Raw Data Inconsistencies & Assumptions

1. Material and Freight Cost Accuracy

- Material and freight costs for the **Aircraft system** appear accurate and are used as-is.
- For **Zip** and **Dock systems**, the Material Cost per System and Freight Cost per Unit columns seem inconsistent:
    - In many cases, Freight Cost per Unit = Material Cost × Quantity, which is unlikely and may indicate a shifted column or data entry issue.
    - Freight Cost per Unit is often much higher than Freight Cost per System, which contradicts expectations.Wherever this inconsistency occurred, the value in the Freight Cost per System column was interpreted as Freight Cost per System Unit instead, and recalculated system-level freight costs accordingly.

In the absence of verification sources (e.g., invoices), I have considered this to be correct but I recommend validation with logistics/finance experts.

2. Tariff Timing

- Tariff application is based on the assumption that the **shipment date is post-April 5**, and analysis reflects **tariff rates as of July 12, 2025**.

3. Tariff Components

- Duty includes four components:
    - **Standard HTS Duty**
    - **Section 301**
    - **Section 232**
    - **IEEPA**
- A standard **Harbour Maintenance Fee (0.125%) + Merchandise Processing Fee(0.3464%)** are assumed applicable to all **non-U.S. countries** and excluded for **domestically-sourced parts**.

4. Other Cost Assumptions

Insurance, handling, and packaging costs are assumed to be **included in Freight** unless stated otherwise. No additional indirect costs are considered in the current landed cost.

5. Calculations

Column Formula

Corrected Material Cost per Unit Input (adjusted if inconsistency found)

Corrected Material Cost per System Unit Cost × Quantity

Corrected Freight Cost per Unit Input (used System if Unit value was questionable)

Corrected Freight Cost per System Freight per Unit × Quantity

Total Cost Material Cost + Freight Cost

Total Duty (%) Standard duty + Section 301 + Section 232 + IEEPA Duty (%) Total Duty +

HMF + MPF

Total Duty Total Cost × Duty %

Total Landed Cost Total Cost + Total Duty

Freight-to-Material Ratio Freight per Unit / Material per Unit Duty Impact

(%) Total Duty / Total Landed Cost

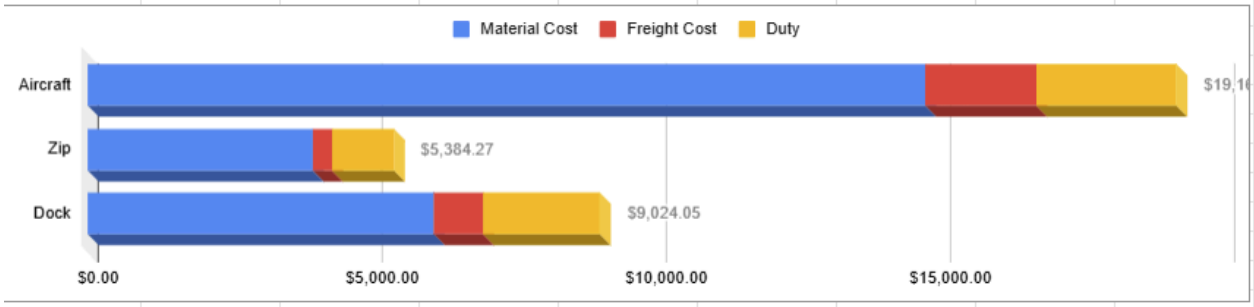
Automation & Dashboard Integration

- All sheets (except **Raw Data**) are connected to ensure that updates reflect across dashboards.
- Material and freight columns in the raw sheet were corrected manually; these need validation through review.
- **'Tariff Table'** uses HTS Code + COO lookups from Raw Data to manually assign duties.

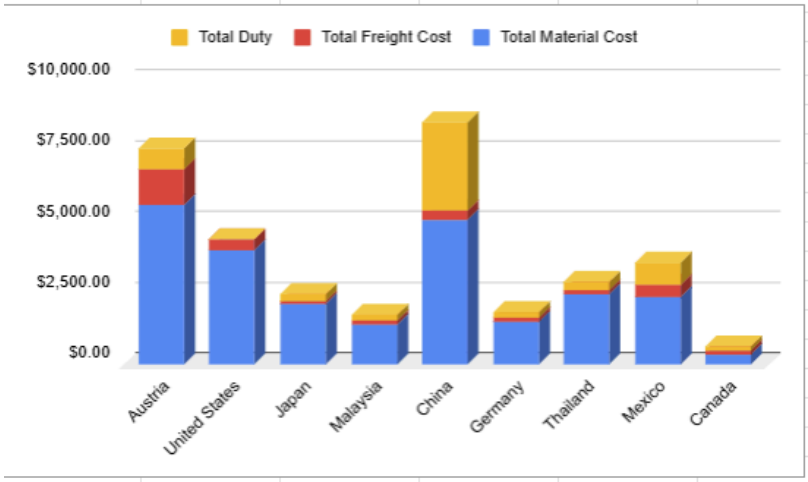
The dashboard prototype looks like this:

SYSTEM - WISE ANALYSIS

Total Material C...	Total Freight	Total Duty	Total Landed Cost
$24,815.00	$3,181.00	$5,581.96	$33,577.96



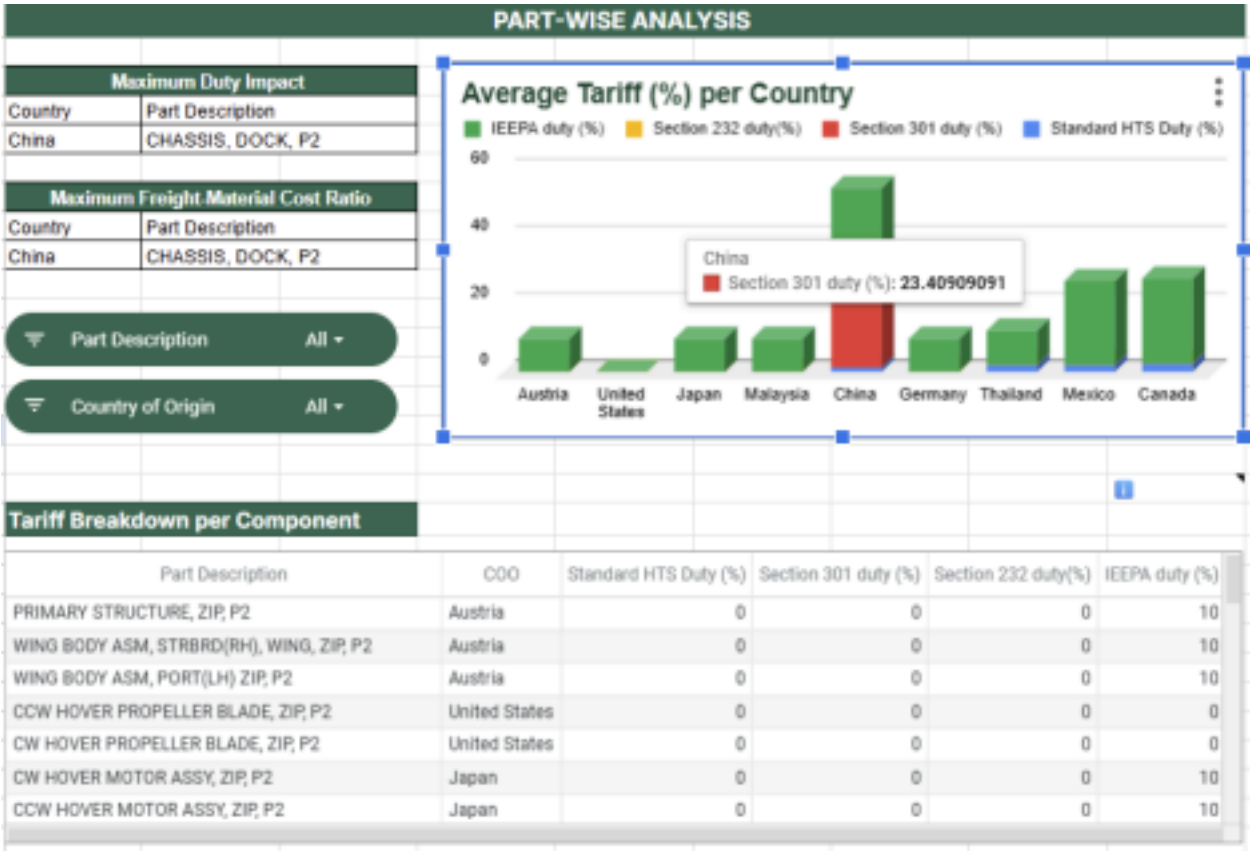
Total Landed Cost Breakdown by Country



System: All

Number of Parts ordered per Country

	COO	Quantity
1	China	17
2	Thailand	11
3	United States	8
4	Japan	5
5	Austria	4
6	Malaysia	4
7	Mexico	2
8	Canada	2
9	Germany	1



Part Description	COO	Standard HTS Duty (%)	Section 301 duty (%)	Section 232 duty(%)	IEEPA duty (%)
PRIMARY STRUCTURE, ZIP, P2	Austria	0	0	0	10
WING BODY ASM, STRBRD(RH), WING, ZIP, P2	Austria	0	0	0	10
WING BODY ASM, PORT(LH) ZIP, P2	Austria	0	0	0	10
CCW HOVER PROPELLER BLADE, ZIP, P2	United States	0	0	0	0
CW HOVER PROPELLER BLADE, ZIP, P2	United States	0	0	0	0
CW HOVER MOTOR ASSY, ZIP, P2	Japan	0	0	0	10
CCW HOVER MOTOR ASSY, ZIP, P2	Japan	0	0	0	10

Pivot table is included to analyse the costs further:

System	Country of Origin	Part Description	Total Material Cost	Total Freight Cost	Total Duty	Total Landed cost
Total			0	0	0	0
Aircraft	Austria Total		$5,600.00	$1,280.00	$720.45	$7,600.45
	China Total		$2,460.00	$60.00	$1,434.48	$3,954.48
	Japan Total		$2,100.00	$130.00	$233.50	$2,463.50
	Malaysia	FLIGHT COMPU	$600.00	$80.00	$71.21	$751.21
	Malaysia Total		$600.00	$80.00	$71.21	$751.21
	United States Total		$4,000.00	$400.00	$0.00	$4,400.00
Aircraft Total			$14,760.00	$1,950.00	$2,459.64	$19,169.64
Dock	Canada Total		$330.00	$140.00	$130.31	$600.31
	China Total		$1,565.00	$131.00	$945.24	$2,641.24
	Malaysia	AC BULKHEAD	$150.00	$30.00	$18.85	$198.85
		ASSY, CONTRO	$500.00	$50.00	$57.59	$607.59
	Malaysia Total		$650.00	$80.00	$76.44	$806.44
	Mexico Total		$2,350.00	$440.00	$772.03	$3,562.03
	Thailand Total		$1,200.00	$80.00	$134.03	$1,414.03
Dock Total			$6,095.00	$871.00	$2,058.05	$9,024.05
Zip Total			$3,960.00	$360.00	$1,064.27	$5,384.27
Grand Total			**$24,815.00**	**$3,181.00**	**$5,581.96**	**$33,577.96**

Improvements:

- Automated HTS duty fetch via API (e.g., U.S. ITC, CustomsDuty API).
- Web scraping or Python scripts for up-to-date Section 301/232/IEEPA duties. ●

Use data validation and error flags in Google Sheets to avoid silent errors.

Current Data Flow

Dashboard Limitations & Scalability

- Current Setup:
  The existing system is built in Google Sheets and supports basic functionalities such as slicers and pivot tables. While it provides a solid foundation for data analysis, it lacks more advanced capabilities that are essential for deeper insights and operational efficiency. Limitations include the absence of interactive part-level drilldowns, which restricts detailed exploration of data. Real-time API integration is also missing, preventing seamless data updates and automated workflows.

- Scaling suggestion:
  I suggest moving the current setup to a more advanced BI tool like Power BI, Mode, or a similar platform, and connecting it directly with ERP systems. This would help automate data updates, improve tracking of landed costs in real time, and make the overall system more scalable and efficient.

Cost Reduction Strategy

1. Country of Origin Optimization

Avoid sourcing from China, Mexico, and Canada, as these countries incur significantly higher landed costs due to elevated tariffs. While the standard HTS duty may be moderate for some parts, Section 301 tariffs on Chinese goods and high IEEPA surcharges can raise the total duty burden by 20–50% or more. This makes parts from these regions disproportionately expensive, even when base material costs appear reasonable. A more cost-effective alternative would be to source from low-duty countries such as Japan, Malaysia, or the United States, where tariffs are generally lower or even exempt. However, this strategy requires careful due diligence to ensure that alternative suppliers can meet quality standards, maintain reliable lead times, and offer competitive freight costs without compromising on operational efficiency..

2. Tariff Engineering

Reevaluating the HTS classifications of high-duty parts can be a strategic way to legally reduce overall tariff exposure. Often, components are assigned broad or default classifications that carry higher duty rates, when in fact, they may qualify under more specific or technical categories with lower applicable tariffs. By working closely with a licensed customs broker, we can audit current classifications and identify opportunities for reclassification in compliance with the U.S. Customs regulations.

3. Disassembly & Repacking

To avoid higher duties on finished goods, one effective strategy is to ship products as parts instead of fully assembled items. This involves breaking down high-duty assemblies into kits or individual components, which are typically subject to lower tariff rates. After importation, these parts can be reassembled domestically or through third-party logistics providers. While this approach can significantly reduce duty costs, it introduces tradeoffs such as increased labor, additional coordination efforts, and more complex packaging requirements.

4. Mode-of-Transport Optimization

This aims to lower freight costs, particularly for parts with a high freight-to-material cost ratio. This can be achieved by shifting non-critical parts from expensive air freight to more cost-effective ocean or consolidated shipments. Additionally, identifying low-volume, high-freight parts and combining their shipments across multiple systems helps maximize shipping efficiency. These actions reduce the per-unit shipping cost, which is especially beneficial for lightweight or bulky parts, ultimately improving overall logistics cost management.