SAPICS

THINK SUPPLY CHAIN THINK SAPICS

INNOVATION IN MOTION

8 - 11 June 2025

The Leading Event in Africa for Supply Chain Professionals

47th ANNUAL CONFERENCE

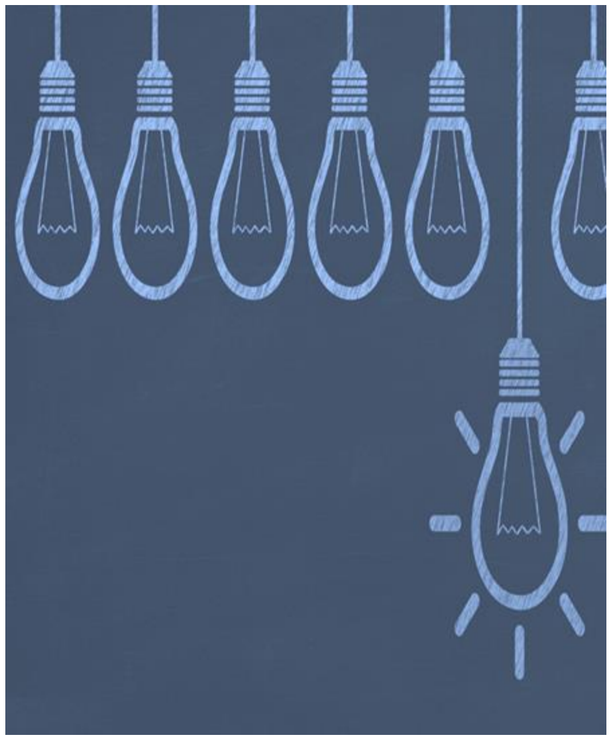
Century City Conference Centre, Cape Town

Competing more smartly: Lean synergies in GVCs

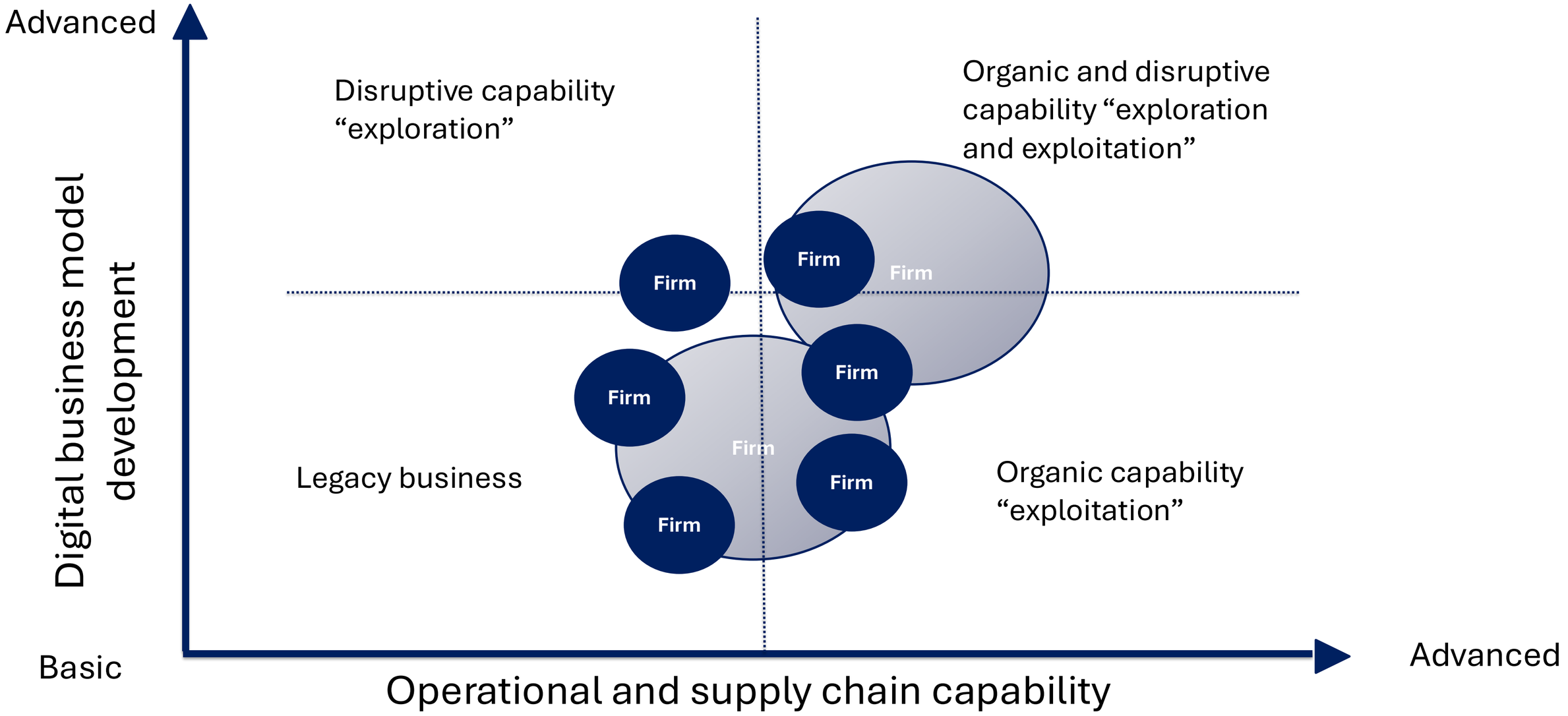
Prof Justin Barnes and Khavitha Singh, 9 June 2025

Presentation outline

1. The challenge of managing disruption
2. Exploring supply chain disruption
3. Lean operations and lean supply chain fundamentals
4. Lean leadership and strategy within GVCs
5. Key lessons



The dual challenge facing all executives



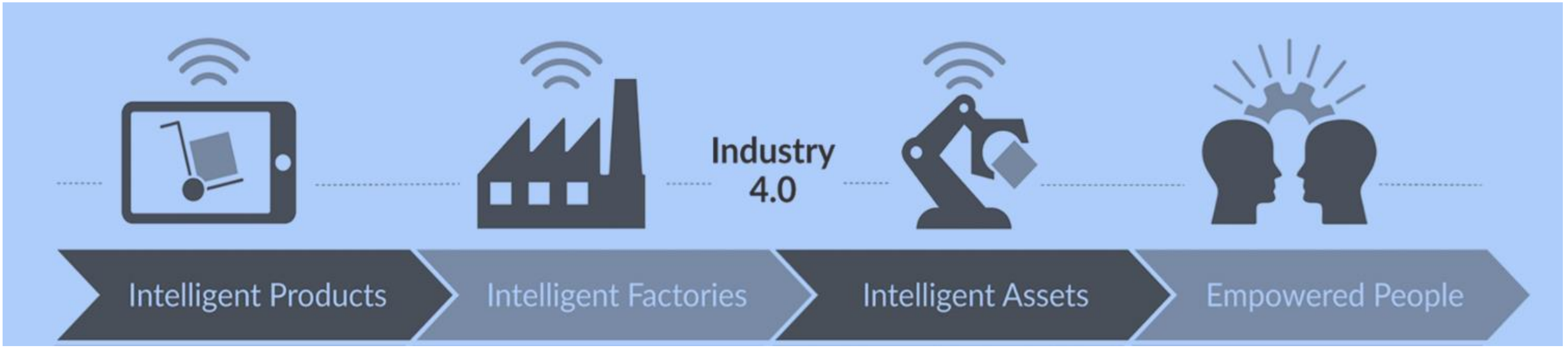
Understanding disruption

"A radical change in an industry, business strategy, etc., especially involving the introduction of a new product or service that creates a new market" (www.dictionary.com)

vs

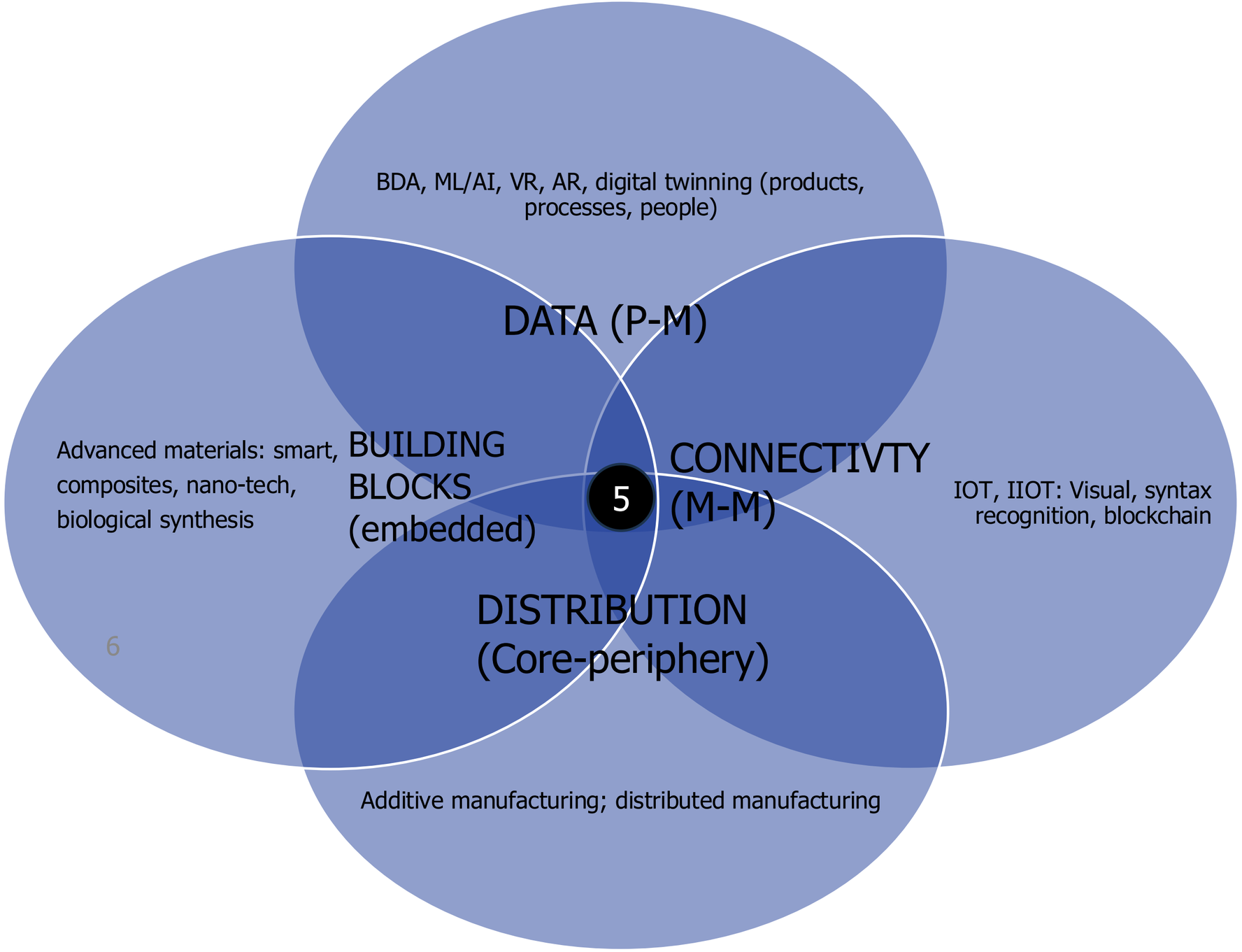
"Disturbance or problems which interrupt an event, activity, or process"
(www.en.oxforddictionaries.com/definition/disruption)

So, what are the disruptors? (4+2+1)



Four baskets of technology disruption

5 Autonomous robotics/AGI



Two major socio-economic disruptions

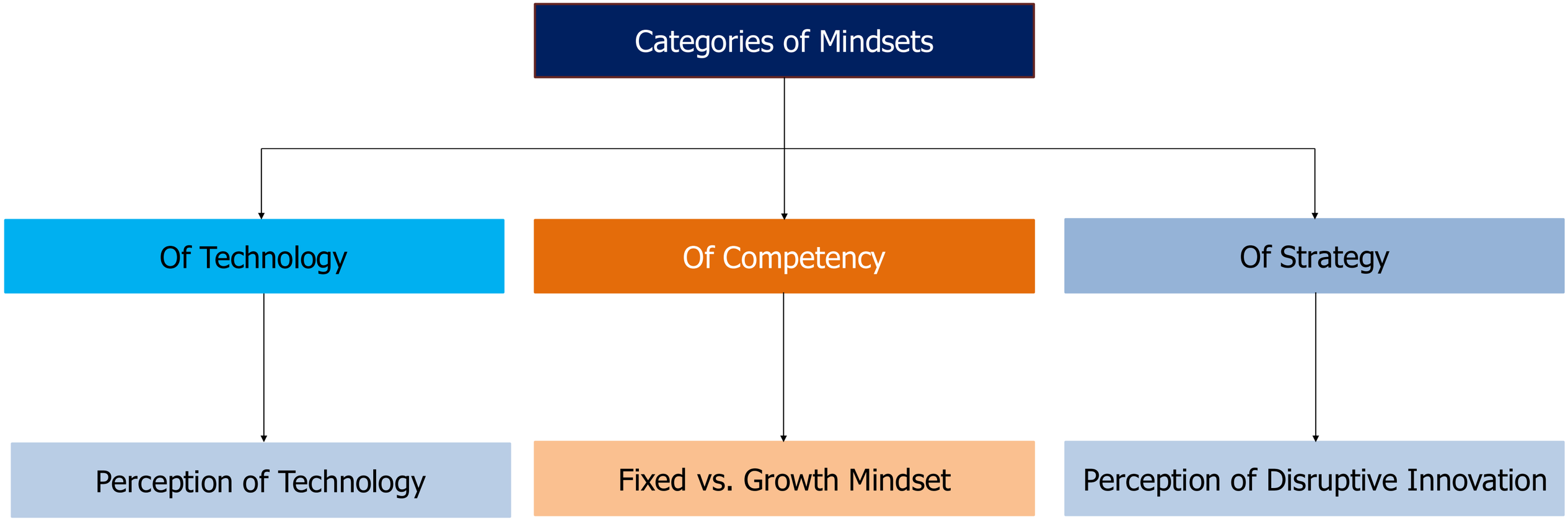
Mass customisation vs global manufacturing. Market of many niches vs. global consolidation? (nearshoring, onshoring…)

The fortune at the bottom of the pyramid. How will manufacturing models change for large, rapidly growing, but poor markets?

"…the core aim of mass customisation is to cater to the unique requirements of individual customers while maintaining production efficiency…" (WMF, 2023: 26).

And one existential disruption

https://education.nationalgeographic.org/resource/greenhouse-effect



Visualisation of the three pervasive mindsets that impact our ability to innovate – drive change

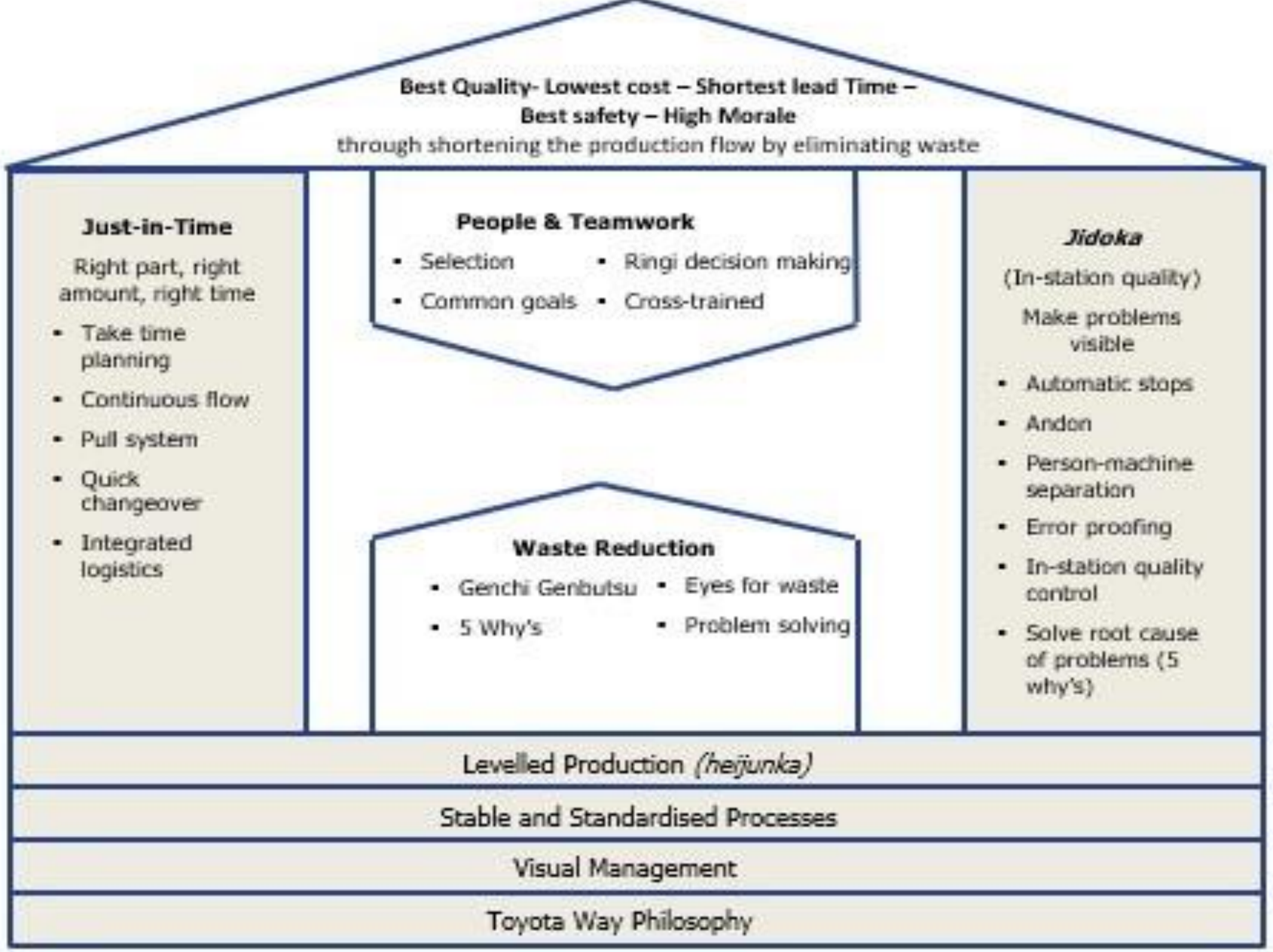
Jones, et al. (2021: 5)

Two reflection points

INDITEX

ZARA

The Toyota Production System (TPS)



Summary of Assembly Plant Characteristics, Volume Producers, 1989 (averages for plants in each region)

	Japan in Japan	Japan in N. America	US in N. America	All Europe
Performance:				
Productivity (hours/veh.)	**16.8**	**21.2**	**25.1**	**36.2**
Quality (assembly defects/100 vehicles)	**60.0**	**65.0**	**82.3**	**97.0**
Layout:				
Space (sq. ft./vehicle/year)	5.7	9.1	7.8	7.8
Size of repair Area (as % of assembly space)	4.1	4.9	12.9	14.4
Inventories (days for 8 sample parts)	**0.2**	**1.6**	**2.9**	**2.0**
Work Force:				
% of Work Force in Teams	69.3	71.3	17.3	0.6
Suggestions/Employee	61.6	1.4	0.4	0.4
Number of Job Classes	11.9	8.7	67.1	14.8
Training of New Production Workers (hours)	380.3	370.0	46.4	173.3
Absenteeism	5.0	4.8	11.7	12.1
Automation:				
Welding (% of direct steps)	86.2	85.0	76.2	76.6
Painting (% of direct steps)	54.6	40.7	33.6	38.2
Assembly (% of direct steps)	1.7	1.1	1.2	3.1

Source: IMVP World Assembly Plant Survey, 1989, and J.D. Power Initial Quality Survey, 1989, in Womack, Jones and Roos (2007), The Machine That Changed The World, pg. 92

Cross-regional supplier comparison in 1989: Supplier performance

Averages for each region (1)	Japanese in Japan	Japanese in USA	American in USA	All Europe
Die Change Times (minutes)	7.9	21.4	114.3	123.7
Lead Times for New Dies (weeks)	11.1	19.3	34.5	40.0
Job Classifications	2.9	3.4	9.5	5.1
Machines per Worker	7.4	4.1	2.5	2.7
Inventory Levels (days)	**1.5**	**4.0**	**8.1**	**16.3**
No. of daily JIT deliveries	**7.9**	**1.6**	**1.6**	**0.7**
Parts Defects (per car) (2)	0.24	na	0.33	0.62

Notes and Sources:

(1) From a matched sample of 54 supplier plants in Japan (18), America (10 American-owned and 8 Japanese-owned), and Europe (18). T. Nishiguchi, *Strategic Dualism: An Alternative in Industrial Societies*, Ph.D. Thesis, Nuffield College, Oxford, 1989, Chapter 7, pg. 313-347.

(2) Calculated from the 1988 J.D. Power Initial Survey.

Womack, Jones and Roos (2007), The Machine That Changed The World, pg. 161

Cross-regional supplier comparison: Design and relations

Averages for each region	Japan in Japan	Japan in USA	American in USA	All Europe
Supplier Involvement in Design (1):				
Engineering carried out by suppliers (% total hours)	51	na	14	35
Supplier Propriety Parts (%)	8	na	3	7
Black Box parts (%)	62	na	16	39
Assembler Designed parts (%)	30	na	81	54
Supplier/Assembler Relations (2):				
Number of Suppliers per Assembly Plant	170	238	509	442
Inventory Level (days, for 8 parts)	0.2	1.6	2.9	2.0
Proportion of Parts Delivered Just-In-Time (%)	45.0	35.4	14.8	7.9
Proportion of Parts Single Sourced (%)	12.1	98.0	69.3	32.9

Notes and Sources:

(1) From a survey of 29 product development projects by Clark and Fujimoto. K.B. Clark, T. Fujimoto, and W.B. Chew, "Product Development in the World Auto Industry," *Brookings Papers on Economic Activity*, No. 3, 1987, pg. 741: T. Fujimoto, *Organisations for Effective Development: The Case of the Global Motor Industry,* Ph.D. Thesis, Harvard University, 1989, Table 7.1

(2) From the IMVP *World Assembly Plant Survey*, 1990

Womack, Jones and Roos (2007), The Machine That Changed The World, pg. 161

Why Inditex?


International Retailer review: Avg. Sales Growth vs Avg. GMROII 2008 - 2013
GMROII (2008 - 2013)
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
Inditex
M&S
Wet Seal
H&M
American Eagle
The Gap
Next
FCUK
Columbia Sportwear
JC Penney
Stage Stores
-10.0%
-5.0%
0.0%
5.0%
10.0%
15.0%
Sales Growth (2008 - 2013)

Inditex's 3-tier supply chain model

Sourcing location	% of total purchases	Lead time	Garment assembly wage rates – hourly estimates in 2011
Far East (slow)	1/3	180 days	$0.45 (Bangladesh) to $1.50 (coastal China)
Regional (quick)	1/3	28-56 days	$4.10 (Turkey)
Local (quickest)	1/3	14-16 days	$7.50 (Spain, Portugal)
South Africa	N/A	156 days	$3.10 (metro), $2.40 (non-metro)

Model recognises:

- Need for differentiated supply chain strategy in support of QR effectiveness
- Commercial advantage of supply chain speed (local more expensive than regional, which is more expensive than Far East)
- ***Quid pro quo*** on part of supply chain: Guaranteed reliability, quality, flexibility (volumes and speed) – **LINK TO LEAN**

Zara's 14-16 day lead time from PO to new product store display

Days	Process 1	Process 2
1	Design (CAD) into available fabrics	Bulk fabric planned off fabric banks prepared for season
2	Pattern (manual)	
3	Design approval	
4	Bulk fabric coloured up, or printed	Internal and external factories planned
5		
6		
7		
8	Production executed (internal fabric, external sewing, internal finishing)	DC planned
9		
10		
11		
12	Arrival in DC, samples to commercials	Marketing, windows, pilot store review
13	DC pick and pack to store demand	
14	Distribution to stores	Windows and merchandise templates to stores
15		
16		

1 Design

2 Pre-production

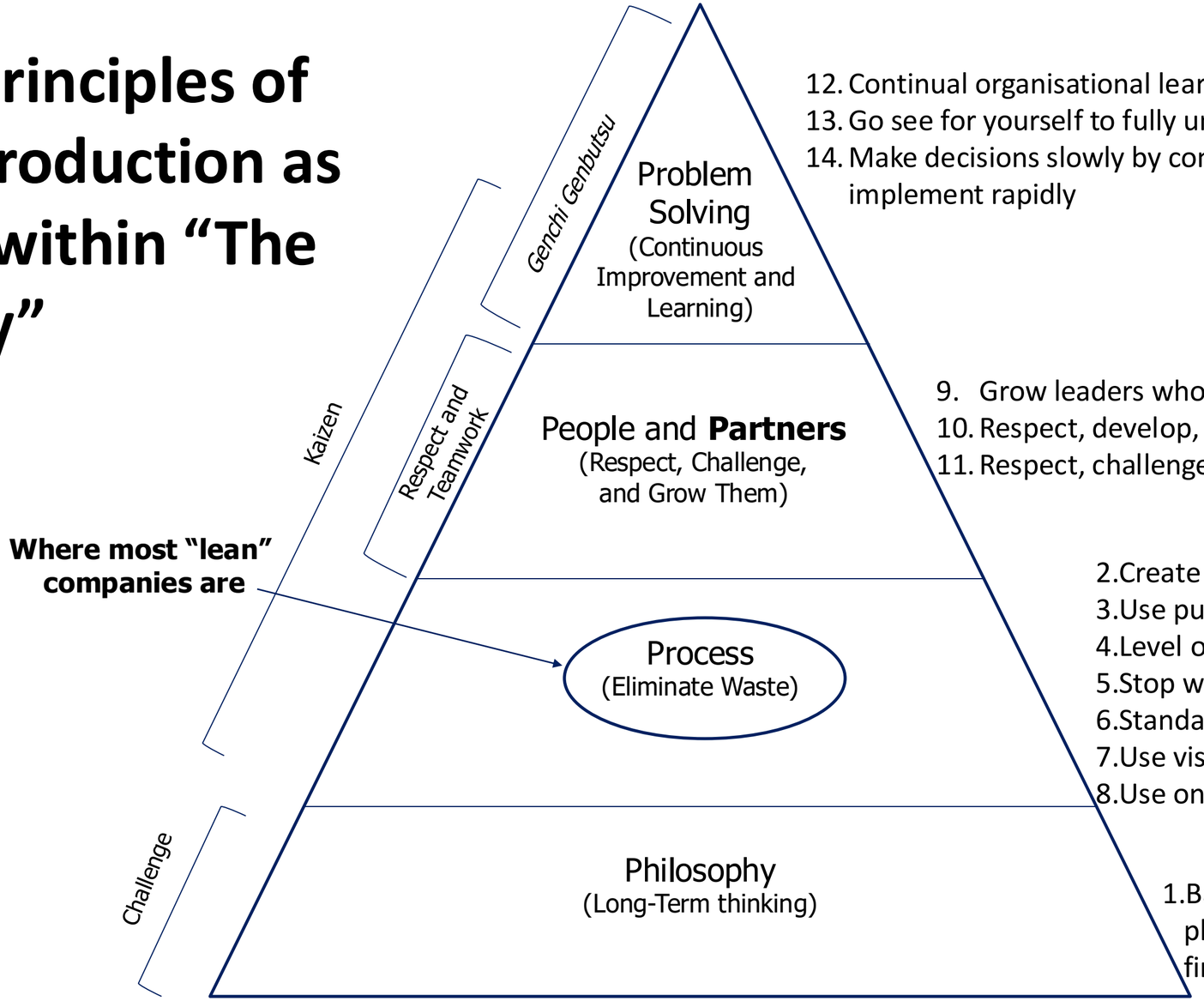
3 Production

4 Internal logistics

5 External logistics

Note: Estimates based on observations from Zara visit, October, 2015

Liker's 14 principles of true lean production as embodied within "The Toyota Way"



12. Continual organisational learning through Kaizen
13. Go see for yourself to fully understand the situation: *Genchi Genbutsu*
14. Make decisions slowly by consensus, thoroughly considering all opinions; implement rapidly

9. Grow leaders who live the philosophy
10. Respect, develop, and challenge your people and teams
11. Respect, challenge, and help others

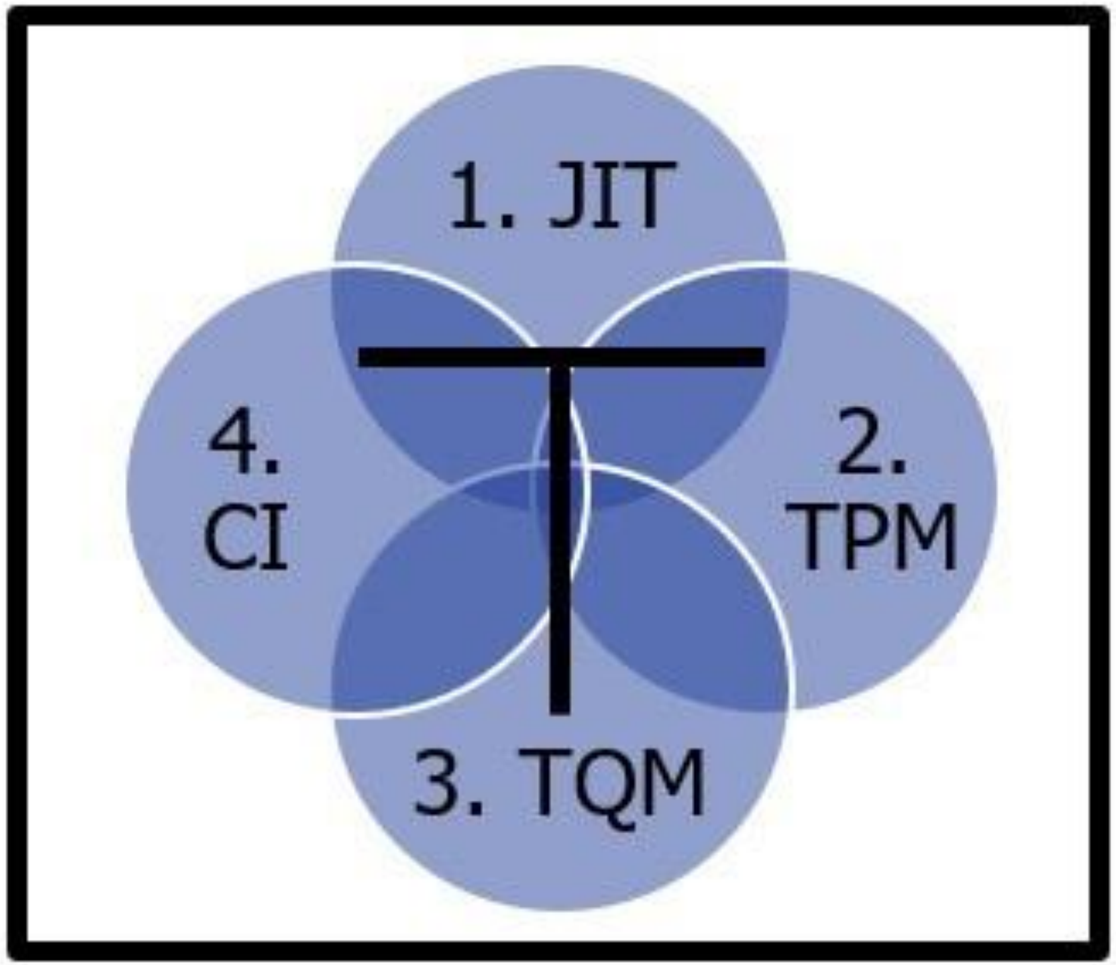
2. Create process "flow" to surface problems
3. Use pull systems to avoid overproduction
4. Level out the workload (*Heijunka*)
5. Stop when there is a quality problem (*Jidoka*)
6. Standardise tasks for continuous improvement
7. Use visual control so no problems are hidden
8. Use only reliable, thoroughly tested technology

1. Base management decisions on a long-term philosophy, even at the expense of short-term financial goals

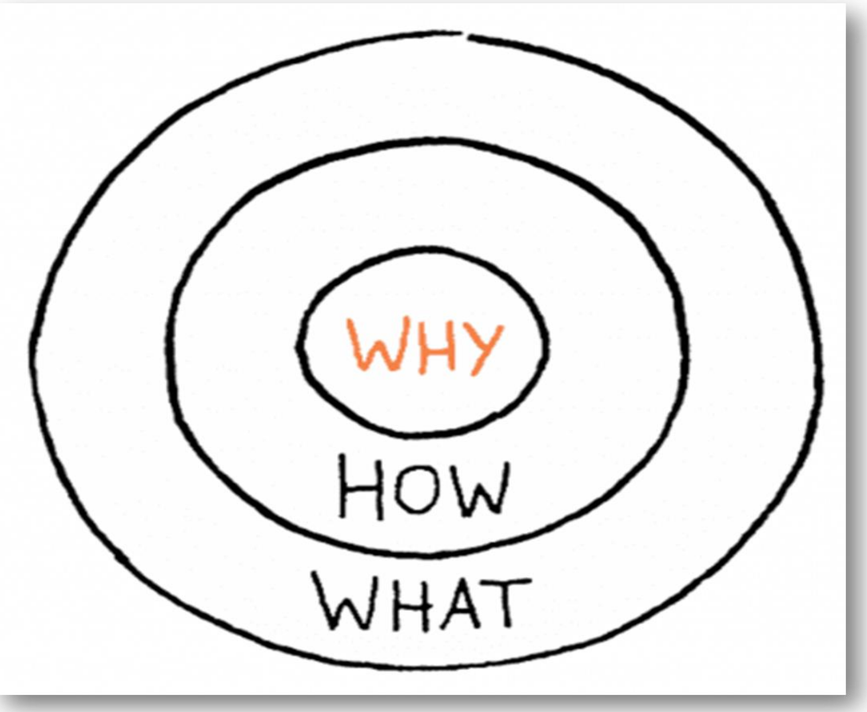
Liker (2004), The Toyota Way, pg. 13

Reducing Waste through Lean Methodologies – The How?

5. Stability – 5S

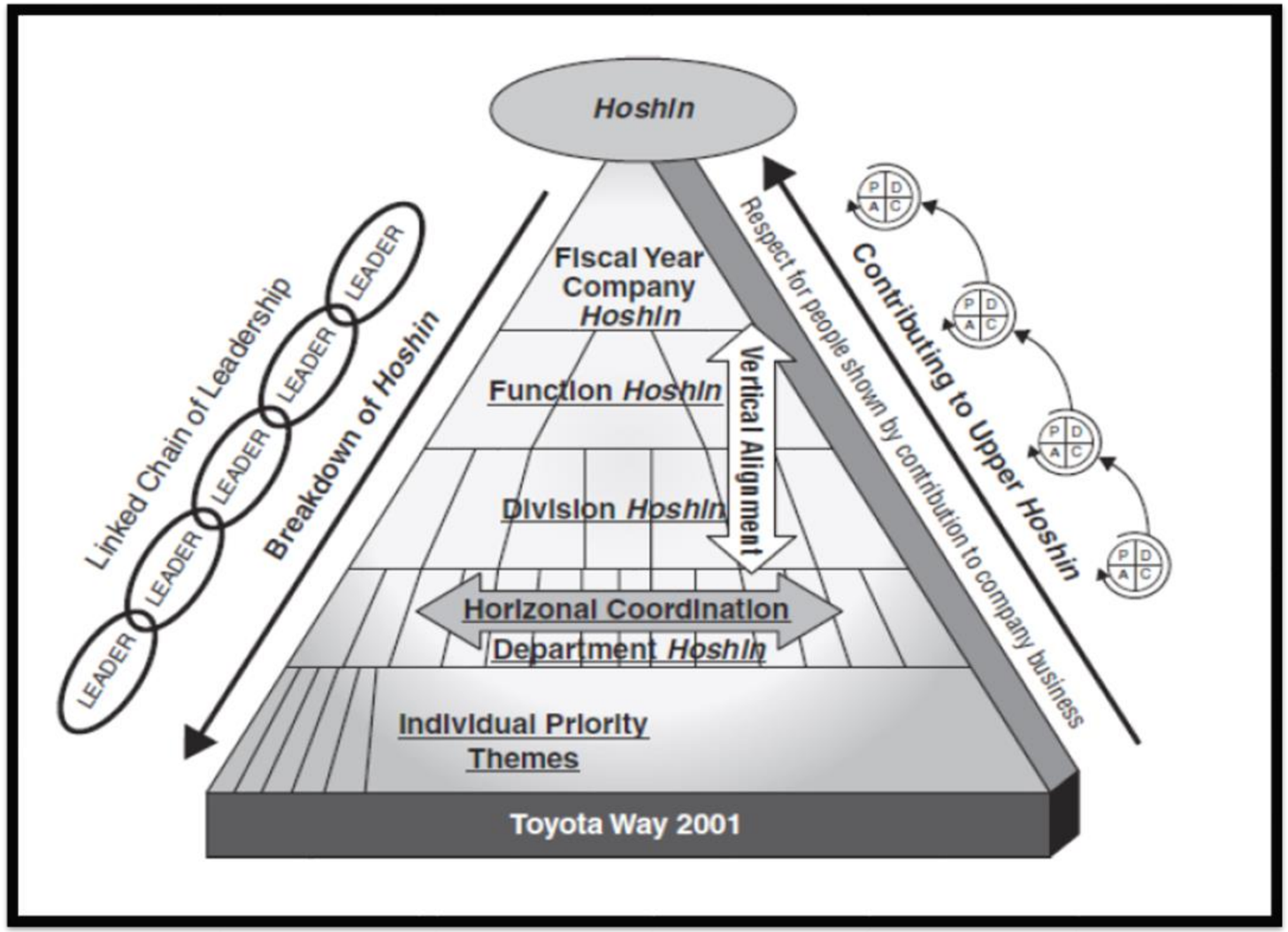


6. Leadership, management and development



True North and Purpose

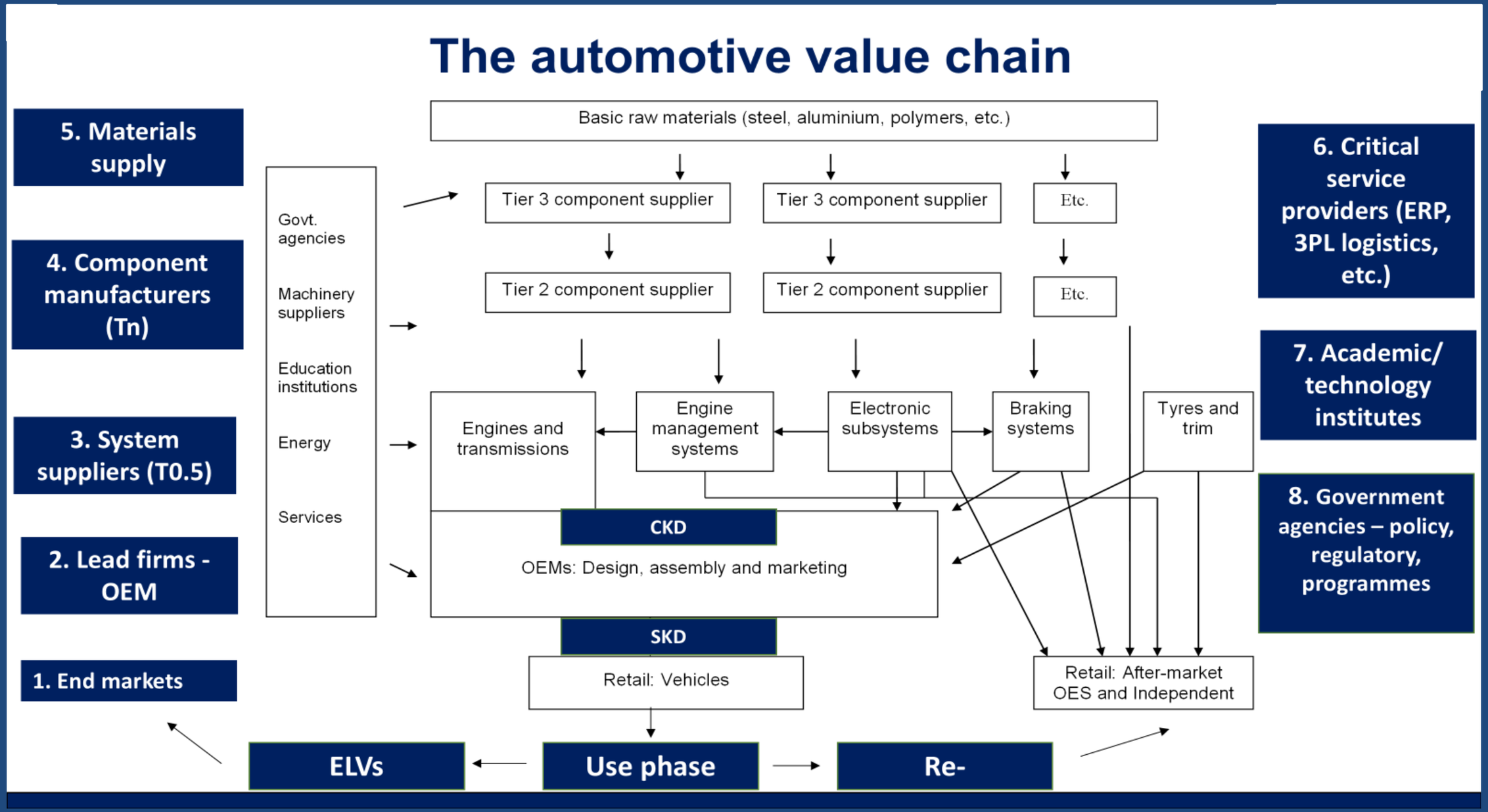
Aligning Goals of True North: Hoshin Kanri



- Strategy deployment/Manage By Objectives (MBO)
- Vertical and horizontal integration
- Top-down but also down-up contribution
- Linked leadership chain – ”catch ball”

Source: Liker and Convis (2012), The Toyota Way to Lean Leadership

Value Chain Perspectives



The Context of Value Chains

- Competitive Advantage- Michael Porter – 1985
- Largely contextualized within the supply chain/manufacturing industries
- Translated and expanded across industries

Value chain/stream: A sequence of processes that are connected by a common customer, product, or service request. (Burtner, 2013)

- A set of activities that are essential to delivering value to the "what and whom"
- Can be split into primary activities and support activities- with associated sub-categories

This requires that managers have a very clear idea of whose needs they are **trying to serve and the set of activities** they must perform to serve those needs (Porter et al., 2021)

Primary and Secondary Activities

Primary activities:

- Go directly into the creation of a product or the execution of a service

Secondary activities:

- Assist and Support the primary activities to become more efficient

Stakeholders within a Value Chain

Internal and External

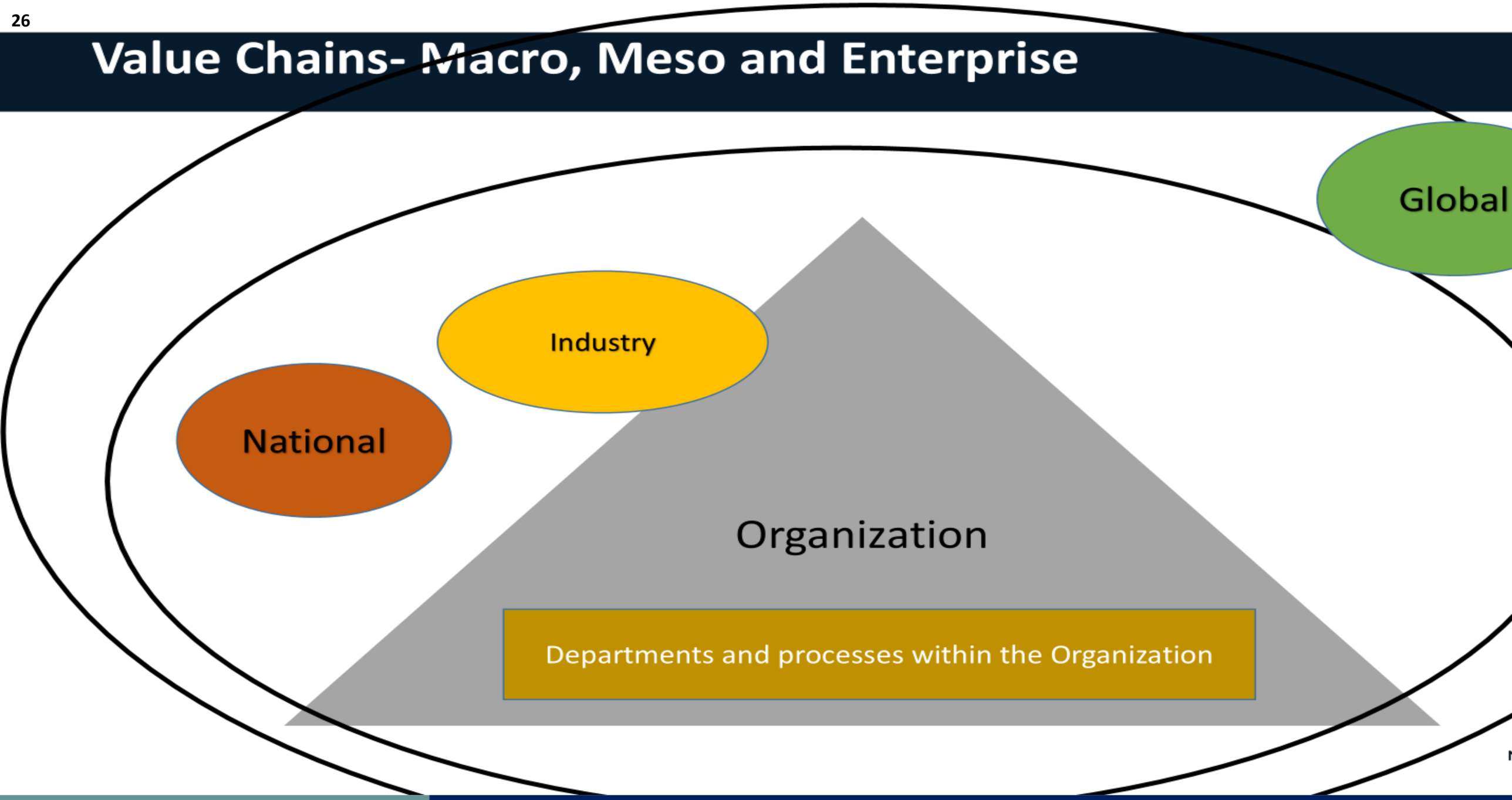
“Suppliers and Customers”

Collectively working within a chain to deliver value to the customer

Individuals/Teams, that:

Can affect or be affected by activities or processes

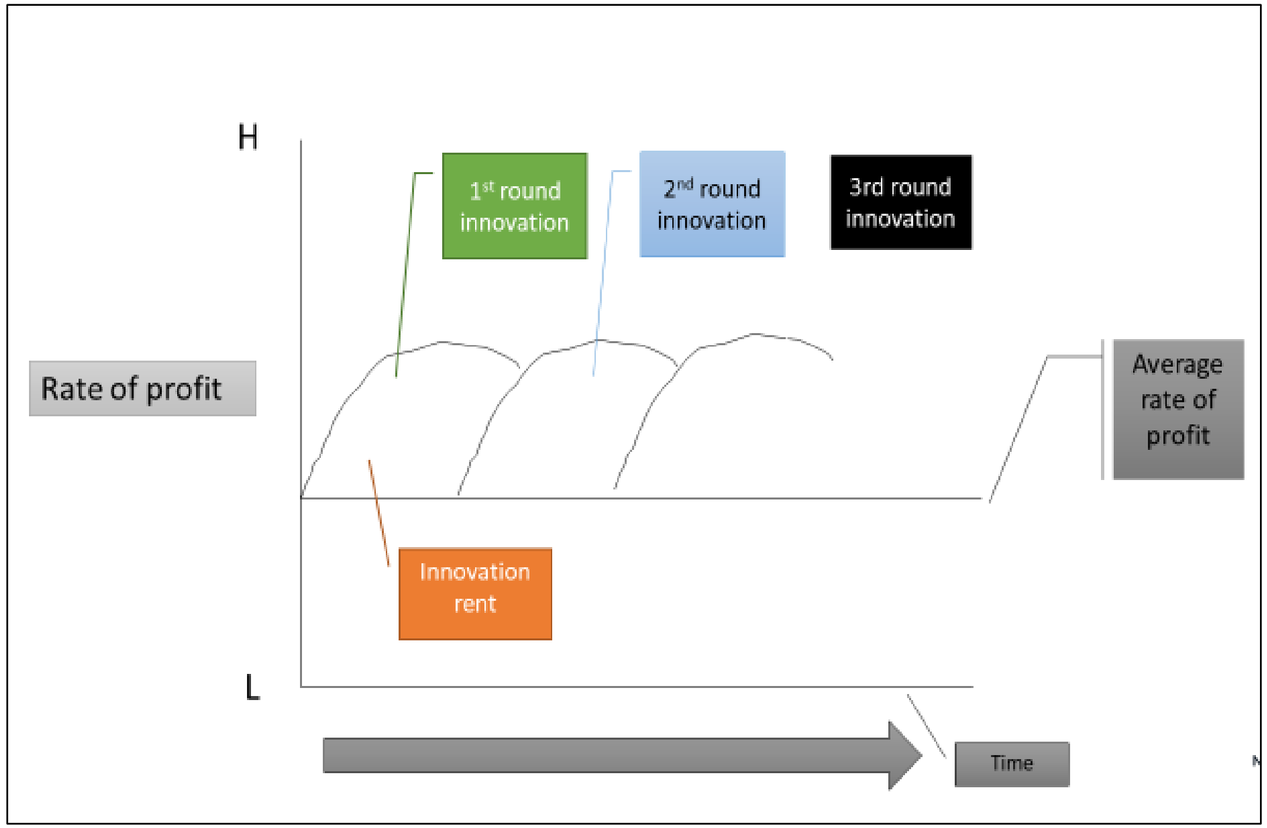
Value Chains- Macro, Meso and Enterprise

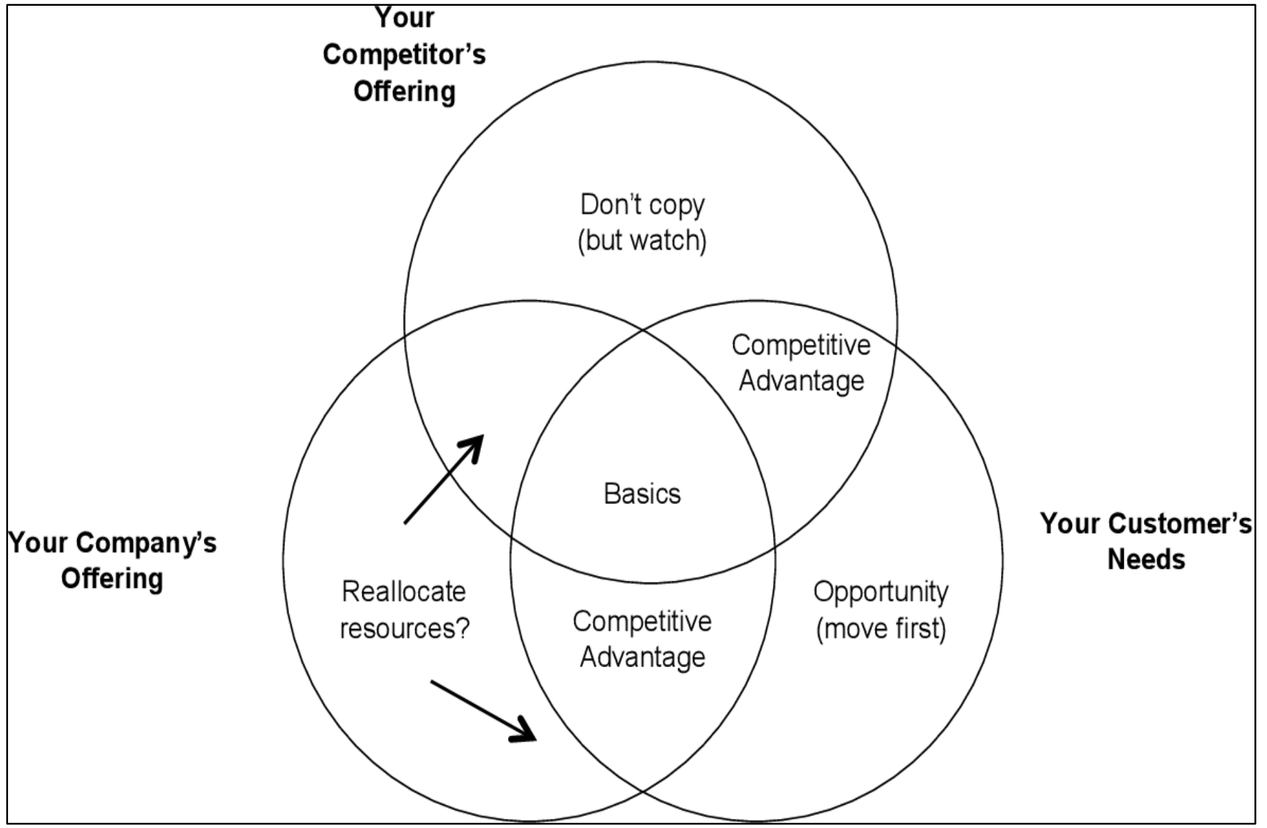


What is Value?

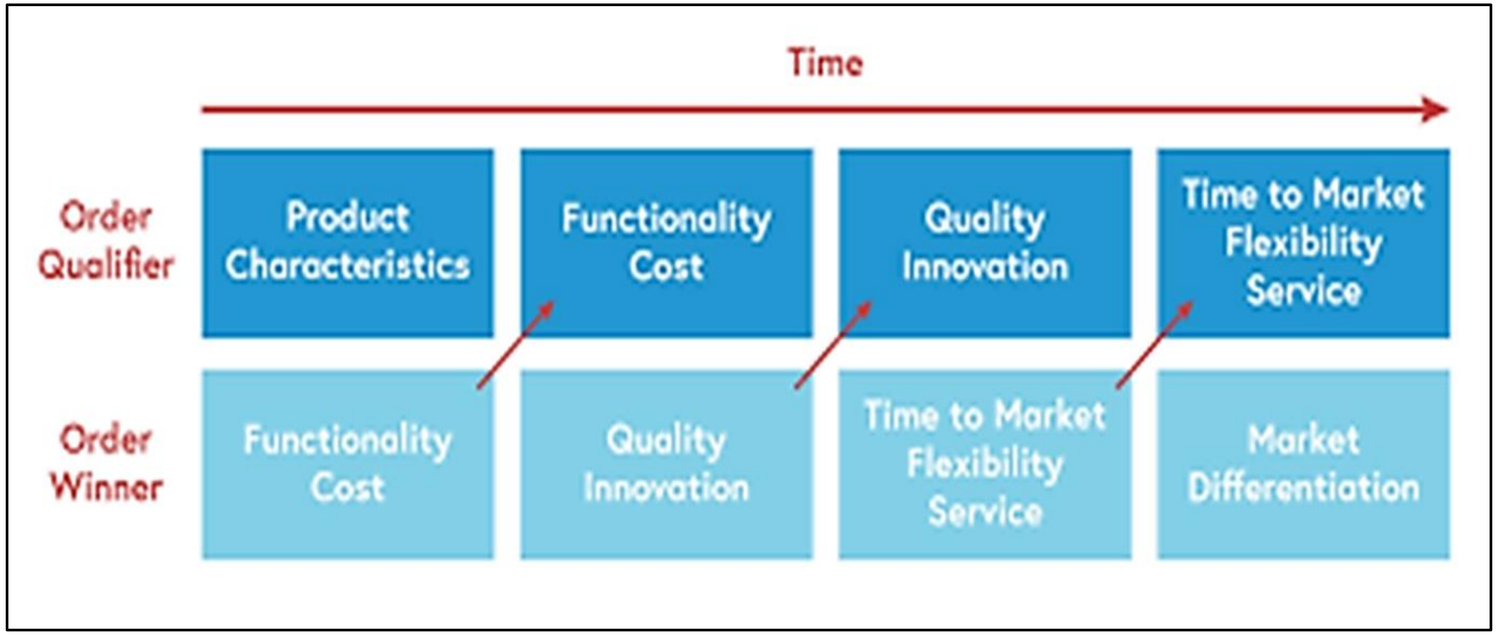
- Different meanings and perspectives- Price, Benefit etc.
- Dictionary
  - Hold something in high regard
  - Has merit, worth or is off importance
- What are you willing to pay for?- not always monetary?
- Value is determined by the unique combination of characteristics - that are important to the client (Ensign, 2020)

Schumpeter's Innovation Schema & CA





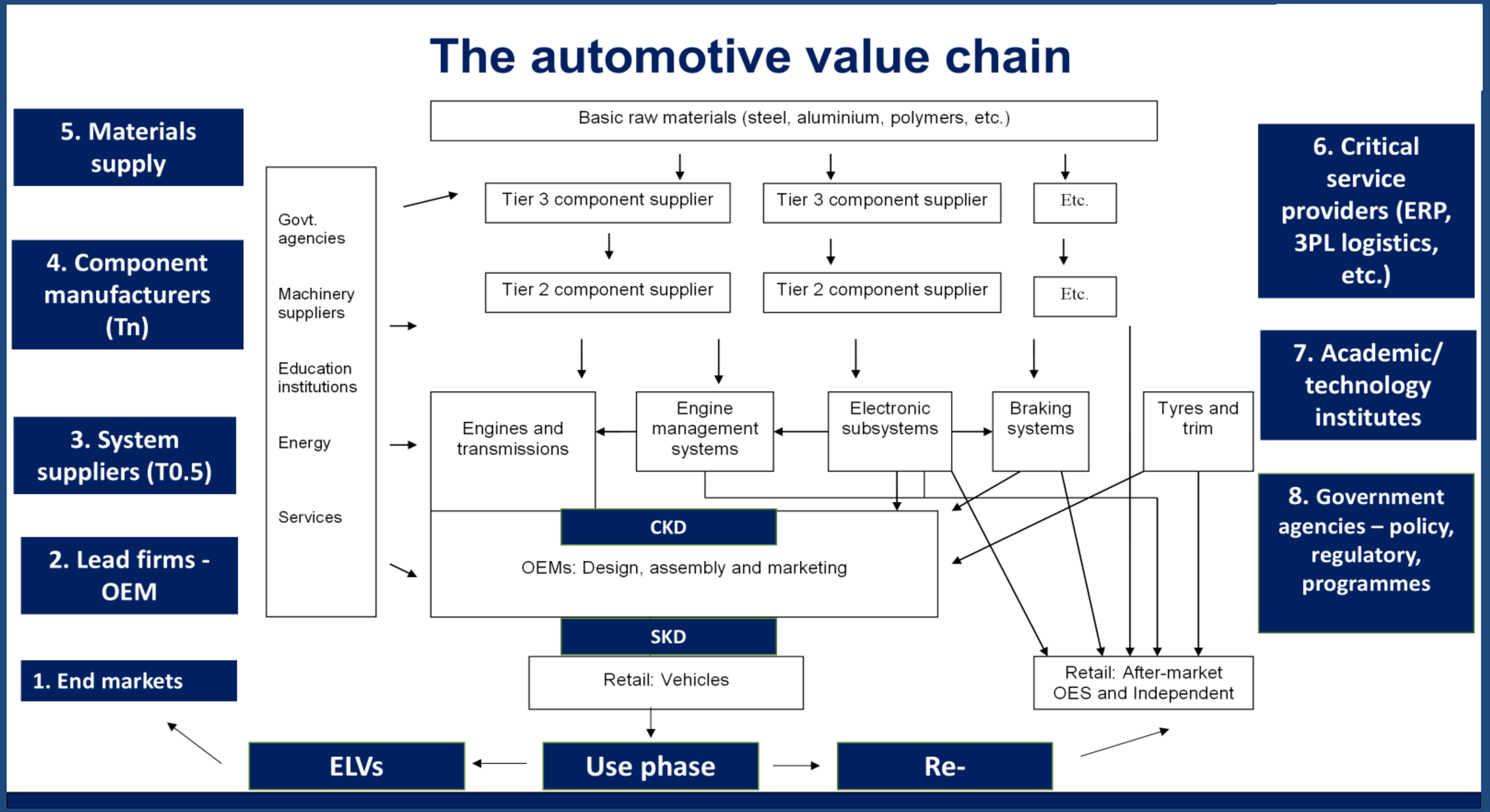
Why is value relevant…?



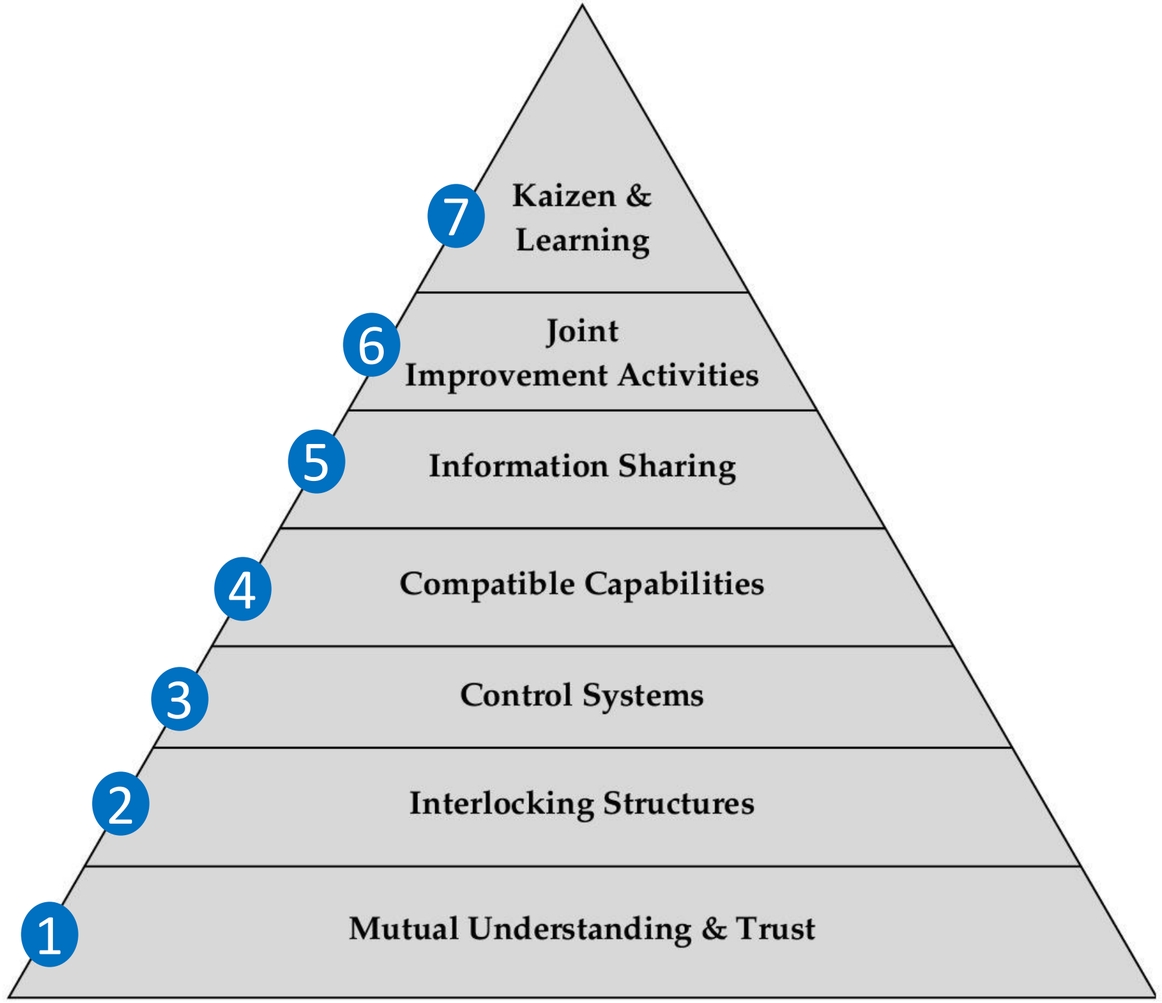
Unpacking some Examples

- McDonalds
- Checkers 60
- Nando’s
- Others?

Creating Value with Supply Chain Partners



Supplier partnering hierarchy



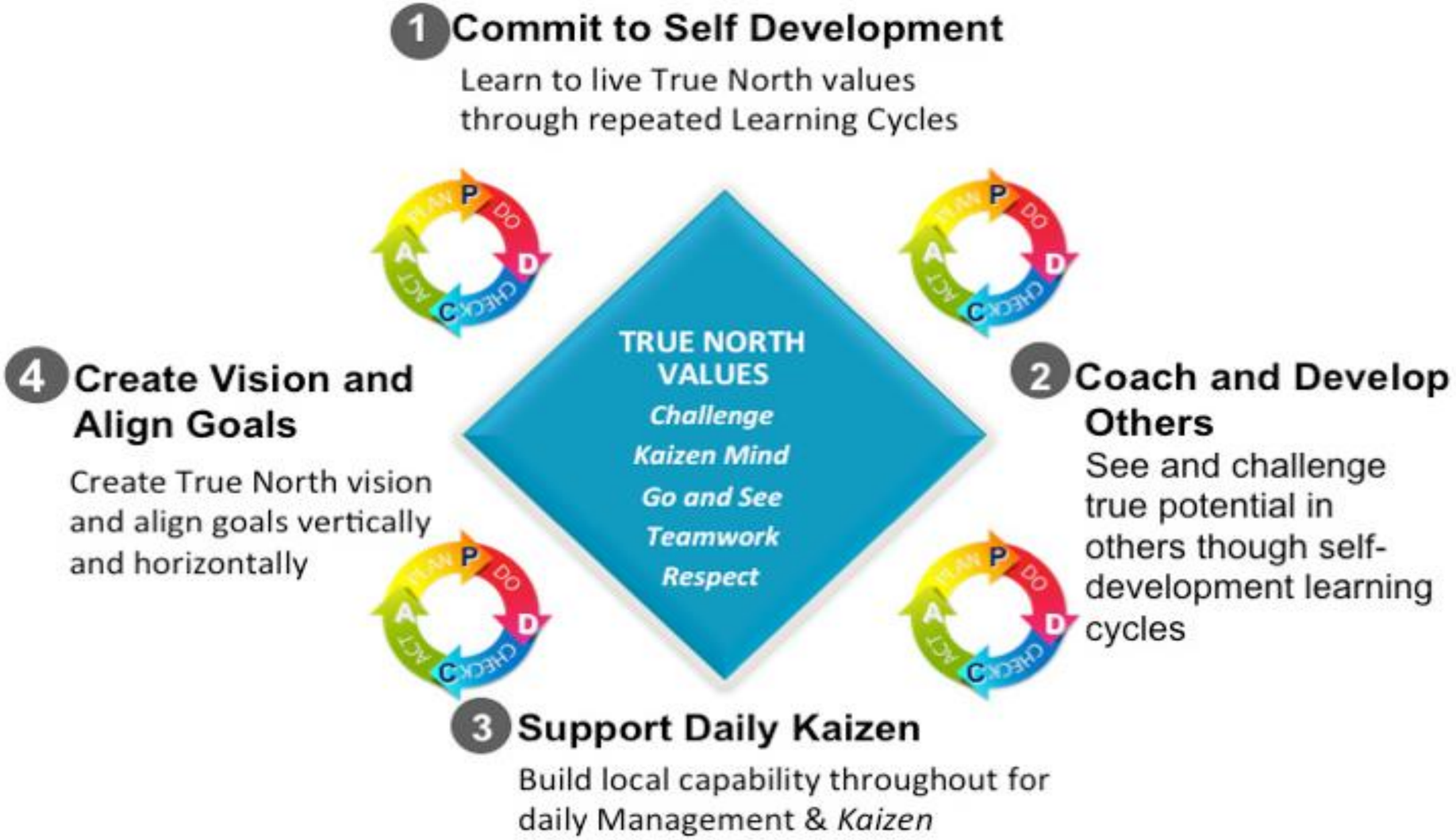
J. Liker, D. Meier 2006, The Toyota Way Fieldbook, pg 274

Lean Leadership Essentials

Monozukuri – Making of things…Embodies the spirit and skill of craftmanship

Tanaka

Diamond model of lean leadership development



Liker and Convis (2012), The Toyota Way to Lean Leadership, pg. 30

5 key lessons

1. Supply chain excellence is driven by business strategy
2. Business strategy is driven by long-term vision and purpose, and encapsulates overall approach to business
3. Without a clear long-term vision and purpose, supply chain strategy will be reactive and either technology-phobic or technology-philic. Neither is healthy
4. How to drive a technology-rich but ultimately technology agnostic approach to creating value for customers as part of a company's long-term vision and purpose?
5. People are at the centre of the value creation and value execution journeys – the leadership approach matters!

Discussion / Q & A

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Thank you for your attention