International trade with South Korea, a perspective from the Netherlands

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https://principlesofsupplychainfinance.nl/

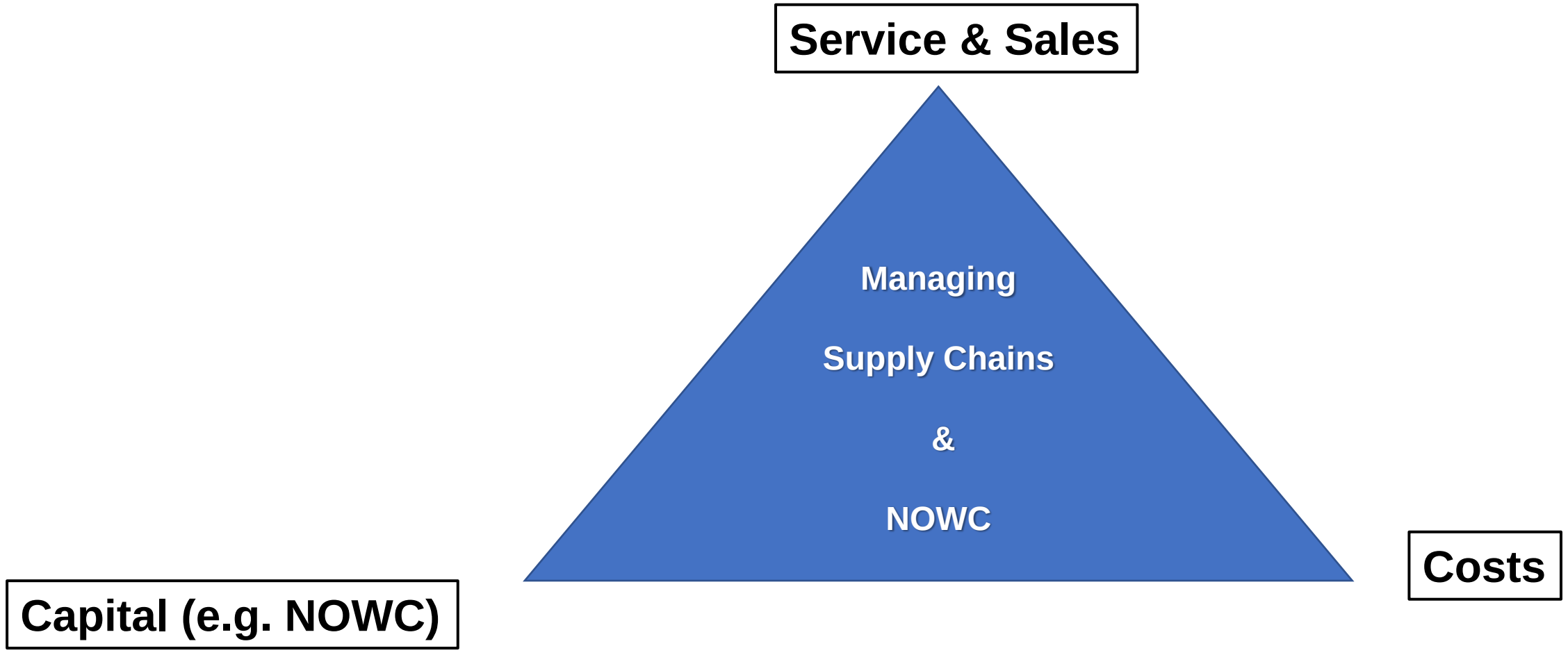
Agenda: Part B

International trade with South Korea, a Dutch perspective

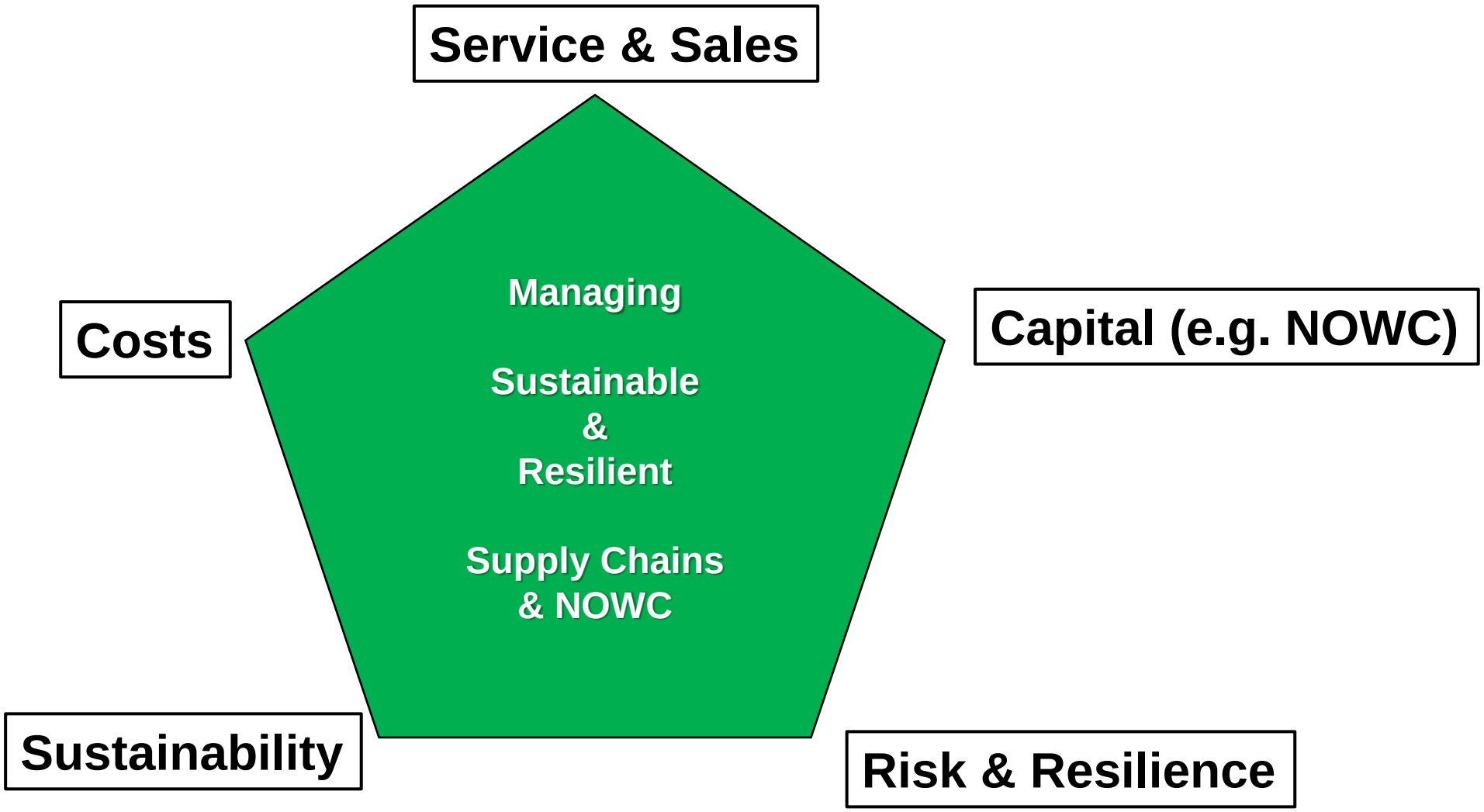
1. Economies of South Korea (SK) & the Netherlands (NL)
2. International trade between SK & NL
3. International supply chains between SK & NL
4. How we look at supply chains in the 2020s and beyond
5. Discussion: the case of the export of cars of Hyundai to the Netherlands

How we look at supply chains in the 2020s and beyond

A traditional way of looking at SCM & SCF (Source: DeSmet, 2017)



A new way of looking at SCM & SCF (Source: Ebel & Mohrschadt, Camelot, 2022)

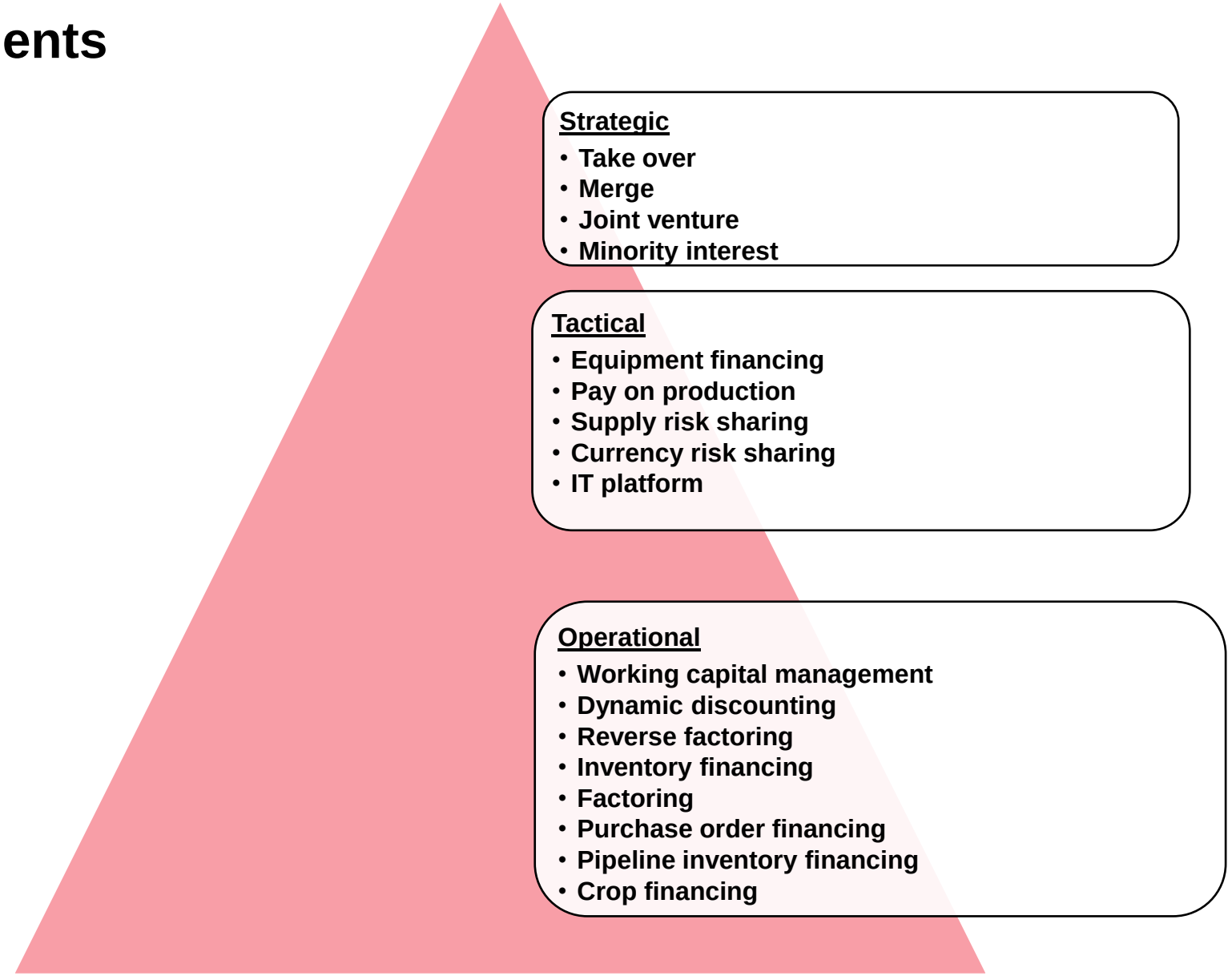


Managing Net Operating Working Capital (NOWC) in the supply chain

<u>Liquidity is an issue in the supply chain:</u>

- **Do not squeeze your suppliers: Pay your suppliers on time!**
- **Do not have too high inventories: Lesson learned from lean manufacturing (The Toyota way of production)**
- **Let your customers pay as soon as possible to your company**

SCF Instruments



Strategic

- Take over
- Merge
- Joint venture
- Minority interest

Tactical

- Equipment financing
- Pay on production
- Supply risk sharing
- Currency risk sharing
- IT platform

Operational

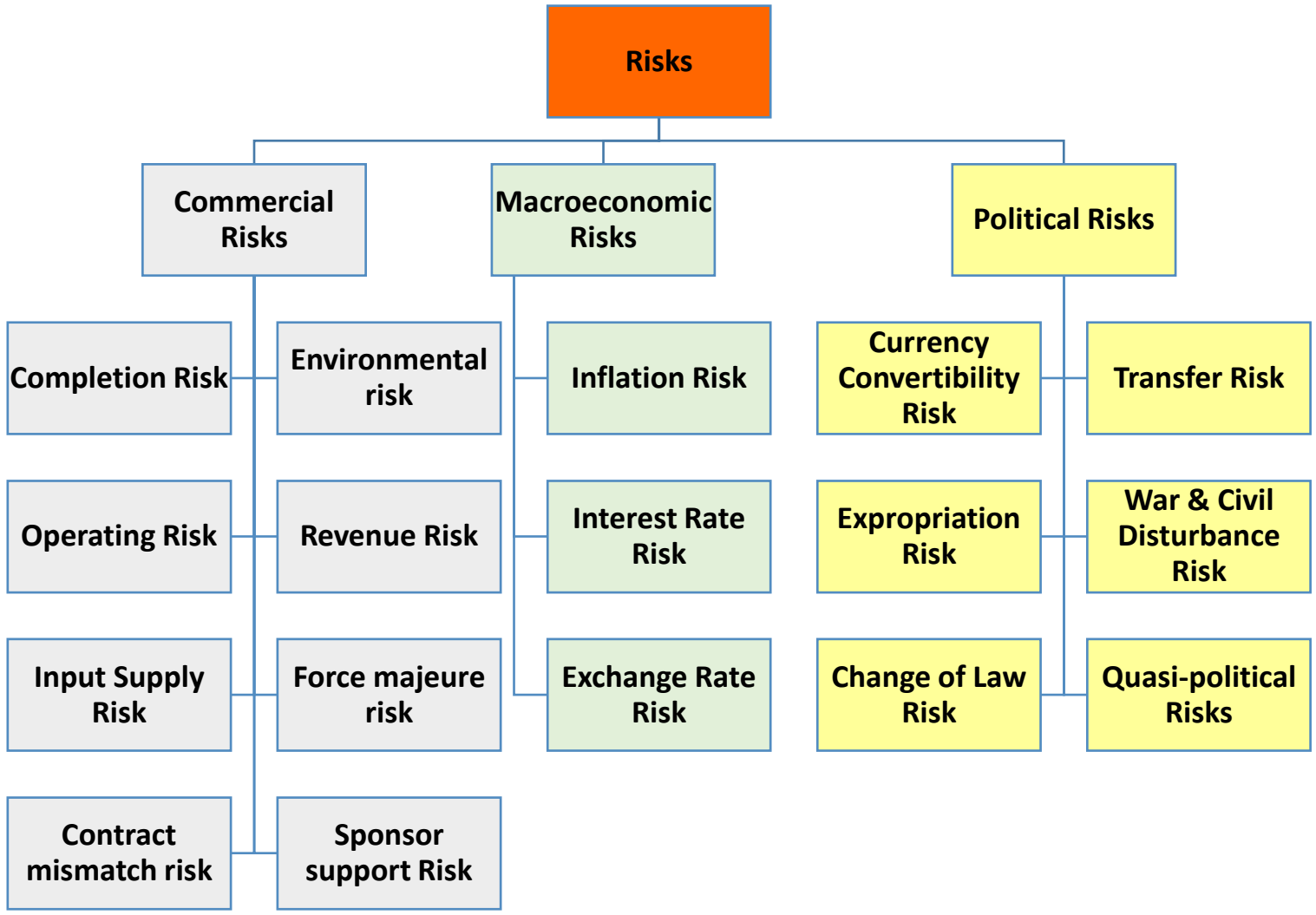
- Working capital management
- Dynamic discounting
- Reverse factoring
- Inventory financing
- Factoring
- Purchase order financing
- Pipeline inventory financing
- Crop financing

Risk & Resilience

- **Risk in international business**
- **Risk in the supply chain**
- **Resilience: Managing risks via risk mitigation**

Risks in International Business

(Source: Moffett et al., 2006)

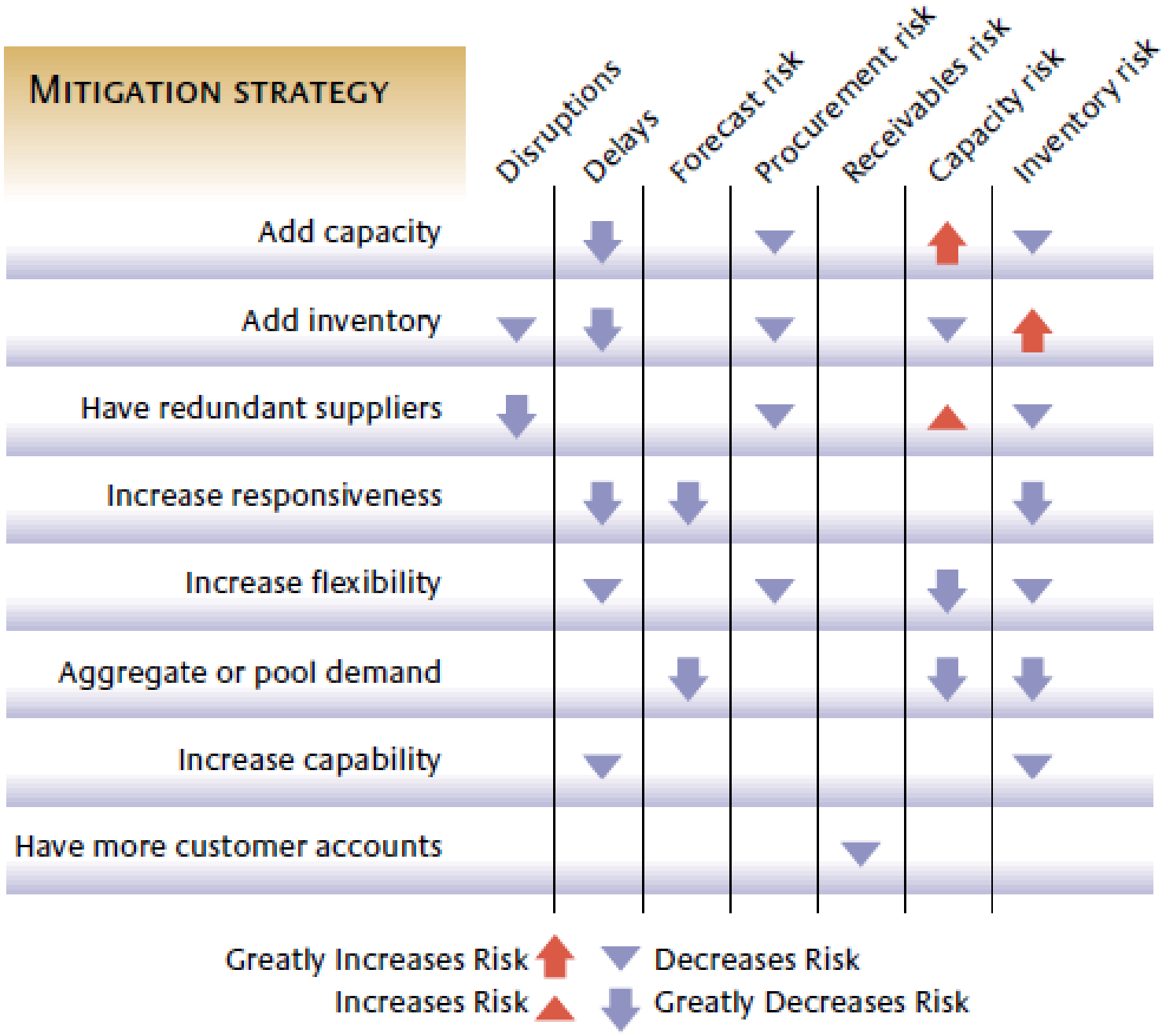


Supply Chain Risks (Source: Chopra & Sodhi, 2004 & 2014)

Categories of risk	Drivers of risk (examples)
Disruptions	Supplier bankruptcy, natural disasters
Delays	Inflexibility of supply source
Systems risk	Information infrastructure breakdown
Inaccurate forecast risk	Long lead times, seasonality, product variety
Intellectual property risk	Global outsourcing
Procurement risk	Single sourcing, exchange rate risk
Receivable risk	Power relationship between supplier - buyer
Inventory risk	Inventory holding cost, demand uncertainty
Capacity risk	Cost of capacity

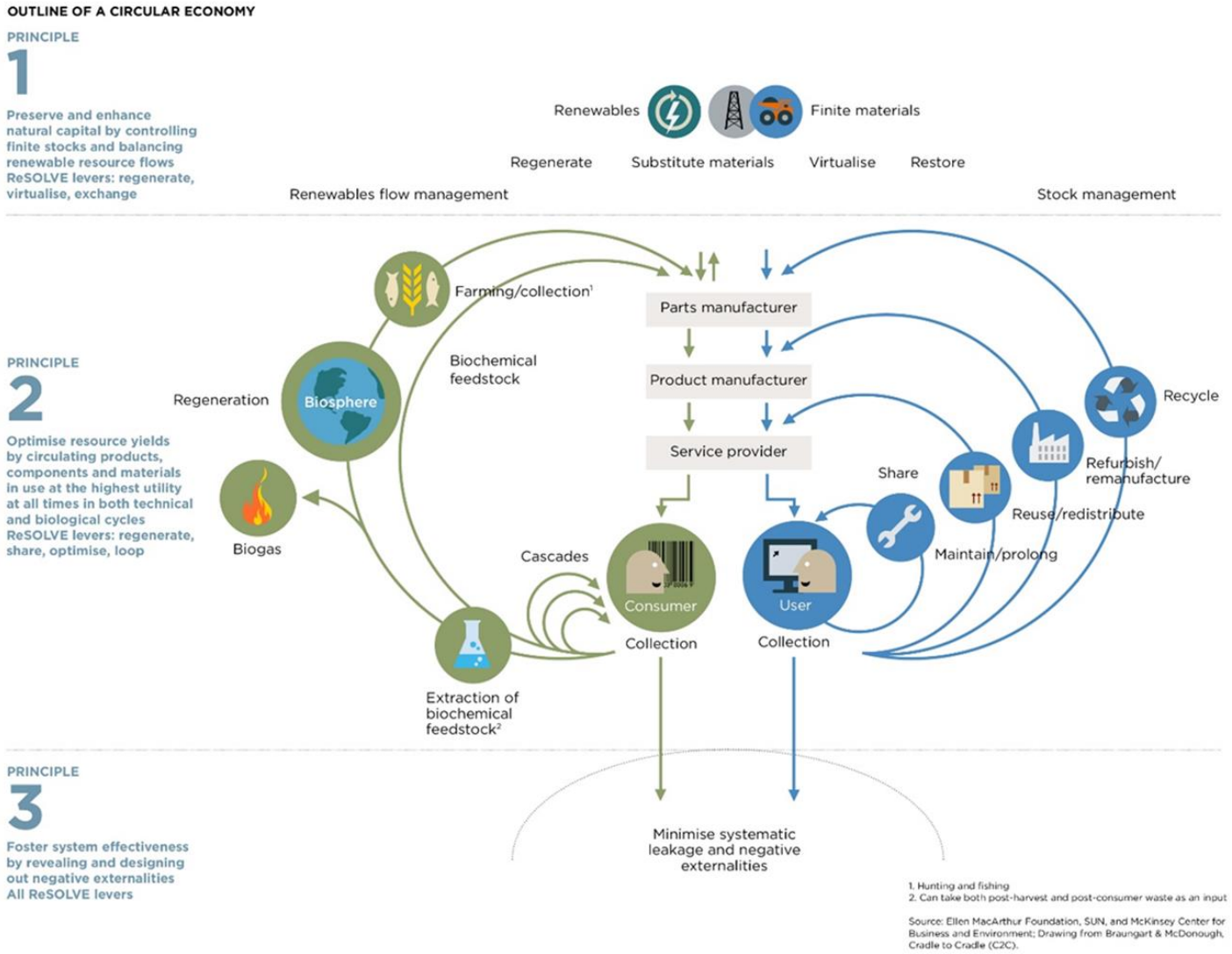
Supply Chain Risk mitigation strategies

Source:
Chopra & Sodhi, 2004 & 2014

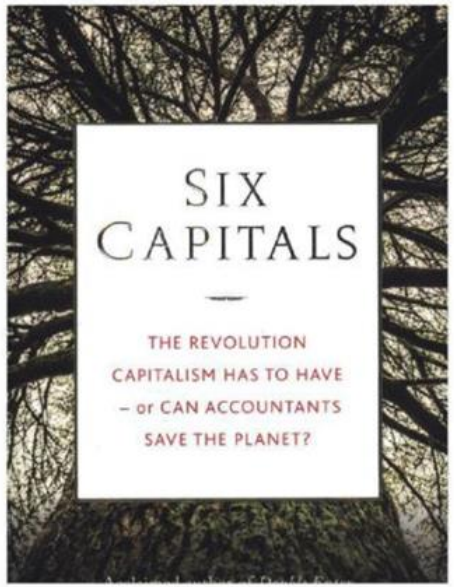


Sustainability & Circularity

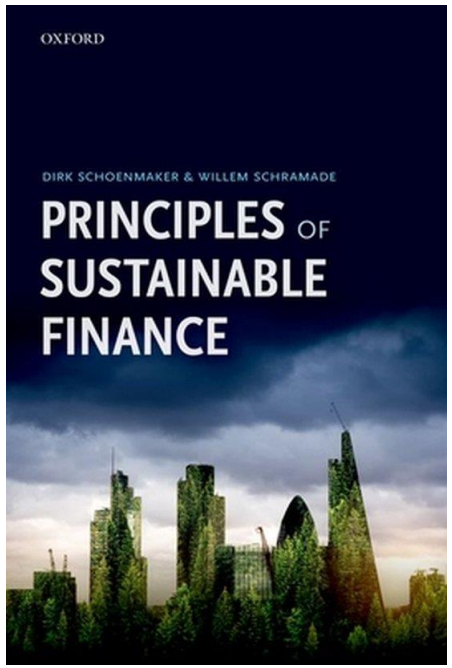
Source:
(EllenMacArthurFoundation, 2017)



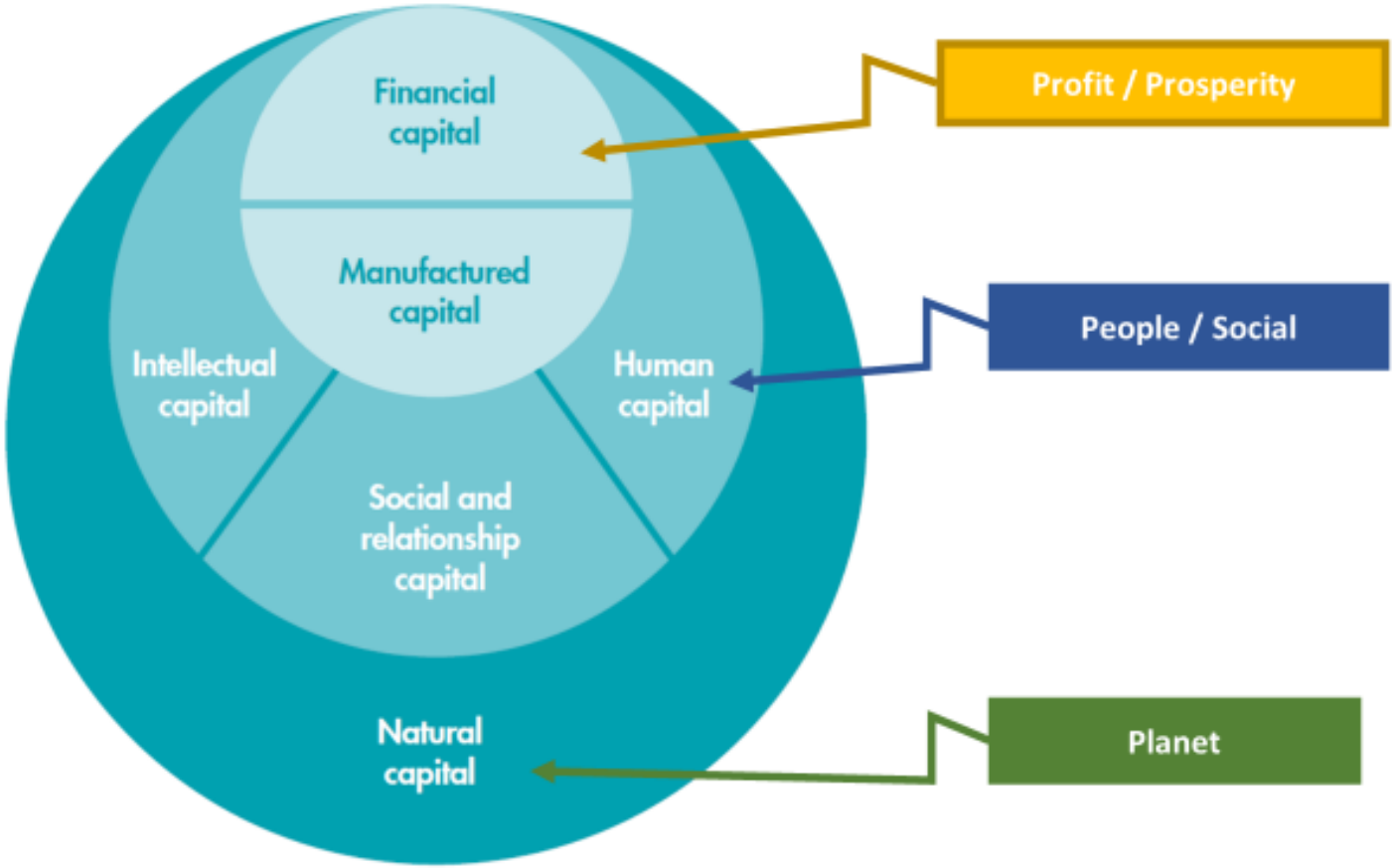
Sustainability & Circularity



Jane Gleeson-White



Schoenmaker et al., 2019

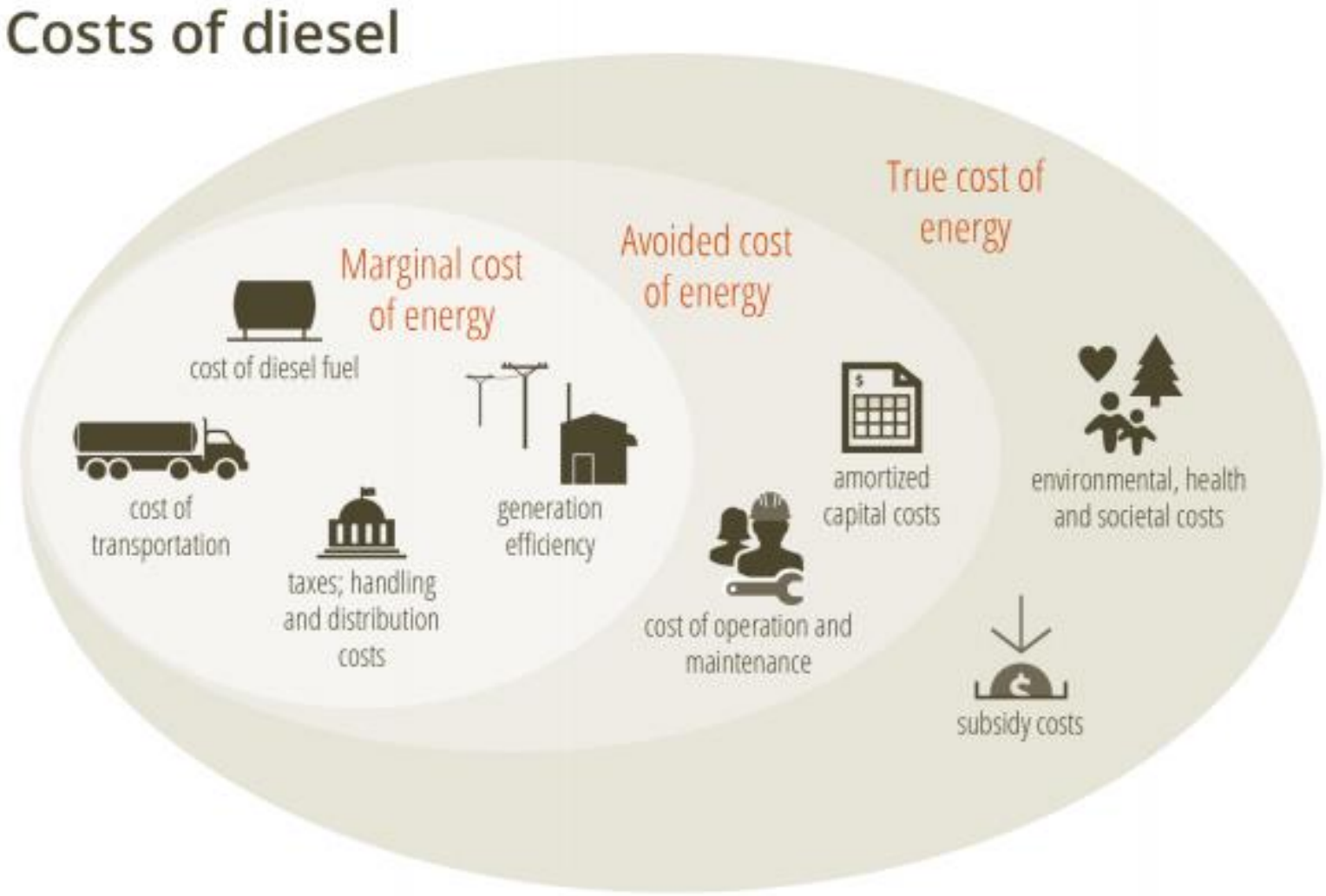


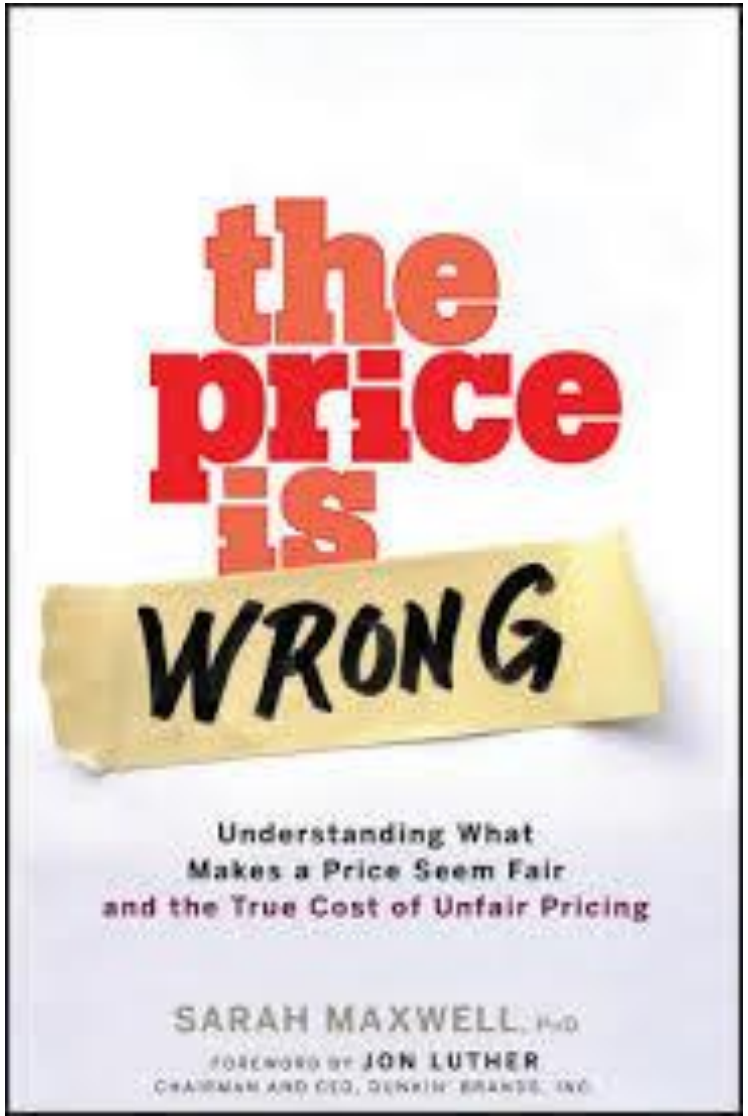
Source: by J. Jansen based on IFRS

True costing & True Pricing:

Maxwell, S. (2008). *The price is wrong*. Hoboken: Wiley

https://www.pembina.org/reports/diesel-cost-backgrounder-2019.pdf





What about the future?

- New types of cars are needed:
  - Using batteries as an energy source
  - Using hydrogen as an energy source
  - …
- Are cars still be needed
  - Public transport
  - Bikes
  - Share a car / Rent a car
  - …
- Consumers are looking for new ways of paying for mobility
  - Buy a car (and finance yourself or via a bank loan)
  - Lease a car
    - Financial lease
    - Operational lease
  - Share a car with your neighbours (and share expenses)
  - Rent a car (when you need one)
  - Do you need a car?
  - …

Discussion: the case of the export of cars of Hyundai to the Netherlands

Q & A session:

- **Clarification questions**
- **Opinion about the future of South Korea to export cars to the Netherlands**

Conceptual model Supply Chain Finance

Order to Cash (O2C)

Sales

Debtors /AR
Collection policy
Factoring

Production

Inventories
Raw materials & Components
WIP
Final goods
Inventory financing

Purchases

Creditors /AP
Payment policy
Reverse factoring
Dynamic discounting
Crop Financing

Purchase to Pay (P2P)

Business Processes
JIT & LEAN
VMI & WMS
MRP & ERP
APS

Time

Liquidity
Dynamic Liquidity:
C2C or CCC
(=DIO +DSO – DPO)

Static Liquidity:
Current Ratio

Net Operating Working Capital (AR + INV – AP)

Volume (= Value NWC)

Cost of NWC

CAPM data
Financial structure (λ & ε)
Market Risk (B)
Risk free interest rate (R_{RF})
Required market return (R_M)
Interest on loans (R_D)
Tax rate (τ)

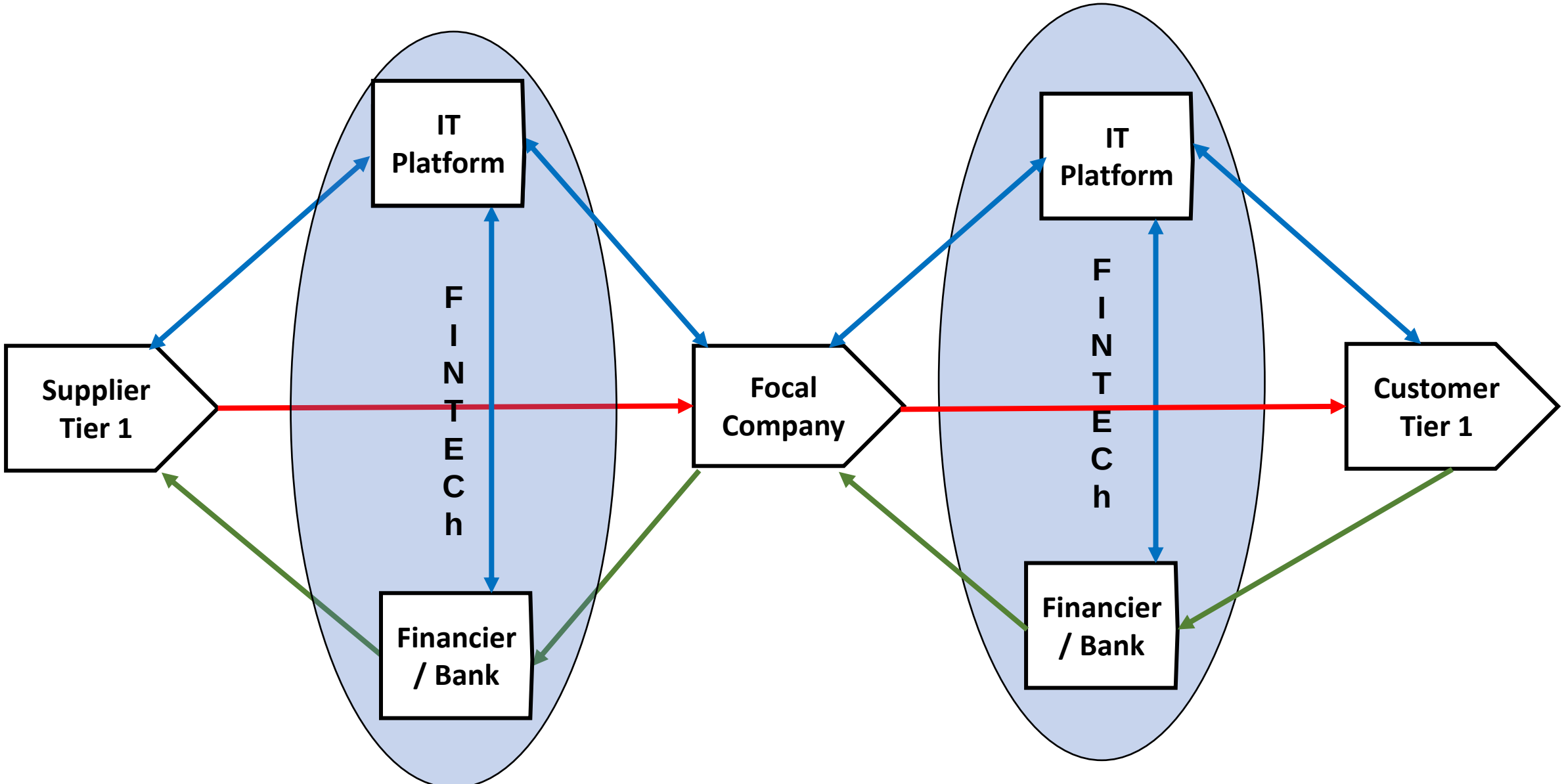
$R_E = R_{RF} + \beta * (R_M - R_{RF})$

$WACC = R_E * \varepsilon + R_D * \lambda * (1- \tau)$

- **Financial Value**
  - **EVA[1)]**
  - **ROE**
  - **ROCE**
- **HR & Intellectual value**
- **Social & Relational value**
- **Environmental value**

1) EVA = NOPAT – WACC * CAPITAL EMPLOYED

Supply Chain Finance Eco-System; Flows: Information, Goods & Services , Financial



SCF Metrics (Dynamic Net Operating Working Capital)

$$\textbf{Days Inventory Outstanding} = \textbf{DIO} = \frac{\textbf{Inventoris}}{\textbf{Cost of sales}} * \textbf{365 days}$$

$$\textbf{Days Sales Outstanding} = \textbf{DSO} = \frac{\textbf{Receiveables}}{\textbf{Sales}} * \textbf{365 days}$$

$$\textbf{Days Purchases Outstanding} = \textbf{DPO} = \frac{\textbf{Payables}}{\textbf{Cost of sales}} * \textbf{365 days}$$

Cash 2 Cash Cycle = C2C = DIO + DSO - DPO

SCF Metrics: Comparing Hyundai with Volkswagen (I)

Company	BS & IS Data	2018	2019	2020	2021	2022
Volkswagen	Sales	235849	252632	222884	250200	279232
	Cost of sales	189500	203490	183937	202959	227005
	Inventories	45745	46742	43823	43725	52274
	Receivables	17888	17941	16243	15521	18581
	Payables	23607	22745	22677	23624	28748
Company	**BS & IS Data**	**2018**	**2019**	**2020**	**2021**	**2022**
Hyundai (billions K. Won)	Sales	96812	105746	103977	117610	142527
	Cost of sales	81670	88091	85515	95680	114209
	Inventories	10714	11663	11333	11645	14291
	Receivables	3595	3513	3283	3147	4279
	Payables	7655	7669	8793	9155	10797

SCF Metrics: Comparing Hyundai with Volkswagen (II)

Company	SCF metric	2018	2019	2020	2021	2022
Volkswagen	DIO	88,1	83,8	87,0	78,6	84,1
	DSO	27,7	25,9	26,6	22,6	24,3
	DPO	45,5	40,8	45,0	42,5	46,2
	CCC	70,3	69,0	68,6	58,8	62,1
Company	SCF metric	2018	2019	2020	2021	2022
Hyundai	DIO	47,9	48,3	48,4	44,4	45,7
	DSO	13,6	12,1	11,5	9,8	11,0
	DPO	34,2	31,8	37,5	34,9	34,5
	CCC	27,2	28,7	22,4	19,3	22,1