



# Financial Management & Planning

Nefyn Roberts 2009576

**Project Appraisal Assignment**

# Introduction

- Reflexallen have an aftermarket division called Allen Developments (ADEV).
- One of the products ADEV sell are A-frames (pictured), the volume is relatively low (100's of units sold per annum).
- A-frames are fitted to the back of HGVs (between the cab and trailer), their purpose is to raise electrical cables and pneumatic airlines from the catwalk floor and to connect these lines to the articulated trailers.
- The metal frame is currently produced externally to a bespoke design, ADEV then fit the frame with their electrical and pneumatic products.
- An opportunity has arisen to supply A-frames direct to a major OEM, for this production will need to be upscaled to 50,000 units per annum.
- The investment cost to up-scale production and to produce the customers specification A-frames will be reviewed to determine the profitability and feasibility of the project.



ADEV Aftermarket A-frame

# Scope

- The project will increase the volume of sales, by an order of magnitude, by selling A-Frames products directly to an OEM rather than to the smaller piecemeal Aftermarket sector.
- There is also the opportunity for aftermarket sales via the OEM to service these products once on vehicle.
- The project will need significant investment in labour, machinery, floor space, logistics and tooling in order to upscale production to meet demand.
- Currently the OEM buys in the 'bare' A-frames from one supplier, the pneumatic and electrical products from ADEV and assembles them together (along with other components) adjacent to the main production line before fitting the A-frame to the chassis of the vehicle.
- ADEV will offer to provide an A-frame ready assembled with their sub components to the OEM, this will remove assembly stations at the OEM factory saving them time and money line side as well as freeing up factory space and reducing labour costs.

# Timing

- Reflexallen are targeting a quotation to the customer within 2 months (end of September 2022).
- Reflexallen are targeting prototypes to be delivered within 10 weeks of an initial order being placed, with full scale production to follow 12 weeks after PPAP.
- To meet production targets of 50,000 units per annum, ADEV will need to produce/assemble 209 frames per working day).
- Current production rate is approximately 5 frames per working day (approx. 1,200 per year).
- This project will ignore the 'ramp up' phase and assume full scale/volume production beings from day 1.
- Project set to last 5+ years, calculations taken over a 5 year period.

# Cost

- The cost of the project will depend on how much Reflexallen decide to bring 'in house'. Producing the frame externally means less machinery and labour investment but reduces the profitability due to supplier costs and margins.
- The project will aim to reduce costs at the customer side overall, by removing fitting stations on the assembly line.

The project will review 2 options.

- **Option 1** = €620,000 investment cost approx.
  - Frame Produced internally and ADEV components added.
  - Estimated **35%** average **profit** margin **per** assembled **A-frame** (sold at ~€170).
- **Option 2** = €100,000 investment cost approx.
  - Frame Produced externally and ADEV components added.
  - Estimated **16%** average **profit** margin **per** assembled **A-frame** (sold at ~€170).



OEM customer spec. 'bare' A-frame

# Lifespan

- The minimum lifespan of the project is estimated to be 5 years, after this the chassis from the OEM may change, as may the A-frame requirements.
- However, if the new chassis also requires an A-frame then a relatively modest investment and re-design to suit the new chassis can increase the lifespan of the project.
- The investment in tooling/machinery also brings into scope other projects not associated with this one.

# Any issues that implementation will cause

- The implementation of the project would completely change the ADEV area. It will transform a small after-market operation comprising of 2 workers to a large volume supplier direct to an OEM. Initial estimates are that the work force will grow by 7-10 employees and a significant investment in machinery, much of it automated, would be required.
- If successful there would be some disruption to the ADEV area in order to re-calibrate it for these volumes, as well as the training of new employees.
- Project and Process engineers as well as Quality, Logistics, Packaging and Maintenance teams would also need to be used from other areas within the company to facilitate the implementation of the new production lines.
- Its worth noting that the profitability of the project is subject to market conditions regarding raw materials.

# What is the rational of your business

Initial targets from management area that

- Payback should be within 2 years and amortized over 3.
- IRR greater than 100%.
- Positive PI.
- Positive NPV from a WACC of 10%.

Above must be correct when including year on year price reduction as mandated by the OEM.  
Contract with the OEM is caveated for changes in sales price due to material costs.

# Model of the projects

| Summary                               | Option 1       | Option 2            |
|---------------------------------------|----------------|---------------------|
|                                       | Internal       | External + Internal |
| Investment                            | € 620,000.00   | € 100,000.00        |
| Units P/A                             | 50,000         | 50,000              |
| Margin per unit (average over 5 yrs)  | € 42.80        | € 21.47             |
| Gross Margin P/A (average over 5 yrs) | € 2,140,111.38 | € 1,073,711.46      |
| Payback Period (years)                | 0.28           | 0.08                |
| Payback Period (months)               | 3.38           | 1.01                |
| ARR                                   | 623%           | 3215%               |
| NPV                                   | € 7,509,069.03 | € 4,000,731.36      |
| PI                                    | 13.11          | 41.01               |
| IRR                                   | 353%           | 1178%               |



Microsoft Excel  
Worksheet

# What are your options for funding the project?

- Options for funding are funds within the companies project budget or a company loan (depending on the investment amount). ADEV could also explore options for government funded grants if it is compatible within the government framing for funding.
- Due to the high level of investment option 1 requires (€620,000) this would require a loan and grant if applicable. Whereas the €100,000 required for option 2 could be covered by the company project budget (although management may still decide to take out a loan to spread the risk over several years).

# Conclusion and recommendations

In conclusion, both options offer good payback and return on investment.

Option 1 offers the greatest amount of profitability. However; there is also risk if production cannot keep up with demand or if quality does not meet the OEMs requirements. If €620,000 was invested and the OEM changed the chassis design or re-sourced ADEV could be left with expensive machinery and little to no income.

Therefore the lower risk option and my recommendation would be option 2. This way the initial investment risk is reduced from €620k to around €100k. Once the assembly line is set up and running successfully profitability should be achieved after 1 month. Additional investment could then be made to bring the other processes 'in house' in order to achieve greater profitability.

The profits of the first 5 to 6 months (at full production rate) following option 2 could be used to cover the initial investment of €100k and the additional investment of €520k to cover option 1, if the company chooses to bring the other processes 'in house'. The processes brought in house could also be separated, e.g. investment in forming machinery but welding and powder-coating kept external.



Any Questions?