Stakeholder Analysis

<https://ocw.mit.edu/courses/16-842-fundamentals-of-systems-engineering-fall-2015/resources/mit16_842f15_ses1se_ovr_vw/>

# Stakeholder Expectations Definition

1. What is a Stakeholder?  
   Someone affected by or in some way accountable for the outcome of an undertaking
2. Can be Classified as:
   1. Customers  
      An organization or Individual that has requested a product and will receive the product to be delivered.
   2. Other Interested Parties  
      Those who provide overarching constraints within which the customers needs must be achieved, or who have influence on the success of the system
3. **Who are the stakeholders in this project?**
   1. Myself, as the person building the plane I want to fly it, I have both general and specific requirements for it which will shape the product.
   2. State and Federal Regulators, I must ensure that the vehicle operates within the constraints set forth by regulators such as the FAA. This can include constraints to weight, speed, altitude, distance, etc.

# Concept of Operations (CONOPS)

1. Concept of Operations is an important component in capturing expectations, forming requirements, and developing the architecture of a project or system.
2. This section, which is done early, reveals requirements and functions that might otherwise be overlooked

# Customer Needs

1. Purpose of Plane
   1. 20+ minute flight time, payload capability, ground take-off
2. Ease of Manufacturing
   1. 3D printing most frame components, since it is easier for me to do than balsa/foam
3. Radio Transmission range
   1. Standard 400 feet line of sight,
4. Avionics
   1. Either just Remote control, or flight controller implementation like Navio2.
5. Price
   1. Not a major factor, but id like the frame to cost less than 2 rolls of filament (~50 dollars)
6. Weight
   1. Not a deciding factor, I want it to be compatible with currently available electric motors I already have
7. Size
   1. Nice a major factor, however ~1500mm likely, will need to calculate based on payload requirements

# Trade Study and Considerations

As part of this, we are going to look at several factors of various fixed-wing body designs.

Factors will include:

1. Ease of Designing
2. Ease of Manufacturing
3. Ease of assembling
4. Durability
5. Maneuverability
6. Aesthetic
7. Stability in Flight

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Criteria | Weight | Twin Boom 1E | Twin Boom 2E | Trainer 1E | Trainer 2E | Trainer 4E |
| Score | Score | Score | Score | Score |
| Expected Ease of Designing | 15 | 6 | 6 | 12 | 9 | 6 |
| Expected Ease of Manufacturing | 10 | 6 | 6 | 8 | 6 | 6 |
| Expected Ease of assembling | 15 | 6 | 6 | 9 | 9 | 6 |
| Durability/Rigidity | 10 | 6 | 6 | 8 | 6 | 4 |
| Maneuverability | 10 | 8 | 8 | 8 | 8 | 4 |
| Aesthetic/Personal Taste | 5 | 4 | 4 | 2 | 4 | 3 |
| Stability | 15 | 9 | 12 | 12 | 15 | 15 |
| Weight w/o Payload | 10 | 8 | 6 | 8 | 6 | 4 |
| Payload Capacity | 10 | 4 | 6 | 4 | 6 | 8 |
| Total | 100 | 57 | 60 | 71 | 69 | 56 |