



Lancaster University
Management School

MSCI 102: Introduction to Operations Management

Introduction to Supply Chain Management

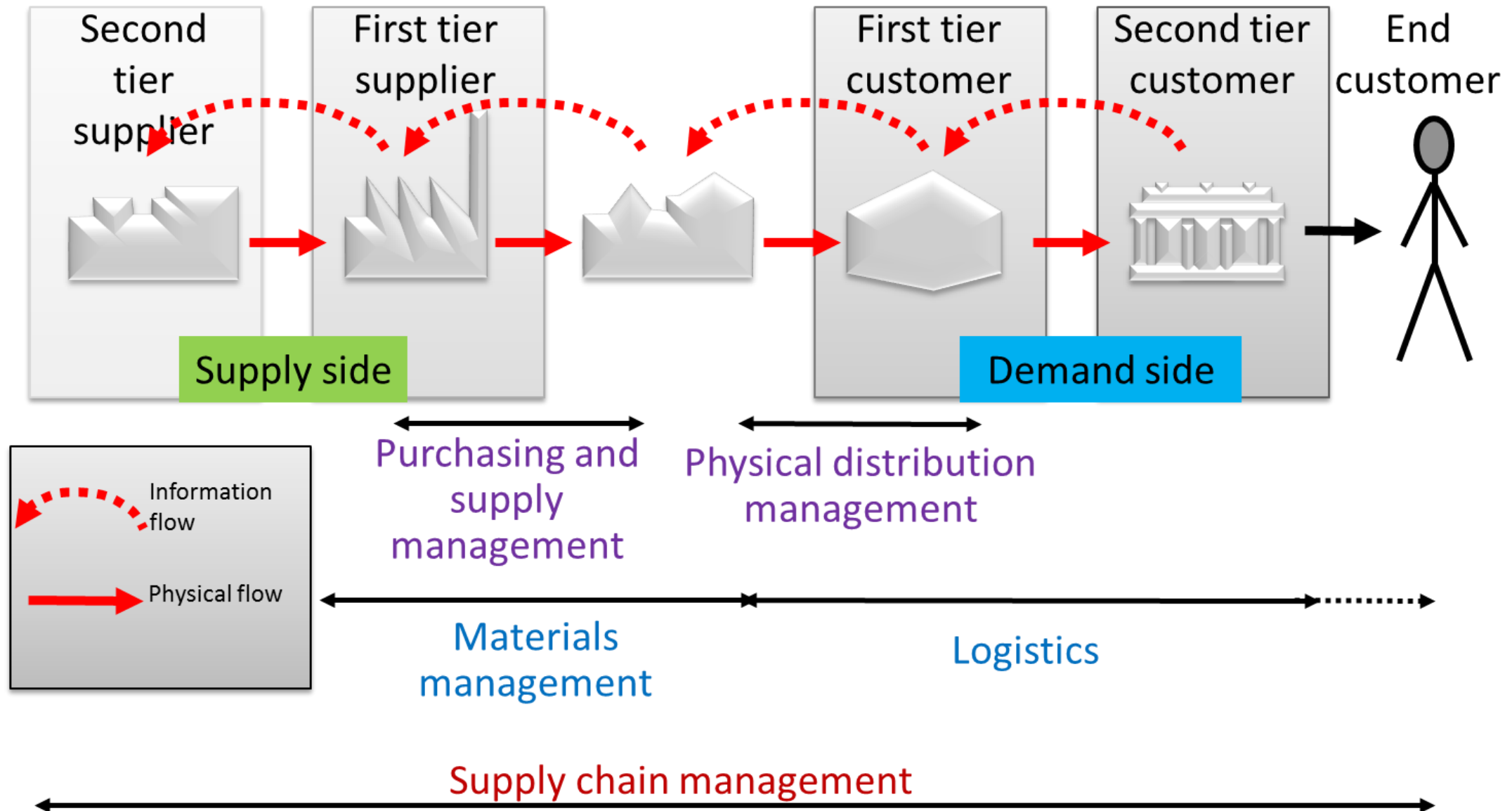
Anas Iftikhar

2024-25

Supply chain management

- Supply chain structure
- The basic procurement process
- More strategic understandings of procurement - Understanding the need for an organization to take a supply network perspective
- Supply chain relationships
- Supply chain design – right product for your supply chain
- The evolution into supply chains as unit of management
- How supply chains can be a unit of failure
- See Slack et al, chapters 5, 12

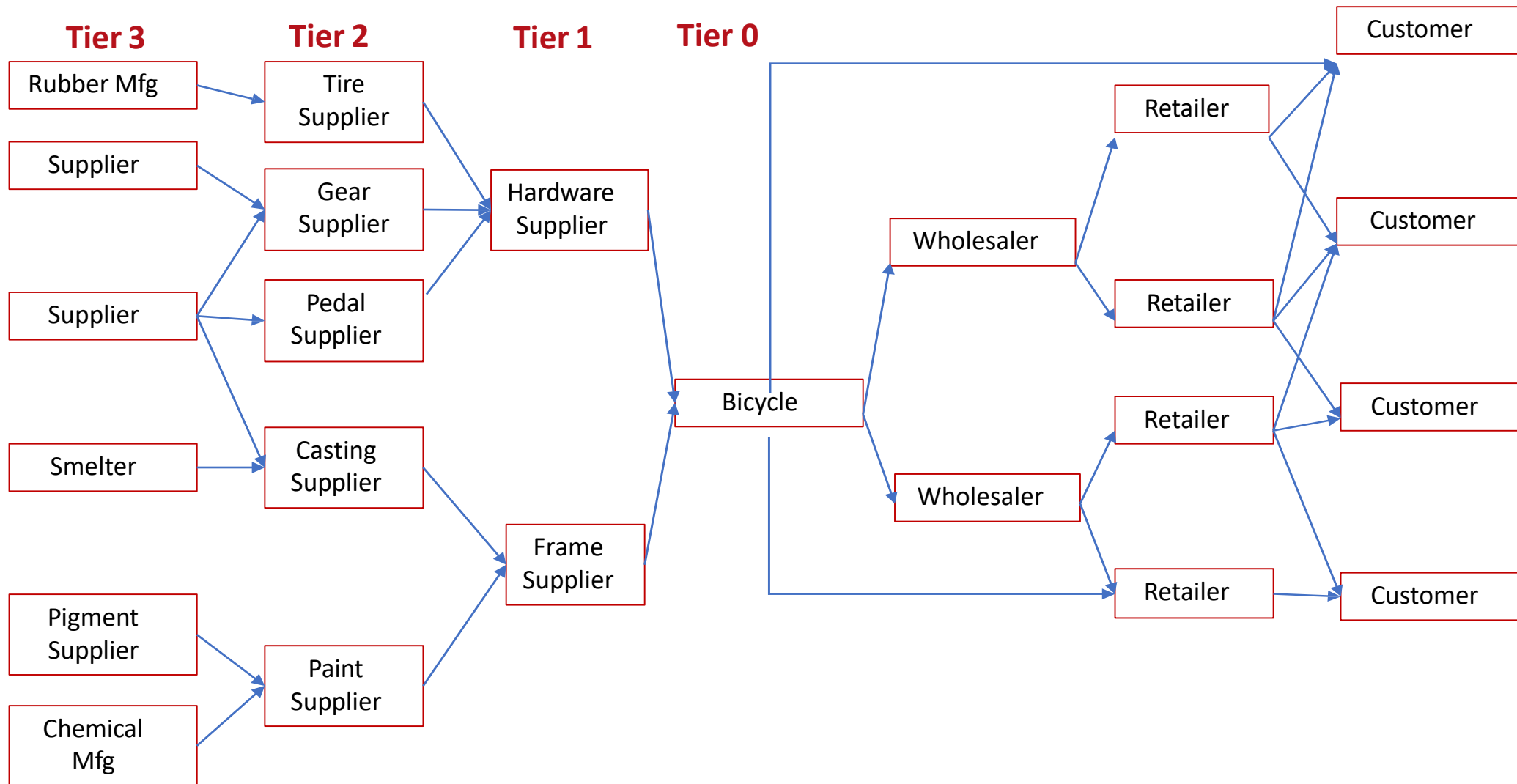
Supply chain planning and control - terminology



Supply Chain Terminology

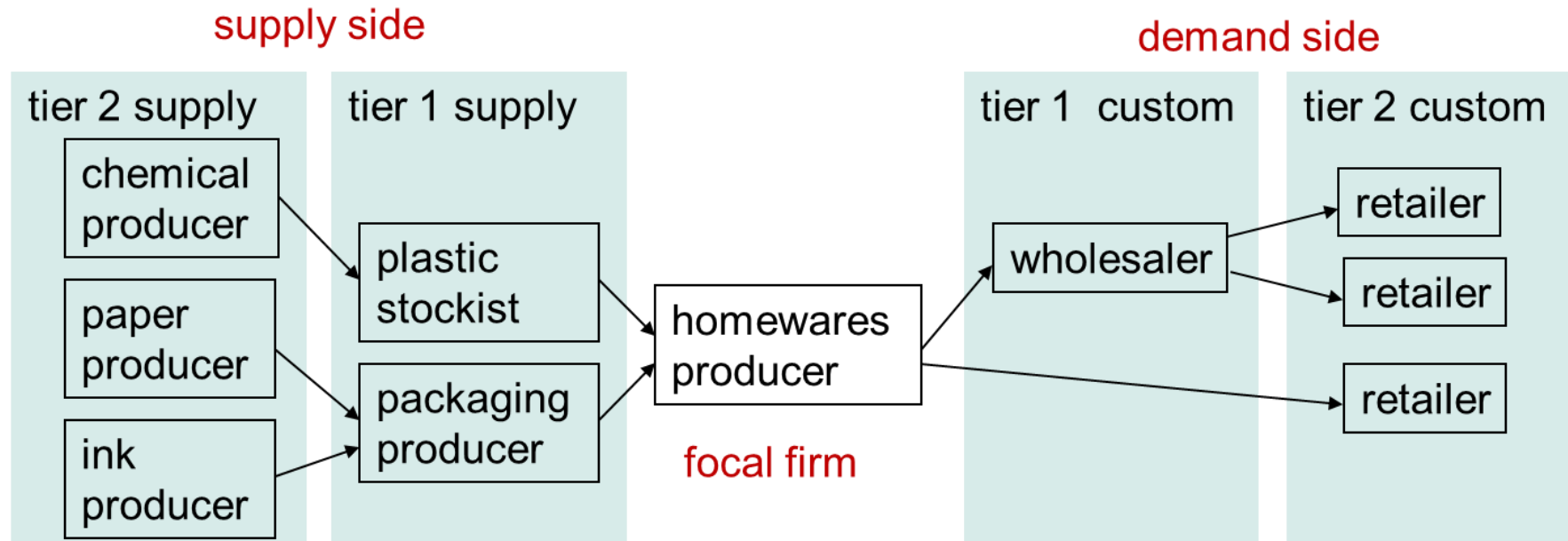
- **Upstream** – Activities or firms positioned earlier in the supply chain.
- **Downstream** – Activities or firms positioned later in the supply chain.
- **First-tier supplier** – A supplier that provides products or services directly to a firm.
- **Second-tier supplier** – A supplier that provides products or services to a firm's first-tier supplier.

Supply network of a bicycle manufacturer



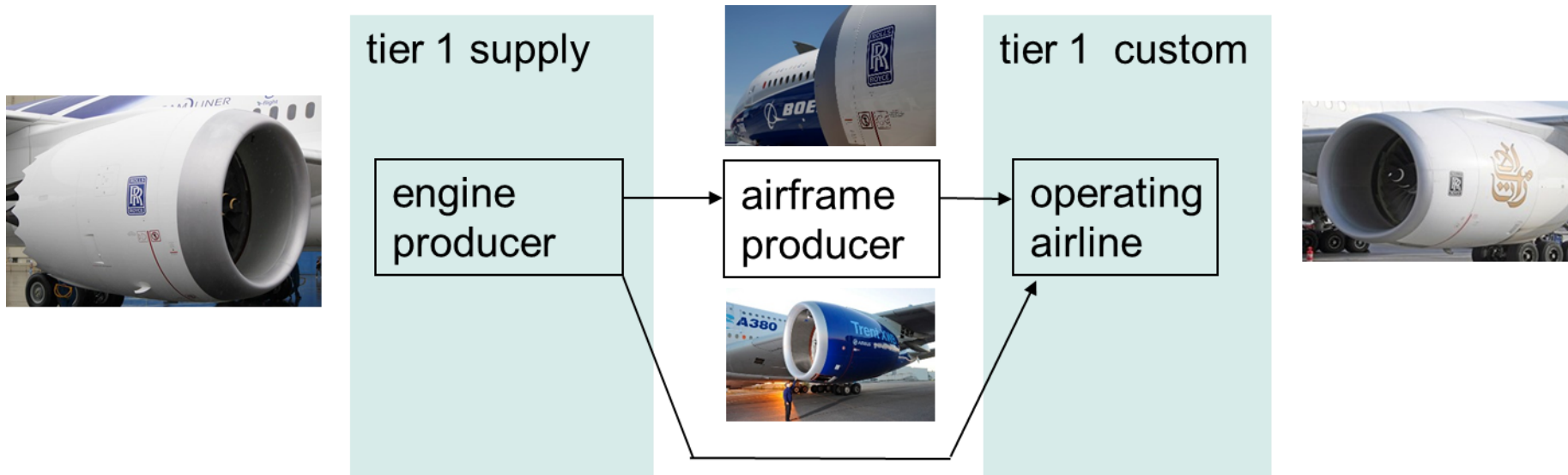
Supply chain structure

- So what does a 'supply chain' look like?
- The standard view (see pg. 146, Slack et al)
 - focal firm, contracting with immediate neighbours
 - tiered upstream supply side, downstream demand side



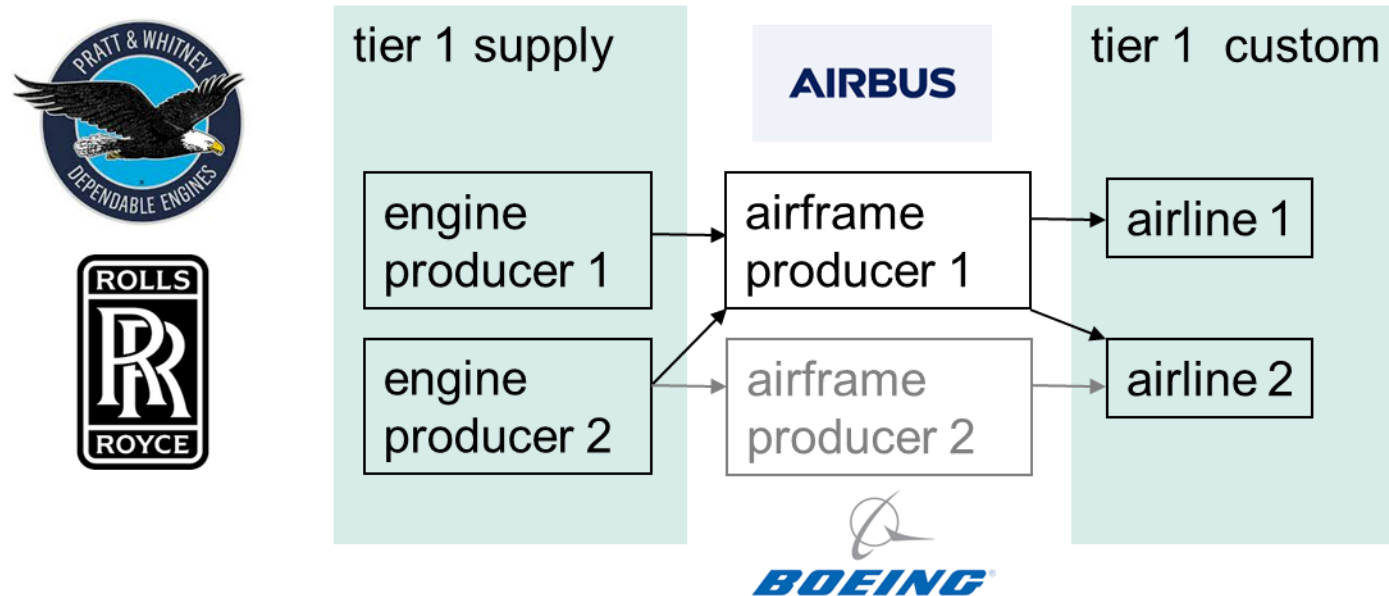
Supply chain structure

- So what does a 'supply chain' look like?
 - but sometimes parallel chains



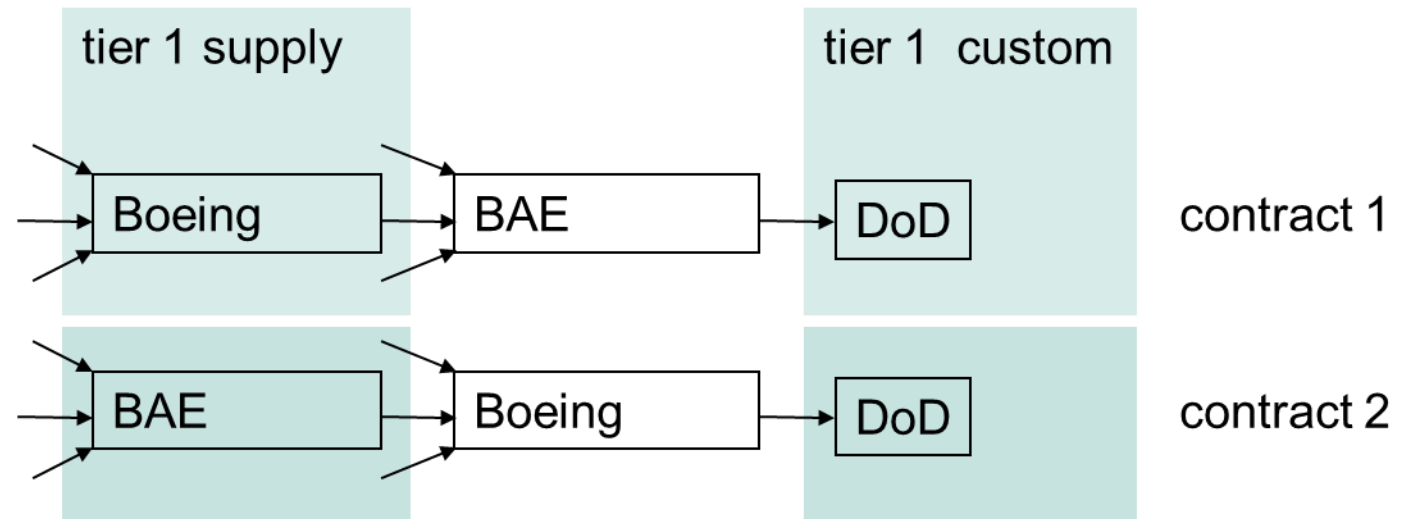
Supply chain structure

- So what does a 'supply chain' look like?
 - and chains often transitory/context-dependent



Supply chain structure

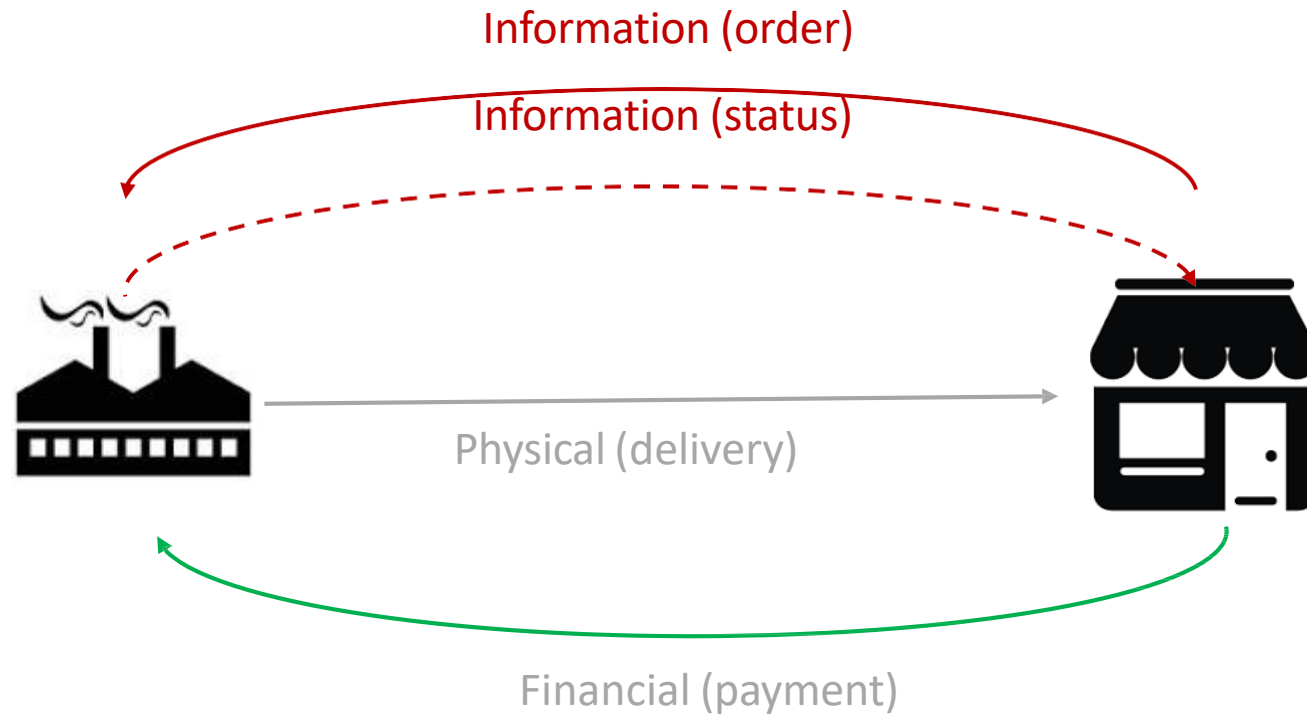
- So what does a 'supply chain' look like?
 - and firms swap roles on different occasions



- sometimes to the point where they look for synergies, but it doesn't always work.... See: A European mega-merger? Nein, danke.
<https://www.economist.com/leaders/2012/10/13/a-european-mega-merger-nein-danke> (2012))

What is supply chain?

- Two or more parties linked by a flow of resources- typically material, information, and money- that ultimately fulfill a customer request.



The central supply problem

- “When Edscha, a German manufacturer of sun roofs, door hinges and other car parts, filed for insolvency last month, it presented BMW with a crisis. The luxury carmaker was about to introduce its new Z4 convertible - and Edscha supplied its roof. "We had no choice to go to another supplier, as that would have taken six months and we don't have that. We had to help Edscha and try and stabilise it," BMW says. Today, Edscha is still trading, thanks to the support offered by its leading clients. Nevertheless, BMW remains so worried about disruption to its supply chain that it has increased staff numbers in its risk monitoring department looking only at components-makers...”
(*Financial Times*, March 24 2009)

What does this case suggest is the central tension in the management of supply chains?

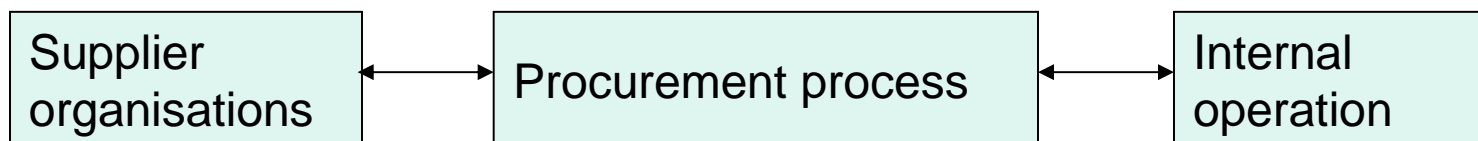
- A. Good weather versus bad weather
- B. Aesthetics versus cost
- C. Large versus small organizations
- D. Specialisation versus control

The central supply problem

- Specialisation model creates supply networks
- Risk and vulnerabilities inherent in networks
- Larger/extensive the network, bigger the tension – consider Covid, Brexit / war in Ukraine
- Balance between efficiency vs resilience
- Supply chain management of strategic importance: Ford's procurement budget = £7.5Bn

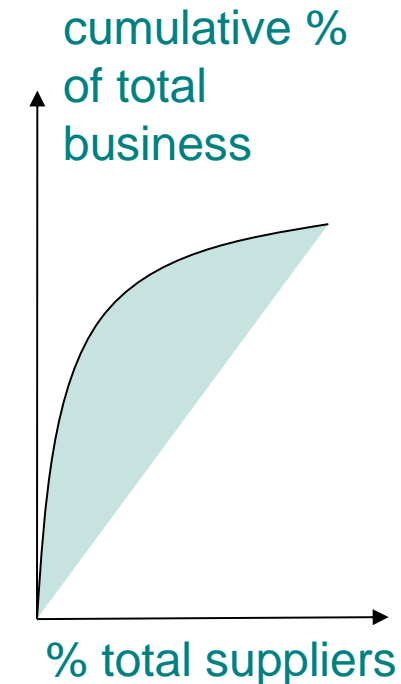
The basic procurement process

- Linking operations and suppliers in markets
- Needs to have predictability, cost-effectiveness, integrity
- Procurement process
 - Enquiry/bidding/tendering
 - Supplier selection
 - Requisition/ordering
 - Supply
 - Invoicing and payment



A more strategic take on procurement

- Selection & assessment of specific suppliers
 - Supplier rating and appraisal processes
(see Slack et al p.420-423)
- Rationalisation of supply base
 - 80% of business with 20% of suppliers
- Development of suppliers
 - involvement in product/service development
 - Adaptation of supplier relationships e.g...forming alliances



A more strategic take on procurement

Toyota cuts annual production target as pandemic hits supply chains

World's largest carmaker disrupted by chip shortages in south-east Asia



Toyota has closed plants around the world and plans to cut annual output by:

Kana Inagaki in Tokyo SEPTEMBER 10 2021

Chip wars with China risk 'enormous damage' to US tech, says Nvidia chief

Jensen Huang tells lawmakers to be 'thoughtful' about imposing more export controls on Beijing



Deprived of the Chinese market, we don't have a contingency for that' © AFP via Getty

Chip shortage puts brake on UK new car sales despite jump from 2020

Industry body says sector is suffering from 'long Covid' of vehicle supply challenges



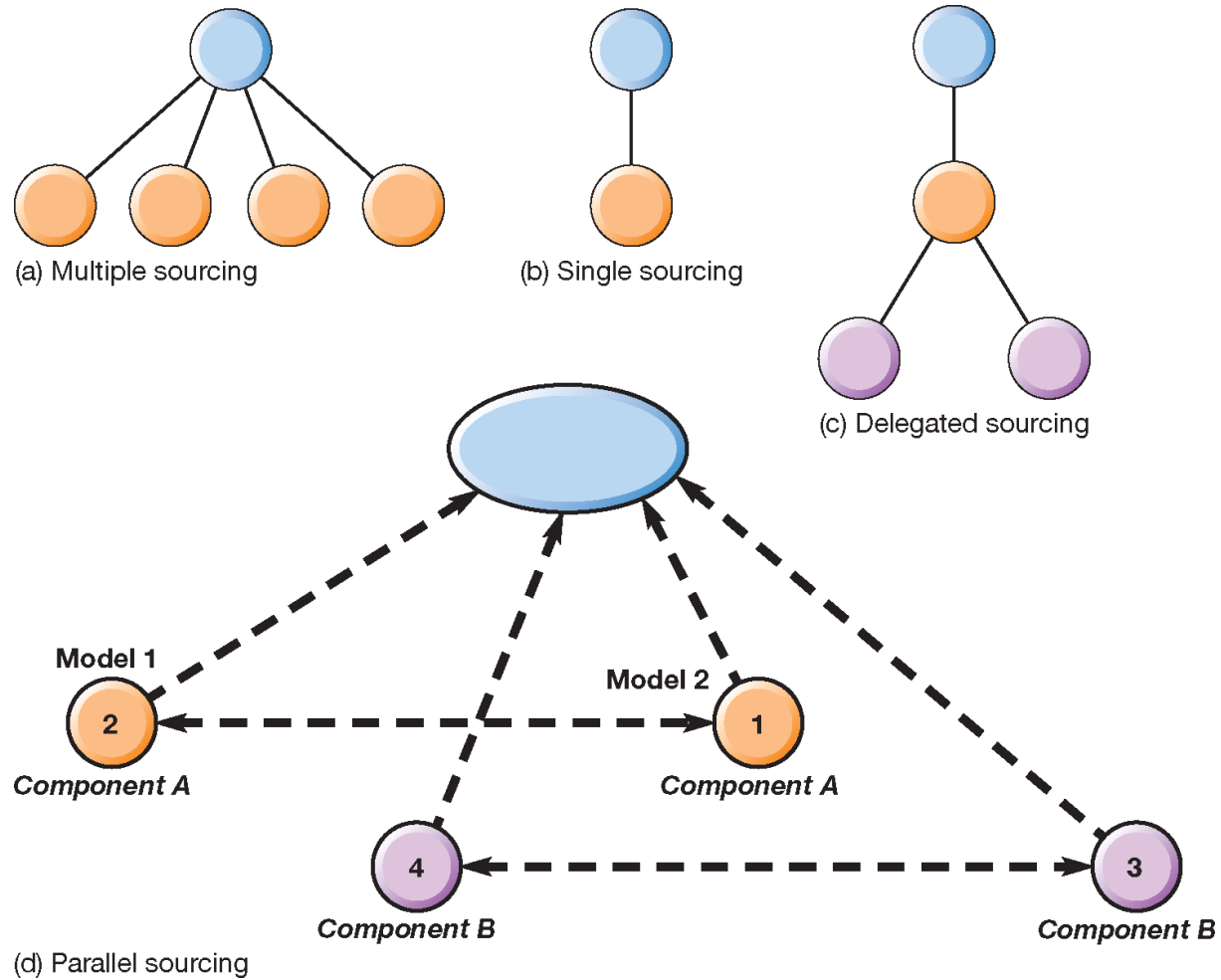
Despite pent-up demand from consumers for new vehicles, the industry has struggled to meet demand because of the chip shortfall © Chris Ratcliffe/Bloomberg

Peter Campbell in London JULY 5 2021

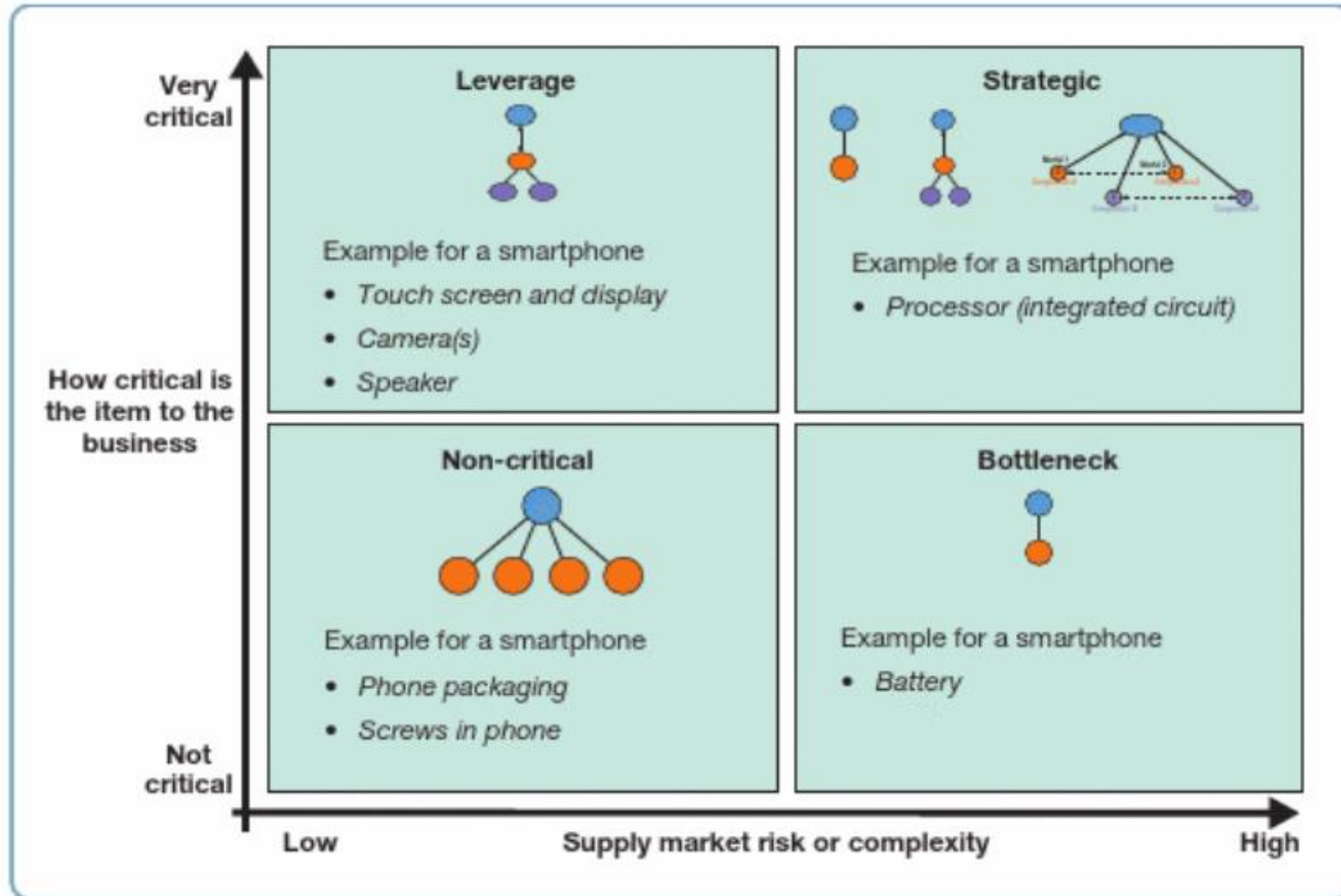
A more strategic take on procurement

- Supply chain visibility / transparency is important
- It helps manage risk, inventory, supply chain costs, retention of customers
- Allows control over finances, helps with flexibility and reliability
- Global supply chains are complex – communication and collaboration is critical

Managing Supply Side




Managing Supply Side



Supply chain relationships

- What do the links in the 'supply chain' look like? (see Slack et al p.414-417)

more complex less common		<i>Relationship</i>	<i>Examples</i>	<i>Exchange elements</i>
		Vertical integration	<i>Chemicals, food</i>	resources, goods & services, information, cash, <u>equity</u>
		Partnering relationship	<i>Automotive joint venture</i>	designs, plans, goods/services <u>knowledge</u> , investment
		Long term market relation	<i>Defence, preferred suppliers</i>	<u>capacity commitment</u> , designs, <u>forecasts</u> , blanket orders
		Short term market relation	<i>Spot stationery orders</i>	goods & services, orders & documentation

Supply chain relationships

Rolls-Royce rallies suppliers to deliver on £71bn backlog

- After almost a decade of booming engine orders, the company has to deliver on its bulging £71bn backlog... Success in meeting that challenge will depend on a robust and resilient supply chain — and one that is prepared to invest in efficiency rather than sulk about the demands of a big customer. Mike Mosley, Roll-Royce's director of operations for civil aerospace, admits that the company has in the past been perceived by its UK supply chain as “arrogant”. Now that relationship is changing, he says. “We listen more,” says Mr Mosley.
<https://www.ft.com/content/605478fe-4519-11e7-8d27-59b4dd6296b8> (2017)

Supply Chain relationships

- Rolls-Royce is threatening to withdraw “support” from suppliers who do not agree to price cuts of up to 15%...
- Putting its supply chain under pressure facing a cash crunch as a result of the drop in demand due to Covid.



- <https://www.ft.com/content/cdb0aa8c-3476-4871-b9c9-a8907c6f592e> (2020)

Questions



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Thank you
