**Background Information:**
Bombardier Aerospace (BA) is experiencing delays with the Q400 aircraft supply chain. BA outsources their Q400's fuselage manufacturing to a Chinese aircraft manufacturer to reduce costs and the work done internally, however they are not meeting demand on time.

**Design Goals:**
Conducting a Lean Analysis and building a Value Stream Map to help the Chinese supplier identify problems and provide recommendations to improve the Q400 supply chain.

**Method and Analysis:**
Our methodology was to conduct Value Stream Analysis. • Interviewed Supplier personnel to obtain major processes, KPIs and general problems. • Followed specific work orders to gather downtime metrics and identify critical processes that caused problems. • Categorized Problems into High Medium and Low Levels.

**Value Stream Map (VSM)**
VSM is a pictorial representation of a manufacturing process used to analyze and design the flow of materials and information required to bring a product or service to a consumer.

**Step 1: Draw Full VSM**

**Step 2: Identify Bottleneck problems in flow**

**Step 3: Extract Value Adding Time for Load balancing**

**High Level Problem: Major Delay Causes**
- Delays and defects from suppliers
- Tolerance Analysis Issues (Stack-ups)

**Medium Level Problem: Load Balance**
- Unequally loaded work

**Low Level Problem: Sources of Waste (Lean)**
- Redundant backwards flow. (Wasted Motion)
- Access to Tools, neat Environment(5S)
- Improve stoppage and start-up procedures

**Current Situation**
- Main concern: fuselage delivery delays from supplier.
- 3 fuselage components that are assembled by the supplier are: Forward-, Mid- and Aft-Barrels.
- BA has increased the statements of work to include Equipping, Joining and Stuffing.
- Project barriers: lack of metrics for analyses, line of communication(secondary client), off-site work.

**Future Work**
- Deliver suggestions to BA including future state VSM, complete load balance, and complete plant layout.

**Acknowledgments**
Sponsored by Bombardier Aerospace Inc. Supervised by Professor M.S. Fox