



Aerospace & Defence

Aerospace Supply Chain Management: Opportunities for Innovation

October 14, 2009

ADVISORY

Agenda

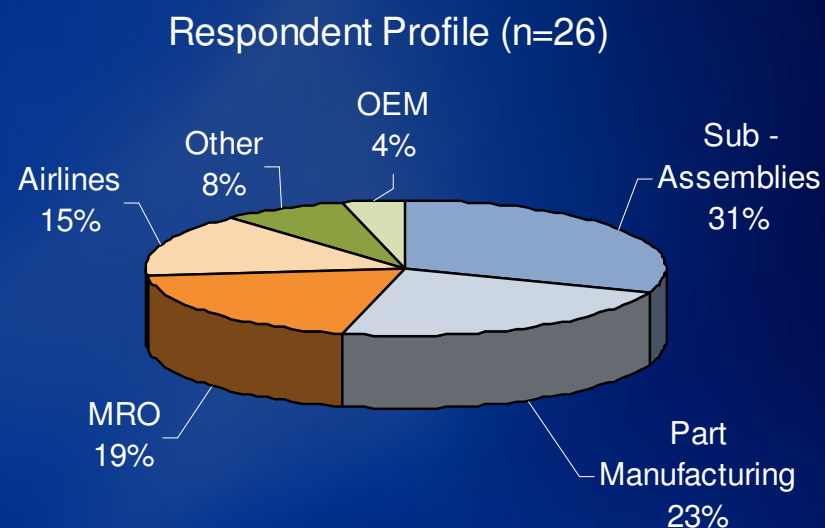
- **Background & Methodology**
- **General Observations**
- **Supply Chain Structure**
- **Trading Dynamics**
- **Supply Chain Operations**
- **Gaps & Opportunities**
- **Conclusion**

Background

- KPMG recently conducted an Aerospace Supply Chain analysis for EDC
- Study objectives:
 - Understand aerospace supply chain dynamics
 - Who sells to whom and how they interact
 - Understand supply chain management practices and initiatives
 - Identify cross-border trade issues that might be influenced by policy
- Analyse Gaps and Opportunities:
 - Identify services gaps
 - Highlight structural and systemic opportunities for new product development, program development and engagement strategies

Methodology & Respondent Profile

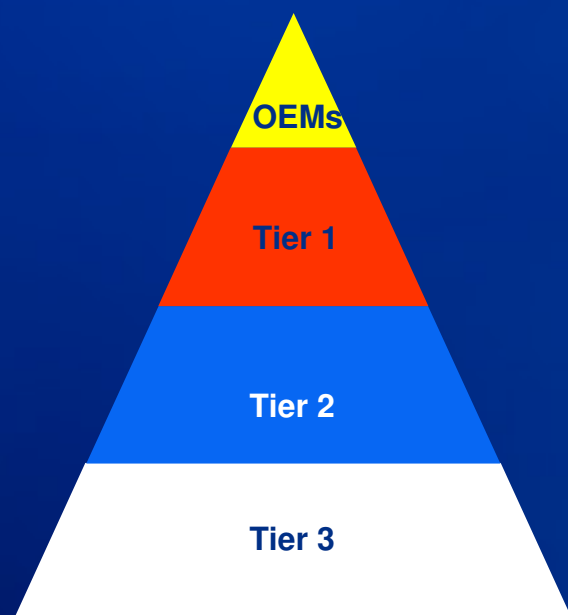
- Civil aviation focus
- Methodology
 - Secondary research
 - Qualitative, interview-based
- Target senior decision makers
 - Supply chain, procurement and finance



General Study Observations

- Small overall supply chain group in Canada
 - Approximately 400 total firms
- Industry comprised of low volume, high mix products and services
 - High cost contributors include stringent specification and compliance requirements
- Aircraft program lifecycle impacts supply chain innovation
 - Long-term programs/cost factors
- OEMs moving away from transactional relationships
 - Increased focus on partnerships and risk sharing in new programs
- North America-centric philosophy remains prevalent
 - Increased sourcing from low-cost countries

Industry Structure



Supplier Levels and Focus

Design (develop) and assemble or manufacture complete aircraft

Sub assemblers – major assembly and/or manufacture of sections of aircraft without designing or assembling complete units (including engines, landing gear etc)

Aerospace-focused suppliers

Broader industry suppliers –specialize in the production of particular components and in specific processes, e.g. raw material, electronic components

- Barriers to entry high
 - Prohibitive switching costs; Closed loop lifecycle programs
- Identification of two core supply chains that typically furnish a single customer group (airlines)
 - Aircraft manufacturing; Maintenance, Repairs and Overhaul (MRO)

Supply Chain Maturity

Maturity Level	Key Characteristics	Typical Canadian Company
Controlled	<ul style="list-style-type: none"> • SCM function is controlled, predictable and managed • Process-oriented SCM functions as opposed to traditional siloed functions • Supply chain becomes a network of collaborators as opposed to competitors • Inter-enterprise IT integration • High degree of trust and dependency 	<ul style="list-style-type: none"> • Some Global OEMs
Managed	<ul style="list-style-type: none"> • SCM seen as part of corporate strategy • Tools and processes exist for cross-firm, cross-functional collaboration • Very strong intra-corporate IT integration • Strong supply chain visibility • Excellent communication between buyers and suppliers 	<ul style="list-style-type: none"> • Multi-national MRO • Tier 1 • Progressive Tier 2 • Multi-national Airlines
Defined	<ul style="list-style-type: none"> • Moderate internal collaboration across product lines • Moderate process structure • Performance management in place • Some IT integration • SCM is tactical function 	<ul style="list-style-type: none"> • Most tier 2 • Small MRO
Ad hoc	<ul style="list-style-type: none"> • Limited internal processes • Ad hoc internal collaboration • Limited planning • Limited automation • Inconsistent customer satisfaction 	<ul style="list-style-type: none"> • Tier 3 and most SMEs

Trading Dynamics

- Exports
 - North American market is fixed focus for suppliers
 - OEMs operate in a global market place
 - Significant dependence on financing to conclude sales
 - Programs preferential to US suppliers hamper Canadian market penetration
- Imports
 - High mix / low volume limits domestic supply (e.g. titanium machining)
 - Cost Country Sourcing (LCCS) interest increasing with limitations

Border and Trade Compliance Issues

- No competitive advantage to be gained through strategic investment in compliance management
 - Limited interest in tariff engineering
 - Considered an operating function
 - Compliance and supply chain team are frequently highly integrated
 - Combination of internal and 3PL activities
- Sector is regulation intensive
 - ITAR
 - CGP
 - EU hazardous goods legislation
- Limited adoption of duty- deferral and drawback programs
- DDU (Delivered Duty Unpaid) most common Incoterm

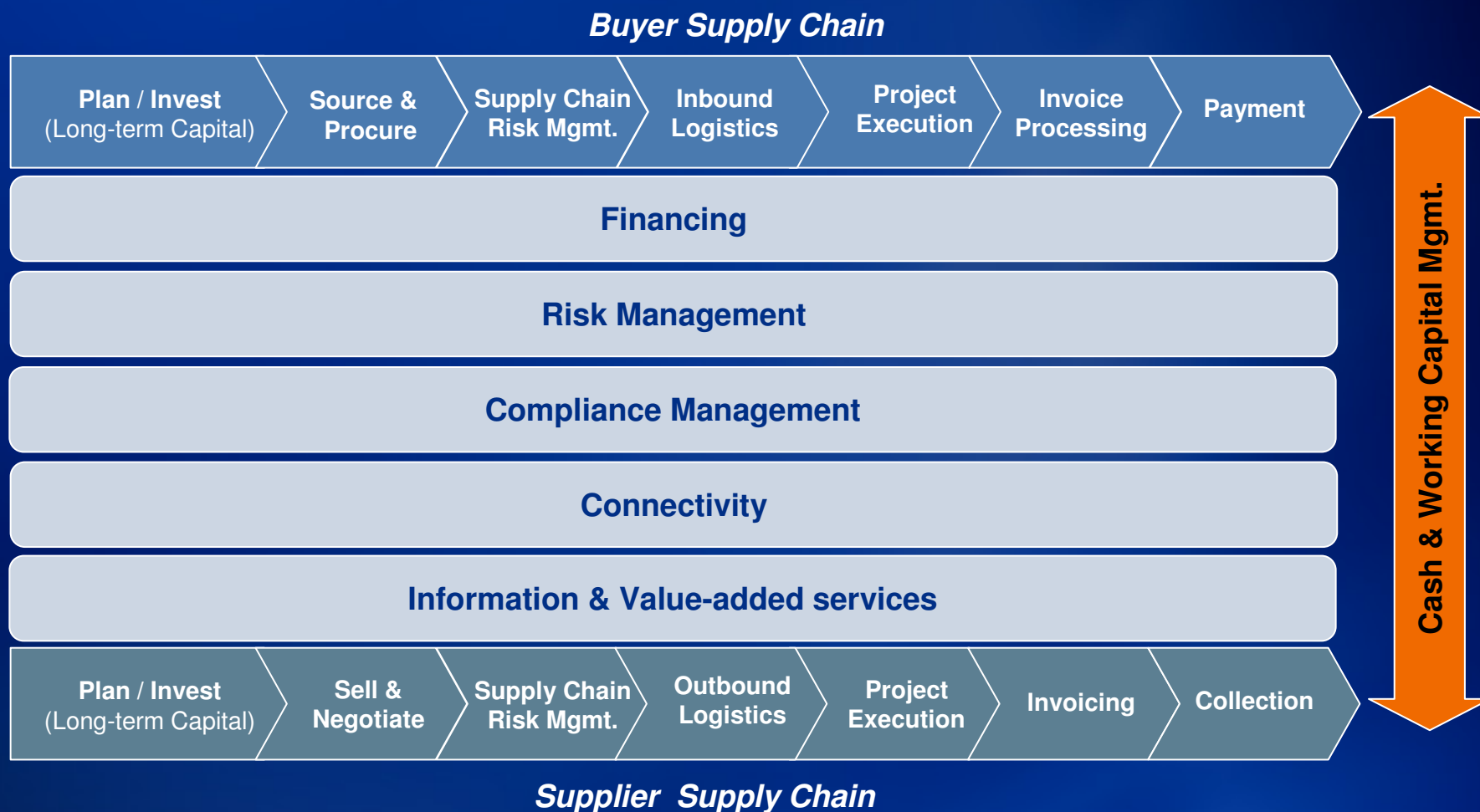
Supply Chain Operations - Upstream

- Key upstream foci are
 - Reliability - Vendor Quality Management & Delivery time critical
- Risk management is critical
 - Increasing use of umbrella agreements by OEMs to pass risk upstream
 - Tier 1 – Sub-assembly firms also passing risk upstream
- Continued pressure on lower Tiers to assume inventory costs and risk
 - VMI / inventory financing is an emerging practice
 - Managing obsolescence of parts increasingly important
- Relationship building is key focus with strategic suppliers
 - Level of supplier integration with OEMs depends on aircraft program
- Limited adoption of advanced management practices
 - e.g. Six Sigma, working capital management, COGS reductions etc.

Supply Chain Operations - Downstream

- OEMs make significant investment to participate in new programs
 - Bidding alone is very expensive
- Long lead times from OEMs
 - Scheduling and meeting deliveries is a core challenge
 - Visibility represent a key challenge
- Airlines moving to total cost of ownership model
 - Airlines do not pool inventory with one another

The Supply Chain View



Gap Analysis

Buyer Supply Chain



Financing - **Inventory financing, SR & ED tax credits, Supply Chain Finance**

Risk Management - **Supplier Performance, Supply Chain Disruption, IP protection, Credits Insurance**

Compliance Management - **ITAR costs, certification of products**

Connectivity - **Low level of cross-enterprise integration**

Information & Value-added services - **Sourcing support, SC/procurement skills**



Supplier Supply Chain



Structural Opportunities

- Increasing domestic capacity and capabilities
 - Expansion of international footprints
 - Enabling new entrants
- Catalyzing supply chain efficiency
 - Lean / Six Sigma / SCOR
- IT investment in cross-enterprise collaboration
 - Increase the “Canadian value proposition”

Tactical Opportunities

- Supply chain competency skills enhancement
- Risk management / mitigation
 - Credits insurance, vendor management processes
- Supply chain finance
- Inventory management
 - Financing, optimization techniques
- SR & ED tax credit program
- Better knowledge of duty-relief programs
- ITAR Support

Delivering Broad-Ranging Outcomes

Opportunity/ Initiative	End-user Benefit					
	Revenue Growth	Cost Reduction	Risk Mitigation	Working Capital / Financing	SC Technology / Process Innovation	Trade Facilitation / Information/
Structural Capacity/Capability Building Solutions						
Increase domestic capabilities	✓		✓	✓	✓	✓
Supply Chain Efficiency	✓	✓	✓	✓	✓	✓
IT & inter-enterprise collaboration	✓	✓	✓	✓	✓	✓
Tactical Transactional Support Solutions						
SC Mgmt skills enhancement		✓	✓		✓	✓
SC Risk Management		✓	✓	✓		✓
Supply Chain Finance		✓	✓	✓		
Inventory Management		✓		✓		
SR & ED tax credits	✓			✓		✓
Understand of duty relief programs		✓		✓		✓
ITAR support	✓					✓

Conclusion

- High mix, low volume and lifecycle of aircraft dominate the supply chain structure
- SC management innovation is generally slow moving
- International companies and OEMs expected to drive low cost country sourcing
- National regulations (i.e. ITAR, CGP etc.) impact the sector
- Opportunities abound by taking a supply chain view

Strategies For Recovery – Final Thoughts!

- Restructurings
- New Supplier Agreements
- Working Capital and Cost Optimization
- Global Competitiveness