Perspectives on Chinese Development Speed & Product Cost

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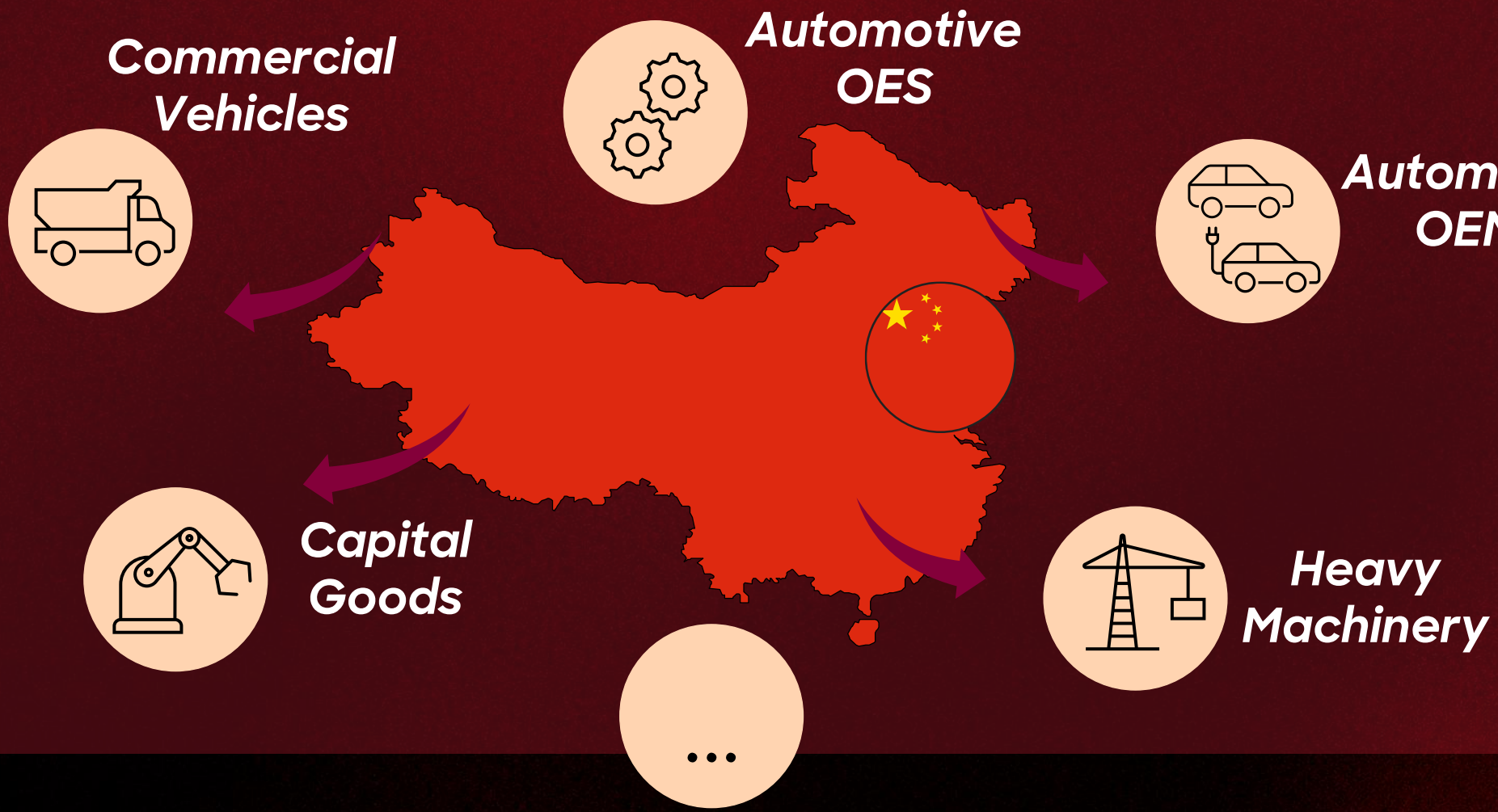
Roland Berger perspective on Chinese development speed and product cost

Executive Summary

- **Chinese companies** – particularly in the automotive and capital goods sectors – **are rapidly expanding into global and especially Western markets**
- Their market entry is driven by **significantly faster product development** processes (25–30% quicker) **and substantially lower product costs** (20–30% less) **compared to Western incumbents**
- We provide an **impulse** into the **sources of these advantages** and outline **what Western companies must do** to stay competitive and **close the gap**

Since last year, both MNCs and local firms have struggled in China's domestic market, pushing Chinese companies to pivot toward exports in key industries...



...leading western players to continue to struggle against Chinese competition, both in China & now also in their home markets

...too slow in terms of time to market

...too expensive

...too little attuned to changing customer needs

Struggling to be competitive in China & in the respective home markets!

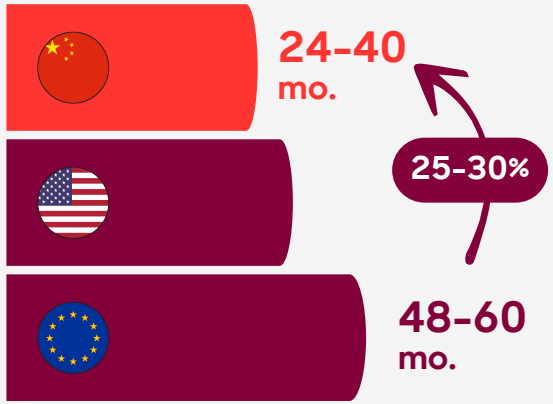
... it is time to act now!

The key question, particularly for engineered products & automotive companies is: How to achieve Chinese "speed" at competitive material costs levels?

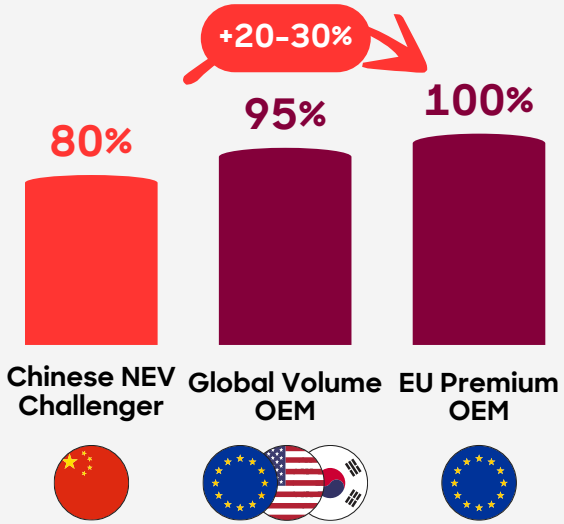
A Time to market

B Material cost competition

PDP development time [months]



BEV COGS comparison [%]



So the challenge for western OEMs is...

How to achieve Chinese "speed" in time-to-market...

... at competitive material costs levels?

PDP: Product development process

Source: Capital IQ, company information, Roland Berger

A Time to market

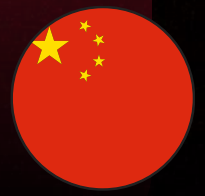
Chinese companies, especially in the automotive sector, have drastically decreased time and resource efforts in product engineering processes

How are OEMs achieving China speed?

1 **Accelerated product development process**
Shortened strategy phase, Consequent use of (supplier)platforms, high vertical integration for selected systems, etc.

2 **Parallelization of processes and minimum viable product approach**
Agility & speed in basic development with Minimal Proof of Concept Approach

3 **Lean and hierarchical organization**
Lean R&D organization, quickly adapting to market conditions – Enabling further accelerated global expansion



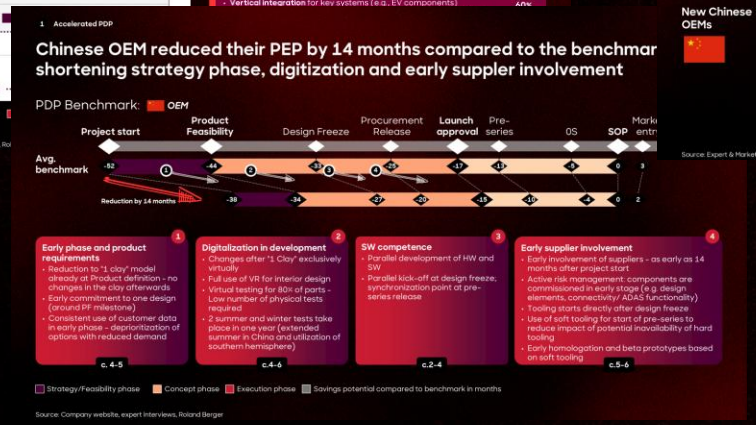
Further Deep Dives for selected Chinese passenger car, commercial vehicle OEMs and capital goods companies available

Project examples available !

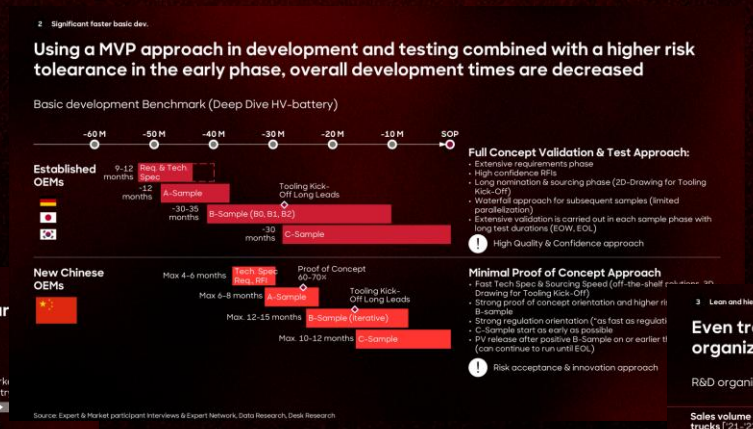
Combining significantly reduced product development processes with a consequently organized R&D function enables efficient time to market

China Speed – Unparalleled product development and engineering speed

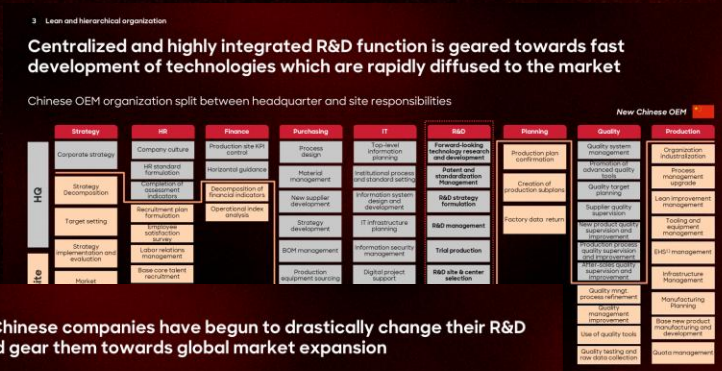
1 Accelerated product development process



2 Parallelization of processes and MVP[1] approach



3 Lean and hierarchical organization



1) Minimum Viable Product

Chinese OEMs, especially in the automotive sector, deliver significant cost gaps in their BOMs, mainly due to…

How are OEMs achieving China cost levels?

1 Conscious product trade-off decisions

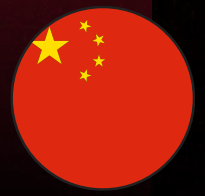
They make conscious product trade-off / design decisions with strong customer attunement in focus

2 A stringent cost-out operating model

They work within a stringent cost-out operating model leveraging both technical and commercial levers

3 Procurement set-up with end-to-end perspective and accountability

They foster direct accountability for cost-out management end-to-end wherever possible



Further Deep Dives for selected Chinese passenger car, commercial vehicle OEMs and capital goods companies available

Project examples available !

Through early product feature decisions and a clear cost-out operating model, Chinese companies achieve drastically lower product cost

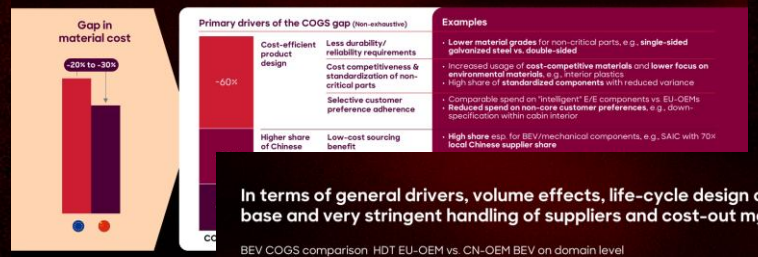
China Cost – Stringent material and product cost savings across categories

1 Conscious product trade-off decisions

Project example – illustrative

For heavy duty trucks for example we see a ~20-30% gap in material costs - Mainly driven by design choices, high local supplier share and lower ops. costs

Material cost gap CN-OEM and EU-OEM – Heavy duty trucks (HDT)



1) e.g., low-interest funds

Source: Interviews with market participants

In terms of general drivers, volume effects, life-cycle design choices, lo base and very stringent handling of suppliers and cost-out mgmt. stand

BEV COGS comparison HDT EU-OEM vs. CN-OEM BEV on domain level

General drivers (non-exhaustive)	~150 k BEV HDTs	Designed for 5–10 years	>70% local share	Nego. up to 4x per year	>30% captive share	Stricter cost-out OM	
BEV COGS comparison EU-OEM vs. CN-OEM [%]	Volume effects	Specs/Standardization	Local supply base	Supply base handling[3]	Captive suppliers	Cost-out mgmt.[4]	Government interfere./Tax
E-power-train[1]	-8% to -12%	●●●	○	●●●	●●●	●●	○	●●●
Cabin body & exterior	-15% to -20%	○	●●●	●●	●●	●●	●●	○
Cabin interior	-25% to -30%	○	●●●	●●	●●	●●	●●	○
Chassis	-20% to -25%	○	●●●	●●	●●	●●	●●	●●
E/E Components[2]	0% to -5%	●●	○	●●●	●●	○	●●	●●
Assembly cost	-30% to -35%	●●	●●●	n/a	n/a	n/a	n/a	●●
Total	-20% to -30%	●●	●●●	●●	●●	○	●●	●●

Driven by lower CAPEX and operational cost

○ Low impact ●●● High impact

1) including HV battery; 2) including cost of E/E hardware (controller/ECU), wiring harness, display, HMI hardware and sensors (e.g., camera, radar, etc.); 3) i.e., supplier partnerships, supplier negotiation frequency; 4) i.e., Target costing pre-SOP, REC calculations, etc.

Source: Interviews with market participants

2 A stringent cost-out operating model

Overall, Chinese players excel in portfolio control, cost-out management and creating and leveraging sourcing advantages…

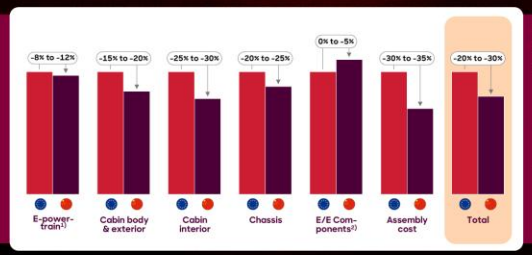
Active portfolio control	Stricter product portfolio complexity control	Less variants, versions and off-shoots aloud to creep into portfolio; enforcing clear business cases and ensuring constant clean-up
	Making clearer trade-off decisions	Focus demanded customer benefits and consciously cost-efficient product design
	Lowering specs & increasing standardization	Lower technical specifications (e.g., durability) and standardized products (more off-the-shelf and carry-over parts)
Focused cost-out management	Driving stricter cost-out management	Stricter cost-out operating model design and enforcement (weekly/monthly VA/VE sessions, aggressive YoY MatCo targets)
	Ensuring "high intensity" in supply base handling	Partnerships with high-stake suppliers (e.g., HV battery) and high negotiation frequency/pressure (e.g. quarterly negotiations)
Created & leveraged sourcing advantages	Leveraging volume effects	A high BEV/ICE volume domestic market enables economies of scale, further enhanced by a "greenfield" starting point
	Utilizing local supply base & manufacturing	Low-cost domestic manufacturing (~70× local supplier, ~-40× blue collar labor cost vs. EU)
	Keeping captive suppliers	High share of captive suppliers to support no-to-low margin pricing strategies
	Strategic reliance on state interference & taxes	Selected state subsidies and support in strategic areas (e.g., steel, HV battery mat., energy)

1) ~50k NEV MHDT, ~1,000k total MHDT

Project example – illustrative

Key cost differences on a BOM level can for example be seen within cabin interior and manufacturing costs

BEV COGS comparison HDT EU-OEM vs. CN-OEM [%]



Comparison assumptions

- **Product:** High runner HDT BEV from EU-OEM & CN-OEM (with product design destined for CN & EU-market)
- **Production:** CN-OEM production in China vs. EU-OEM production in EU
- **Non-BEV:** Findings for non-BEV specific domains also valid for ICE

1) Including HV battery; 2) including cost of E/E hardware (controller/ECU), wiring harness, display, HMI hardware and sensors (e.g., camera, radar, etc.)

Source: Interviews with market participants

3 Procurement set-up with E2E perspective and accountability

WM Motor leveraged the opportunity presented by its "greenfield" start and strategically decided to set up an integrated EV development and procurement

Integrated development and procurement center

Facts

Chinese electric vehicle maker founded by Freeman Shen, **former Volvo and Geely chairman** in China

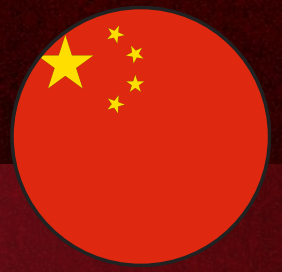
Raised funds from Chinese tech companies **Baidu and**

Innovative approach

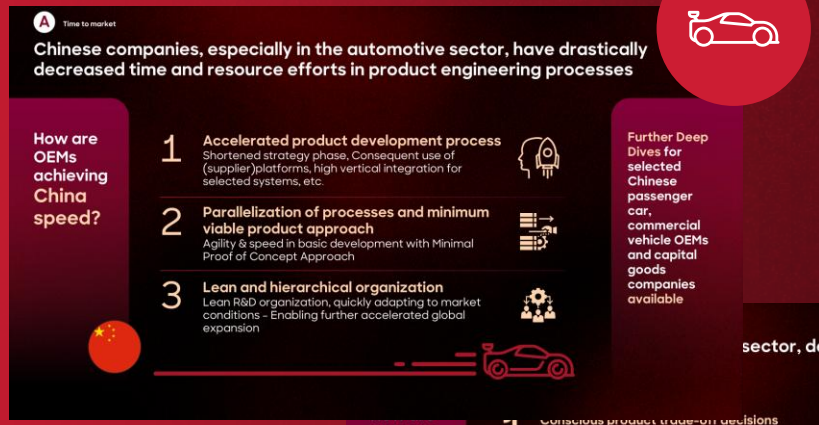
- Set up of an **integrated EV development & procurement center** within its organization designed **from scratch**
- Targets to optimize development efficiency, quality and price by:
  - **Agile development** process with **rapid iterations**
  - **In-depth benchmarking**
  - **Platformization**
  - **Standardization**
  - Aligned **manufacturing & supply chain operating models** and set-up

Regardless where or how you start, but start!

Learning from Chinese manufacturers...



China speed



China cost

... western players can "walk the Chinese" way!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