modelling capability is extremely valuable. It is the secret to the outstanding performance of the JS1 and the JS3. Customers buy the JS1 and JS3 because of their performance.

Test 2: Is the resource rare – it is something that rivals lack?

The CFD modelling capability is extremely rare. JS is the only sailplane manufacturer that uses CFD modelling for the aerodynamic design of its sailplanes. JS's European rival use iterative wind-tunnel test that are expensive and time consuming.

Test 3: Is the resource hard to copy (imitable)?

The CFD modelling capability is very hard to copy or imitate. It is JS's biggest trade secret and the in-depth knowledge on how it works is not even shared within the company. It is only Johan Bosman and Attie Jonker that knows exactly how the CFD modelling software works.

Test 4: Can the value of the resource be captured by the organisation?

The value of the CFD modelling capability is to a large extent captured by JS. This is because the CFD modelling capability is used extensively in the development of the aerodynamic design of JS's sailplanes. Aerodynamic design is the important factor that determines the outstanding performance of the JS1 and the JS3.

There is however scope to obtain more value from JS's CFD modelling capability. This can be done by using the CFD modelling capability to develop sailplanes aimed at the leisure market. JS can also use it as the basis for providing design services to the powered aircraft industry.

1.5 MARKETING STRATEGY

Marketing strategy refers to the activities of selecting and describing one or more target markets and developing and maintaining a marketing mix that will produce mutually satisfying exchanges with target markets based on the firm's competitive advantage and proposed positioning (Lamb *et al.*, 2015:511).

1.5.1 JS Current marketing strategy/approach

The current head of sales and marketing is also the managing director of the company. Along with a marketing and sales assistant this comprises the entire marketing personnel of JS. Although JS does not follow a specific marketing strategy they have never struggled to get sufficient orders and sales. A detailed marketing plan is essential to establish a sound client base and to ensure a company leverages its strengths to gain market share, both nationally and internationally in the long run.

However, as the business is looking to expand and in terms of growth generating, a more formalised marketing plan based on marketing objectives will have to be considered. This will ensure that the marketing strategy is aligned with the overall company strategy.

1.5.2 Marketing channels

- **Facebook** – for sharing new products, content, videos and news.
- **Newsletter** – JS uses Mailchimp to send their newsletter to existing customers, potential/interested parties which they obtain from enquiries on their website or via Uys Jonker when he attends competitions and conferences through networking.
- **Advertising in international magazines** – such as in Gliding International, Nordic gliding (Denmark) and Vol à Voile (France); all of which mainly aimed at markets abroad.
- **YouTube channel** – videos for new product launches, or of first solo flights, visiting pilots and their experience of flying a JS; these videos are done by professionals and the original idea was to try and publish a video once a month, but not enough content is generated to reach this specific objective. Smaller videos are done by pilots themselves with a GoPro.
- **Website** – hosted by GSD Potch (outsourced). It was updated recently but not on an active/ongoing basis. The website contains product specifications, but clients are unable to order directly form the website.
- **Brochure** – for new product is done in-house by Johan Bosman and Alicea Vermaas who is the sales and marketing assistant.
- **World Championships** – this is JS's biggest marketing attempt: promotional gifts such as caps and shirts with JS logo are given to participating pilots. Promotional material including branded banners, gazebo, and brochures are used.

- **Corporate gifts** with JS logo – phased out due to unpopularity and lack of use as well as budget restraints.
- **Global/International agents** – across the world is responsible for recruiting new customers, compiling CCF (customer coordination file), which is sent to JS, and advertising.
- **Conferences/Exhibitions** – include: Aero Friedrichshafen, Swiss conference, German Gliding Day, BGA (British Gliding Association) Sporting Conference, USA conference and SoaringXX conference. At these events physical gliders are on display, and at some conferences even test/demo-flights are conducted.

1.5.3 Regional sales

According to the head managing director, Uys Jonker the majority of their market is situated in Europe. Regional sales percentages are listed in Table 3. The competition market is also quite limited as it quickly becomes saturated by products, so there is a constant need for new product innovation (Vermaas, 2018).

Table 3 JS regional sales

Region Sales	**%**
Central Europe (Germany, Switzerland and Austria)	28%
Eastern Europe (Serbia, Hungary, Czech, Slovakia, Romania and Italy)	18%
Western Europe (France)	6%
Southern Europe	3%
United Kingdom	6%
Scandinavia (Denmark, Finland, Sweden & Norway)	2%
North America	18%
South America	2%
Australia/New Zealand	13%
South Africa	4%

Establishing which (international) market to target depends on budget and the inevitable profitability prospects of that market; at the moment JS is focused on entering the USA market; profitability prospects and viable markets also play a role in selecting conferences to attend for the promotion of JS products and brand.

1.6 ENGINEERING

1.6.1 Products

JS currently produces two sailplane models, the JS1 Revelation and the JS3 Rapture.

JS1 Revelation

The JS1 Revelation was the first sailplane model produced by JS. Its first test flight took place on 12 December 2006. The JS1 was the company's first and only sailplane model for a period of 10 years. The JS1 was highly successful in establishing the company as a leading global sailplane manufacturer. Two different models of the JS1 are currently produced, the specifications are provided in Table 4.

Table 4 Specifications of the different JS1 models

Model name	Wingspan	Introduction date	Wing loading (max)	Glide ratio
JS1C-18 Evo	18m	2014	53.6 kg/m2	53
JS1C-21	21m	2012	58.7 kg/m2	60

Source: (JS, 2018)

Figure 9 The JS1C-21

Source: (JS, 2018)

JS3 Rapture

The maiden test flight of the JS3 took place on 12 December 2016, exactly 10 years after the first test flight of the JS1. JS's goal with the JS3 was to create the ultimate competition glider for varying weather conditions. An interesting and distinguishing feature of the JS3 is its "high wing" design, which entails the wings to attach at a higher than normal position to the fuselage. The "high wing" design is a revolutionary

feature that aids the aerodynamics of the sailplane. Table 5 provides more information on the characteristics of the two JS3 models

Table 5 Specifications of the different JS3 models

Model name	Wingspan	Introduction date	Wing loading	Glide ratio
JS3-15	15m	2017	60 kg/m2	50
JS3-18	18m	2017	60.3 kg/m2	55

Source: (JS, 2018)

Figure 10 The JS3-15

Source: (JS, 2018)

Although the JS1 is still being produced, the production focus of the JS factory has shifted towards the JS3. The JS2 model is still in development and is a self-launching sailplane aimed at the leisure market. A self-launching sailplane is equipped with an engine that allows the sailplane to take off under its own power. This eliminates the need for using a powered aircraft to tow the sailplane into the air (aerotowing). This saves costs and gives the leisure pilot the freedom to fly in situations when a towing pilot may not be available. Another advantage of the self-launcher is that it prevents the pilot from “outlanding”.

Outlanding is a term used by sailplane pilots to describe the action of landing at an unintended location such as a farm or any suitable terrain. Sailplanes depend on rising hot air streams (thermals) to gain lift. Sometimes the thermals are not powerful enough to generate the amount of lift required by glider to reach its intended landing place and pilots are forced to make an outlanding. Outlanding is not desirable because it can damage the landing gear of the glider and it may be difficult to retrieve the glider afterwards.

An option that JS offers to prevent outlanding is a sustainer. The sustainer is a small, lightweight (17kg) jet engine (JS, 2018). The sustainer is not powerful enough for launching, but it "sustains" flight, thereby prevent outlanding. The sustainer offered by JS is the result of JS's strategic partnership with German light aircraft manufacturer M&D. JS does not develop its own sustainers, but offers customers the MD-TJ42 jet engine developed by M&D. Figure X shows a JS3 fitted with the MD-TJ42 jet engine.

Figure 11 JS3 fitted with a sustainer supplied by M&D

Source: (JS, 2018)

1.4.3 Engineering and design

JS has a dedicated engineering team who is responsible for the design of the company's sailplanes. The entire sailplane design is done with computer-aided design (CAD) tools such as the Siemens NX software.

JS benefits in terms of engineering R&D from its strategic partnership with the North-West University (NWU). Every year, a large number of final year engineering students do their final-year projects on topics related to problems identified by JS. JS

benefits from the engineering expertise of the students, while the students benefit by being confronted with real-world engineering problems with a practical application. A number of master's degree students also do their research on topics related to JS's activities.

Another benefit from the partnership with the NWU is that JS has access the high-performance computer (HPC) of the NWU. High performance computing is required to solve the complex and iterative equations of the software that JS uses for the aerodynamic design of their sailplanes.

Designing a sailplane is about getting two things right, the sailplane needs to have good climbing ability in thermals, but it must also have good gliding ability. Unfortunately, these two requirements are in direct conflict with each other. Designing a good sailplane therefore entails making a compromise between climbing ability and gliding ability.

The aerodynamic design of a sailplane affects both its climbing and gliding abilities. Sailplane designers therefore spend a lot of time and effort on the aerodynamic design of their planes. For this purpose, the large established sailplane manufacturers in Germany make extensive use of wind tunnel tests. For example, DG Flugzeugbau has partnership with the University of Stuttgart that enables them to use the university's wind tunnel facilities (DG Group, 2018). Wind tunnel tests enable sailplane designers to study the effects of moving air on the body of a sailplane in terms of velocity and pressure.

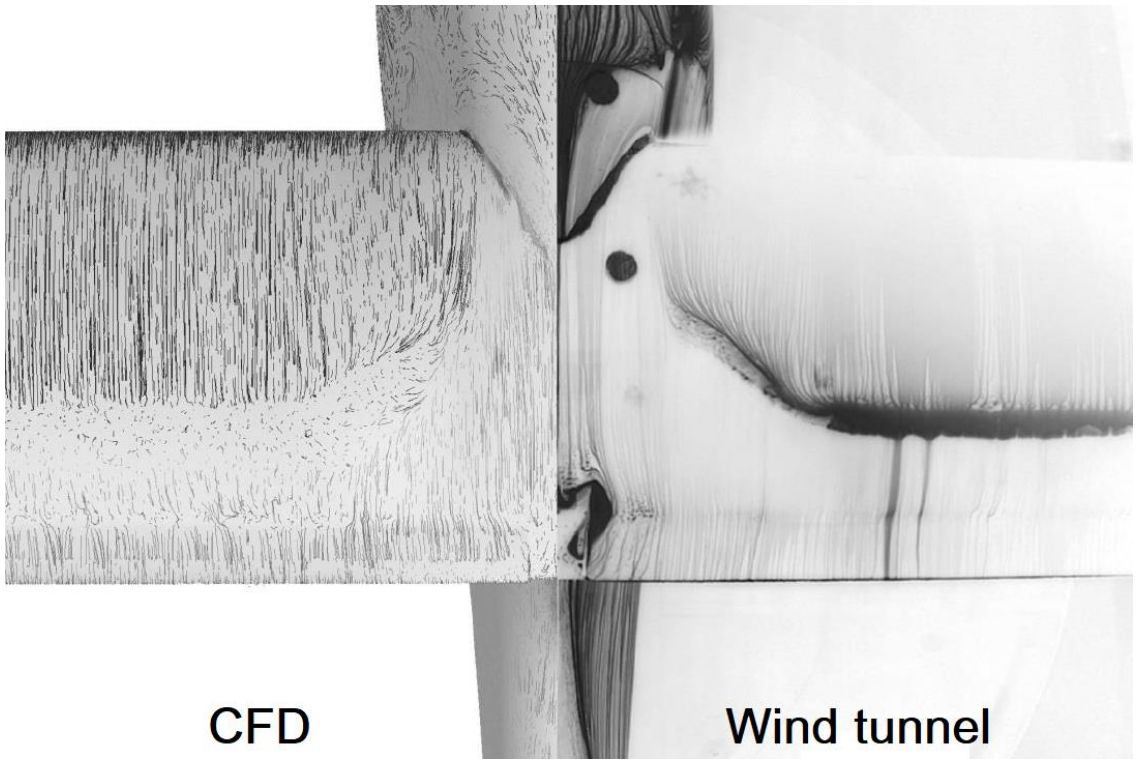
The negative aspect of wind tunnel tests is that it is very time-consuming. It entails building a model of the component that needs to be tested in the wind tunnel. After testing the component in the wind tunnel, the design team has to go back to the drawing board to make changes based on the results of the wind tunnel test. This process is repeated until the desired performance of the component is achieved. A single design iteration with wind tunnel tests take about 6 months to complete and therefore the knowledge gain from the test is slow.

JS does not have the luxury of having easy access to wind tunnels for testing. South Africa's only wind tunnel is located about 200 km from JS, at the Council for Industrial and Scientific Research (CSIR) in Pretoria. JS was therefore forced to consider alternative methods for doing wind tunnel testing.

JS's lack of access to a wind tunnel prompted Attie Jonker and Johan Bosman to do research on the use of Computational Fluid Dynamics (CFD) software for designing sailplanes. The result of this research was that Attie and Johan were able to develop CFD software that enables JS to develop the aerodynamic design of their planes by computer simulations instead of wind tunnel tests.

The CFD software provides the same accuracy as wind-tunnel testing, but at a fraction of the cost and time associated with wind tunnel testing. A single design iteration with CFD modelling can be done in 24 hours, while a single design iteration with wind tunnel testing takes on average 6 months. A comparison of the results achieved with CFD versus wind tunnel testing is shown in Figure 12 (JS, 2017).

Figure 12 Comparison of CFD modelling vs wind tunnel testing



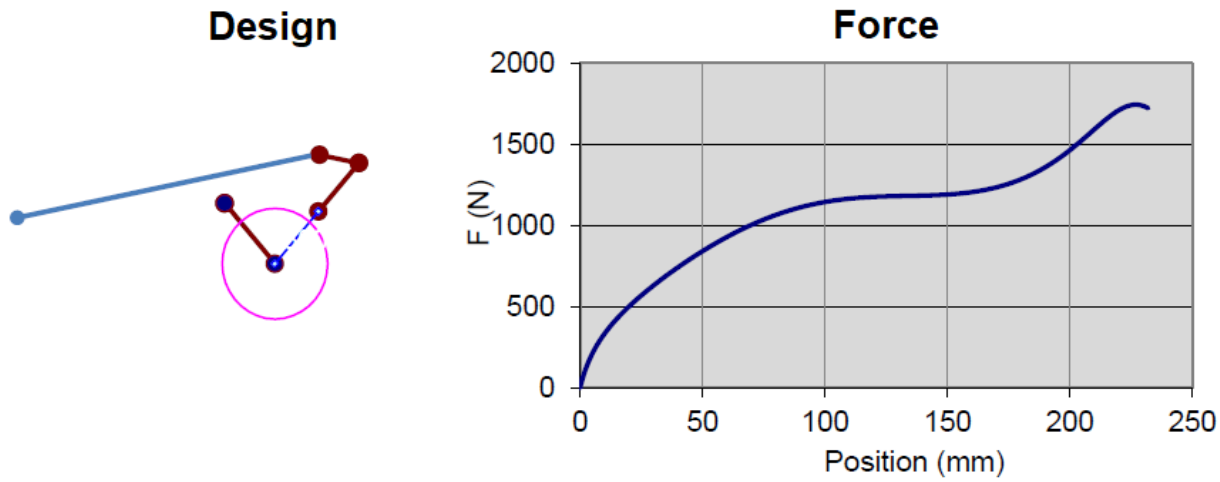
Source: (JS, 2017).

JS has a strong emphasis on modelling. This extends beyond the aerodynamic design modelling done with CFD. Various other aspects of JS's sailplane are extensively modelled in the design phase. This ensures that potential problems affecting performance are identified and corrected in the design phase. The motivation is that it is less expensive to solve problems while a sailplane is still in the design phase than when it is already in the production phase.

An example of a part of the JS3 that was extensively modelled is the landing gear mechanism. The landing gear of the most sailplanes operate with a lever that is manually operated by the pilot. Almost all sailplane models have used the same basic design for the landing gear mechanism since it was simple, robust and proven.

The proven landing gear mechanism did however have one glaring design flaw. This flaw has to with the mechanics of the human arm. When pulling a lever such as a handbrake in a motor vehicle or the lever that lowers the landing gear of a sailplane, the maximum force that can be applied by a human arm gets progressively less as the arm moves closer to the body. This is illustrated in Figure 13 that shows the force that needs to be applied to the lever of the conventional landing gear mechanism.

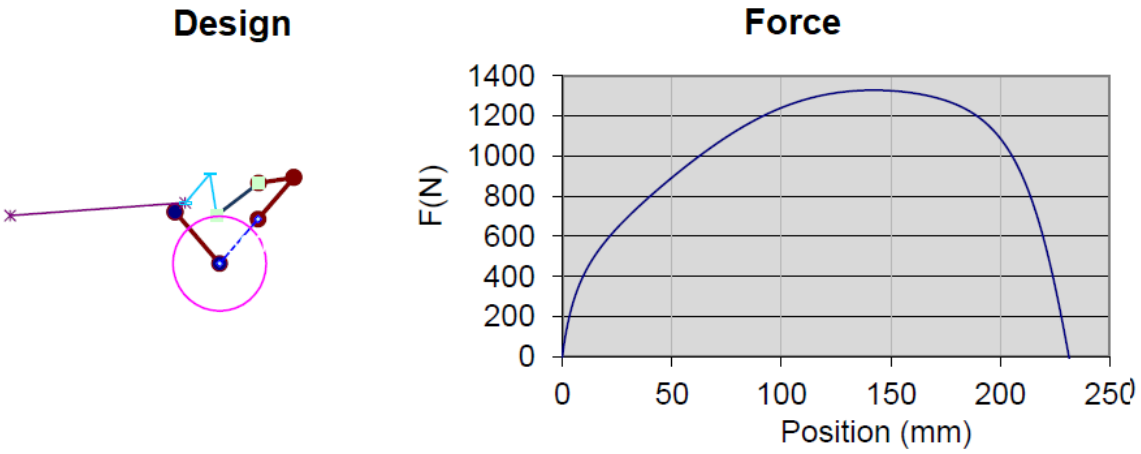
Figure 13 Modelling of the conventional landing gear mechanism



Source: (JS, 2017).

JS realised this problem and therefore redesigned the landing gear mechanism. The design was extensively modelled to fine-tune the design. The result is that the JS3's improved landing gear mechanism is significantly easier to operate because the force needed to operate the manual lever corresponds better to the characteristics of the human arm, as illustrated in **Error! Not a valid bookmark self-reference.**

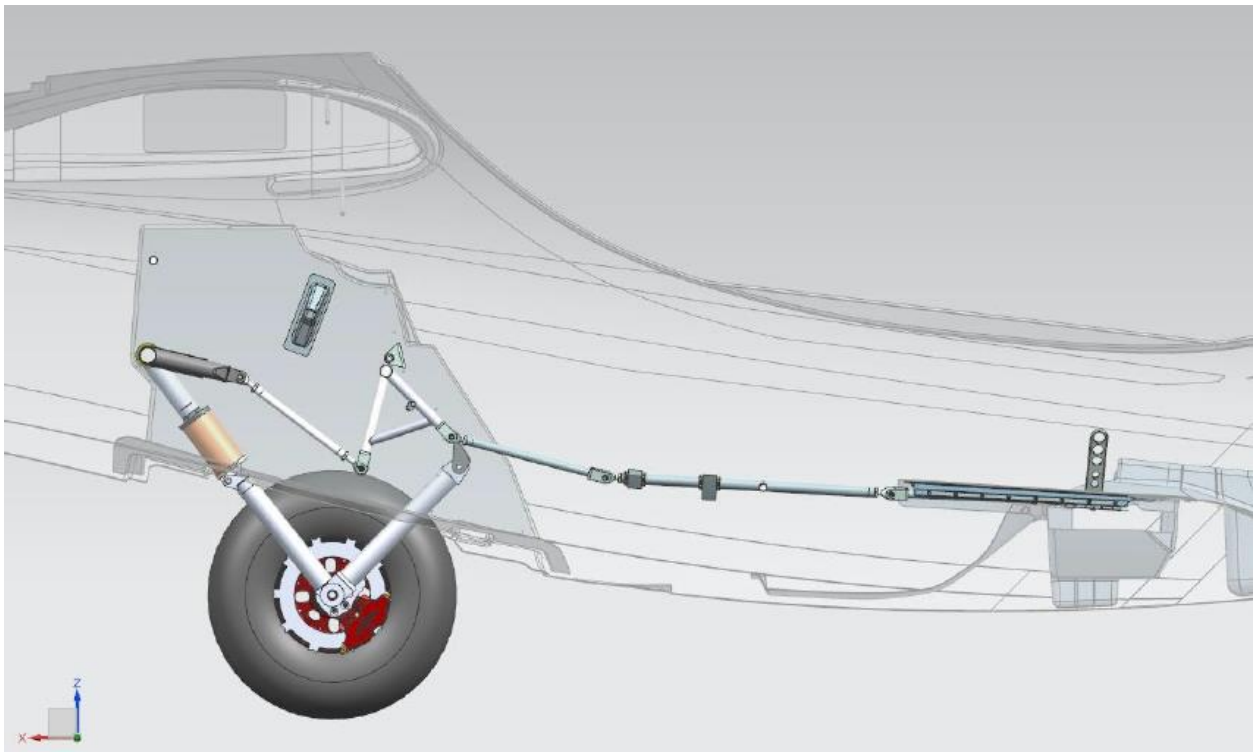
Figure 14 Modelling of JS's improved landing gear mechanism



Source: (JS, 2017).

The detailed design of the JS 3's landing gear mechanism is shown in Figure 15 Notice how closely the detailed design resembles the design of the model.

Figure 15 Detailed design of the improved landing gear mechanism



Source: (JS, 2017).

1.4.4 Case studies

The two case studies below provide insight into the extraordinary engineering prowess of JS.

Road to Benalla

For the 2017 WGC held in Benalla, Australia, JS managed to build two prototypes of the JS3 in a record time. The design of the JS3 was “frozen” on 15 March 2016, less than 10 months before the 2017 WGC started on 4 January 2017. The detailed design of the JS3, as well as the design of the tooling and moulds were all completed in the period from March to July 2017.

The building of the moulds started in August 2017 and the fuselage moulds were completed on 4 September 2017, exactly 4 months before the start of the 2017 WGC. Manufacturing of the composite parts of the first JS3 prototype started in October 2016.

At the start of November 2016, most other team’s sailplanes were on-route to Benalla in shipping containers. The JS3 on the other hand was still largely an empty shell. The entire assembly of the first prototype was done in only 4 weeks. On 12 December 2016 the JS3 had its first test flight. Further test flights were done between 13 and 15 December 2016. The second JS3 prototype was completed on 20 December 2016. The total flight time was 20 hours for the first JS3 prototype and 5 hours for the second prototype.

Some interesting statistics regarding the design and manufacturing of the JS3 is provided in Table 6.

Table 6 Design and manufacturing statistics of the JS3

Task	Duration
Aerodynamic design	3,000 hours over 2 years
Detailed design	22,000 man hours over 9 months
Constructing airframe	4 weeks

Source: (JS, 2017).

At the start of November 2016, it became clear to the JS team that their two JS3 prototypes would not be completed and ready for the shipping deadline of 1 December 2016. The only viable option to get the two JS3’s to Benalla was with air freight. Quotations received from various airlines started at USD 500,000 which was beyond the means of JS.

Todd Clarke, JS's distribution agent in Australia who works for Qantas as a commercial pilot, liaised with Qantas and managed to persuade the airline to transport the two JS3's to Australia. Qantas identified 5 risk problems that JS had to mitigate. As part of the mitigation process, JS also had to design and build special shipping boxes in a very short time. In the end everything worked out as planned, the two JS3 landed on Australian soil on 27 December 2016.

Figure 16 The Jonker brothers inside the rear cargo hold of a Qantas Boeing 747 on Sydney Airport

Source: (JS, 2017).

Adam Czeladzki

Adam Czeladzki is a Polish sailplane pilot who was paralyzed from the waist down after a sailplane accident in 2009. After his accident, Adam dreamt of being able to continue being a competitive sailplane pilot. Adam approached numerous European sailplane manufacturers with the request of modifying a sailplane that will enable him to fly it without the use of foot controls. No manufacturer was willing to consider the project.

Adam also approached JS with his request. In the typical JS "can do" spirit, Uys Jonker promised Adam his dream will become reality. The result was that JS's entire engineering team spend 6 months modifying the control systems of the JS1. The modification involved changing certain controls mechanisms to automated electronic

control. The entire control systems of the rudder, air brakes, flaps and wheel brakes were redesigned. Adam received his modified JS1 in December 2014. In 2015, Adam won a silver medal in the 2015 EGC Open Class in his modified JS1.

Figure 17 Adam Czeladzki with his customised JS1

Source: Van der Walt, 2014

1.7 MANUFACTURING

1.7.1 Factory

The JS factory comprises of three hangars at the Potchefstroom airfield. An estimated 90% or more of the components in the JS sailplane is manufactured on site. The basic concept of manufacturing the JS sailplane consists out of metal parts that are being machined, composite parts for the overall structure of the sailplane and smaller components like electrical parts which are mostly off the shelve products.

Components that are either imported or outsourced will be items such as the gas turbine, some interior trimming parts, the canopy Perspex, metal plating of the parts, and aircraft welding. Aviation authorities have strict regulations when it comes to welding metal parts for aircraft. Aircraft welding may therefore only be performed by a

certified aircraft welder. JS does not have a certified aircraft welder on site and therefore outsources its welding.

The large parts of the sailplane such as the wings and fuselage are manufactured from composite materials. A composite material is made up from at least two constituent materials with significant different physical or chemical properties. Combining the constituent materials creates a material that has the same characteristics as the components. JS uses different combinations of materials such as carbon fibre and Kevlar for manufacturing the different parts of the sailplane. The advantages of using composites are its high strength and low weight.

JS uses the open moulding process for manufacturing the composite parts for their sailplanes. The process entails laying the composite materials in an open mould by hand and applying resin with a paint brush or roller between each layer of the composite material. The layers of material and resin is left in the mould to cure (harden) while being exposed to the air. Figure 18 shows how the fuselage is manufactured using the open moulding process

Figure 18 Open moulding process used for constructing the JS3's fuselage

Source: JS, 2017

The manufacturing or operations strategy can be categorized into 5 significant management segments which are controlled (either partly or fully) by the production manager. A brief discussion of the current strategy regarding these areas follows.

1.7.2 Product

One of the competitive advantages of the JS sailplane is that it is customized according to customer specifications. This will include the paint colour being used, any names and registration codes, configuration of the instrument panel and the optional gas turbine sustainer. The aerodynamic design of the plane is standardized. All the composite materials are manufactured by using permanent moulds, also referred to as tooling. The tooling plays a significant role when it comes to the reworking needed for each product. If tooling is prepared with great caution, it reduces the amount of reworking and helps to make the part right the first time.

1.7.3 Quality control

The aviation industry is highly regulated and therefore no item can be installed into a JS sailplane without a batch number that can be traced back as far as the raw materials that were ordered. In the case of an accident (or any other incident) the cause of that incident can be analysed and referred back to the person or company responsible for the defect.

Quality control is therefore a very important aspect of the production line. On metal parts the quality is controlled inside a store room where the components are visually inspected and measured with the instruments calibrated for the desired tolerances. Parts that pass the inspection are sent to the main or metal store room. If the part fail the inspection it gets referred to the MRB (Material review board) where a decision will be made to either scrap, rework, or use as is, which is the last option requiring a management concession.

The composite parts are a little more complicated in terms of quality measurement. The quality of the composite parts is visually inspected, and a scratch test is performed on the relevant epoxy sample to ensure a good mix was achieved. The epoxy is a type of resin that is used to bind all the composite layers. A small amount of each epoxy mixture is poured into a wooden cavity that is kept on site to have proof that the mixture was right and correctly hardened. This also gives traceability of the composite parts' ingredients.

With critical components a neon light and magnifying glass are used to ensure superior visual inspection. After the resin hardened, they can now trim the edges of all the excess resin and composite material layers sticking out of the moulds.

A lot of rework and sanding are being done to ensure smoothness and improved aerodynamics on the sailplane. Sanding is done using both air tools and sanding by hand depending on the type of curve or smoothness required. Composite parts are dynamic and therefore require regular visual inspection and sanding even a couple of days after it was manufactured.

Each composite part is accompanied by a quality check sheet where the process required to make the product is specified and ticked off for each step. This serves as proof that not only the part passed visual inspection, but also to ensure the sequence of steps were executed correctly.

The finishing work on a JS sailplane is without doubt one of the best. There is not a dent or bubble or the slightest amount of roughness on the paint or composites. It takes a lot of hard work and team effort to get it to the required level, given the challenges posed by the aerodynamic design and working with composite materials.

1.7.4 Process

The process strategy varies from process focused to product focused. Process focused is a strategy where the products are manufactured in places called job shops. (Heizer & Render, 2014:308). At JS there are work stations for the different types of components. The metal shop manufactures a wide variety of metal products using manual processes, as well as CNC machines. The products are made in batches, which means if there are 10 sailplanes to be made that require 15 identical parts each, these parts will be set up on the CNC machines and finished, only then can the next set of parts be set up for machining. After the parts are made, they go on to manual machines to ensure proper finishing and any defects are removed. With CNC machining it is more cost effective to manufacture a batch of identical parts, it reduces set up time and wasted raw materials.

The composite parts are more product focused which means that the facilities are organized around products which allows for the same part to be made continuously and therefore have longer production runs than the metal shop for example. (Heizer & Render, 2014:310).

The bigger composite parts such as the wings and rest of the production line is again process focused. The reason being the nature of working with big composite parts that are dynamic as previously mentioned. A lot of visual inspections take place and defects need to be corrected. Then there is the paint shop that paint according to customer needs, which is not the same for each sailplane. The instrument panels differ for each sailplane and therefore it requires some skill and technical ability to do the wiring and installation.

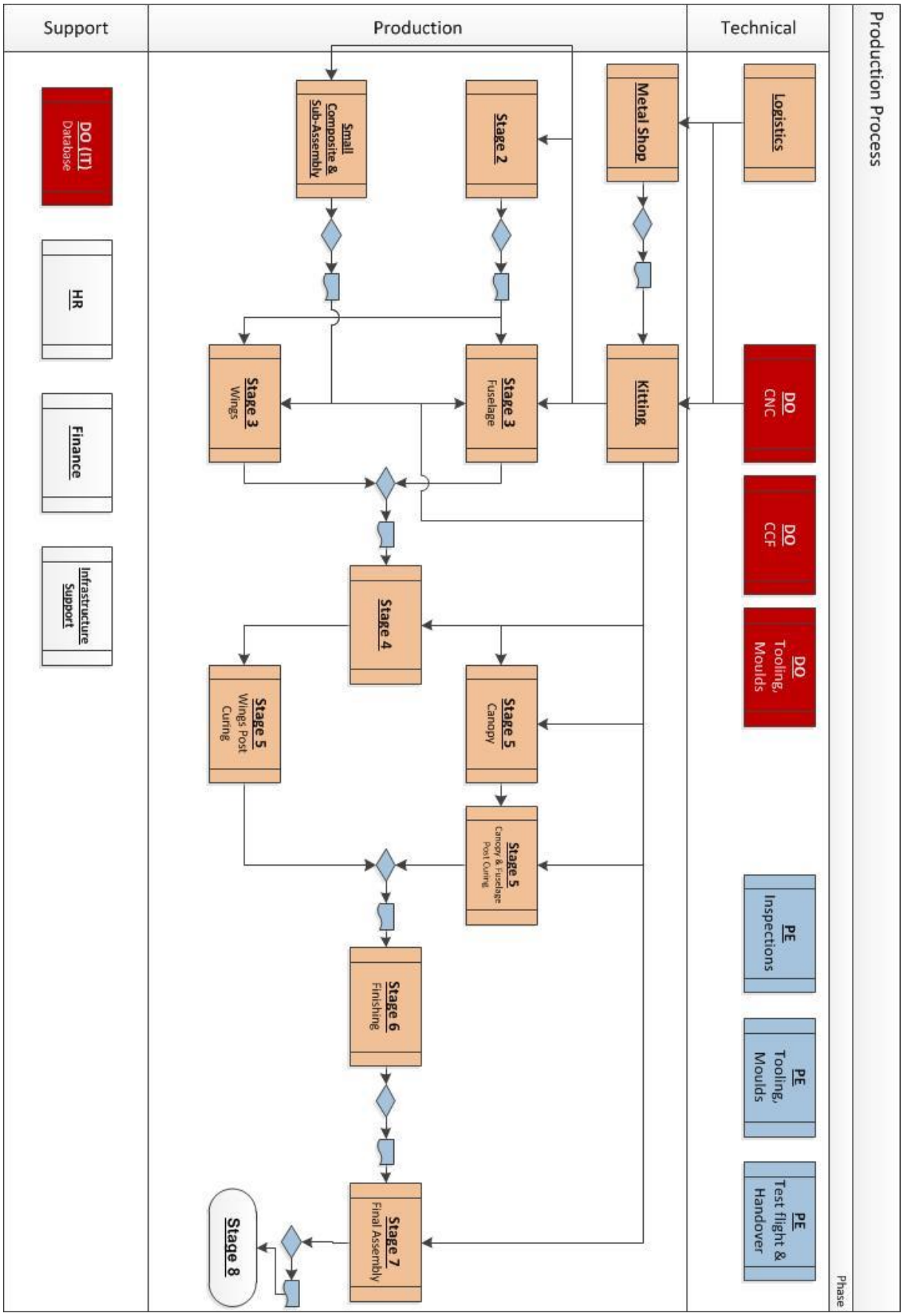
1.7.5 Layout

The process-oriented layout can be best described by a schematic representation. Take note of the different areas or job shops where each process is completed. These areas can handle a variety of designs (given that a mould is provided for that part) of a certain product and therefore making it flexible to changes in the design process:

1.7.6 Inventory

Each sailplane has a considerable amount of different parts that goes into it and in most cases the composite parts are joined together after installing the control arms, electrical harnesses, hinge mechanisms etc. Therefore, it is critical to have a good inventory management system in place to ensure the availability of the parts on the right time. Up until now, JS used spreadsheets to keep track of inventory levels. This meant that there is a predetermined amount of each product or material to be kept on hand. The job of the store room and buyer is to ensure that materials are being ordered when inventory levels reach a critical value. The lead times for these products are also taken into account with formulas programmed into a spreadsheet. JS will implement a new material requirement planning (MRP) system in August 2018. Therefore, it is unnecessary to focus on strategies regarding inventory.

Figure 19 JS's Production process



1.6.7 Exports and after-sales support

The market for sailplanes in South Africa is limited in comparison the international market. The majority of JS's sailplanes are therefore exported. JS has authorised agents in Europe, North America, South America, United Kingdom, Australia and New Zealand.

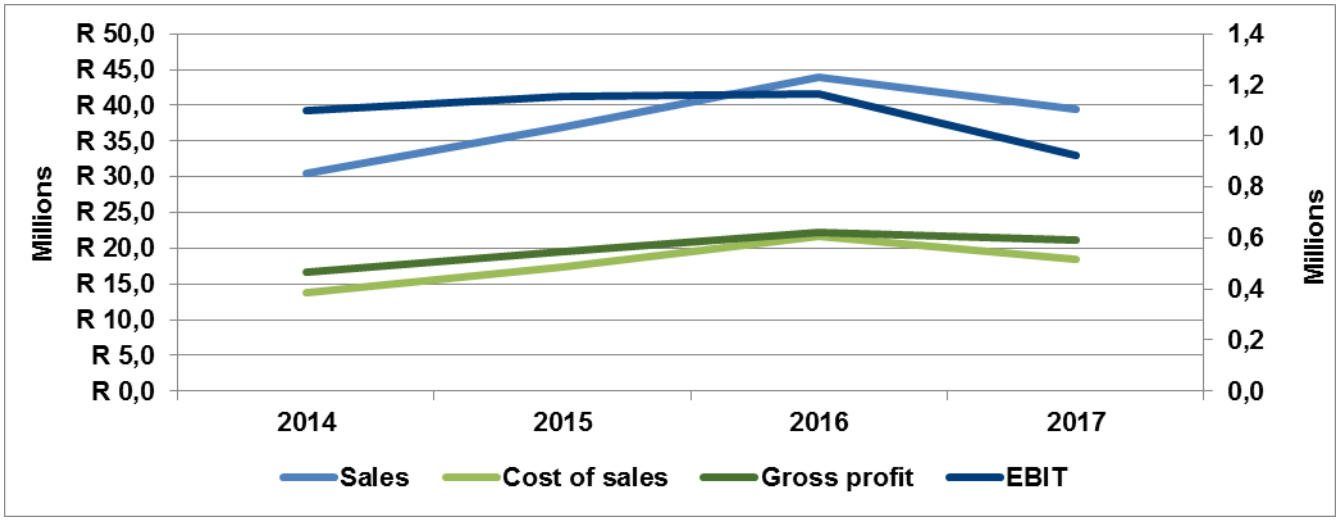
In terms of after sales service, JS provides a service where spare parts are manufactured in the factory at Potchefstroom from CAD models and distributed to clients worldwide. The manufacturing and distribution of spare parts are becoming an increasingly important part of JS's business activities as production increases and more JS sailplanes are sold worldwide.

For the servicing of the JS1 and the JS3, JS's overseas customers make use of the services of Aircraft Maintenance Organisations (AMOs). AMOs are companies that are certified to provide maintenance services to a wide range of aircraft from different manufacturers. Aircraft maintenance is highly regulated all over the world to ensure safety.

1.8 FINANCIAL ANALYSIS

1.8.1 Financial growth and operational effectiveness

Figure 20: Operational performance



The revenue is mainly generated by selling of sailplanes to customers outside the country for recreational purposes. The waiting period for a JS branded sail plane is approximate 18 months with a manufacturing time of 11 weeks. The customer pays a deposit upon placing an order and the outstanding balance according to milestones.

Revenue and inventory is exposed to fluctuations in exchange rates, due to exports to mainly the European market. The majority of the sales is in Euros, of which a percentage is used to pay European suppliers.

Sales indicated excellent growth for the period from 2014 to 2016, at a rate of 44%. However, in 2017 this declined by 10%. The standard deviation of sales is 17.54%, with coefficient of variation of 1.74.

The cost of sales for the period from 2014 - 2016 increased by 58% and declined by 15% in 2017. The standard deviation for cost of sales is 23.66% with coefficient of variation of 1.94.

Gross profit increased from 2014 – 2016 by 33% but followed the same downwards pattern as the sales and cost of sales during 2017 and declined by 5%. The gross profit margin remained relatively stable over the period for 2014 – 2017 at 53%. The standard deviation of the gross profit is 12.03% with a coefficient of variation of 1.41.

The earnings before interest and tax (EBIT) grew at 6% for the period 2014 to 2016. In 2017 the negative impact was most suginificant on EBIT, declining most of all the indicators discussed above at 21%. The standard deviation is 13.84% with a coefficient of variation of 2.76 for 2014 - 2017. With the exclusion of 2017 the standard deviation is 2.99% with coefficient of variation of 1.04.

Figure 21: Statistical analysis

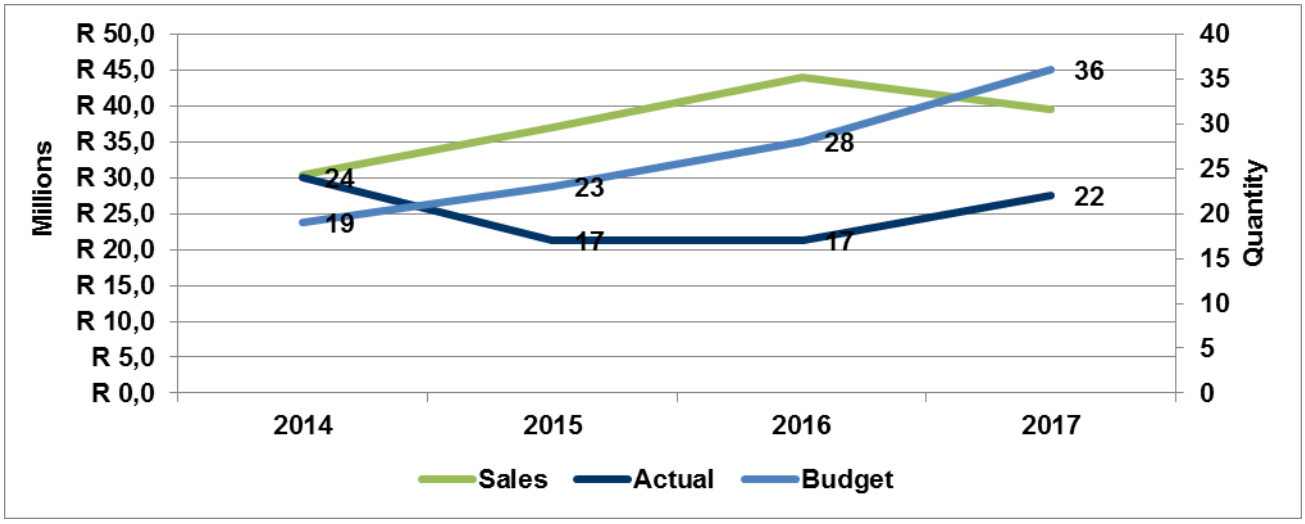
The statistical indicators as mentioned above have a strong linear relationship which indicated that changes within the market will cause that the indicators will move in the

same direction. Cost of sales with a higher standard deviation and coefficient of variance, indicates that JS is most volatile to change in costs, which have a substantial impact on EBIT.

1.8.2 Plane orders, Budget against actuals

The number of planes sold and the sales does not indicate a linear relationship as is normally the case. This is due to the long lead times that stretch over more than one financial year, which means that revenue and the associated manufacturing cost amounted in the financial statements will differ from the quantities.

Figure 22: Quantities against sales performance



The average sailplanes sold for the period from 2014 to 2017 were 20 planes per year. In 2014 JS manage to sell 24 where the budget was 19 sailplanes. .JS sold 17 sailplanes in 2015 and 2016, which is below the budgeted amount of 23 and 28 respectively. The amount sold increase in 2017 to 22 planes still below budgeted amount of 36 planes.

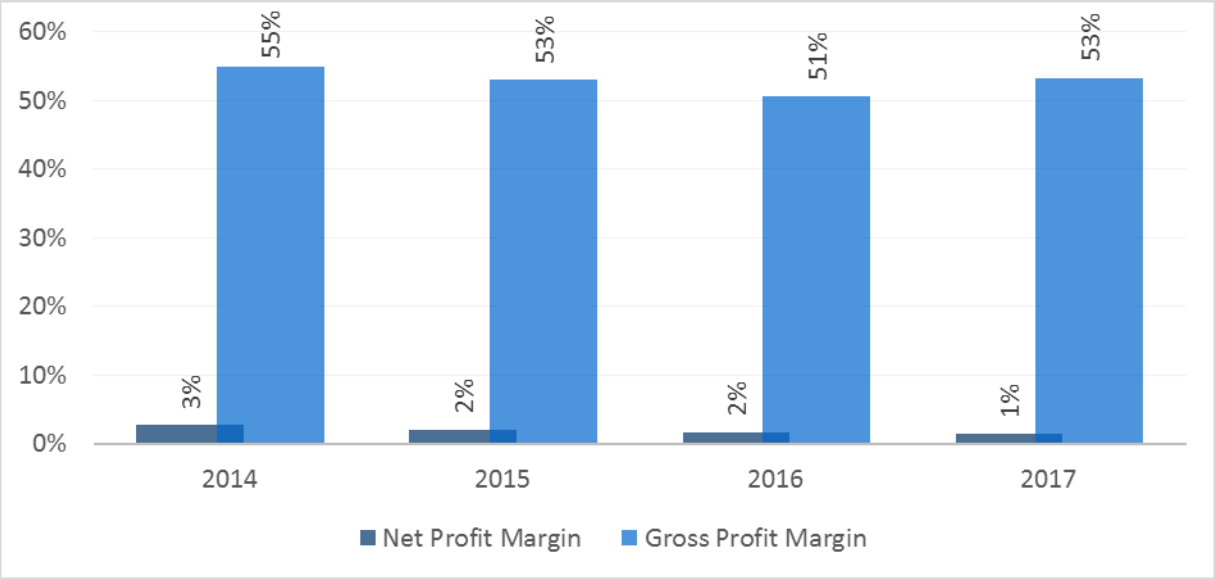
1.8.3 Sustainable growth

According to the financial statements available JS sailplanes does not pay dividends and if this remain the same JS can maintain a sustainable growth rate of 21%. The sustainable growth rate is significantly lower compared to the average growth rate of sales of 30% for the 2014 – 2017 period. JS is still a growing company, which explain why the actual growth rate is higher.

1.8.4 Financial ratio analysis

Profitability

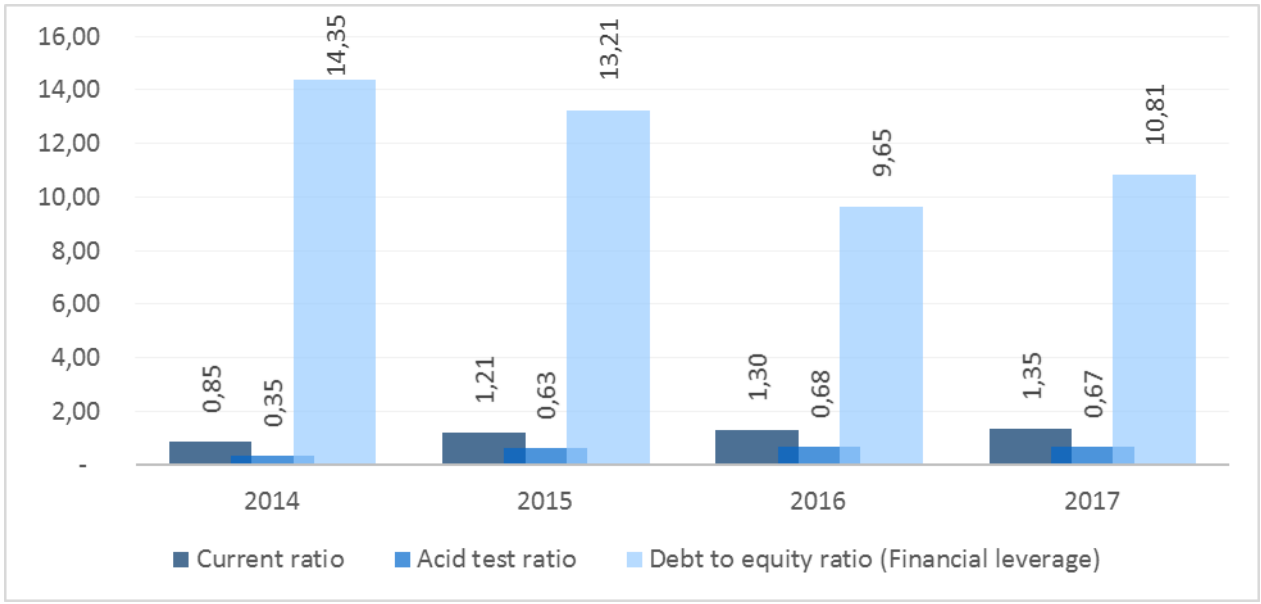
Figure 23: Profitability ratios



The gross profit margin of 53% remained constant over the period where the net profit margin declined by 34% for the period from 2014 to 2017. This chart illustrate the significant difference between the gross profit and the net profit, which is an indication of high fixed costs.

Liquidity

Figure 24: Liquidity ratios



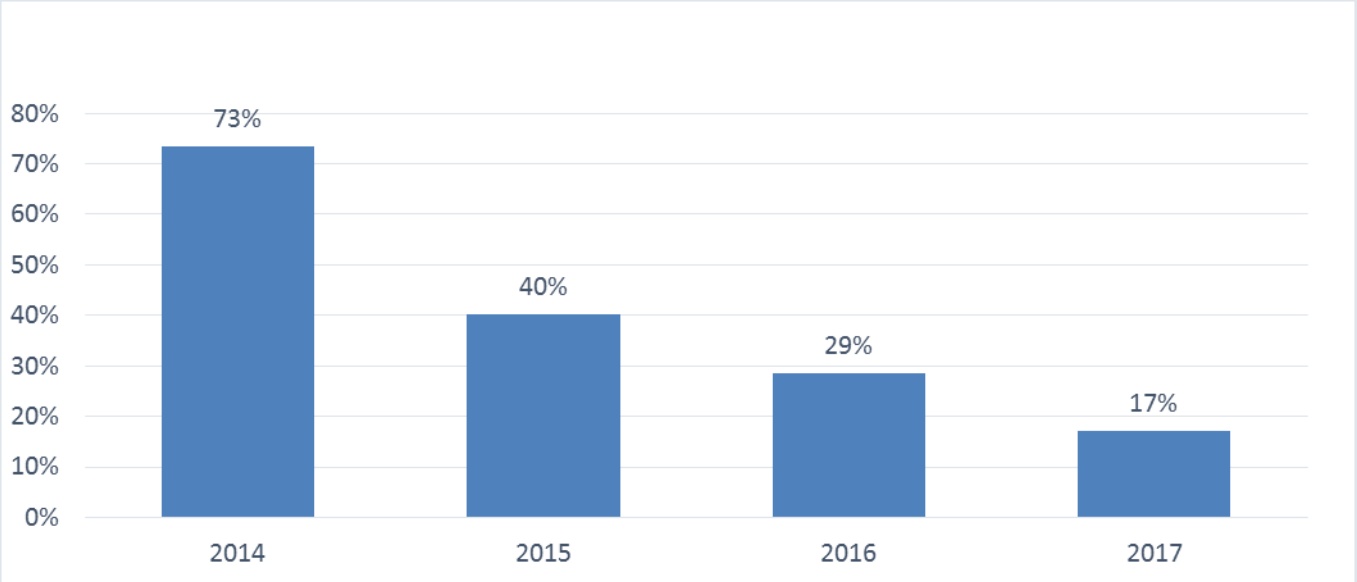
The current ratio measures the ability of an entity to settle short term debt with an industry norm of 2:1. In 2014 the ratio between current assets against working capital was at 0.85 and increased to 1.35 in 2017 at an average of 1.18. This is an increase of 60% for the period.

The acid test ratio is a similar ratio between working capital and current assets but exclude inventory. In 2014 the ratio was 0.35 and increased with an average of 90% to 0.58 in 2017.

The financial leverage ratio for the period 2014 – 2017 was significantly higher than industry norms with an average of 12:1 compared to industry norms of 1:1. Although there was a decline of 25% in the ratio, loans from stakeholders and deposits received from customers increased by 166% and 119% respectively for the same period.

Return on equity (ROE)

Figure 25: Annual ROE



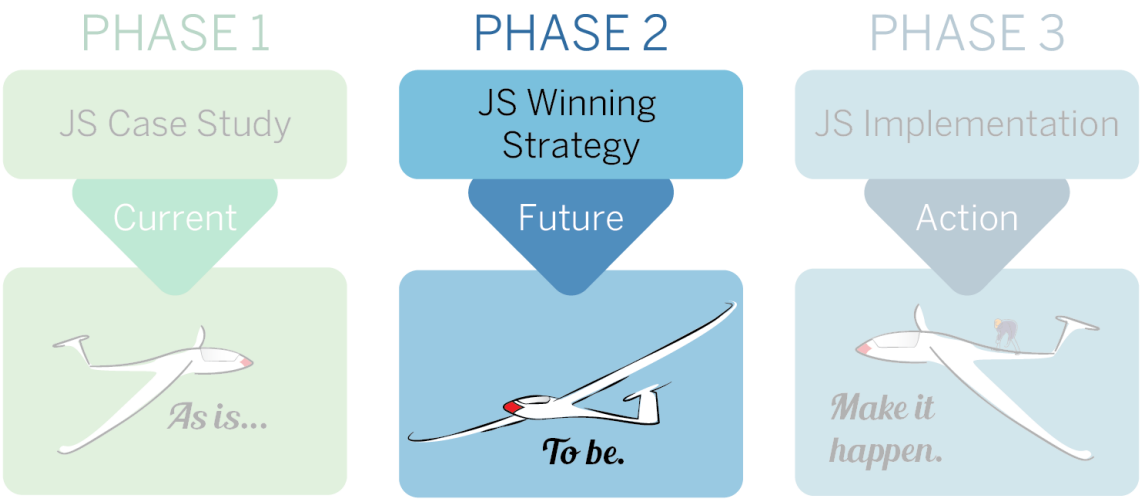
The return on equity indicates the profit that JS generates with the money invested by the shareholders. The average return on equity was 40% for the period 2014 to 2017. Excellent returns of 73% were achieved in 2014 but this declined to 17% in 2017.This is a decline of 77% in the profitability for the period.

1.9 CONCLUSION

JS is a unique South African company. It is the only sailplane manufacturer in the southern hemisphere and the only manufacturer located outside of Europe. Since the

company’s first sailplane few on 6 December 2006, it has established itself as a company that manufacturers competition sailplanes that are among the best in the world. This is an extraordinary feat and speaks volumes about the engineering ability, perseverance, dedication and passion of the Jonker brothers, Johan Bosman and the rest of JS’s employees. JS has the potential to become the best sailplane manufacturer in the world.

PHASE 2: JS WINNING STRATEGY- TO BE



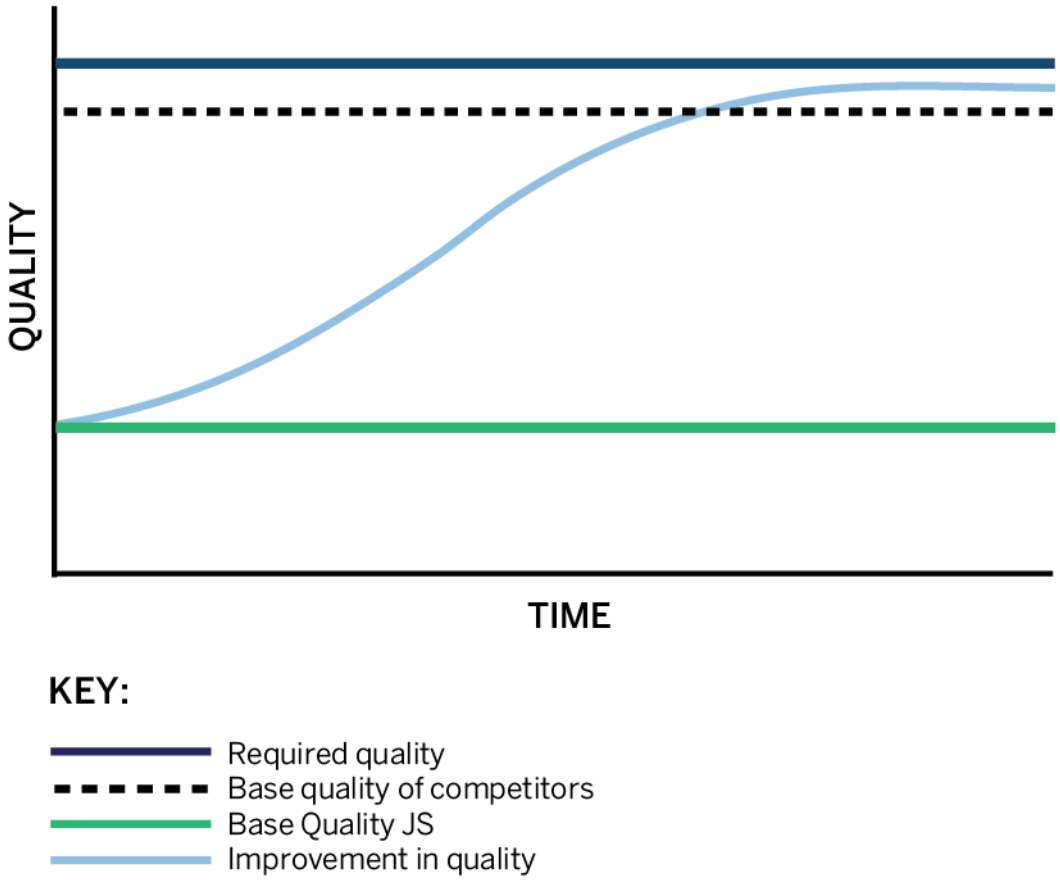
2.1 INTRODUCTION

The PoTENcy group approached JS as a potential client for the MBA company project. JS was selected due to it being a unique company in South Africa and although it is located in Potchefstroom, only a few of the locals are aware of the company. With the initial contact it was found the timing could not have been more perfect. JS just hired Hazel Roos as the new general management. She was hired to address production inefficiencies of JS. The members of PoTENcy work closely with Hazel and other managers to give insight, recommendation, and advice on various aspects of the business.

During the investigation it was found that the causes of the production inefficiencies were beyond just production and included mainly human resource (HR) and engineering elements. In addition to production, HR, and engineering, the PoTENcy group also focused on finance and marketing, due to it being at the core of any strategy.

In the last few years JS experienced rapid growth and is at a point where the implementation and standardisation of business processes and systems are needed to address inefficiencies across the company. To address the inefficiencies JS is implementing Project Zero Defect. Figure 26 below illustrate the basic principle of Project Zero Defect.

Figure 26 Project Zero Defect



JS's base quality, before reworks is below the industry standard and the required quality standard. To increase the quality to the required level, forced interventions such as rework, scrap and engineering support are needed. This increases the production cost and time of the final product. Project Zero Defect aim to increase the base quality above the industry standard. This will save a substantial amount of money and time, resulting in an increase of the production capacity. For project zero defect to be successful improvements to production, engineering and HR are needed. Due to the holistic approach to Project Zero Defect, it was mutually decided that the proposed strategy of PoTENcy will focus on Project Zero Defect, in addition to finance and marketing.

2.2 NEW STRATEGY

In the past JS focused on delivering products and growing the company, but there were insufficient consolidation of business processes and systems, and associated

people practices. To reduce risks and to build a sustainable business JS need to have a strategic consolidation period. This section will assess the vision statement, mission statement, company goals, objectives, and values. These strategic elements will then be adapted to align with the company.

2.2.1 Vision statement

JS's current vision statement is as follows:

"To be the sailplane manufacturer delivering the most sought-after sailplanes ***(air glider planes)*** *in the world."*

Analysis of the vision statement

The vision statement of JS was last updated in 2013. The current vision statement is focused and give a clear indication of the industry and the direction the company want to go. With being the most sought-after sailplane manufacturer there are some wiggle room in how to achieve this. It can be achieved through either delivering the premium product in the industry for the competitive market, or the best value for money for the recreational market. The current product range focus on the competitive market, but there is plans to extend the product range to incorporate the recreational market, which is still in line with the current vision statement. The vision statement is short and to the point.

Recommended new vision statement

Although the vision statement is good, the PoTENcy group recommend that JS update the wording of their vision statement. The proposed new vision statement also incorporates the distinction between competitive and recreational pilots and emphasise the strategic need to address both these markets. The proposed new vision statement is:

Our vision is to be the provider of the most sought-after sailplanes for competitor and recreational pilots alike.

2.2.2 Mission statement

According to Thompson, Strickland, Janes, Sutton, Peteraf, and Gamble, (2017: 37) a mission statement reflects on who we are?, what we do?, and why we are here? The distinction between a vision and a mission statement is that a vision statement states where a company is headed, whereas a mission statement states what is the company's purpose and its current business.

JS's current mission statement is as follows:

To design, produce, sell, and support the most sought after high performance sailplanes in the world by:

- *Providing an outstanding customer experience*
- *Developing and applying state of the art technology to maintain our competitive edge*
- *Ensuring a satisfied, motivated, and productive workforce*
- *Applying best practises in all our operations*
- *Establishing the JS brand internationally*

And as a financially viable and sustainable entity, supporting our people and community.

Analysis of the mission statement

Thompson, *et al.* (2017:38) identified five elements that should ideally be incorporated into a mission statement. Table 7 below assess JS's mission statement against these elements

Table 7 Analysis of mission statement

Element	**JS's mission**
Identifiable products and services	Yes
Specify buyer needs	Yes
Identify customer groups or markets	Yes
Specify the approach to please customers	Yes
Identity of the organisation	No

The current mission statement of JS address four of the five elements of a good mission statement. The mission statement of JS can be updated to be more inspiring and include the identity of the company.

The proposed new mission statement

Gliding is our passion and we provide our pilots with high performance sailplanes for competitive and recreational events. Our passion is reflected in our products and services, proudly delivered by our world class team. Through the incorporation of state of the art technology, we provide the most sought-after sailplanes in the world.

2.2.3 Core values

JS's core values in their current strategy is very good, but it is not necessarily reflected throughout the company. The management need to lead by example in order to form the core values part of the company culture.

2.2.4 Objectives

With the assessment of the 2014-2018 strategic plan it was found that a significant amount of the strategic objectives were not met. This indicate a lack of due diligence and prioritisation of strategic objectives. The focus was on increasing production volumes and sales, but the necessary foundational elements were not in place. This have led to the current production inefficiencies.

The recommended new strategic and financial objectives will be listed in the form of an action plan in phase three of the report.

2.3 CORPORATE GOVERNANCE

Corporate governance deals with the exercise of effective and ethical leadership by the company's board of directors. The board of directors and management has a duty to act responsible, to act with integrity, competence, responsibility, accountability, fairness and transparency. It is important that the directors and management ensure that the company implements a strategic direction; approve policies, put the strategy into effect; oversee strategic implementation and performance. It is also important that the operations and decisions of the company is transparent to all stakeholders. (Naidoo *et al.,* 2016: 5).

King IV code is a very important set of standards and norms that can be implemented by a company. The main objectives of this code is as follows:

- To promote good governance in the decision making and operations of the company.
- To create an ethical culture
- To promote good performance, legitimacy in the company for all stakeholders
- To enable the board to have sound control of the company.

It is important for the company to implement the above objectives as set out in the King IV code to ensure that the company is sustainable and to ensure the longevity of the company.

According to (Naidoo *et al*., 2016:379) company that uphold social and environmental leadership builds good reputation and a trust relationship with all stakeholders. As a result of this good corporate culture, the company will reap economic benefits and also builds positive long-term relationships with all its stakeholders. Company with good ethics and that promote the triple bottom line principles are more sustainable than organisations that ignore or neglect the norms and standards set out in the King IV code.

The Social Venture Network Standards of Corporate Social Responsibility has nine key principles that an organisation can consider in developing Corporate Social Responsibility and they are as follows:

- Ethics
- Accountability
- Governance
- Financial returns
- Employment practices
- Business relationships
- Products and services
- Community involvement
- Environmental Protection

Jonker Sail Planes to a certain extent complies with some of the key principles as mentioned above but there is still room for improvement on some of the other key responsibilities that will be dealt with in this company project.

2.4 ENGINEERING ANALYSIS

2.4.1 Introduction

When considering the many successes of JS, the question that comes to mind is “how it is possible that such as small start-up company has managed to build two sailplanes (JS1 and JS3) that compete with the best in the world?” There are many

things that have contributed to the success of JS, but it is an indisputable fact that the company's engineering activities have been at the centre of its success.

Engineering at JS should however not be confused with production. Although there is a large amount of interaction between the two activities, they are managed as separate entities within JS with separate leaders and responsibilities. Production is managed by Johan Dreyer and the engineering team is managed by Attie Jonker. The production team builds the sailplanes, while the engineering team is responsible for the design and prototyping of the sailplanes.

Both the Jonker brothers and Johan Bosman are engineers, therefore it is only natural that engineering forms the basis of JS. The JS1 and JS3 are successful because of the way in which the two sailplanes have been designed and engineered. Engineering is the foundation of JS and therefore the formulation of a winning strategy for JS's engineering team is of critical importance for the future success of the company.

The analysis of JS's engineering activities is presented in terms of five focus areas:

- Innovation
- Culture in engineering
- Specialisation
- Project management
- Production methods and technologies

2.4.2 Innovation

Innovation is defined as the implementation of new ideas to create value for an organisation. Innovation is an inseparable part of engineering and therefore an analysis of JS's engineering activities was conducted by using the *Innovation Matrix* (Satell, 2017:44).

The *Innovation Matrix* requires the asking of two important questions:

- What is the problem that needs to be solved?
- What is the domain of a potential solution to the problem?

The answers to the questions above guide the categorisation of a company's activities into the four quadrants of the *Innovation Matrix*. A description of each of the four quadrants is provided below.

Quadrant 1: Basic Research

The purpose of basic research is to discover something completely new and is often done in a situation when the neither the problem nor the domain is clearly defined. Basic research is usually done by academic institutions or research institutions.

Quadrant 2. Breakthrough Innovation

Breakthrough innovation is the result of solving a well-defined problem in a new way.

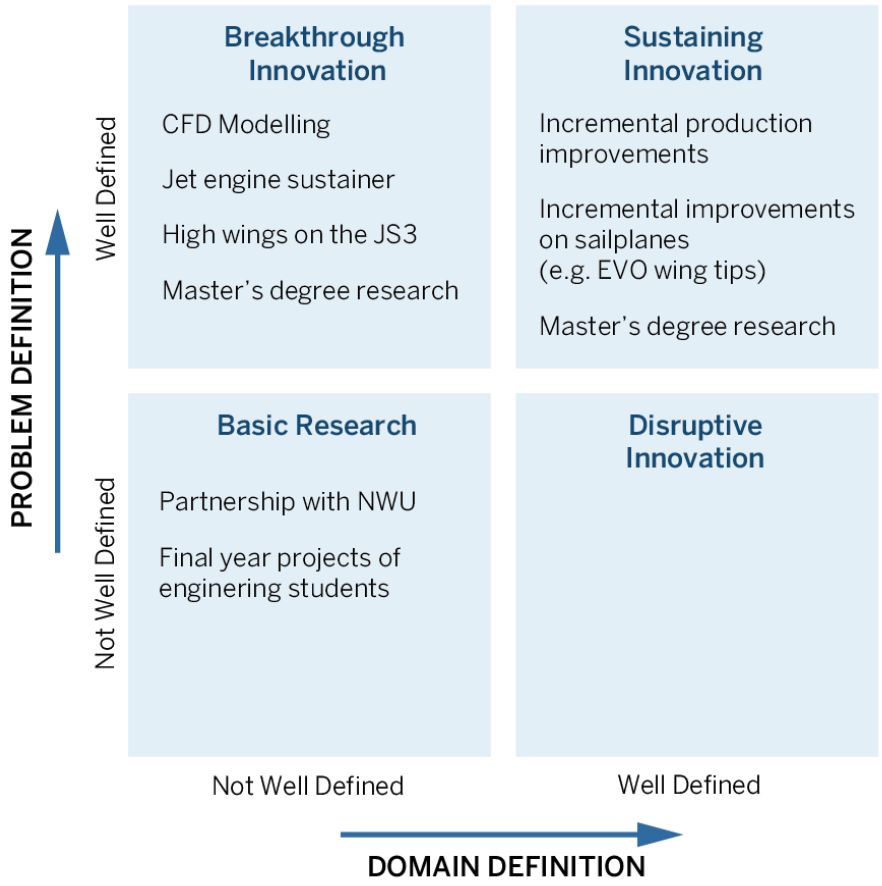
Quadrant 3. Sustaining Innovation

Sustaining innovation happens when both the problem and the domain are clearly defined. Also called “incremental innovation”, it entails improving on an existing concept.

Quadrant 4. Disruptive innovation

Disruptive innovation happens when a solution or new technology is applied to an existing problem. The domain is often not associated with the problem.

Figure 27 JS’s Innovation Matrix



An *Innovation Matrix* workshop was held at the JS factory. The result of this workshop is the *Innovation Matrix* shown in Figure 27.

JS's innovation matrix shows that the majority of the JS activities fall in the "sustaining innovation" quadrant. This is the result of the work that goes into continuously improving the sailplanes and the production processes.

JS has been doing very well in terms of breakthrough innovation. The CFD modelling software, the jet engine sustainer and the high wing design of the JS3 show that JS is not afraid of "thinking outside of the box" when it comes to finding solutions.

The Master's degree research done on topics related to JS's activities through the company's partnership with the NWU can fall in both the breakthrough innovation and sustaining innovation categories.

In terms of basis research, the only activities are some of the final year projects of engineering students which are done as a result of the partnership with the NWU. The innovation matrix has revealed a gap in JS's innovation strategy and this is that the company does not do not have any engineering activities that fall into the disruptive innovation quadrant.

2.4.3 Culture in engineering

A source of frustration for the engineering team is the fact that they receive conflicting orders from management. The general feeling is that there is a lack of prioritisation of tasks and that the prioritisation of tasks changes continuously.

There is also a sense of disrespect for hierarchy in the company. The engineering teams does not have a complex hierarchy, but the junior engineers are assigned to work under senior engineers who provides guidance and mentorship. It often happens that management assign tasks to a junior engineer without notifying the senior engineer.

Communication between the engineering team and management is not up to standard. The engineers feel as if management do not listen to their problems and concerns. The result is that the engineers vent their problems among each other which does not solve anything.

2.4.4 Project Management

The “Road to Benalla” bears testimony to JS’s exceptional engineering abilities. The fact that JS managed to design and build two new prototypes in 9 months is unheard of in the sailplane industry.

In terms of project management, a positive aspect is that the in the 9 months preceding the first test flight of the JS3, the entire engineering team had a clear focus, goals, priorities and deadlines. This was such a positive aspect that it overshadowed the overtime that was worked in during that period. Currently, a less-focused, scattered approach is followed in defining the focus and goals of the engineering group.

On the negative side, the amount of overtime worked to achieve the goal of getting the JS3 ready in time for the 2017 WGC in Benalla is not sustainable in the long run. Better long-term planning and project management could have prevented much of the overtime that was necessary. Another negative aspect was that the support for the JS1 was not a priority during the 9 months leading up to Benalla. This may have had a negative impact on customer relationships.

There is a general feeling among the engineering team that they often need to solve symptomatic problems instead of focusing on the root causes of problems. The result is that problems keep recurring and that the engineering team have the impression that they are required to do continuous crisis management.

2.4.5 Specialisation

A JS design engineer needs to support a part that he or she has designed for as long that person works at JS. No handover of work takes place. This is problematic because a design engineer is not allowed to focus on design only. JS’s engineers are also frustrated because they need to continuously provide production support which interrupts their design work. The production problems stem from the rushed transition that occurred between the design and production phases of the JS3.

2.4.6 Production methods and technologies

Although JS’s engineering team is currently bogged down in providing production support, production and engineering are separate entities at JS. Production does however depend on the engineering group for guidance in terms of new methods and technologies that can be implemented to improve the production process.

The analysis in this section is therefore not on the details of the production process itself, but rather in terms of pointing out problems that can potentially be solved with new production methods and technologies. The findings are provided below:

- JS's production process is largely a manual, labour intensive process. This is not unique to JS; the European manufacturers also follows the same manual processes. Alexander Schleicher GmbH & Co for example boasts that their sailplanes are "handmade by dedicated craftsmen (AS, 2018).
- JS aims to have a 5-day production cycle. This entails producing a single sailplane every 5 working days that will enable the company to build 48 sailplanes per year. Currently, the factory has a 7-day production cycle, which does not compare favourably with the European competitors. The result of the 7-day production cycle is that JS has a production backlog of roughly 18 months.
- The open mould process used in the construction of the composite parts is a very time-consuming, labour intensive process. The open mould process is a significant bottleneck in the production process.
- Quality is a big problem. JS's customers and the engineering team agree that JS's quality is not on par with the European competitors.
- The transition from design to production happened very fast for the JS3. The short time period in which it happened is admirable, but it came at a cost. There are many problems in the production process as a result of this. These problems have delayed the JS2 and is the root cause of the engineering team's frustration in terms of having to provide production support.

2.5 PROPOSED MANUFACTORING STRATEGY

The purpose of the proposed strategy i to give the production team a list of *how to do the things right*, but rather to point them into a direction of doing *the right things*. Secondly the focus is to look at the overall strategy of manufacturing that can contribute to the way things will be done in future and not to get overwhelmed by all the detailed issues.

There are three aspects that have the potential of giving JS a competitive advantage in terms of manufacturing, quality robustness, standardisation and outsourcing.

2.5.1 Quality Robustness

Although the final quality of JS is the same as its European rivals, the base quality is lower. The quality robustness of JS's sailplanes needs to improve. Quality control has a central role in the manufacturing process. Although quality is part of the value proposition of the product, some changes in the design might result in reduced costs without affecting the quality of the end product.

The idea here is based on the Taguchi concept of creating quality robust products. Taguchi stated that the *effects* of unwanted conditions should be removed instead of removing the cause (Heizer & Render, 2014:252). This will not be a quick and easy task considering the high standards of products in the aviation industry, but if the engineers design with this concept in mind, it can be done. Possible result includes a more cost-effective sailplane, faster and easier production, less reworking and scrapped materials, and less labour.

Tooling is another area where improvements can contribute to parts being made right the first time and less reworking will be necessary. It is already part of the company's mission and therefore not necessary to mention here.

2.5.2 Postponement (Standardisation)

Postponement means to keep the products generic for as long as possible in the production process. (Heizer & Render, 2014:477). Any custom work or modified products should be installed at later stages in the production line. The custom work on the JS3 is the paint colour scheme and decals, the instrument panel layout, the trimmings used in the cockpit (leather or cloth seats) and the optional gas turbine sustainer. The custom work is already done in the later stages of the construction process, but improvements can still be made to get it done farther down the production line. Implementing this strategy effectively might reduce risk and investment in inventory. (Heizer & Render, 2014:477). Standardisation helps to keep momentum and consistency in the production line.

2.5.3 Outsourcing

Outsourcing is risky, but managers must decide whether they want to be the company that does low-margin work at 4%-5%, or do they want to be the innovative company with a 30% margin? (Heizer & Render, 2014:80). Innovative design made JS what they are today, not setting up a CNC machine which can be done in

hundreds of workshops anywhere in the world. It is important not to ignore the risks and therefore do a proper analysis before taking this step. Several advantages and disadvantages of outsourcing are shown in Table 8 below:

Table 8 Advantages and disadvantages of outsourcing

Advantages	**Disadvantages**
Cost savings	Increased logistics and inventory costs
Gaining outside expertise	Loss of quality control
Improving operations	Potential creation of future competition
Maintain focus on core competency	Negative impact on employees
Accessing outside technology	Risks may not manifest themselves for years

(Heizer & Render, 2014:81).

2.6 HUMAN RESOURES AND PEOPLE PRACTICES

It is stated that if business managed their money as carelessly as they manage their people, most would be bankrupt. Most organisations do have systems in place to control their finances but do not have a people process to identify skill requirements, identify needs, and develop their people accordingly. (Charan & Conaty, 2010:1). Dealing with numbers are clear and precise, but to deal with the characteristics of people and the associated dynamics are mostly left to the human resources functions, in most cases these functions are not well established. It is believed that the business reality of making money will become harder (White, 2013:14).

The analysis of the human resources aspects of business cannot be approached without an appreciation of the key and important trends in this field. A specific scope is required to ensure that the winning strategy include a strategic shift and not merely operational improvements in human resources. For this purpose, some critical aspects will be addressed before the current situation will be described.

Talent: A Competitive Advantage:

Sources of competitive advantage are believed to remain a constant risk; therefore talent is seen as the big differentiator between the companies who do succeed in the marketplace and those who don't (Bluen, 2013:29; Charan & Conaty, 2010:2). A connecting between the organisation strategy and talent is increasing and the alignment of human resources management practices and associated talent

management strategies, substantially increase the probability of success. This include the ability to influence employee behaviours and outcomes associated with strategic success (Glaister *et al*., 2018:151 & Bluen, 2013:33).

It is further important to note that the competition landscape shift dramatically within economics and practices that were sufficient in the previous decade, will not ensure a competitive edge in new and emerging markets (Bussin, 2013:113)

Talent Management Era

McKinsey coined the term “War for talent” in 1997 (Collings & Mellahi, 2009:2), following the realisation of the importance of skills and specific talent, were popularised and received more business interest with the publication of Jack Welch’s book - “*Jack”*- in 2001, revealing the General Electric talent development approach. The unique focus on the people factory in building a world class business was moving centre stage. The publication of the Leadership Pipeline also in 2001 by Charan, Drotter and Noel, provided a systematic approach for building the required pipeline of talented individuals. Kaiser (2011:71) questioned the popularisation of talent management and specifically the methodology of the leadership pipeline in building a competitive advantage from a people perspective for business. The validity and impact of the concept of the leadership pipeline was reviewed and the affirmation of talent management as a key driver for world class performance was confirmed in a critical study (Kaiser, 2011:72). Empirical affirmation was given by academic authors of the validity of the Leadership Pipeline concept as a sound conceptual framework to drive talent in business (Kaiser, 2011:71). Key similarities with the work of Freedman (1998) was identified with specific reference to pathways and crossroads to build institutional competencies for leadership and business success.

Business Results through People

Ulrich, Zenger and Smallwood (1999:7) in the late 1990’s referred to the focus of Results-Based Leaders as leaders who specifically deals with the importance of setting direction, demonstrate personal character, mobilise individual commitment, and then engender organisational capability, which includes the importance of building people, teams, and manage change. The role of leaders in people development moved the landscape of businesses dramatically.

2.6.1 The Requirements for Human Resources Professionals

The business challenges impact directly on the human resources function, as people practices professionals are required to provide guidance to a business when dealing with the people side of the business. The importance of this fundamental change in requirements was highlighted by Veldsman (2013:179) who advised that 70% of the world's economic growth will be from emerging countries and that 6 of the 10 fastest growing countries have been in Africa. People have moved centre stage for the future and organisations with a formal people strategy perform 35% better than their peers. The contribution and engagement model for people professionals are listed in Table 9 below and indicates the move from transactional day to day functions traditional fulfilled by human resources to the move of people practices professionals impacting on business:

Table 9 Shift in the role of management

From (Current Roles)	To (Required Roles)
● Product-centric ● Technical solutions ● Functional specialists ● Risk avoidance and reactive ● Transactional contributions ● Activity focus	● Client-centric ● Business solutions ● Business Partner ● Risk-seeking and proactive ● Transformational contributions ● Output, value focus

Source: (Veldsman, 2013:185)

People are moving centre stage and the changing requirements of people practices professionals would demand a critical review of those business practices. People practices would need to be mapped against changing business needs and the people capable of making it a reality.

2.6.2 Guidelines for Good People Practice

Dave Ulrich (2015:8), a thought leader for people practices, provide guidance on the key questions to be asked when reviewing people practices. The three key question which are crucial and relevant are:

- **Talent:** To what extent do we have the right people with competence (right people, right skills, and right job), commitment (engagement), and contribution (meaning) to win in the marketplace?
- **Leadership:** To what extent do we have branded leaders who deliver results in the right way?

- **Organisation:** To what extent do we have the right organisation to deliver sustained business goals?

Ulrich (2015:11) further advised that talent is not enough, organisations should leverage individual talent through collective actions. The total organisation should be greater than the separate parts, and a team outperforms individuals. He further reminds us that individuals are champions, but teams win championships. The reality is that the nature of the global workplace and talent markets are changing fundamentally and moving ‘‘beyond employment’’. The predication is that future leadership will increasingly involve optimising how one gets “the work done”, not how one manages employees. Estimates are that more than 40% of work will soon be done by employees from emergent talent pools, a key factor to be considered in new people strategies.

Talent and associated practices are key drivers for South African-based companies that operate the global environment. SAB Miller capitalised on a strong talent pool comprising of experienced people who were eager to apply their expertise across the world. In the 1980’s and 1990’s the groundwork for globalisation was laid by identifying that the success of a business is linked to the calibre of its people. Key people-focusses including career management, leadership development, and talent reviews were initiated with the specific intention to first **improve the manufacturing plant** which gave rise to the World Class Manufacturing Initiative. The key was the identification of competence and performance standards. Individual development plans went beyond just choosing job related competence but included career, leadership and personal developmental needs. (Bluen *et al*., 2013:204)

JS would be no different when implementing this winning strategy which require individuals and teams who can deliver a high level of operational excellence capabilities. In the model of Ulrich *et al.* 1999:10, specific reference is made to the building of Organisational Capability with a focus on:

- **Building Organisational Infrastructure:** which refers to the manufacturing facilities, quality, logistics
- **Leverage Diversity:** Multiplying the capacity of everyone in the business including suppliers and partners
- **Deploy Teams:** (Individuals who can achieve synergy

Building the business therefor require a sound people practices foundation and a maturity approach to be followed to enable the actual implementation of recommended practices. To this extent the guidelines provided by the South African Board of People Practices are used to provide strategic direction to the General Management as the strength of their people practices as explained in the section below.

2.6.3 South African Board of People Practices

The South African Board of People Practice Standards (SABPP) provides standards and guidelines for People Practices benchmarked against international standards. These guidelines are structured around three key phases towards ensuring that practices are aligned towards ensuring business impact.

The key phases include:

- **Preparation:** Dealing with strategic alignment, available talent and HR risk management;
- **Implementation:** Inclusive of key transactional and transformational practices including of technology platforms and service delivery as business partner
- **Review:** Metrics to identify areas for improvement people practices.

Each phase and themes within, has a benchmarked assessments tool to provide business leaders a baseline of the level of maturity of their internal people practices.

The assessment tool is available in Addendum A

SABPP 13 Standard Elements

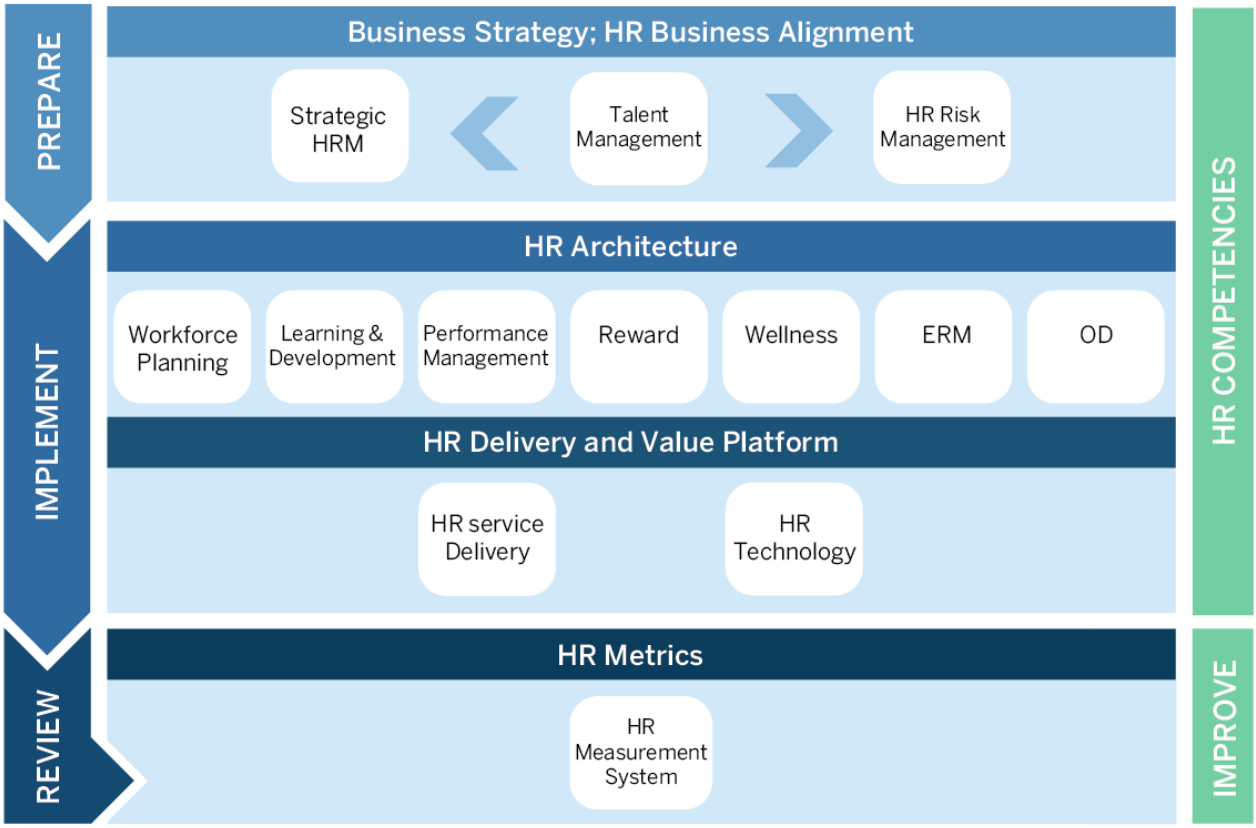
Preparation: Strategic HR Management; Talent Management; HR Risk Management

Implementation: Workforce Planning, Learning and Development, Performance Management, Reward and Recognition, Employee Wellness, Employment Relations, Organisation Development, HR Service Delivery, HR Technology.

Review and HR Metrics: HR Measurement

Diagrammatic these phases and themes with associated standards are illustrated below in Figure 28.

Figure 28 SABPP HR Standards



Source: South African Board of People Practice - www.sabpp.co.za

2.6.4 Analysis of Human Resources Practices at Jonker Sailplanes

The importance of increasing the capability of people within the JS business is to ensure the achievement of a new level of performance, the current status of the people practices during the preparation phase was identified as a starting point. In this context, capability refer to the possibility to achieve more through doing a higher level of work. (Charan & Noel, 2015:5).

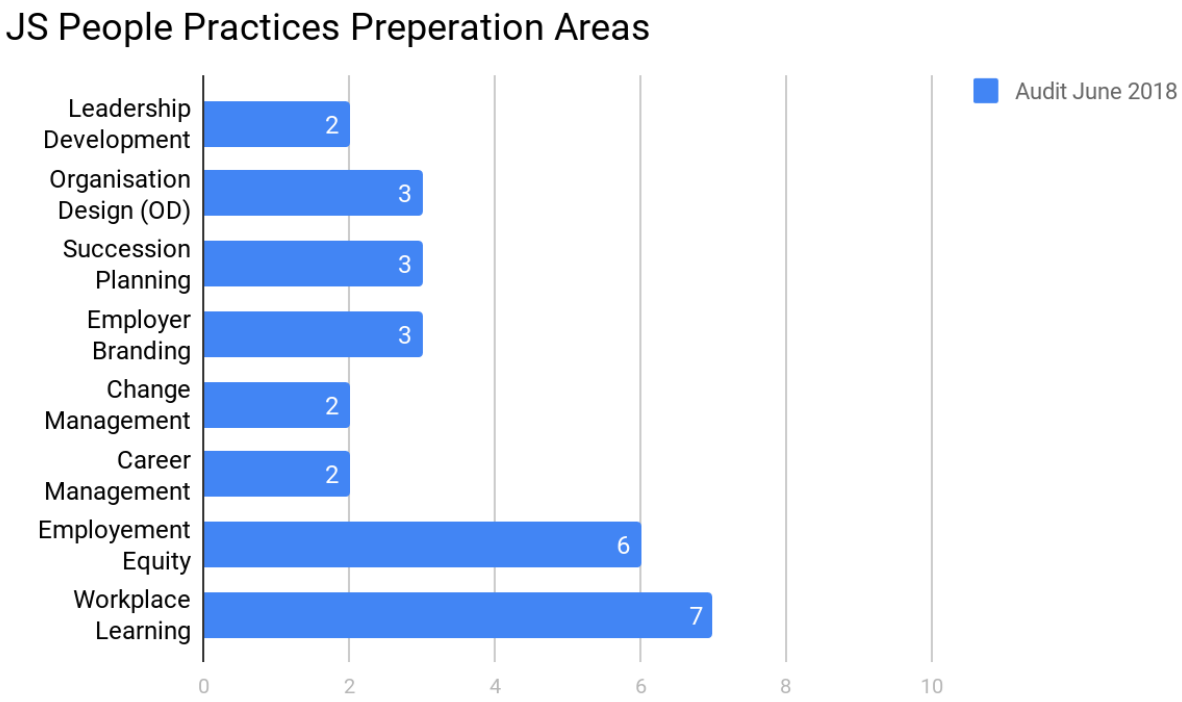
The structuring of the analysis process was done using a combination of the 13 Standards as described above, each standard provide the detail associated with good practices. The initial analysis was done to provide a "snapshot" of the practices to believe are required for the realisation of the new JS strategy: The initial analysis involved the ranking of the people practices based on the importance and impact on the business with key managerial role players in the business. Eight practices were used for this audit. The elements scores were averaged to provide a total score per practice.

Analysis of Current Practices: June 2018

The SABPP audit document was used to review the key practices in these areas based on the identified elements to provide a baseline and to advise on the people practice requirements to ensure a winning strategy. A 10 point scale was used to identify the levels of the maturity of these practices. The elements per practice area were scored and calculated and an average was given in each area.

0: Nothing contemplated, 1: Contemplated, 2: Discussion Point, 3: Initiated a practice 4: Documented a practice, 5: Commence Implementation 6: Reviewed Implementation, 7: Benefit from Implementation, 8: Improve Practice, 9: Master Practice, 10: World Class.

Figure 29



Each of the areas are discussed to understand the current situation.

Preparation Phase: Talent Management

Leadership Development:

Relates to the preparation phase of the Talent Management and identify if a structured approach is followed to develop a competency framework and to identify and develop the leadership pipeline. Eight elements are included in this practice to ensure a holistic approach.

Findings:

Score 2: Leadership development is a discussion point and initiatives were started 4 years ago which subsequently stopped. JS has not commenced with a formal process to identify and document requirements for each business level and each function in the organisation in the form of a structured leadership framework and competency requirements. The roles and tasks for positions with critical functional roles are available. A leadership philosophy and process are not in place.

Recommendations:

The leadership pipeline framework provides a structured approach to ensure that every level in the organisation are filled with leadership capacity, and that the program also develop an adequate supply for each level. The pipeline requirements for each specific architecture require the identification of the technical or business knowledge and skills but also the important aspects to be valued at each pipeline level.

The benefit of following this mapping process is that requirements are clearly defined for each level or unit in the business and performance criteria are identified for each level.

The competencies for each level of the organisation provides a clear set of competency requirements and leadership programs can be directed towards the specific role requirements at a level and within a function.

- The skill requirements - what the current position require
- Time application - how time governs the work to be done and focussed on
- Work values- what is important in the role and should be focussed on

Succession Planning:

This element deals with the organisations structured approach within each area of the business to deal with available skills and talent, long term successors including an annual review, turnover risks, and retention strategies. Succession also deal with key skills and resources needed in times of expansion or emergency situations. Four areas are included in this practice.

Findings:

Score 3: An informal practice is in place in technical fields although JS currently do not have a formal system to measure the strength of the talent pipeline. The key factors of making line management responsible for the succession is not formal but is expected. Reviews on readiness for succession and skills gaps are not formally document for key position in the business. Managers are however well informed of their team members' strengths and weakness, but the information is not systematised or available. Currently skills development does receive a high level of attention to maintain the status quo.

Recommendations:

It will serve the business well to structure the levels of work with the specific skills matrix and associated assessments of ability, aptitude and performance levels. This will enable the business to identify skills areas who require a stronger pipeline, identify the areas lacking performance and also work areas to be used as grooming future talent based on the specific business requirements.

Employer Branding:

Do represent the broader Talent Management Strategy from an attraction and retention perspective but directly impact on the HR strategy. Four practices are noted.

Findings:

Score 3: This was not initially viewed as part of the human resources function but the impact was acknowledge. The current employee value proposition was identified as an area requiring review to align the level of work done to the appropriate level of remuneration. Benchmarking with other employers lack a formal process. A key strength is the international brand and being associated with an international winning brand for individuals directly associated with gliding as a sport. Currently branding was not viewed as a key people practice but the audit did clarify the importance.

Recommendations:

The challenge to attract the correct skills mix will be significantly improved should JS become an employer of choice for talented individuals in the manufacturing sector. This will require the implementation of a comprehensive talent and skills system. The

benchmarking of remuneration and associated value propositions will ensure a competitive position.

Career Management:

Focussing on increasing specialist skills in areas of current work, but also the future of work requirements in the business and employability. Three practices identified.

Findings:

Score 2: The JS training function do provide critical technical skills training and functional adult literacy programs. Learnerships pathways are available for key competence areas. In the absence of a formal occupational leadership pipeline definition aligned with strategy, the key developmental inputs for future careers are however not well defined.

Recommendations:

The specific skill areas at each level and the requirements in technical, business and behavioural terms should be defined. The standard of performance is required to identify individuals who has mastered the specific level in their careers. In following this system, the preparation for future careers can be done and individuals mapped against required level of mastery and maturity. Gaps can be closed through corrective interventions and coaching. Coaching and mentorship interventions should then support career development

Workplace learning to support a learning culture:

Deal with the conscious involvement of the line managers to develop novices towards being practitioners and eventually experts taking into account the maturity level of the organisation. Four practices are integrated into this element.

Findings:

Score 7: JS does provide a strong learning culture and in-situ training opportunities. Learning the technical skill in the various skills areas are viewed as a critical people practice. This is viewed as a key strength in the people practice field and highly valued. Learning however are not mapped against a full set of work profiles and skill gaps will not be avoidable.

Recommendations:

Following the standards of workplace learning require a maturity building approach to develop skills matrixes and provide blended learning opportunities to attain the required skill levels.

The provision of business skills and leadership skills cannot be understated when it comes to the ability to manager work stations and units.

HR Implementation Phase: Workforce Planning

Organisational Design:

Relates to workforce planning for mapping the organisational structure to follow strategy and include job analysis, job profiles and frameworks to meet the strategic needs. Four elements are included in this practice.

Findings:

Score 3: JS does have a current structure which causes waiting periods on the manufacturing line and a lower than expected level of service to the production core. The systemic portion of the business was regarded as lacking to maintain and improve operational excellence. Lack in specialisation in areas cause overextending of skills and conflicting focus of individuals. Unclear roles and responsibilities and levels of responsibilities cause uncertainty.

Recommendations:

A comprehensive set of definitions with associated analysis will provide clear guidance of the workforce requirements now and in the future. The futuristic workforce and attributes will guide the adoption of supportive people practices ensuring the right person for the right job, at the right time with the specific skill requirements.

HR Implementation Phase: Organisational Development

Change Management:

Seen as an approach for any business change inclusive of any changes required in the domain of people practices. Four practices are noted and a strong recommendation from the SABPP to strengthen this practice as it influence all practices.

Findings:

Score 2: JS acknowledge the importance of a change management methodology but currently do not have an agreed upon process or understandable methodology to deal with change. It is however often discussed. Change are there for resisted and mostly a high level of denial or lack of urgency prevail. Attitudes and a shortage of a performance culture

Recommendations:

It is critical to develop change management competency and identify the specific areas to change as part of the new and winning strategy. The individuals and occupations to be impacted and the degree of impact should be clarified. A change management approach to deal with the emotional and reality of change and guide the workforce through change should be firstly acknowledge and secondly agreed upon.

Key observation

The review of the Preparation and Implementation areas assisted with a clear picture, if current practices are in line with standards and it will support the new winning strategy. This is a strategic challenged area and a focus on this will be highly beneficial and recommended.

2.7 FINANCIAL ANALYSIS AND OBJECTIVES

2.7.1 Financial growth and operational effectiveness

The cost of sales increased more than 58% and sales with 44%. This indicate that the cost to manufacture a sailplane increase while the selling price was not adjusted accordingly. Another possibility is research and development of new models that is not included in the sell price and that funding was insufficient to absorb this cost.

The standard deviation and the coefficient of variance of sales are lower than that of cost of sales which indicate that the company is more volatile to changes in the cost of sales.

The gross profit over the period from 2014 to 2017 is a good indication that JS are managing their costs well. The net income follows the same trend, but there is a significant difference between the gross profit margin and the net profit margin. This is due to a high portion of fixed cost that is directly associated with risk. The fixed cost mainly consist out of labour.

The decrease in net profit and gross profit over the period 2014 – 2017 points out that some of the income realised earlier by receiving of deposits and the associated expenses only realised later when commencing with manufacturing.

The 6% increase of EBIT for the period 2014 – 2016 are relatively low in comparison to the other indicators discussed. This small increase is however a positive indicator on the efficiencies of production. In 2017 this declined by 21% mainly due to the recognition of sales that is in different years as well as the associate manufacturing and development cost of the JS3 model.

The difference of the trend between the net profit and EBIT is due to the increase of loans and the settlement of interest payable increased.

2.7.2 Plane orders, Budget against actuals

In 2017 the budget amount of sailplanes was 36 and JS only sold 22 sailplanes. That is a 64% deviation from the budgeted amount. This tendency is the same for most of the period except for 2014, where JS sold more planes than were budgeted. This deviation indicate that JS find it challenging to comply too their strategy and achieve budgeted targets. Not adhering to the strategy will cause that JS stagnate and curb the potential for future growth.

2.7.3 Financial ratio analysis

Profitability

The significant difference between the net profit and gross profit is due to the labour and the capital-intensive nature of the industry. The decline in net profit margin is an indication that the fixed costs remain constant or increase while the sales decreased. It is probable that when calculating the manufacturing costs, not all the relevant costs were allocated correctly such as overheads.

Liquidity

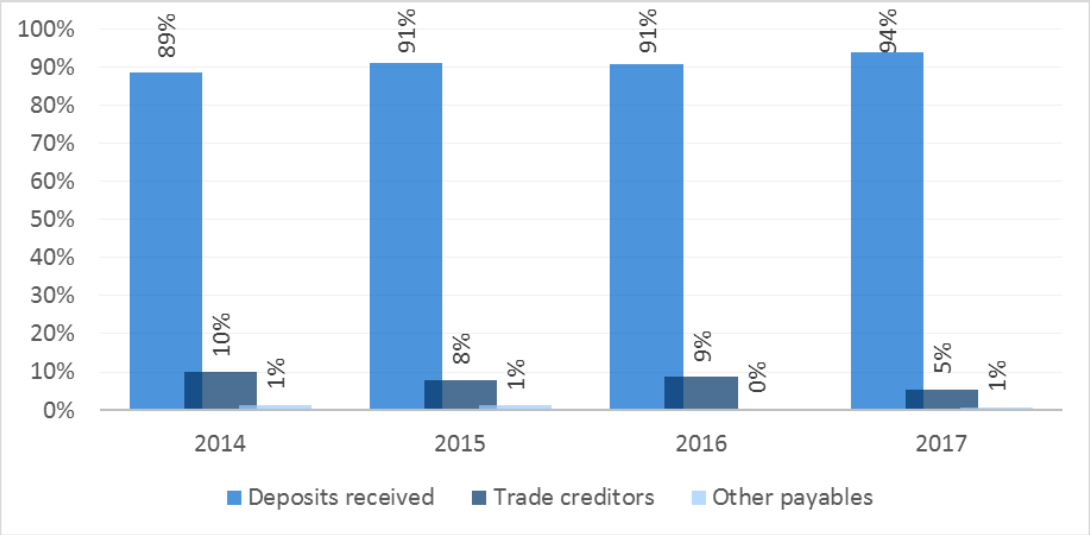
Comparing the current ratio to the industry norm of 2:1 against that of JS, an average of 1.18 is an indication that JS will find it difficult to settle its short-term obligations. JS might find it difficult to get financing form stakeholders which will curb potential growth. A good sign is the increase of 60% in the current ratio from 2014 to 2017 and indicates that the management of the current assets and liabilities is moving in the right direction.

The acid test ratio is below industry norm of 1:1 with average of 0.6:1. This is a negative indicator which is aligned with the result of current ratio that JS will find it difficult to settle short term debt with exclusion of inventory. The acid test ratio follows the same positive trend of growth and increased by 90% for the period 2014 to 2017.

The optimal industry debt to equity is considered being 1:1, were as JS ratio is much higher with an average of 12:1 for the period 2014 -2017. This indicates that JS might not be able to generate sufficient revenue to honour its debt obligations.

Scrutinising the detail of the debt it was found that short term obligations such as deposits received and loans from shareholders was high and increased significantly. The positive about the high amount of deposits received indicates that there are numerous amounts of orders still in the production line and that the demand remains high for the JS sailplanes quality product.

Figure 30: Breakdown of trade payables

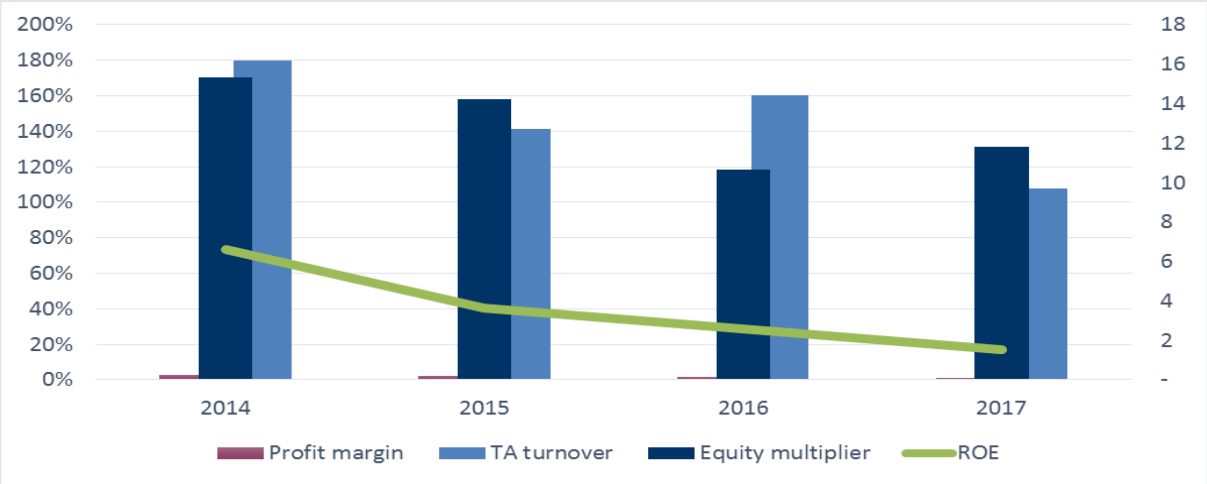


Loans from stakeholders increased significant. This means that the stakeholders increasingly keep on funding the business to stimulate cash flow which is an area of concern.

Overall the decline of 25% for the period in the debt to equity ratio is an indication that JS is moving to a more risk adverse business.

Du Pont analysis

Figure 31: Du Pont analysis



The Du Pont model indicates the different factors that have an influence on ROE. The chart above indicates that all the ratios declined. The managing of the profit margin declined by 49%, total asset efficiencies turnover declined by 40% and the equity multiplier which measure the return on assets declined by 23% resulting that the return on equity declined by 77% from 2014 to 2017. This makes JS less attractive for potential investors to invest in new projects such as expansion or new prototypes of sailplanes.

2.8 SUGGESTED WINNING STRATEGY

From the analyses done on the different business section of JS, it was found that the focus was on growth and that foundational elements such as formal business systems were neglected. This resulted in inefficiencies in production, human resource management and engineering. The winning strategy suggested by PoTENcy is based on building a strong foundation to support future growth.

2.9 CONCLUSION

The strategic analysis conducted in this chapter has revealed JS's strengths and shortcomings. The company's major strategic strength is its engineering and design capabilities that give it a competitive edge. Unfortunately, there are numerous shortcoming that pose a significant threat to JS's long-term sustainability. Addressing these shortcomings will be crucial to ensure that JS is able to make the transition from a small-scale, niche market manufacturer of sailplanes to a medium-sized manufacturer that produces the best sailplanes in the world.

PHASE 3: IMPLEMENTATION OF THE WINNING STRATEGY

3.1 INTRODUCTION

This phase is where the success will be achieved, the reality of the planned strategy and the actual achievement. The critical aspects deal with the ability to organise the time allocation of resources and ensure the required skills sets. The ability to implement is directly related to the ability to resource the plan.

The correct structure, attitudes and reinforcement will be the only source of success in this phase.

3.2 MARKETING OBJECTIVES

Marketing planning involves designing activities relating to marketing objectives and the changing marketing environment and forms the basis for all marketing strategies and decisions (Lamb *et al.*, 2015:499).

Customer strategic objectives

- Increase or establish their marketing to prospective and existing customers.
- Enhance JS brand image.
- Increase website traffic
- Increase number of likes on Facebook page

Internal/Operational strategic objectives

- Marketing management – develop, implement and maintain a sound/viable marketing plan to introduce JS to new prospective customers/flyers.

Product strategic objectives

Products are linked to specific markets segments:

- JS1 – Revelation
- JS2 – self launcher – caters to leisure/recreational market (emergent market)
- JS3 – new product 15m&18m for specific competition class
- Two–seater in pipeline – caters to recreational market because it can accommodate passengers.

3.2.1 MARKETING TOOLS AND ACTIVITIES

Marketing activities include branding, relationship marketing, customer segmentation, cross-marketing and promotional planning.

Relationship marketing

The relationship marketing philosophy emphasises forging a long-term partnership with customer (Lamb *et al*., 2015:15). This is done by building long-term relationships with customers and offering value and providing continuous satisfaction, which encourages repeated sales and also referrals to potential new customers, which all lead to increased sales, market share and profits. This also reduces costs because it is less expensive to serve existing customers than to attract new ones. Uys is mostly responsible for marketing when he participates in competitions and is very good at networking with potential customers. He also has exceptional skills in selling the product because he knows everything about it right down to the engineering of it, but also the handling of the product because he flies it himself.

Product marketing

Companies following this strategy rely on manufacturing good-quality products (Lamb *et al.*, 2015:12). They focus on product features and quality so that the product sells itself; when the JS glider performs well at competitions and nationals more pilots want to buy a JS to compete in due to superior performance.

Promotional activities

Are essential to assist with the marketing of the JS brand and their products. It will however have financial implications for JS, but could prove beneficial in the future. JS is already pursuing this avenue of marketing, but a more strategic objective orientated approach is required to synchronise with the proposed strategic goals.

Alliances

Strategic alliances with Potch Akavlieg (the local flying club) combined with promotions of training, classes and prizes, would not only promote JS awareness but also enhance brand loyalty in terms of JS giving back to the community and contributing to the gliding industry in order to ensure the survival of gliding.

From evaluating JS's current position to where they are aiming to be, a dedicated marketing/social media manager will have to be recruited and appointed to act as marketing representative and to drive marketing initiatives.

3.3 CORPORATE GOVERNANCE

Corporate governance is about the exercise of effective and ethical leadership by the company's board of directors. This encompasses the responsibility to act with integrity, competence, responsibility, accountability, fairness and transparency; to provide a strategic direction to the company; to approve policies to put that strategy into effect; to provide oversight of strategy implementation and performance to make to make appropriate disclosure to stakeholders of all relevant matters pertaining to the company (Naidoo *et al,* 2016: 5).

The gazetting of BEE Codes of Good Practice in 2007 has added certainty to the BEE landscape.

To batter comply with BEE codes JS can form strategic partnerships with black owned business and it is recommended that a small BEE, black enterprise be acquired and or that a joint venture be formed in order for both parties to benefit from these transactions.

3.4 ENGINEERING STRATEGY

3.4.1 Innovation

The analysis of JS's engineering innovation in terms of the four quadrants of the Innovation Matrix has revealed that the company excels at Breakthrough Innovation and Sustaining Innovation. Very little is done in terms of Basic Research and nothing in terms of Disruptive Innovation.

It is recommended that JS implements elements of the 70/20/10 principle (Satell, 2017:112) to guide the investment of resources for engineering innovation. The

70/20/10 principle states that 70% of effort should be spend on Sustaining Innovation, 20% into exploring adjacencies and 10% into building a new paradigm.

Spending time on adjacencies is important because it results in Breakthrough Innovation and Disruptive Innovation. Adjacencies that have been identified for JS include the following:

Engineering: The design services of JS's engineering team can be contracted to other aircraft companies.

Composite materials: JS has in-depth knowledge and experience of working with composite materials. This knowledge and experience can be applied to develop and manufacture composite materials for other aircraft manufacturers or industries.

Aircraft canopies: The ability to design and manufacture aircraft canopies made from acrylic material is a scarce skill that can be applied to make canopies for other aircraft companies.

Aircraft certification: JS has gained a wealth of experience in aircraft certification during the process of getting the JS-1 type certified by SACAA and EASA.

Aircraft parts: JS can design and manufacture aircraft parts for other manufacturers.

The use of CFD modelling for aerodynamic design is an excellent example of a Breakthrough Innovation that gave the company a completive advantage. Spending more resources on adjacencies will lead to more Breakthrough Innovations that will benefit JS tremendously. It may even lead to Disruptive Innovation.

The 10% spending time on a new paradigm is very difficult for a small company such as JS with limited financial means. The reason is that the immediate benefits are not clear. In this regard, JS can leverage its partnership with the NWU to focus even more on basic research that may be of future benefit to the company.

3.4.2 Leadership

The leadership challenge facing JS's engineering team can be solved by appointing a new Engineering Manager who focuses solely on managing the engineering team. In terms of directly addressing the leadership challenges faced by the engineering team, the Engineering Manager's tasks should entail the following functions:

- Prioritise the tasks of the engineering team.

- Align the needs of JS's management and the needs of the company with the task list of the engineering team.
- Improve communication between the engineering team and management.
- Implement procedures for assigning tasks to the engineering team.

3.4.3 Project Management

The previous recommendation of appointing an Engineering Manager will also contribute to addressing the project management challenges faced by the engineering team. More specifically, directly addressing the project management challenges will entail the Engineering Manager to perform the following tasks:

- Long-term planning of the tasks of the engineering team.
- Day-to-day project management to ensure that work is spread out evenly.
- Ensure that there is a balance between the engineering team's priorities in terms of designing, production support and product support.
- Prioritise the solving of root-cause problems over quick solutions.

3.4.4 Specialisation

It is recommended that the current engineering team is split into separate design/prototyping and production engineering teams. This will ensure that JS's engineers will able to specialise. If the split results in the two separate engineering team having excess capacity, it can be filled with spending time on adjacencies that can generate income for JS and have the potential of leading to disruptive or breakthrough innovation that will also benefit JS.

The advantages of two separate engineering teams include:

- Better support during the transition from design/prototyping to production.
- Increased specialisation of engineering activities.
- Increased focus on innovation in the production process.

3.4.5 Production methods and technologies

The manual production process needs to be transformed to include more automation. Automation is the only way to make the change from the current 7-day production cycle to the 5-day production cycle.

JS is a small company within limited financial resources. Therefore, the change to more automated production processes cannot be done instantaneously. An approach that entails the gradual incorporation of automated process is recommended.

The first priority should be to find an alternative to the time-consuming, labour-intensive open-mould process that JS uses for manufacturing composite parts. A proven alternative to the open-mould process is to use an autoclave. An autoclave is a pressure vessel that can apply high pressures and temperatures to provide faster curing times during the manufacturing of composite parts. A photo of a large autoclave used for aircraft manufacturing is shown in Figure 32.

Figure 32 Large autoclave used in aircraft manufacturing

Source: https://www.composites-manufacturing.com/pressing-ahead-oven/

Autoclaves are expensive, and JS would require an autoclave that is large enough for to fit a wing or fuselage of a sailplane inside. Another alternative to open-moulding is out of autoclave (OOA) processes such as Resin Transfer Moulding (RTM) that claims 40% faster production times achieved at half the cost of autoclave

manufacturing (Mason, 2006). Thermoplastic composites is yet another alternative to composite manufacturing with the open mould process.

Automation can also improve quality. Composite parts often need to be trimmed to remove excess material when they are removed from the moulds. JS uses a manual trimming process that often results in parts of varying quality or defective parts that need to be thrown away. An alternative to manual trimming of composite parts is to use robotic trimming.

3.5 MANUFACTORING STRATEGY

3.5.1 Quality Robustness

Engineers should be trained to use this concept when they are designing. Only when this concept is emphasized will it be successful. One way of emphasising will be to have a copy of this strategic concept accompanying each task assignment or job assignment to the engineer. Once this concept is exercised and the value of it has been seen, there should be no problem motivating engineers to do it again.

3.5.2 Postponement

Custom paint jobs and customized instrument panels is an important part of value proposition, however, care should be taken when making these customized products available. In the car automotive industry there is a wide variety of additional options and a selection of colours, but it is a limited amount. To have 5 different colours to choose from as opposed to any colour the customer want can have a significant impact on inventory. To have any striping or colouring on the plane as opposed to 2 different stripes and perhaps three different colours to choose from can change the production line from 30 different paint jobs to only 6 different paint jobs. To implement the concept of postponement, there can be a certain area on the sailplane where different striping or paint colours can be applied, but there is a list to choose from. In this way the customer has some extent of customization, but it allows the company to have standardised paint jobs up to a certain point of the production line and modifications only requires a small amount of work. This will increase consistency in the production line.

3.5.3 Outsourcing

Research have indicated that most outsourcing agreements fail due to a lack of sufficient analysis. (Heizer & Render, 2014:81). To decide whether or not to

outsource and which parts to outsource and to what supplier, a factor-rating method can be done. This analysis identifies the critical factors that will be beneficial for the company when components are being outsourced. A weight is then assigned to determine the importance of each factor to the company. A rating out of 5 (with 5 being the highest), must be done where after the rating is multiplied by the weight in the first column. The supplier with the highest total weighted score can then be a possible candidate for outsourcing. If, for example, two suppliers have a score close to each other, then the analysis should be tested for sensitivity. This will mean that the effect of a small change in weight or rating should be considered and the effect analysed. Managerial judgement can also play a significant role in such a scenario. A table that illustrates the Factor Rating Method is shown in Table 10.

Table 10 Factor rating method

Criterion/Factor	Importance weight	Supplier		
		1	2	3
Can reduce costs	20%	3	3	5
Can reduce capital investment	20%	4	3	3
Skilled personnel	20%	5	4	3
Can improve quality	10%	4	5	2
Can gain access to technology not in company	10%	5	3	5
Can create additional capacity	10%	4	2	4
Aligns with policy	10%	2	3	5
Total Weighted score	100%	3.9	3.3	3.8

Factor rating method: (Heizer & Render, 2014:82).

3.6 HUMAN RESOURCE STRATEGY

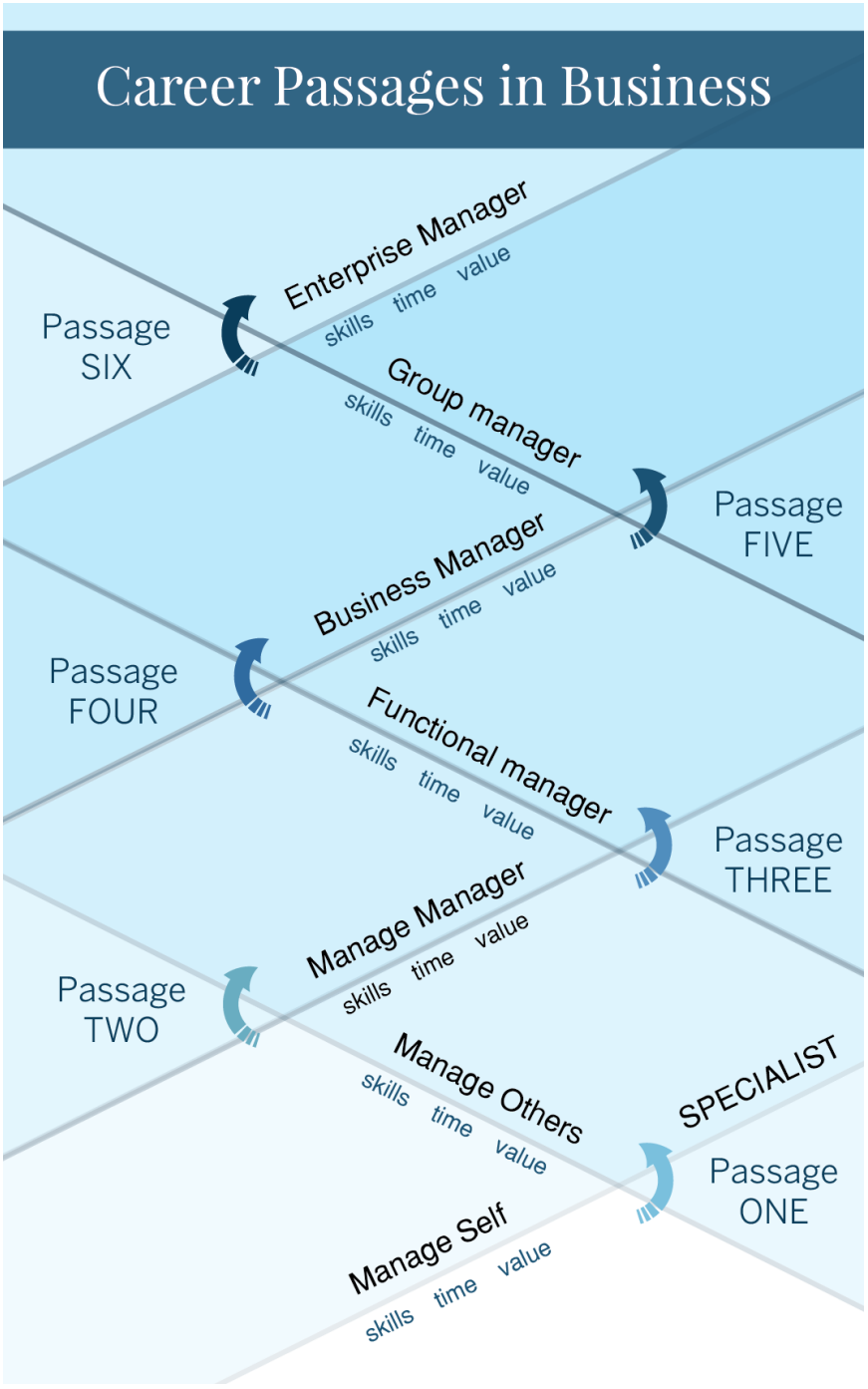
The key focus of the Human Resources Strategy is firstly the opportunity to build sustainable skills set and a pipeline of appropriate talent to support the growth strategy. Secondly to development of the human resources function which will fulfil the role of a business partner. The two is interrelated and require a fundamental shift in the way we approach people decisions.

Talent and Skills Pipeline

Talent and skills pipeline development are those activities and processes that involve the systematic identification of key positions in JS. The key skills matrix

requirements, the work to be done, work to be valued and how time is allocated. This identification process will ensure the maintenance and improvement of the organisation's sustainable competitive advantage. Sound definition of work set the tone for the work practices towards performance and excellence.

Figure 33 The leadership pipeline



The development of a skill and talent pool of high potential and high performing employees are critical to fill specialist and leadership roles. The development of a learning and performance architecture per role will ensure competent incumbents and to ensure their continued commitment to the organisation.

The key models to facilitate the skills and talent change include:

- *Career Passages in Business*: The building of a unique pipeline for JS based on the Drotter Pipeline Definitions (Charan *et al*. 2001)
- *Pipeline:* Identification of Skills, Values and Time application for roles. (Figure 33)
- *Performance and Inappropriate Performance*: Setting of performance standards and evaluation (Figure 34)
- Mapping performance and potential in 9 box matrix (Figure 36)

The Talent Management system assist in defining the work to be done, indicate the skills requirements, time to be allocated to specific type of work and also what kind of work and activities are values. These definitions are used to measure performance and identify developmental needs.

Figure 34 Performance and Inappropriate Performance

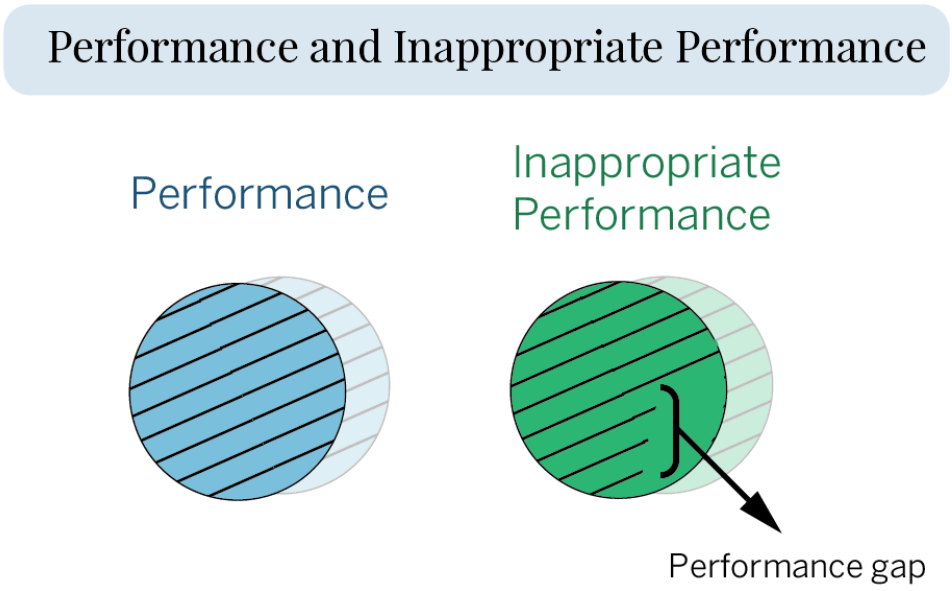


Figure 35 Development Needs

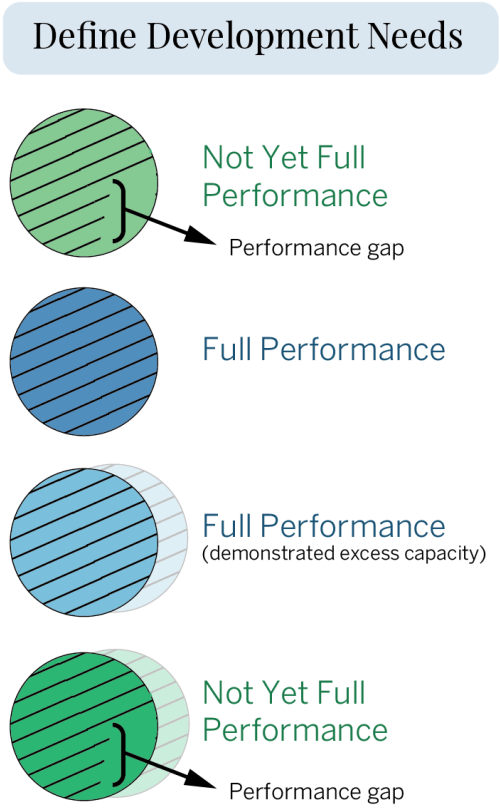


Figure 36 The leadership development matrix

Leadership Development Matrix Definitions

LIKELY FUTURE WORK CONTRIBUTION	SUSTAINED PERFORMANCE LEVEL		
	Exceptional Performance	Full Performance	Not Yet Full Performance
Turn	Exceptional/ Turn BOX ONE	Full / Turn BOX THREE	Not yet full / Turn BOX SIX
Growth	Exceptional/ Growth BOX TWO	Full / Growth BOX FIVE	Not yet full / Growth BOX EIGHT
Mastery	Exceptional/ Mastery BOX FOUR	Full / Mastery BOX SEVEN	Not yet full / Mastery BOX NINE

The systems will lead JS to also map specific roles and individuals based on the talent box as illustrated in Figure 36:

Human Resources Function

The work to be done towards building the skill and talent pipeline require a systematic and in-depth approach. The reality is that once the fundamentals are in place, the rest of the human resources value chain can be built on the correct architecture.

The analysis done against the SABPP standards indicated a clear opportunity to increase the level of maturity through people practices applications. The effectiveness of the HR business partner is determined by the fulfilment of three key themes: Strategic Advisor; Service Manager; and Business Catalyst.

Strategic advisor:

Support the value creation through supporting the business through a sound people strategy and proactively suggest people solutions. This is a function around building strong pipelines and associate activities to strengthen the pipeline

Service Manager:

Facilitate learning and growth and execution of the human resources functions. Ensure that initiatives enhance performance and culture change outputs of both internal and external stakeholders. Inclusion of technology and metrics are a critical aspect.

Business Catalyst:

Utilise change management methodology and challenge the business to use out-of-the box thinking, solve business problems, understand people related risks, and help their clients develop risk mitigation strategies.

3.7 COMMERCIAL STRATEGY BASED ON FINANCIAL ANALYSIS

3.7.1 Financial growth and operational effectiveness

JS need to align the sales and the amount of orders more to ensure better control over the production and financial status. Long waiting period need to be reduced to prevent the customer from seeking alternative products.

Fixed cost and the associated risk thereof can be mitigated by restructuring of the current cost structures and methodology and adapt to a more variable, proactive manageable cost structure. They will realise the benefit of accurate cost allocation per cost pool and fluctuations from the norms can then be specifically investigated by department.

To increase the EBIT, focus should be moved towards efficient and effective management of the operations. To manage this better ABC costing can assist to focus the attention on deviation such as reworks, and direct operating hours for different cost pools.

3.7.2 Plane orders, Budget against actuals

The amount of sailplanes sold annually remains constant and does not indicate any significant sign of growth as was planned according to the budget. Although it might be difficult, JS sailplanes should attempt to align the day to day activities to a more long-term goal approach and adhere to the strategy that was agreed upon. This will increase volumes.

3.7.3 Financial ratio analysis

Profitability

The stable gross profit and negative the trend of net profit can be rectified by the reallocation of cost such as labour and other direct and indirect cost. The cost per plane will then be a truer reflection of the actual cost of manufacturing. This will stabilize the gross profit and EBIT.

Break even analysis should be conducted to determine how many sailplanes must be sold to break even and at which price based on the related cost. This analysis will also assist to determine exactly how much profit is generated per sailplane and the selling price per plane.

Liquidity

JS needs to manage the current ratio to the industry norms and even attempt to exceed it. The highest contributor to the current liabilities is deposits received from customers. This entails that the customers have a very influential impact on the liquidity status of the business. In fact, it indicates that the business's liquidity is largely supported and financed by deposits received from customers. There is a risk that customers might cancel orders and request the return of deposits. This has the

potential to put JS in a very difficult cash flow situation. To mitigate the risk of cancellations of orders, bonds or bank guarantees or even non-refundable deposits can be implemented in the contracts.

Too much inventory can lock the opportunity of additional cash flow. This can be managed by not having too much stock on hand and only what is needed. A suggestion is to investigate the implementation of a just in time inventory management system. The additional benefit to this inventory control system will highlight possible bottlenecks and waste within the production line.

If the above indicators can be managed to a positive result, it will unlock the opportunity to get additional loans from banks which can be utilise for strategic investment within the business. This will reduce the dependency of deposits from customers and will support the current cash flow. Additional availability of cash resources can then be utilised for expansion and not only producing orders received from customers.

Du Pont analysis

Table 11: Du Pont analysis

	2014	**2015**	**2016**	**2017**
TA turnover	1.80	1.41	1.60	1.08
Equity multiplier	15.35	14.21	10.65	11.81
ROE	73%	40%	29%	17%
Profit margin	3%	2%	2%	1%

The return on equity needs to increase to make future investing in JS more attractive for different stakeholders. The following suggestions may be considered for each indicator to achieve an increased return on investment. The focus will also be more towards the indicators of which JS have control over.

Profit margin

Indicates the total sales generated against the net income. Manufacturing volumes of sailplanes can be increase by entering new markets. The selling price of a sailplane can increase, or the controllable cost needs to decrease to increase the

profit margin ratio or both. This can be achieved by considering a different costing model such as ABC costing to support effective and efficient production in the workplace, with a mark-up that is either variable, or preferable a fix percentage.

Implementing ABC

First step towards the implementation of activity-based costing is to get the strong and participative support from the top management team. The benefit of introducing the ABC costing model is to address the current gap where not all cost are allocated to the correct driver. All the associated cost manufacturing and overheads relevant to the product cost pool should be allocated to that specific bucket to determine a more accurate cost per sailplane.

Below is the basic implementation plan for ABC:

- Define the activities, activity cost pools and the activity measures
- Assign overhead cost to activity cost pools
- Calculate the activity rate
- Assign overhead to products
- Prepare management reports

This will also sequentially establish and distribute accountability to the relevant units. The need for cross functionality between planning and development will increase and streamline the value chain of sailplane production.

Total asset turnover

Indicates the total asset utilisation that is needed to generate sales. It refers to the efficiency and productive utilisation of the assets available.

Fruitless reworks in the value chain need to be limited and aim towards a Zero-Defect strategy. Direct cost related to reworks per sailplane might be considered not substantial, but in actuality it may not be the case. The time wasted on reworks is the larger additional contributing cost factor that negatively impacts the effectiveness and efficiencies of the business. This relates to salaries that are the largest single cost item in the income statement and the opportunity cost associated with ineffective utilisation of assets.

Increases in the current efficiencies and productivity can be achieved by investing in technology such as automation of items within the production line.

Equity multiplier

Indicates the total assets against the ordinary equity. To increase this asset can be reduce by selling some of the assets and make use of specialist contractors, alternatively direct utilisation of assets must be optimised as mentioned. This is to generate more sales and increase the retained earnings in order to have contingency cash flow or to invest in projects such as new prototypes.

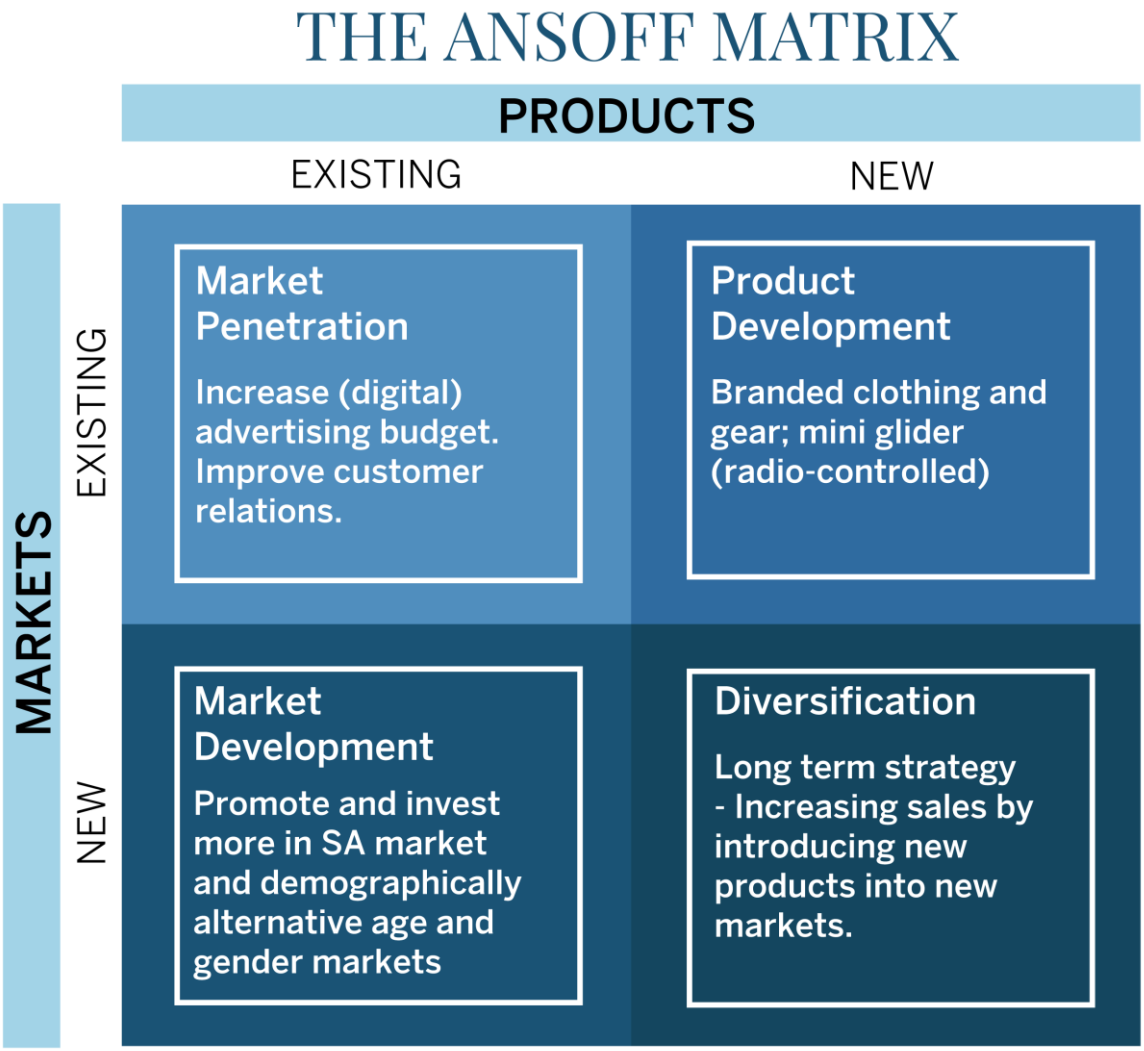
3.8 STRATEGIC GROWTH OPTIONS

The Ansoff matrix is a tool which enables companies to identify opportunities and how to utilise them. It enables a company to match its products with existing or new markets in order to identify which type of marketing approach to utilise (Lamb *et al.*, 2015:506).

Figure 37 The Ansoff Matrix

This model focuses on growth and is therefore an extremely useful marketing model to evaluate opportunities for companies that increase their sales through showing alternative combinations for new markets such as customer segments and geographical locations against products and services.

Figure 38 JS's Ansoff matrix



MARKET PENETRATION

A firm using the market penetration alternative wants to increase its market share among existing customers with its existing range of products, or slight modifications to them. In essence this means improved marketing to existing target markets (Lamb *et al.*, 2015:506), and also to grow market share, improve customer loyalty and customer value (Hanlon, 2013). Possible actions to follow include reducing the order interval/waiting period, increase the average order value or make the entire ordering

process easier and more user friendly as orders mainly occur through website and electronic means.

MARKET DEVELOPMENT

Means attracting new customers to existing product. Ideally also bringing in new buyers. (Lamb *et al.*, 2015:506) This could include better use of online channels to sell into new markets at lower costs or selling existing products to new market segments based on demographics and geography as elaborated on below and different types of customers (Hanlon, 2013). Identify new markets based on the following factors:

- **Demographics –** age, gender and income
- **Geography –** where they are based; local, regional, national, or international
- **Life stages –** recently retired
- **Lifestyle –** adventurous, market as a bucket list experience.

PRODUCT DEVELOPMENT

A product-development strategy entails the creation of new products for present markets (Lamb *et al.*, 2015:506) The web can also be used to add value to or extend existing products and services for example web based CCF for JS (Hanlon, 2013).

SUGGESTIONS

- Capability of making mini-gliders (radio-controlled airplanes/gliders) as promotional material for younger markets.
- Clothing – branded caps, shirts, sunglasses – gear/items pilots use or need when gliding.
- Promotional exhibitions and large events such as Nampo or the NWU Open Day to attract new and younger gliding enthusiasts.
- JS is situated in Potchefstroom and also has ties with the North-West University's Engineering Faculty, with student internships and regular international student internships at JS. Events such as the University's annual Open day are ideal marketing opportunities, especially if a JS glider can be on display and knowledgeable pilots/promoters on hand to explain about gliding and the product. The product itself is an impressive sight which draws attention and possible interest.

- Other local marketing or exhibition opportunities include Nampo Harvest Day which has the potential to attract and create awareness in the local market.
- Charitable events are also excellent marketing opportunities and with the right marketing strategy has the potential to draw a large public interest especially if the (local) media are involved. A lot of exposure and positive association for JS brand can be gained, if people know they care or give back to the community. By hosting an event for youngsters or disabled people of the local community as fundraisers for good causes will be positive exposure.

3.9 ACTION PLAN

Figure 39 Action plan

Engineering			
Action	**How**	**Timeframe**	**Indicator**
Enable specialisation in the engineering team	Split the engineering team into two separate teams, i.e. a design/prototyping team and a production support team	6 months	The percentage of time spent by the design/prototyping team on production support
Implement the 70/20/10 principle	Enable the two separate engineering teams to generate income through adjacencies such as contracting design services to other aircraft companies.	6 months	Income generated through adjacencies
Include more automation in the production process	Implement new technologies such as autoclave processing of composite parts, robotic trimming of composite parts and thermoplastic composites	6-12 months	Production cycle measured in days and the number of sailplanes produced per month
Appoint an engineering manager to improve the management of JS' engineering projects	Identify a suitable candidate in the current engineering team or appoint an experienced person from outside	1 month	Project management KPI's such as productivity, cycle time and return on ROI.

Production			
Action	**How**	**Timeframe**	**Indicator**
Improve quality robustness	Train JS's engineers to incorporate quality robustness during the design phase	1 month	Number of non-conformances in terms of rework, scrap and customer complaints
Increase level of standardisation in the production process to improve consistency and keep momentum in the production line	Reduce the number of custom options available to customers	6 months	Production cycle measured in days
Outsource the manufacturing of certain components of the sailplanes	Find suitable suppliers using the Factor Rating Method	6 months	The percentage of sailplane parts manufactured in-house vs percentage of outsourced parts

Human resources			
Action	**How**	**Timeframe**	**Indicator**
Re-look at the current functional structure of human resources	Identify the expectation as business partner. Conduct skills matrix of current human resources team Make required appointments, moves or in/outsourcing servicing option	2 Months	Functional HR function who will be in a position to focus on: Talent and Skills Pipeline Dev Change Management HR Service and excellence
Commence with building the JS people architecture	Identify the different levels of work in the organistion. Key skills requirements, values and time applications. Measure the current talent against the requirements Position in 9 box matrix Make corrective actions	2- 8 Months	Defined requirements Skills gaps identified Individuals and teams mapped Corrective actions and plans in place.

Approach the implementation of the strategy in a change management manner	Ensure the availability of a resource within the HR function Identify first strategic actions to be implemented Develop a change management plan based on ADKAR	2- 8 Months	Priorities for change identified Change plan designed First steps to make change happen Measure level of adoption of new practices
Finances			
Action	**How**	**Timeframe**	**Indicator**
Align sales and number of sailplanes sold per year	Count the number of sailplanes sold for the financial year and not the calendar year	Next financial year	Not applicable
Implement ABC costing system	Breakdown the costs of each sailplane produces. This include labour and machine hours.	6 months	Not applicable
Sustainable growth rate of 20% per year	Increase the number of sailplanes sold per year.	Yearly	20% growth in sales
Net profit margin of 6%	Decrease the fixed costs.	2 years	Increase in net profit margin

Marketing			
Action	**How**	**Timeframe**	**Indicator**
Promote JS on social media	More regular posts of news, products and events through social media	Continuous	Lack of awareness and to boost JS products
Appoint a marketing manager to improve the management of JS' marketing activities	Recruit a suitable marketing specialist. A person with gliding/flying experience would be preferable	By end 2018	Limited capacity of current marketing manager and need for fiercer marketing
Designing of detailed marketing plan	The dedicated marketing manager must learn about the current marketing strategy and convert it into a detailed and goal orientated written document	3-6 months after appointment	Lack of awareness of gliding as a sport and lack of continuous structured marketing
Marketing research	Allocate resources into doing market research in order to create targeted marketing to specific market segments	During 2019 and ongoing	Penetrate possible emergent markets (national and international) but also demographical markets such as age and gender markets

3.10 JS IMPLEMENTATION PLAN – MAKE IT HAPPEN

Change Management

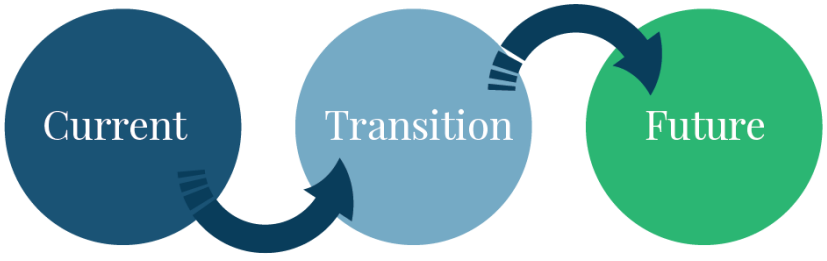
To ensure the successful implementation of the winning strategy, it should be emphasized that the change will only happen if the people side of the strategy are being handled in a due diligent manner.

The art of leading change is a relative young discipline and research from various disciplines need to be integrated when dealing with applied managerial science. As many resources providing evidence of successful change recipes, many references about these failures can be found. Senge (2014:14) refers change failures as mostly achieving less than 50 % success rate due lacking to deal with the people side of change. The bridge between a quality solution and benefit realisation is individuals adopting and embracing the change. (Hiatt, 2012: 4).

Change Management is the emergent discipline focused on individuals affected by change and catalysing their adoption and proficient usage of the changes affecting how they do their jobs. When successful, Change Management contributes to achieving the initiative's targeted results. Change Management is a relatively young discipline drawing on diverse bodies of knowledge including psychology, behavioural science, social science, OD, project management, process management, and neuroscience (Creasey, Jamieson, & Rothwell, 2015).

Research in the field of change management is clear that change happen in three phases.

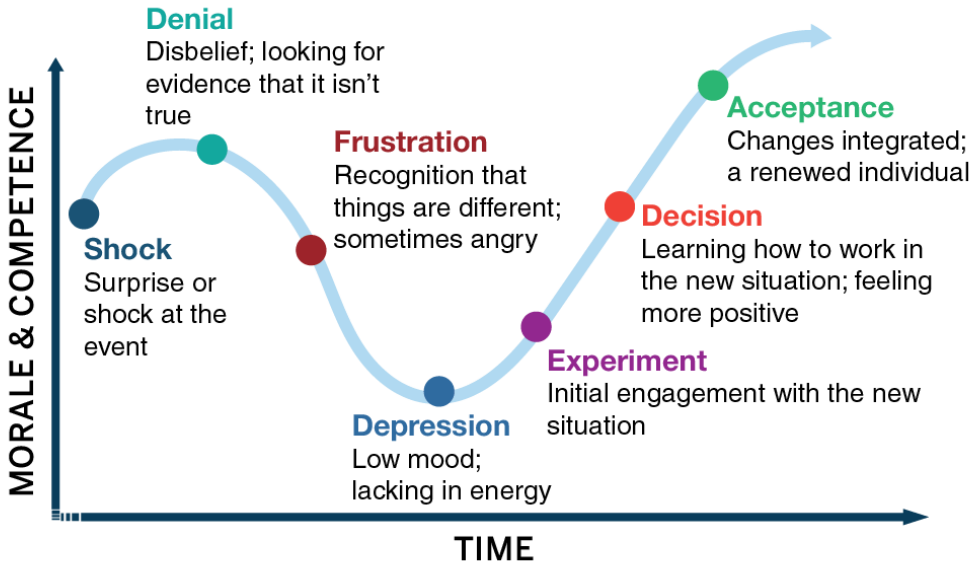
Figure 40 Change Phases



This transition phase are mostly associate with loss and have a direct impact in the speed and success of the change initiative. Fundamental to the success of organisational change is the acceptance of the change by employees. Within this

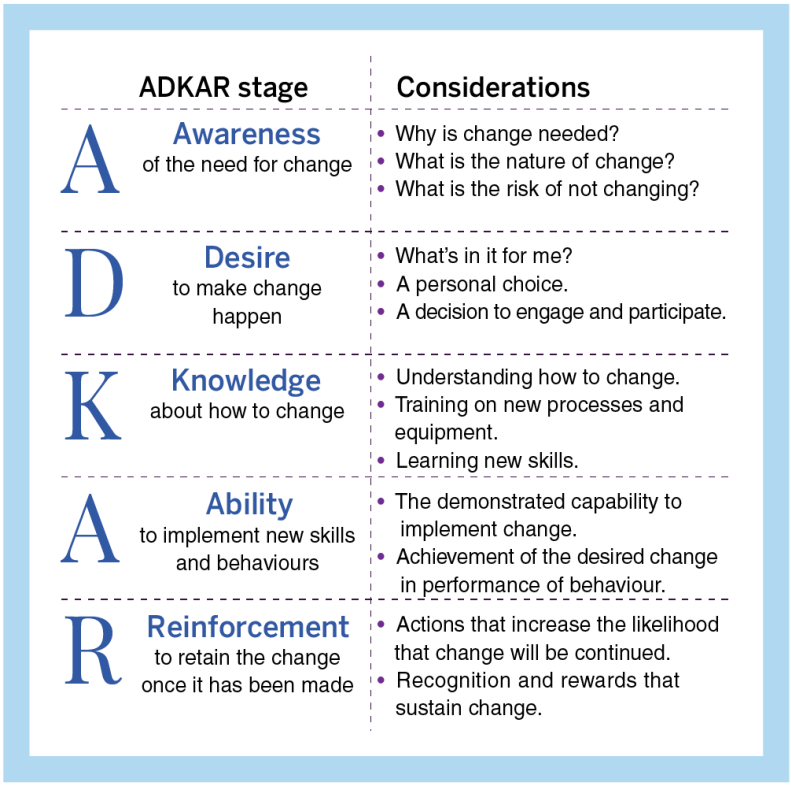
context, the work of Kubler-Ross (1973), who argued that all humans go through five stages of 'grief' (denial, anger, bargaining, depression and acceptance) when faced with a loss or change, has been seen as relevant and has been applied to the management of organisational change. Wiggins (2008: 20) uses the model to help guide communication and support during the period of change, which she suggests should be tailored to the stage of change that the employees have reached. For example, after the news of change is delivered, employees need to be given information to tackle their denial. Figure 41 above indicates the emotional side of change to be acknowledge and planned for.

Figure 41 Kubler-Ross Model

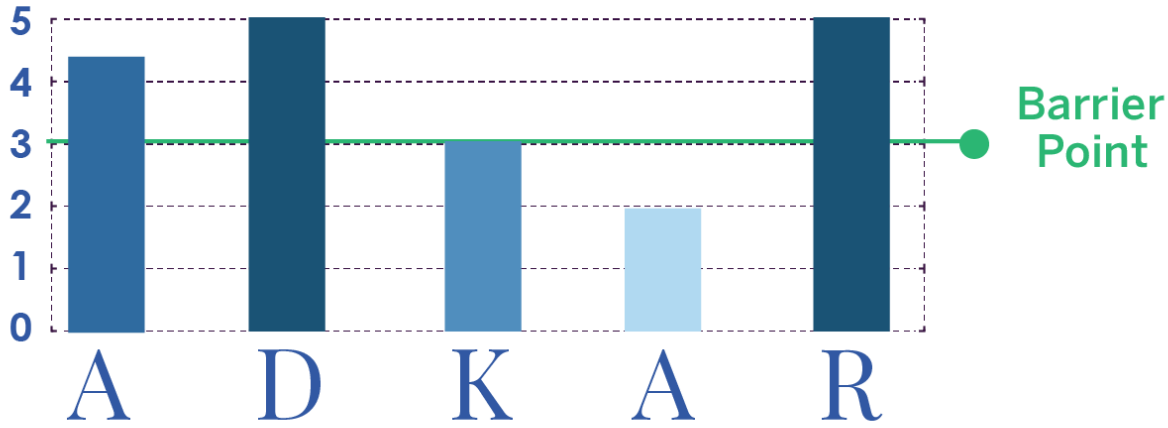


Dealing with change require a structured method and a well-researched model such as the ADKAR framework (Hiatt, 2012:12) provide structure to deal with change in direct and purposeful manner. The different reasons for resistance are represented in the model and it is strongly advised to measure the level of each component throughout the introduction of the changes as proposed in the winning strategy.

Figure 42 Pro-Sci ADKAR Model



The status of employees should be continuously monitored to ensure that the strategy will be successful and not be resisted due to a lack of either awareness, desire, knowledge, ability or reinforcement. The barrier point as indicated below will



be the area requiring the most attention for a specific part of the strategy to be successfully implemented. Appropriate activities for this barrier point should be initiated to prevent resistance and failure to implement successfully.

3.11 CONCLUSION

The story of JS has been a story of success. The JS1 and the JS3 sailplanes are among the top competition sailplanes in the world. This is extraordinary when considering the company's age in comparison to its well-established European rivals. At first the sailplane industry brushed off JS as a "flash in the pan", but this notion has changed dramatically over the past 12 years since the first flight of the JS1.

The CFD modelling technique used in the aerodynamic design of JS's sailplanes gives the company its competitive edge in the market. JS is the only sailplane manufacturer that uses this innovative design method and it saves significant costs and time in comparison to the conventional wind-tunnel testing method used widely in the industry. The most important advantage of CFD modelling it that it has enabled JS to develop the JS3 with a better aerodynamic design than its competitors at a fraction of the cost and development time. The JS3 has arguably the best aerodynamic design in the world.

Unfortunately, JS compares less favourably with the established European manufacturers when it comes to other aspects such as the production process, production volumes, range and quality. JS is very good at building prototypes, it took the company only 9 months to move from an aerodynamic design to the first prototype of the JS3. JS is however experiencing many difficulties in the process of moving from prototype to production. This is evident from the amount of production support that the company's engineering team had to provide since the start of the JS3's production 18 months ago.

JS needs to expand its product range, widen its target market and increase production to compete with the big European manufacturers. The planned introduction of the JS2 at the end of 2018 and the introduction of further sailplane models aimed at the lucrative leisure market will help greatly in this regard. The problematic aspect of introducing more models and increasing production is that it will put even more pressure on the company's factory, which is already facing numerous challenges in building relatively low volumes of only two different sailplane models.

Apart from the quality and production challenges, JS also faces challenged in terms of legal and regulatory aspects, people practises and finances. The winning strategy

developed by POTENCYC incorporates practical recommendations that will address these challenges. The implementation of the winning strategy will enable JS to take the next step to become the best sailplane manufacturer in the world. JS already has the proven engineering ability. The innovation, dedication and passion displayed in the company’s engineering and design abilities now need to roll over to the other critical aspects.

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ADDENDUM A