

China's Transformation and the Future Merits of China Procurement

- Why, What and How?

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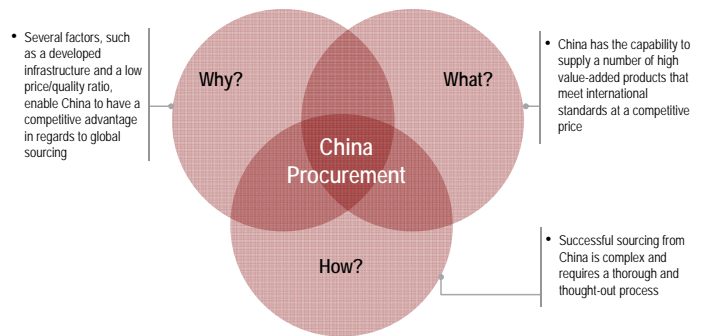
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The Beijing Axis - China-focused International Advisory and Procurement



- Founded in 2002; has successfully worked with many small to large international and Chinese MNCs
- Operates in four synergistic, cross-border China businesses
- Provides services across various sectors, with a core focus on the MINING, RESOURCES, INDUSTRIAL ENGINEERING and OTHER SERVICES sectors
- Provides solutions to international firms as they act in unfamiliar territory in China/Asia and to Chinese/Asian firms as they venture out and 'go global'
- Committed to safety and sustainability, with solutions emphasising 'actions and transactions'

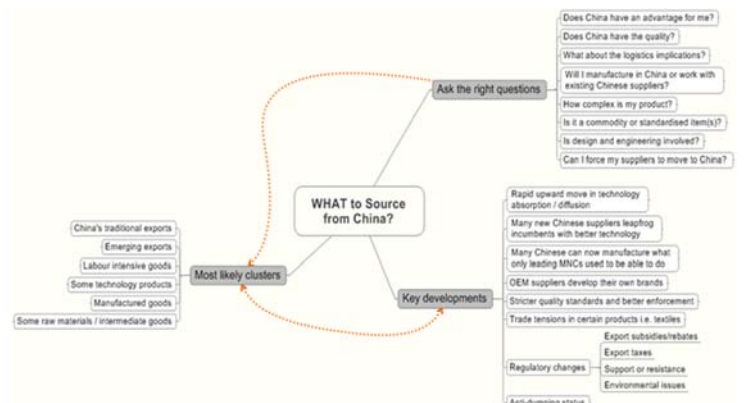
At the highest level, China is an attractive sourcing destination for various products. Nevertheless, three key questions require a thorough understanding – Why? What? and How?



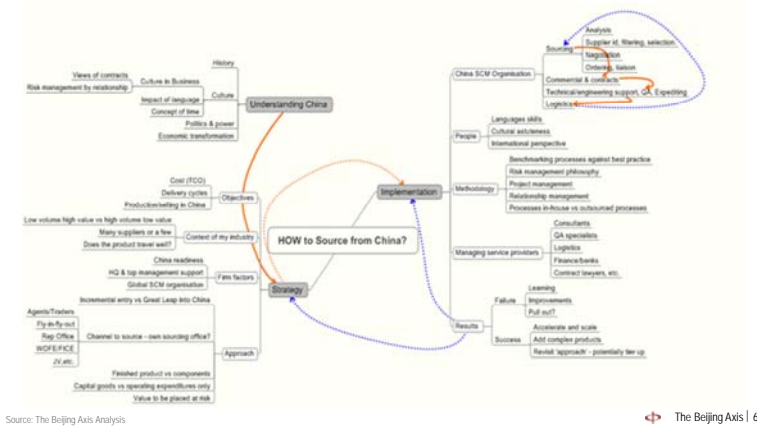
Why source from China?



What to source from China?



How to source from China?

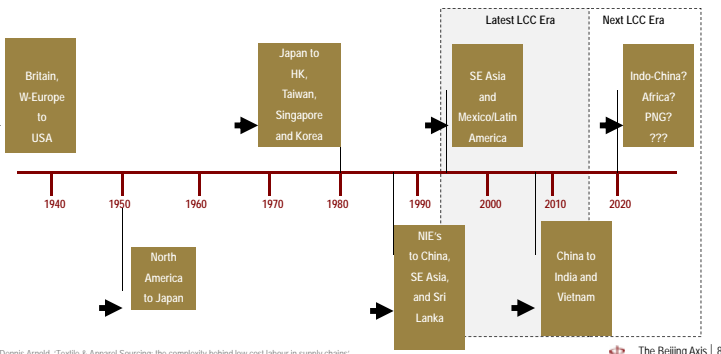


Agenda

1. Looking Ahead - the case for a China focus in future LCC sourcing
2. Best Practice: category focus, getting it right, overcoming the challenges and managing the many risks
3. Selected Case Studies
4. Final Word

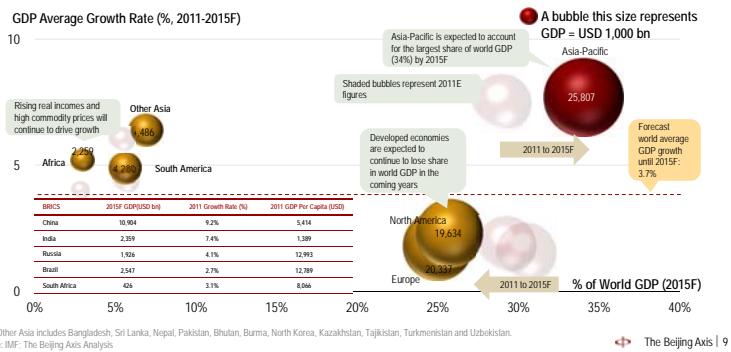
There is a dynamic global sourcing timeline. From Western-Europe to North America in the 50's, to Japan to NIEs, to new Dragons, to China, to India and Vietnam ... (and next Myanmar, Laos, Cambodia, Africa?)

Global Sourcing Migration (1940-2020)



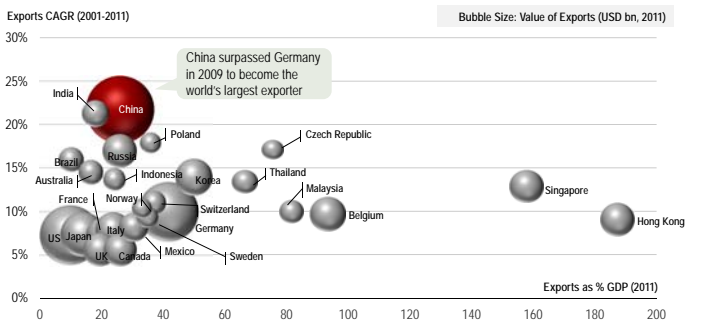
Emerging economies are outperforming the developed world. The Asia-Pacific region is expected to account for one third of world GDP by 2015

Regional GDP Comparison (2015F)



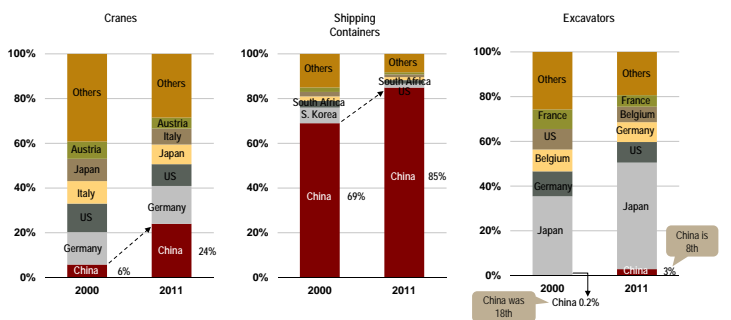
China is both the world's largest and fastest-growing exporter

World's Top 25 Exporters (USD bn, 2011)

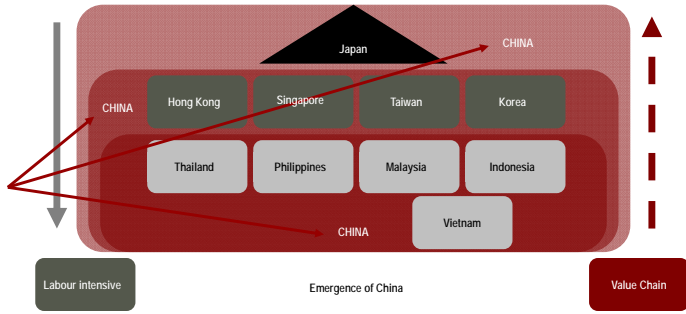


China is steadily increasing its share of mid-range capital goods exports – the list goes on...

China's Share of Global Exports (2000-2011)

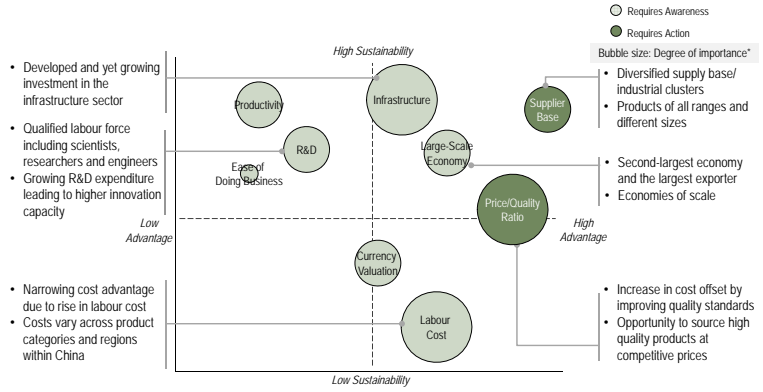


China is defying the 'flying geese formation' - As Japan outgrew a certain industry, it was passed on to Hong Kong, Taiwan, Singapore and Korea. Once these economies went up market, lower-end industries were passed on to the likes of Indonesia, Malaysia and Thailand...and China?



Source: The Beijing Axis Analysis

Various factors underpin China's attractiveness as a global sourcing destination

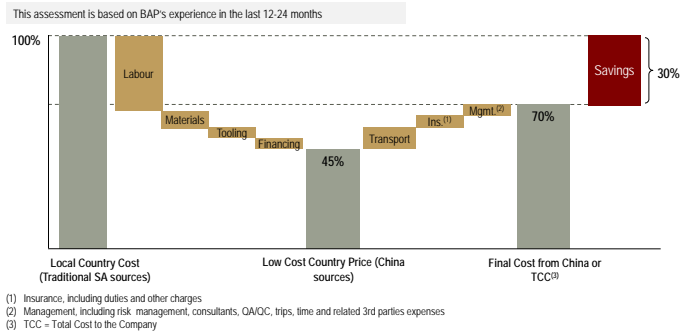


*Note: Degree of importance in making China as an attractive sourcing country. Sustainability represents the time horizon that China will hold its current position

Source: The Beijing Axis Analysis

There is a clear potential to reduce procurement costs when sourcing from China

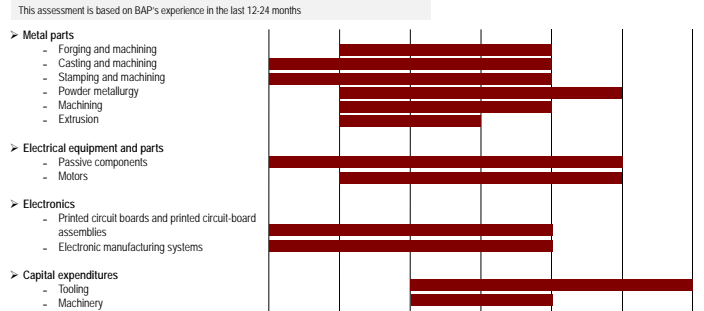
China Sourcing – Value Proposition & Anticipated Savings (%)



Source: Beijing Axis Procurement (BAP) RFO Data

The savings are particularly substantial for heavy machinery and equipment

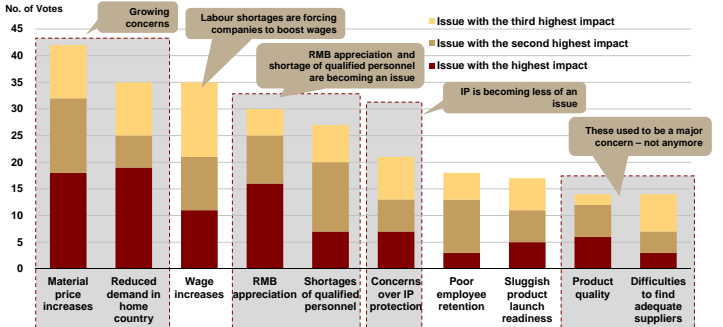
Range of Expected Savings on Products Sourced from China (%)



Source: Leading China Sourcing Practices: Beijing Axis Procurement (BAP) RFO Data

Recent surveys of foreign companies with operations in China showed that rising material and labour costs remain the major concern

Major Issues in Terms of Impact on Foreign Companies in China (2009-2010 survey)



Source: Booz & Co. China Manufacturing Competitiveness Study: The Beijing Axis Analysis

The upshot

- Leading mining and engineering players have transformed or are transforming their supply chains – China and other low-cost centres in Asia now form an integral part of their businesses
- Companies without global procurement strategies, will lose competitiveness over time
- China's manufacturing environment is undergoing a major shift from low-end high-labour content to high-value added manufacturing
- Integrating China into a CAPEX project or the MRO supply chain has its challenges but the benefits are real
- In selected categories new markets are emerging that will challenge China's supply position

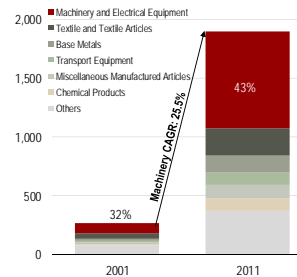
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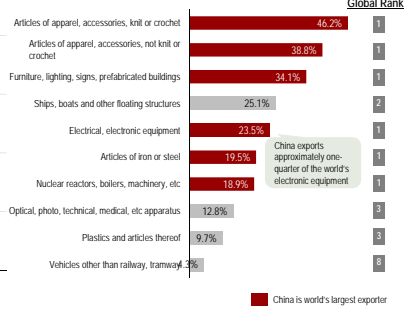
What

China is the leading exporter of many categories of goods, mainly electrical equipment and machinery – expect the trend to continue

Exports of Commodities Produced in China (USD bn, 2001-2011)



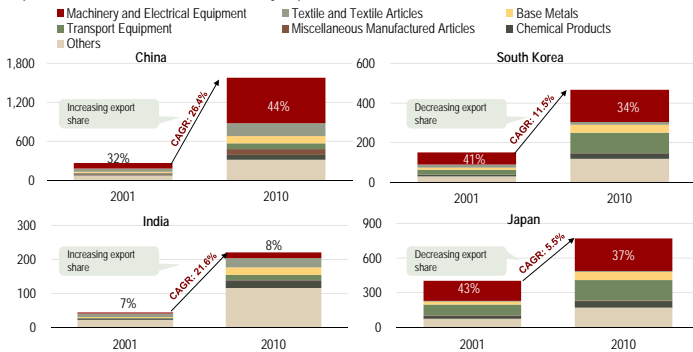
China's Top 10 Export Commodities and % Share of World's Total Exports (HS 2007 2-digits, 2011)



*Note: Based on HS-2 digit codes
Source: UN Comtrade; The Beijing Axis Analysis

Supply chain shifts that underpin industrial development in Asia are still evolving. Over the past decade, machinery exports' share has increased in China and India, whereas Japan and South Korea saw a decline

Export Growth of Commodities Produced by Top Asian Countries (USD bn, 2001-2010)

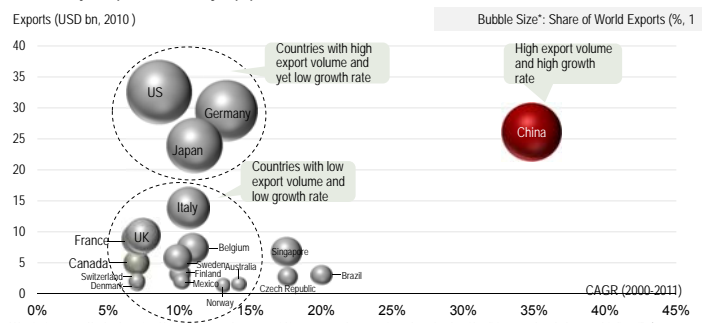


Source: UN Comtrade; The Beijing Axis Analysis

What

China has experienced the world's fastest export growth of heavy equipment in the last decade

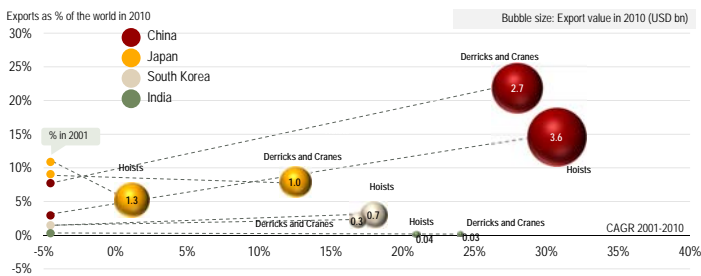
World's Major Exporters of Heavy Equipment (USD bn, 2011)



*Note: Bubble size is measured by the share of world total exports. For the purpose of this report 10 product categories and 12 HS codes with 4 digits were selected. These are Grinding Mills (8459, 8460), Kilns (8417), High Pressure Grinding Rolls (8455), Gyrotray Crushers (8474), Hoists (8425, 8428), Derricks and Cranes (8426), Bulldozers (8429) Earth Movers, Borers, Pile-Drivers (8430), Forklifts (8427), Parts for Lifting and Moving Machinery (8431)
Source: UN Comtrade; The Beijing Axis Analysis

China is progressively increasing its share in world exports in a range of relevant categories for the mining / infrastructure sectors

Growth and Share of Selected Heavy Equipment Exports from China, Japan, South Korea and India (2001-2010)

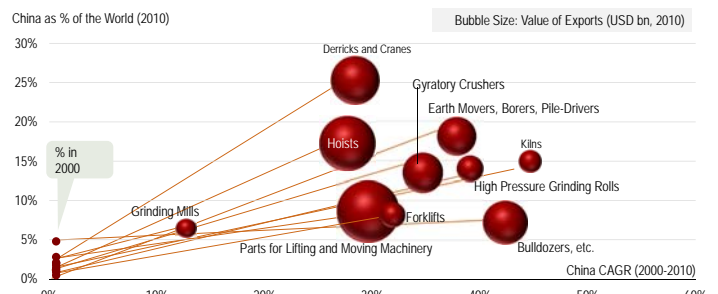


*Note: Bubble size is measured by the commodity's value of China's exports in 2010
Source: UN Comtrade; The Beijing Axis Analysis

What

Kilns and high pressure grinding rolls are some of the fastest-growing items exported from China. China is progressively increasing its world export share for all the selected items

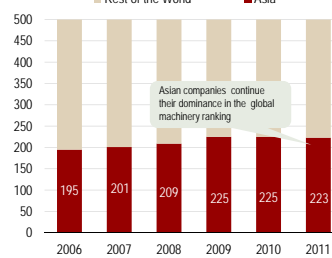
Growth and Share of Selected Heavy Equipment Exports from China (USD bn, 2000-2010)



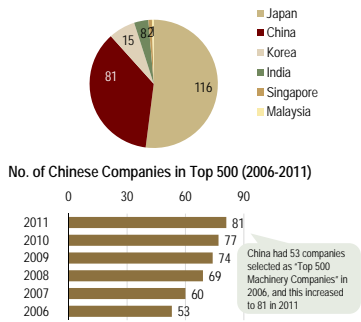
Source: UN Comtrade; The Beijing Axis Analysis

Asia continues to dominate the machinery industry – Nearly half of the top 500 machinery companies are from the region

Geographic Distribution of Top 500 Machinery Companies (2006-2011)



Top 500 Machinery Companies Breakdown by Asian Countries (2011)



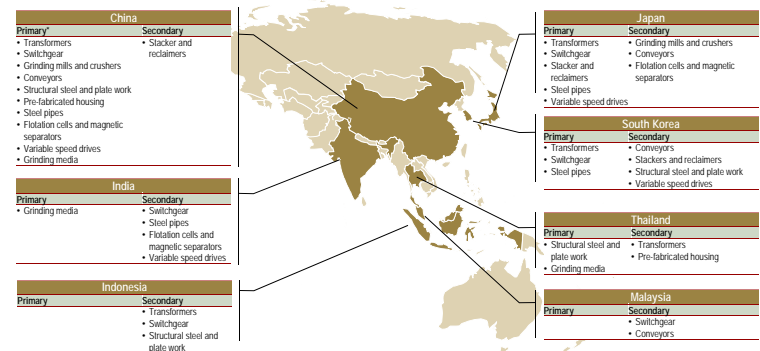
Note: (1) includes foreign-owned firms with fully integrated manufacturing in China
Source: World Executive: World Machinery Summit; The Beijing Axis Analysis

Based on our experience, several products and categories can be competitively sourced from China in a systematic manner

Categories	Selected Products ¹	Price ²			Quality ²			Comments
		VC	C	NC	H	M	L	
1. Material Handling Equipment	Conveyors, conveyor parts & accessories Train loading and unloading systems Cranes and hoists Mining trucks and vehicles	VC	C	NC	H	M	L	China's strength lies in the mid-low end of market Int'l quality standards, lead times may vary Competitive prices and international standards JV with world's largest mining truck supplier
2. Ore Dressing Machinery	Crushers and spares Grinding mills and spares Flotation cells and spares Magnetic separators	VC	C	NC	H	M	L	Prices almost 30% less than European prices Very competitive prices and int'l quality standards Largest producer has 70% domestic market share Comparable to international standards
3. Electrical Equipment	Electrical wires & cables Electrical equipment and components Generator sets Motors	VC	C	NC	H	M	L	High quality at a competitive price Comparable to international standards Competitive price and int'l standards China's strength lies in the mid-low end of market
4. Mechanical Equipment	Blowers Boilers Compressors and air systems Valves	VC	C	NC	H	M	L	Comparable to international standards Competitive prices and high quality standards Competitive prices and int'l standards Valve producers occupy lower end of the market
5. Steel Vessels and Structures	Aplators Furnaces Heat exchangers Structural steelwork	VC	C	NC	H	M	L	Int'l standards at a competitive price Comparable to international standards Competitive price and international standards Readily available with international standards
6. Mine Consumables	Pipe fittings Chemicals Steel cable and wire/rope Safety items	VC	C	NC	H	M	L	No availability concerns: competitive price Comparable to international standards Similar to European and American standards Low-tech consumables with a large local market

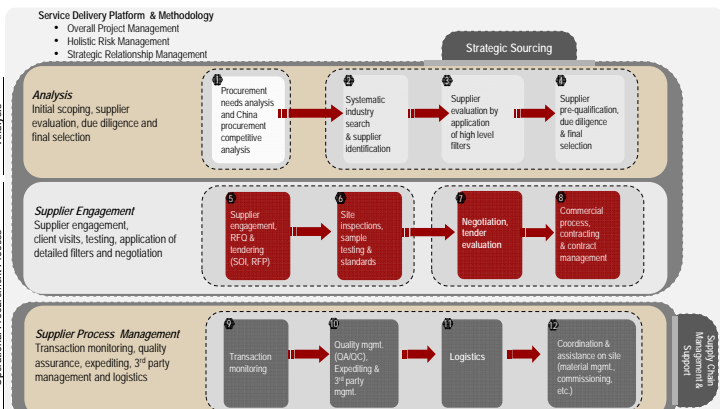
Note: (1) Only serves as a broad outline of products to source and should not restrict the consideration of other goods. Product assessment based on TBA's experience, may change based on specs and complexity. (2) Price: VC = Very Competitive, C = Competitive, NC = Not Competitive; Quality: H = High, M = Medium, L = Low
Source: The Beijing Axis Analysis

China stands out and can be targeted for most procurement packages. For other Asian countries the sourcing potential is limited to a few select packages



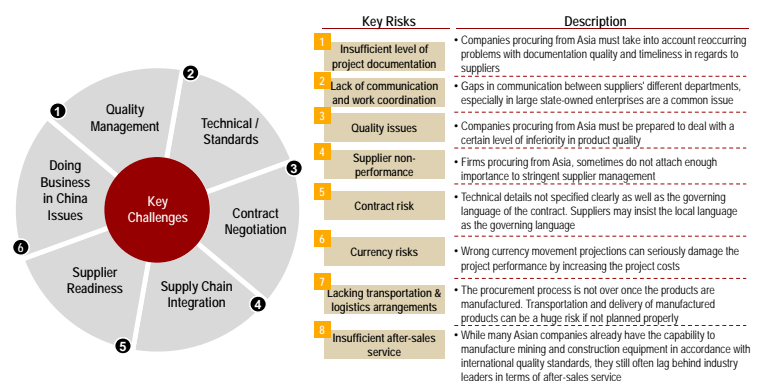
Note: Primary relates to a country's sourcing potential for each procurement package
Source: The Beijing Axis Analysis

Beijing Axis Procurement has a tried and tested service delivery platform & methodology for sourcing



Source: The Beijing Axis Analysis

Various challenges and risks arise when sourcing from China



Source: The Beijing Axis Analysis

However, these challenges can be overcome and the risks mitigated

Critical Success Factors	Description
1. Create an internal project team	Dedicated internal project team must be created to coordinate the process from the project owner's side and facilitate interaction with suppliers, contractors and third-party service provider
2. Gather market intelligence	It is essential to acquire sufficient and comprehensive market intelligence that can influence the country's export competitiveness
3. Establish local presence (directly or indirectly)	In order to adequately select and efficiently supervise suppliers, it is critical to have a presence in a sourcing country
4. Conduct proper supplier due diligence	It is critical to perform a meticulous due diligence on a supplier before signing a contract and placing an order
5. Provide and demand as many details as possible	During the contract stage and throughout the entire manufacturing process, a client should be as specific and meticulous as possible
6. Educate and coach suppliers	Since Asian suppliers are often unaware of Australian/International quality standards, it is highly advised to coach them on these issues to make sure they understand all the details
7. Be flexible and ready to adapt where possible	While a high level of stringency and meticulousness are needed to manage suppliers in Asia, excessive rigidity in pursuing contract terms and details can also prove to be counterproductive
8. Minimise design changes	Any design changes made after the engineering/design part is finalised can have a substantial impact on the project schedule

Source: The Beijing Axis Analysis

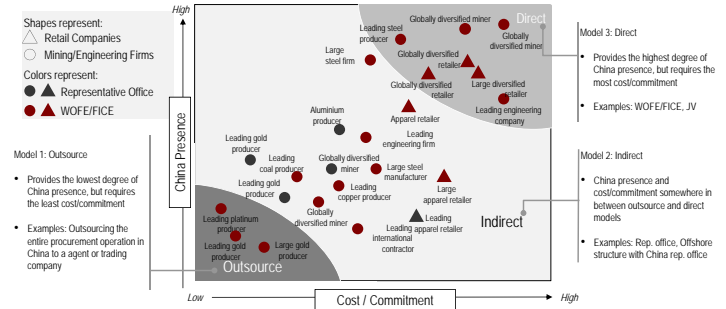
However, these challenges can be overcome and the risks mitigated (2)

Critical Success Factors	Description
9. Exercise control and supervision on-site	• It is crucial to exercise stringent control over a supplier's actions. In order to exercise this supervision, it is necessary to have an on-site presence at the supplier's premises, which can be done by deploying expediting and QC engineers in tandem with third-party quality inspectors
10. End-user buy-in (i.e. Engineering)	• Change in mindset from end users – business units, production engineers, project managers, etc.
11. Clear understanding of China's entire SC	• Clear understanding of the strengths of Chinese suppliers, e.g. Chinese vs. international standards, flexible terms, etc.
12. Dedicated personnel	• Dedicated resource combining technical and commercial background at site or in shared services
13. Coordinated efforts of professional 3rd parties	• 3rd parties augment Chinese suppliers' capabilities and have a rich experience servicing international procurement out of China
14. Early and detailed involvement in supplier's post-PO planning	• Early feedback to suppliers' manufacturing schedule, inspection, testing plans as well as overall delivery plans
15. Involvement of China supplier early in project/spend planning	• Bringing China into equation during planning/ pre-feasibility stage
16. Appreciation and adaption for culture	• Working towards diminishing the impact of cultural differences in regard to ways of doing business

Source: The Beijing Axis Analysis

International companies are using various 'models and sourcing structures' for China procurement – but one trend is clear: greater engagement

China Procurement Models and Structures of Major International Mining, Engineering and Retail Firms



*Note: Conceptual framework
 Source: The Beijing Axis Analysis

International mining companies are using various 'models and sourcing structures' for China procurement

Various Sourcing Models in China

Primary and Secondary Channels	No China Sourcing	Sourcing via Agent	Fly-in-fly out (FIFO)	via a Procurement Service Provider (PSP) (1)	Office in China		
					Small	Medium	Large
	• No agents	• High use of agents	• Medium use of agents	• Light use of agents	• Very light use of agents	• Very light use of agents	• Very light use of agents
	• No fly-in-fly out (FIFO)	• Light FIFO (2)	• High FIFO	• Medium FIFO	• Medium FIFO	• Light FIFO	• Light FIFO
	• No PSPs	• Light use of PSPs	• Medium use of PSPs	• High use of PSPs	• High use of PSPs	• Medium use of PSPs	• Light use of PSPs
	• No Office	• No Office	• No Office	• No Office	• Small Office	• Medium Office	• Large Office
	• Examples:	• Examples:	• Examples:	• Examples (2):	• Examples:	• Examples:	• Examples:

Level of Engagement and Commitment

Note: (1) Also use EPCMs for projects
 (2) Selected BAP clients
 (3) FIFO: Fly-in-fly out
 Source: Various; The Beijing Axis Analysis

Case Study – Plant Equipment: Procurement of Heavy Rotating Equipment

Ferrochrome Smelter

- Project Objectives**
- Research and analyse Chinese market for kilns and mills, assess feasibility of procuring in China, shortlist suppliers, provide budget prices
 - Organise and manage RFQ process in China with shortlisted suppliers on behalf of the client
 - Assist client in drafting contract, negotiating terms and conditions and placing order
 - Manage order and coordinate among multiple parties to ensure timely, problem-free delivery



1 Results	<ul style="list-style-type: none"> • Order value over 13 million USD, 2 kilns and 2 mills • Delivery to site 70% complete • Over 30% savings achieved compared to alternative local offerings
2 Organisational Setup	<ul style="list-style-type: none"> • TBA: 2 project managers (PM, GM), senior project advisor, on-site supervising engineer, senior QA inspector, procurement specialists as required • Client's PM office (no EPCM involvement), engineering consultants, Chinese supplier and sub-suppliers, 3rd party inspection company, 3rd party logistics management company
3 Key Risks and Issues Addressed	<ul style="list-style-type: none"> • Design and specification changes management tackled by systematic review meetings and document controls • Poor supplier documentation management / control system – TBA assisted in improving • Suppliers lack experience of DDU delivery – TBA put together 3rd party solution • Quality and scheduling risks mitigated by on-site supervision
4 Supplier Competitiveness	<ul style="list-style-type: none"> • Chinese suppliers offer 20-35% price advantage but hands-on quality management and expediting is a must • Good OEM supply base for international vendors, excellent facilities and good design capabilities available

Case Study – Industrial Consumables: Conveyor Belts

Mining Supplies Company

- Project Objectives**
- Research and analyse Chinese market for conveyor belts, incl. heat resistant, steel cord, solid woven and other belts
 - Short-list 3-4 suppliers, assist client in conducting RFQ process and pre-contract negotiations
 - Assist client with placing trial orders and inspection
 - Hand over relationships with suppliers to client for ongoing orders



1 Results	<ul style="list-style-type: none"> • TBA shortlisted 3 suppliers capable of complying with client specifications, 2 were selected for trial orders • TBA assisted client with contracting suppliers for trial orders and worked with 3rd party inspection company to ensure product quality for trial orders
2 Organisational Setup	<ul style="list-style-type: none"> • TBA team: procurement specialist and assistant procurement specialist, supported by procurement engineer as needed • TBA coordinated inspection and reports by 3rd party inspector, as well as all technical and commercial inquiries before and during trial orders
3 Key Risks and Issues Addressed	<ul style="list-style-type: none"> • Client-appointed 3rd party inspection company unprofessional, improper inspection lead to a conflict situation • TBA able to resolve the conflict successfully, client was advised to re-test product, product was finally accepted and client satisfied
4 Supplier Competitiveness	<ul style="list-style-type: none"> • China is a leading producer and exporter of belts, has a good supplier base with a wide variety of conveyor belting products • Client achieved cost savings of 35-50% compared to similar European products

Case Study – HME Equipment: Rope Shovels

Large Regional Coal Company

Project Objectives

- Assure quality and expedite 2 rope shovels 35 m³ each
- Establish quality risk control strategy for major capital procurement project
- Assist client and supplier with compiling OCP and final quality documentation pack
- Monitor and risk-manage manufacturing process on site for quality-related issues



- | | | |
|----------|---------------------------------------|---|
| 1 | Results | <ul style="list-style-type: none"> The two rope shovels were delivered on time despite unexpected increase in project complexity vs. initial estimates Equipment fully accepted by client in terms of quality of manufacturing and packaging for shipment. Currently being installed on site |
| 2 | Organisational Setup | <ul style="list-style-type: none"> TBA managed the project, assisted by 3rd party inspection company and client involvement at critical hold points 1 full time TBA procurement engineer with support from GM, 3 full time 3rd party quality inspectors Only client authorised to hold manufacturing |
| 3 | Key Risks and Issues Addressed | <ul style="list-style-type: none"> Added inspection resources to ensure adequate quality of component sources from sub-suppliers Added inspection resources to defect repair and proper corrosion protection after discovering issues in these areas |
| 4 | Supplier Competitiveness | <ul style="list-style-type: none"> Only one internationally competitive supplier in China for equipment of this size and technology level Chinese supplier is #1 manufacturer globally and with significant cost advantage over major US rival (P&H) |

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Final word

- The world is looking to source from LCCs – It's a global phenomenon and its changing from 'additional competitive advantage' to a prerequisite for survival and development
- Developing countries are becoming more important as new supply bases – This is truly an Asian story
- China ranks at the top of the LCC equation; India is still searching for its place in the global production chain but is positioned in the flying geese formation (along with Vietnam, Malaysia, Thailand, Indonesia etc.)
- Ignoring China (and India et al) is no longer possible or wise; Threat, opportunity; Must form part of a 'global supply chain portfolio'
- Very complicated - many risks i.e. quality/safety, counterparty risk, financing, complexity, contracts, language, trade protectionism, etc. – Watch out!
- Use information well – strategic intelligence is the main aid in risk mitigation
- Communicate well and often; manage engagements – Both with HQ at home and with Chinese counterparties
- Good strategy, good implementation – Processes, systems and people (and partners across SC)
- Analysis, Engagement, Process
- Three key questions - Why? What? How?
- Learn from others!



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