

# Lessons from the Legacy Aerospace Supply Chains

Presented at -

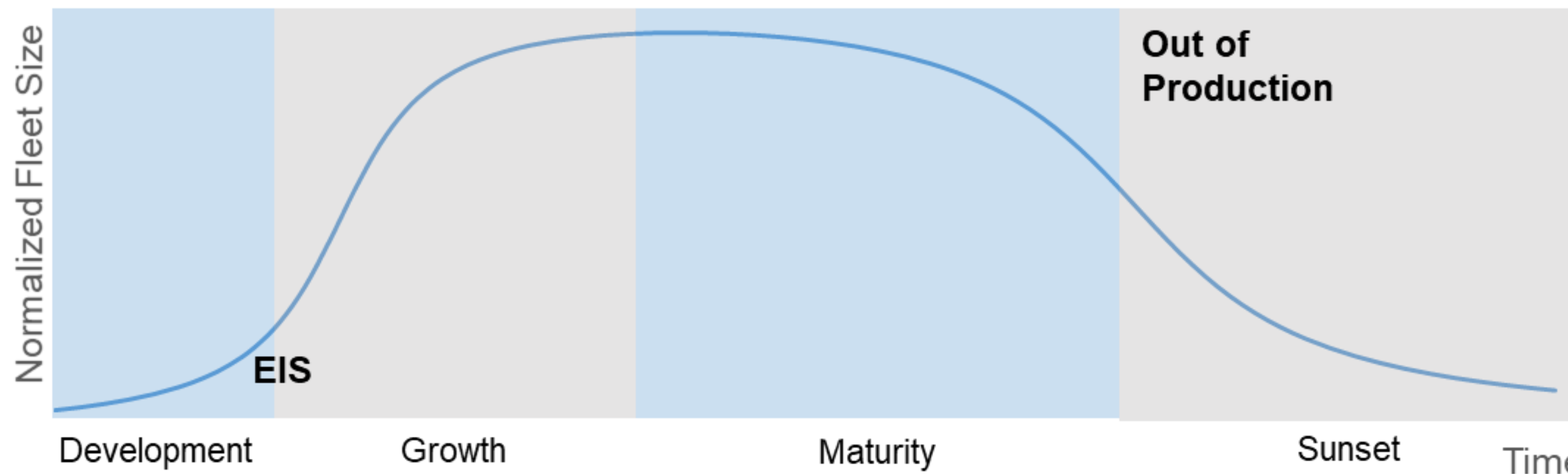


**ADVISORY  
AEROSPACE**



# Technology will impact OEM-Supplier Dynamics

Lifecycle of Airframe/Engine



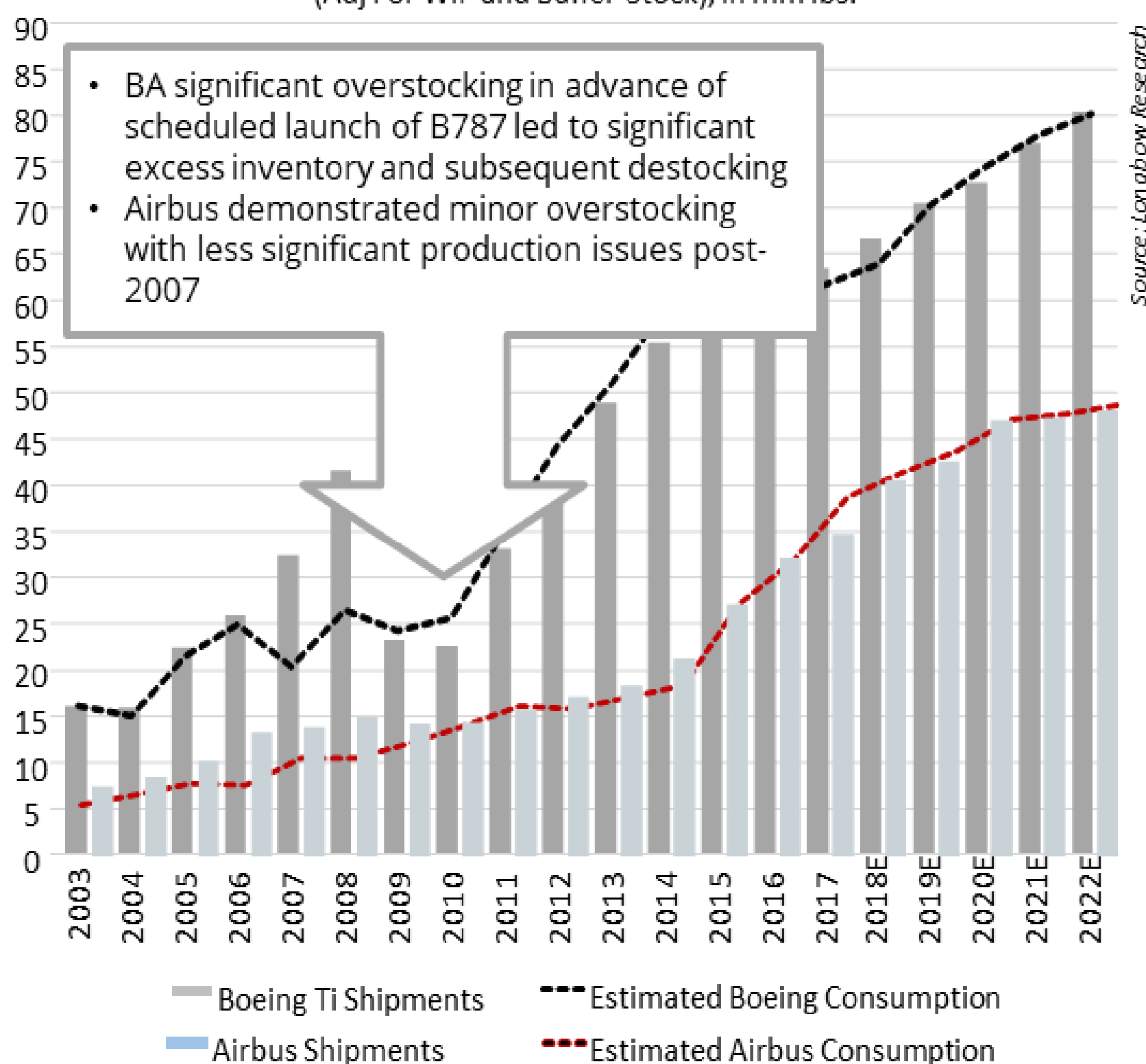
	Development	Growth	Maturity	Sunset
OEM's KPI	<ul style="list-style-type: none"> <li>Proximity</li> <li>Turnaround Time</li> <li>Engineering Capability</li> </ul>	<ul style="list-style-type: none"> <li>Capacity</li> <li>Delivery &amp; Quality</li> <li>Multi-source (domestic) for de-risk</li> <li>Short LTA's for flexibility</li> </ul>	<ul style="list-style-type: none"> <li>Aggressive cost reduction</li> <li>Move to low-cost</li> </ul>	<ul style="list-style-type: none"> <li>Delivery</li> <li>Quality</li> <li>Less aggressive on cost</li> </ul>
Supplier's Options	<ul style="list-style-type: none"> <li>Win as much content as possible</li> <li>Relationship with Engineering</li> </ul>	<ul style="list-style-type: none"> <li>Invest for delivery</li> <li>Long LTA's for security</li> </ul>	<ul style="list-style-type: none"> <li>Internal cost-out</li> <li>Process improvement</li> <li>Internal low-cost source</li> <li>Maintain market share</li> </ul>	<ul style="list-style-type: none"> <li>Capacity for highly unpredictable demand</li> <li>Maximize margins</li> <li>Re-engineer/repair tooling</li> </ul>
Supplier Margin	<ul style="list-style-type: none"> <li>High</li> </ul>	<ul style="list-style-type: none"> <li>Medium</li> </ul>	<ul style="list-style-type: none"> <li>Low</li> </ul>	<ul style="list-style-type: none"> <li>High</li> </ul>
LCS Threat	<ul style="list-style-type: none"> <li>Low</li> </ul>	<ul style="list-style-type: none"> <li>Low-Medium</li> </ul>	<ul style="list-style-type: none"> <li>High</li> </ul>	<ul style="list-style-type: none"> <li>Low</li> </ul>



# Inefficient Stocking / De-Stocking is a norm

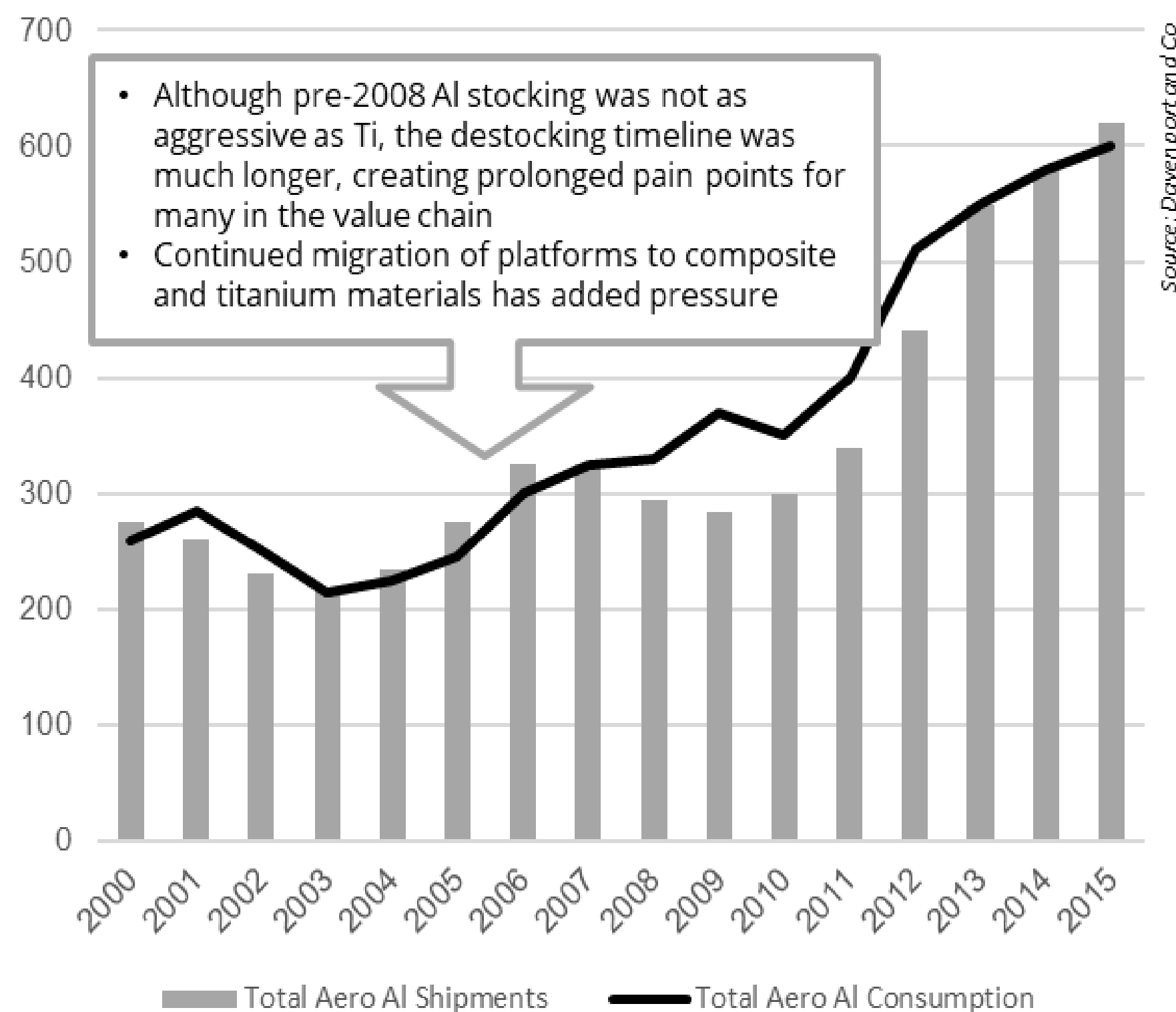
## Boeing/Airbus Ti Demand and Consumption

Projected Boeing Titanium Purchasing Vs. Consumption  
(Adj For WIP and Buffer Stock), in mm lbs.



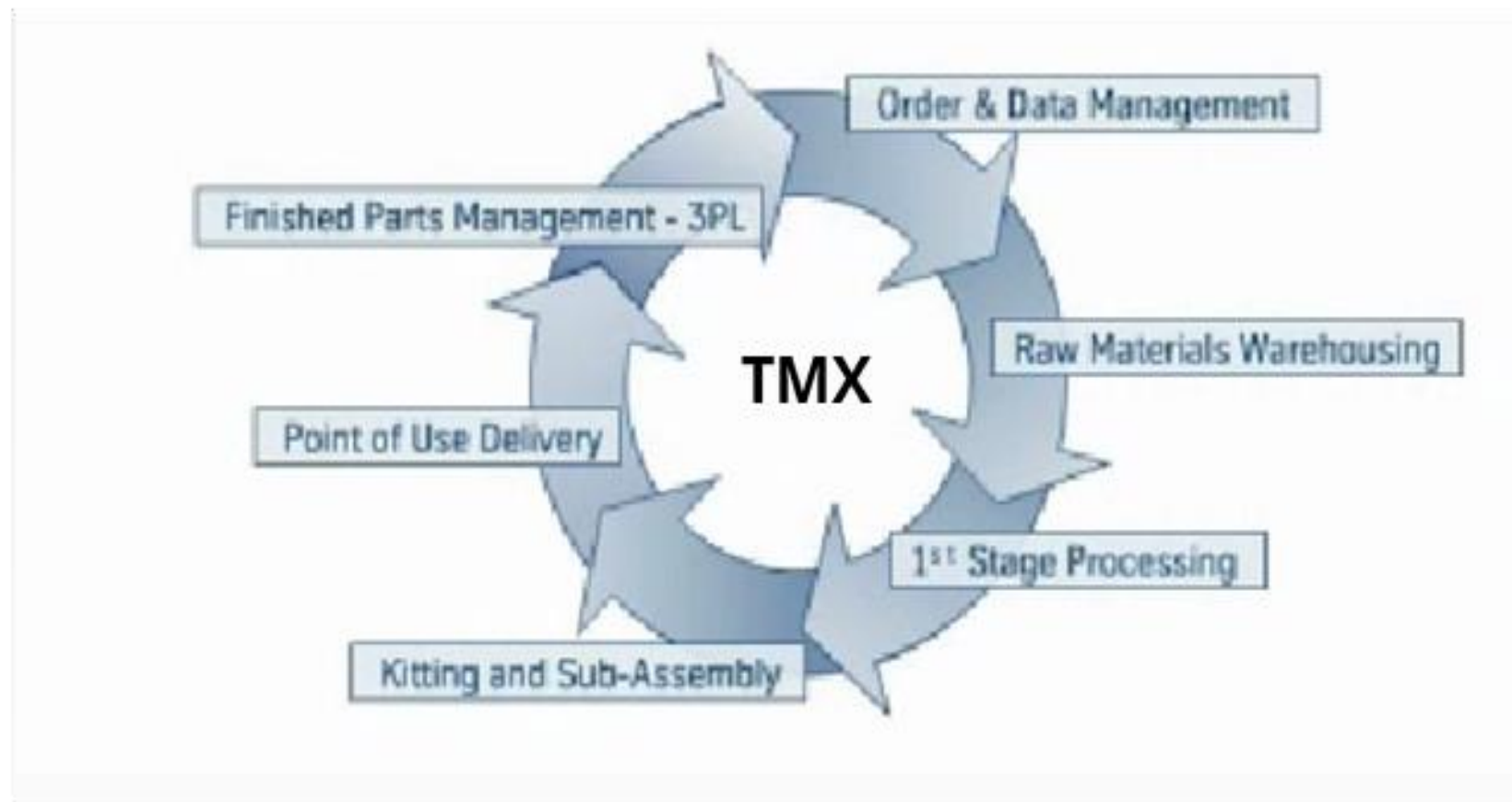
## Aero Al Demand and Consumption

Est Total Aero Al Demand Vs. Consumption (in mm lbs.)

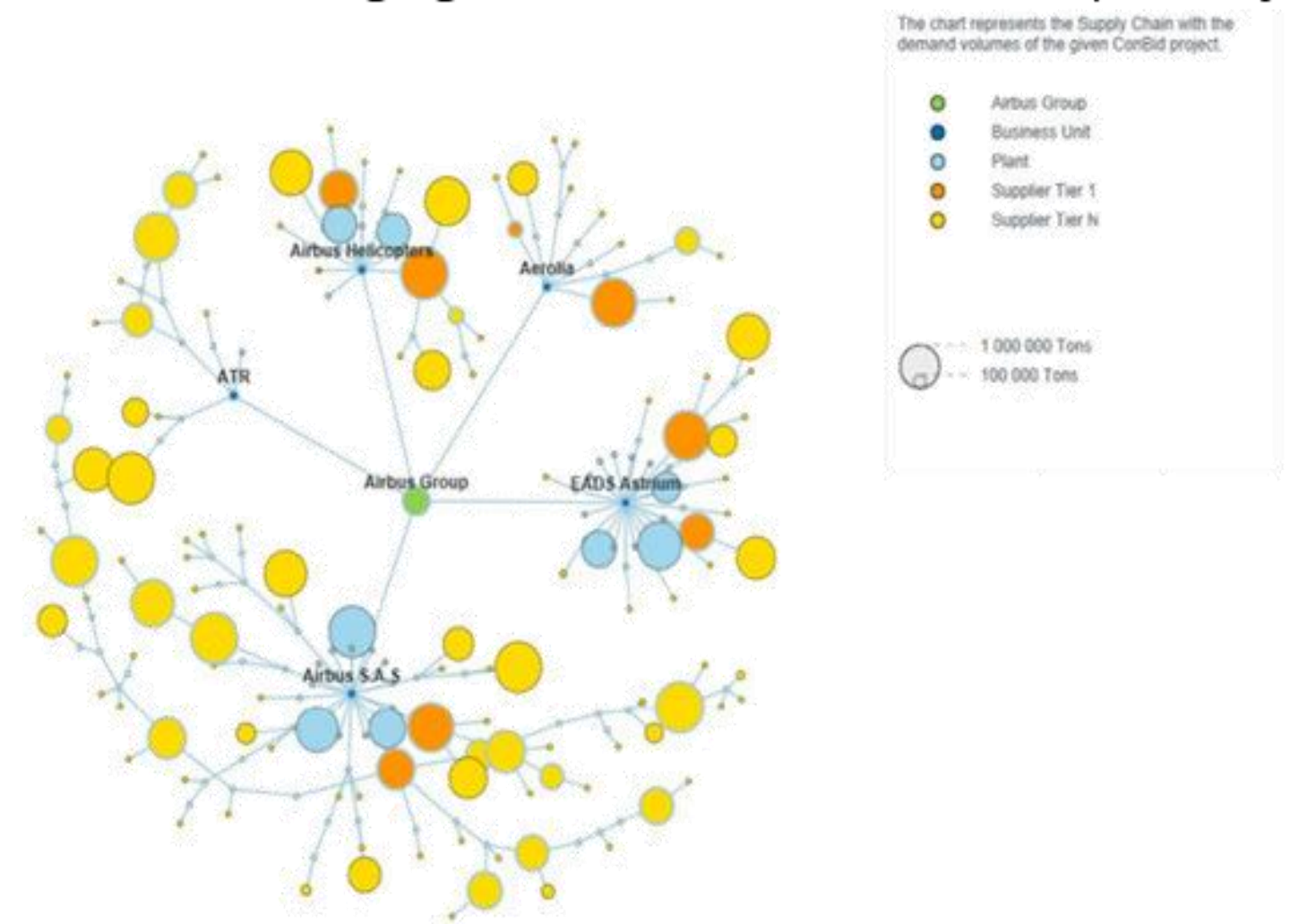


# BA relies on Annual Planning while AB relies on Technology

- Boeing has used **TMX** (a ThyssenKrupp subsidiary) to be their agent in planning and controlling supply chain material flow
- Annually (each June), TMX forecasts material requirements for the next 12 months, places orders for Boeing; sub-tiers buy material from TMX rather than the manufacturer
- TMX responsible for yearly purchasing from mills for the integrated supply chain and delivering value added material



- Airbus **ConBid** system tracks material flow through each tier for specific projects ensuring real time visibility of stocking, for a 6 month and a 12 month planning horizon
- Each sub-tier can see bookings and baseline demand before placing order to prevent over or under stocking
- No central controlling agent like TMX but full transparency





# Supply Chain Management Circa 2000

 **P&WC PORTAL**

HOW TO REGISTER   NEED HELP?   ENGLISH

**LOGIN**  
Username  [Forgot Your User Name?](#)  
Password  [Forgot Your password?](#)  
**ENTER**

**IMPORTANT MESSAGE**

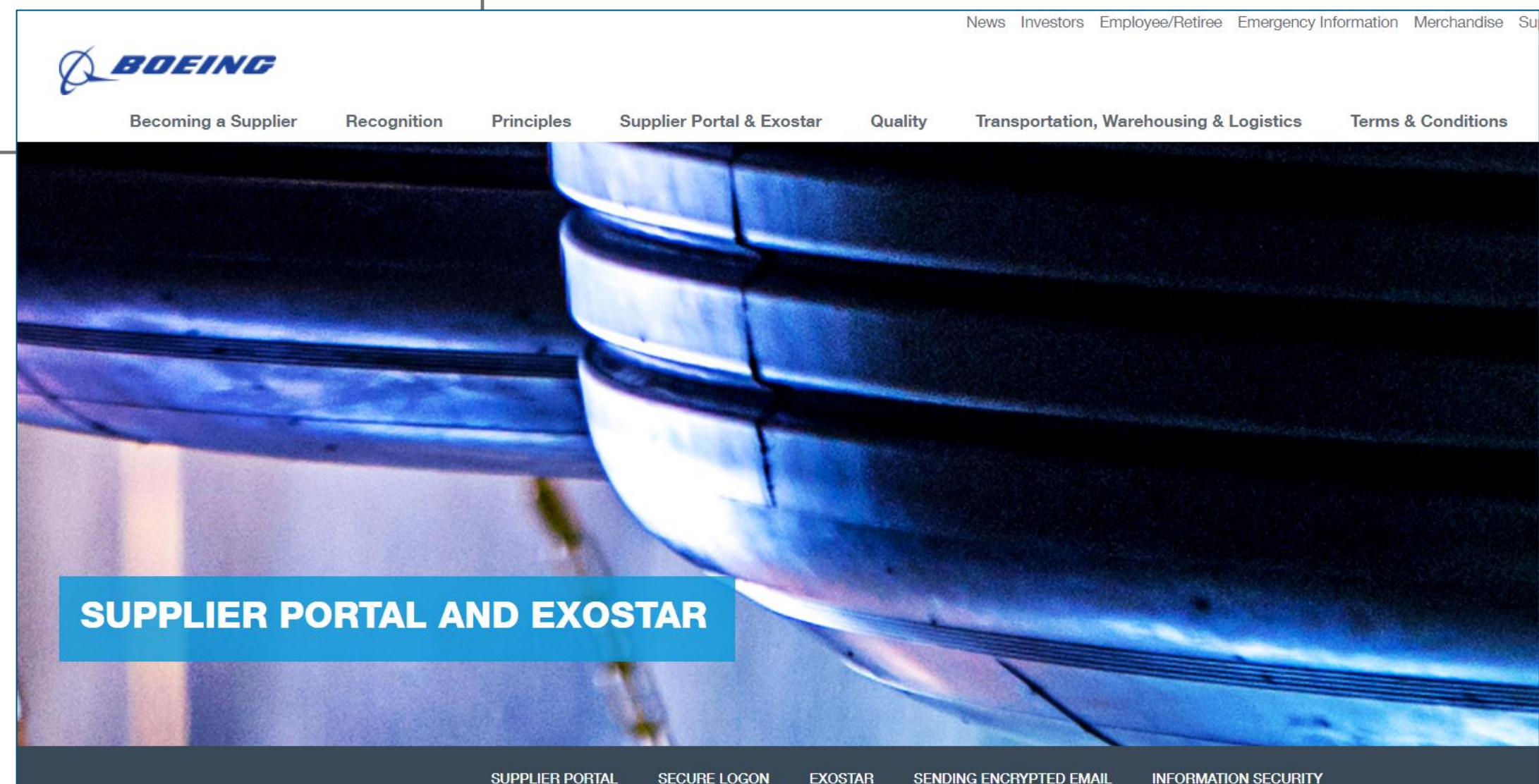
**The P&WC Supplier Portal offers the following services:**

- Delivery and capacity information (Forecast Report, Delivery Confirmation & ATS/ASN)
- Engineering information (Drawings -engine parts & tooling)
- Quality information (ProCert Application, Revision Status Index & Quality Notifications)
- Financial information (Accounts Payable report)

In order to access & use the P&WC Supplier Portal, you must be an active, authorized supplier to P&WC, and you must know your P&WC supplier code. If you are not aware of this supplier code, please contact your P&WC representative.

**Interested in becoming a supplier?**  
We appreciate your interest in P&WC. We invite you to add your company profile to our central database, where we keep a record of potential suppliers. We consult this database when a new business need arises at P&WC. P&WC makes no commitment, and the opportunity provided to use this website does not constitute an offer by P&WC, to contract with a company. [Click here to access the Potential Supplier Database](#)

- Static supplier portals
- OEM driven e-commerce portals failed
- Increased Overhead at both ends
- Secure and traceable communications





# Supply Chain Management Circa 2010



- Command Centers
- Not truly connected suppliers
- Visibility of macro events
- No improvement in part visibility



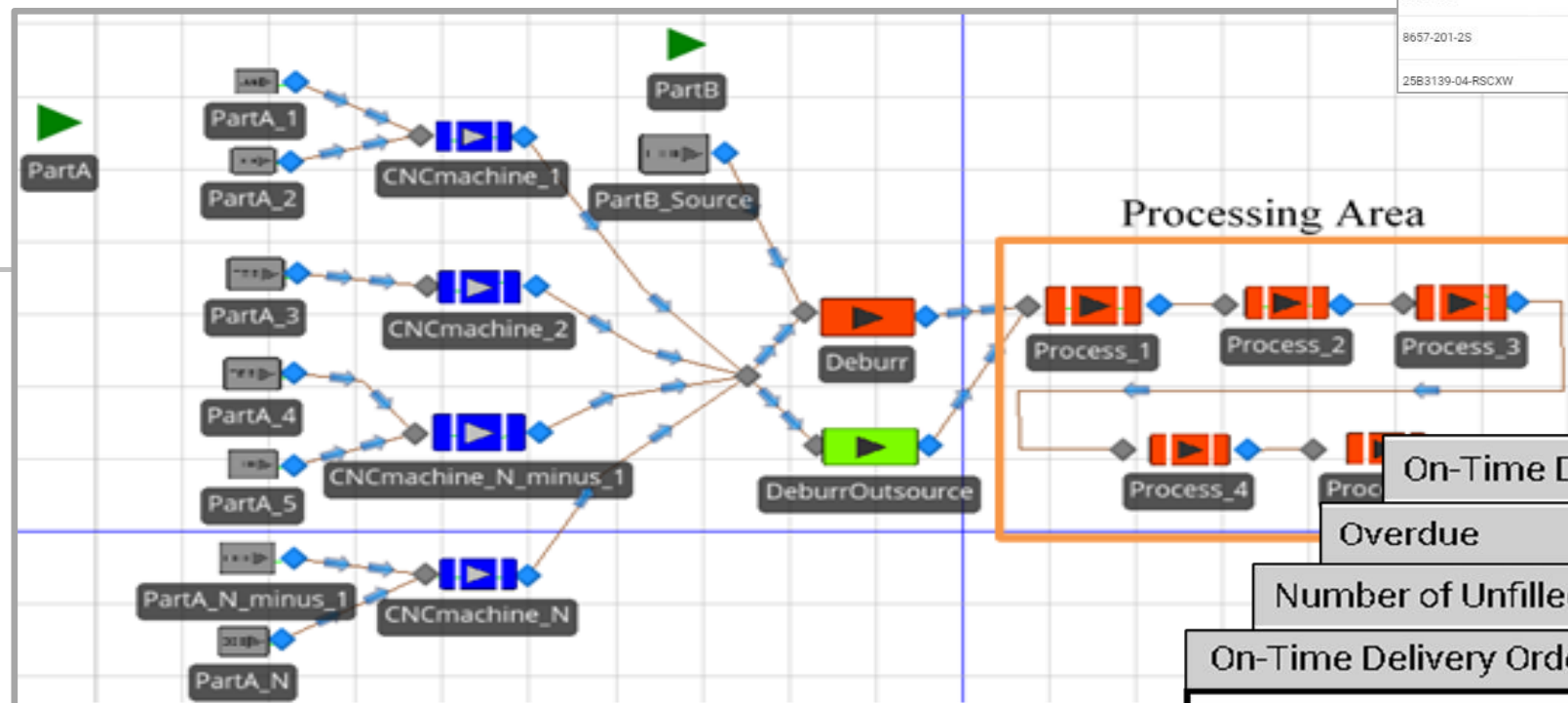


# Supply Chain Management 4.0

- Full Supply Chain Visibility

*Proceedings of the 2016 Industrial and Systems Engineering Research Conference  
H. Yang, Z. Kong, and MD Sarder, eds.*

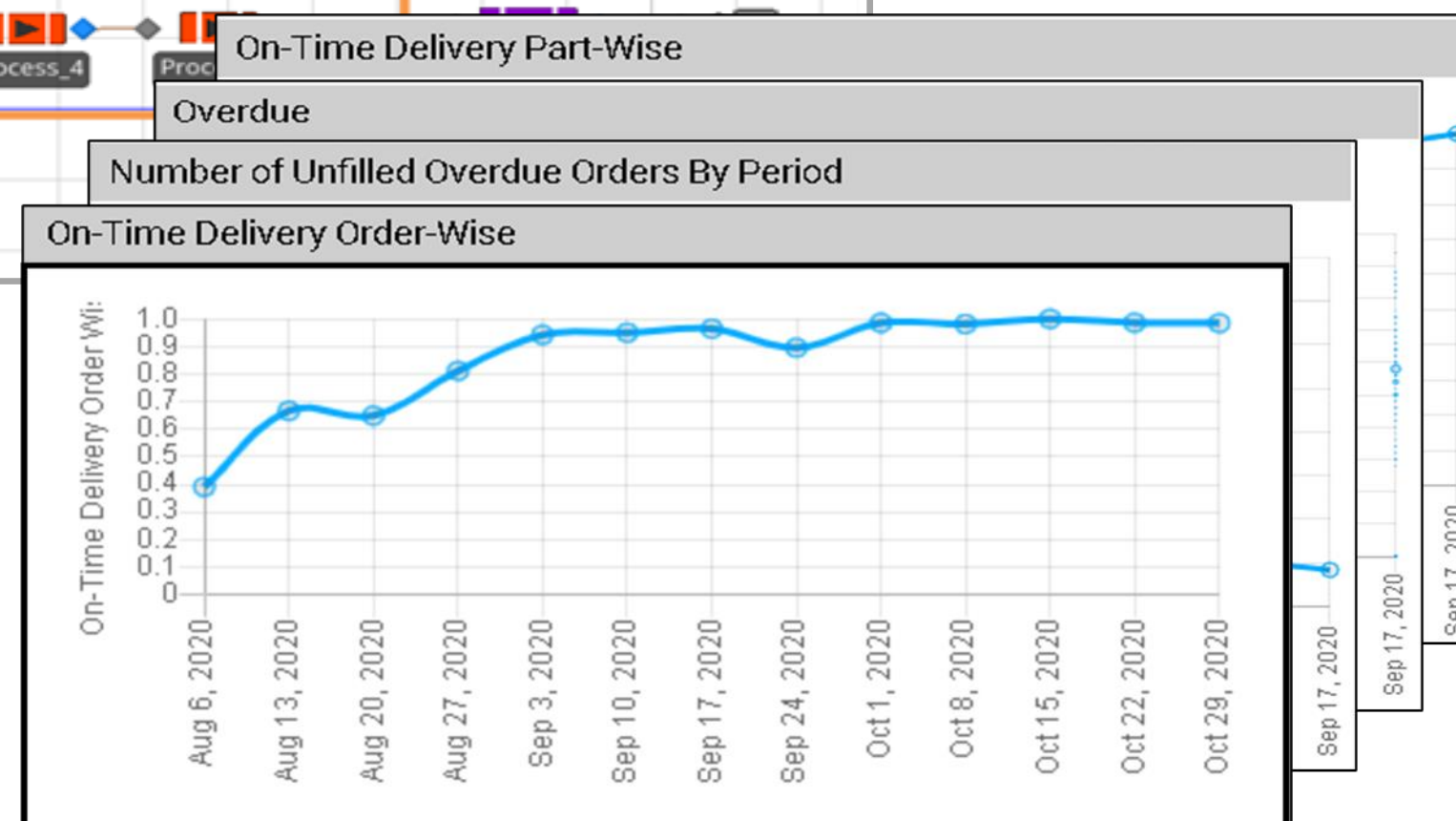
## Discrete-Event Simulation For Shop Performance Improvement Under Complex Relationship of Material Inputs to Assembled



- Optimization

ADVISORY AEROSPACE															DASHBOARD										SUMMARY										OPERATIONS										QUALITY										SUPPLY CHAIN										Search - Filter - Group									
Part	Flag	Risk	Overdue	Sep 10	Sep 14	Sep 21	Sep 28	Oct 5	Oct 12	Oct 19	Oct 26	Nov 2	Nov 9	Nov 16	Nov 23	Nov 30	Dec 7	Dec 14	Total	Inventory	Work in Progress	Inventory	Work in Progress	Open Demand																																																		
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- Modeling & Simulation



Thank you.

**ADVISORY  
AEROSPACE**

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