



## Challenges & success factors for multinational automotive suppliers in China

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## Arthur D. Little's study of the Chinese market presents the challenges and success factors for foreign automotive suppliers in China

### Objective and methodology of the study

#### Objective of the study

- This study illustrates the current situation of foreign, "multinational", suppliers in the Chinese automotive market
- It shows areas of improvement and levers to improve operations of foreign companies in the Chinese market within a mid-term timescale

#### Methodology

The study was pursued in four steps:

- Background research of industry data to describe and understand the overall market situation
- Structured questionnaire to interview suppliers producing in China. All interviews took place in China
- Additional expert interviews to enrich results of first interview round
- Final analysis and conclusions cross-checked with industry experts

Almost 50 companies participated in the study. All interviews took place in China

Overview of companies which participated

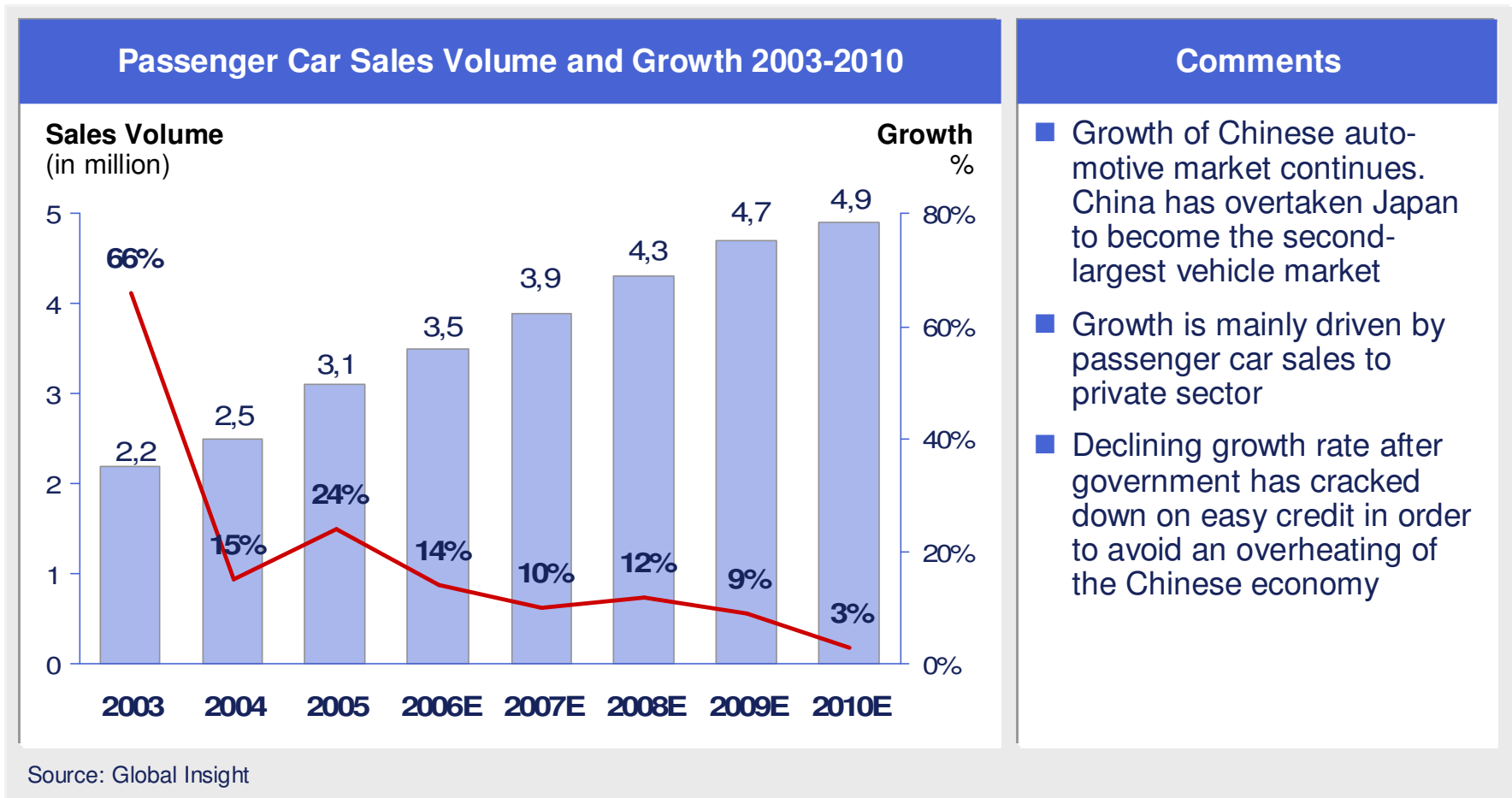


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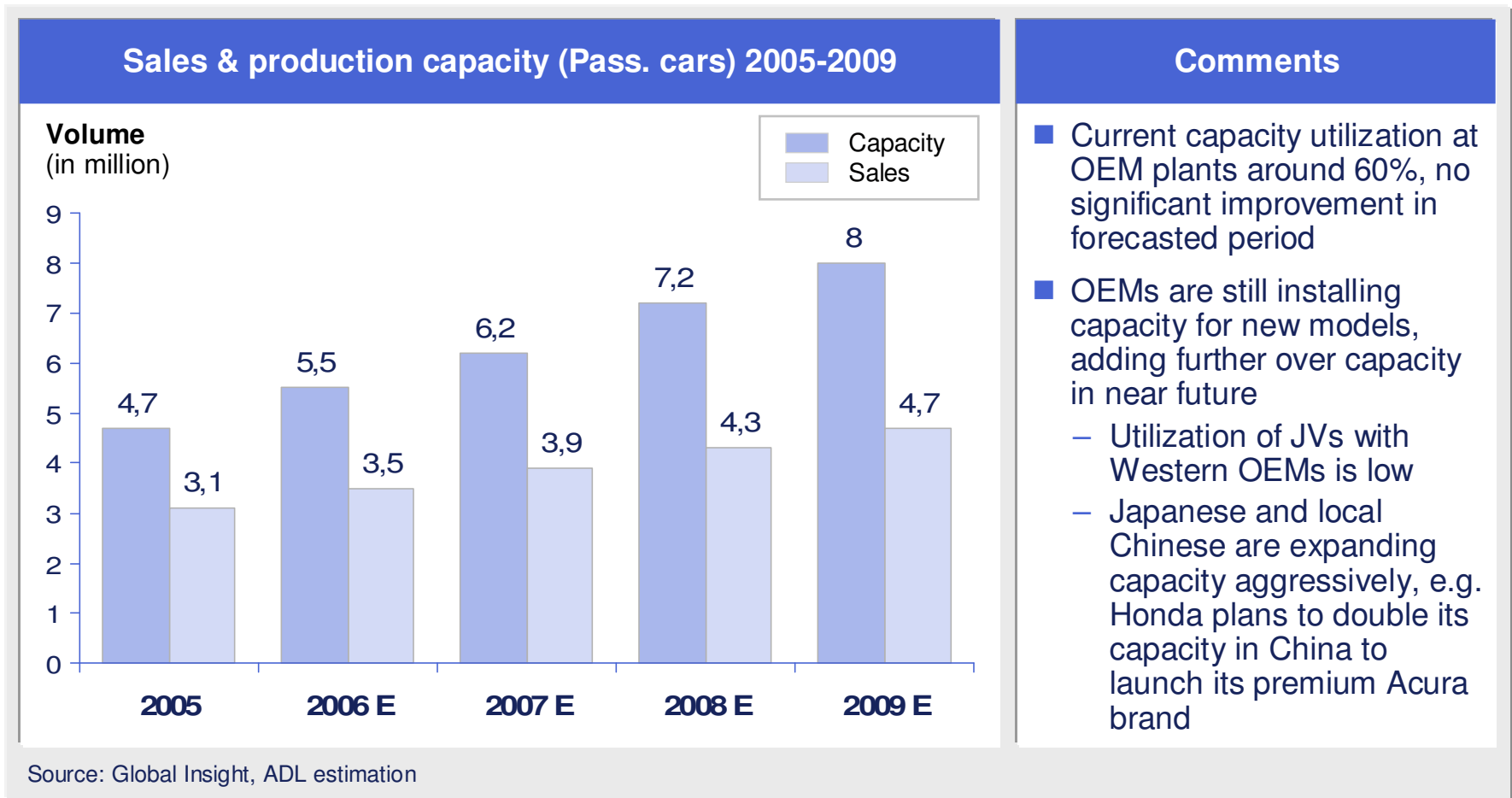
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## Growth of Chinese automotive industry continues, but at a slower rate



## Industry overcapacity remains in foreseeable future



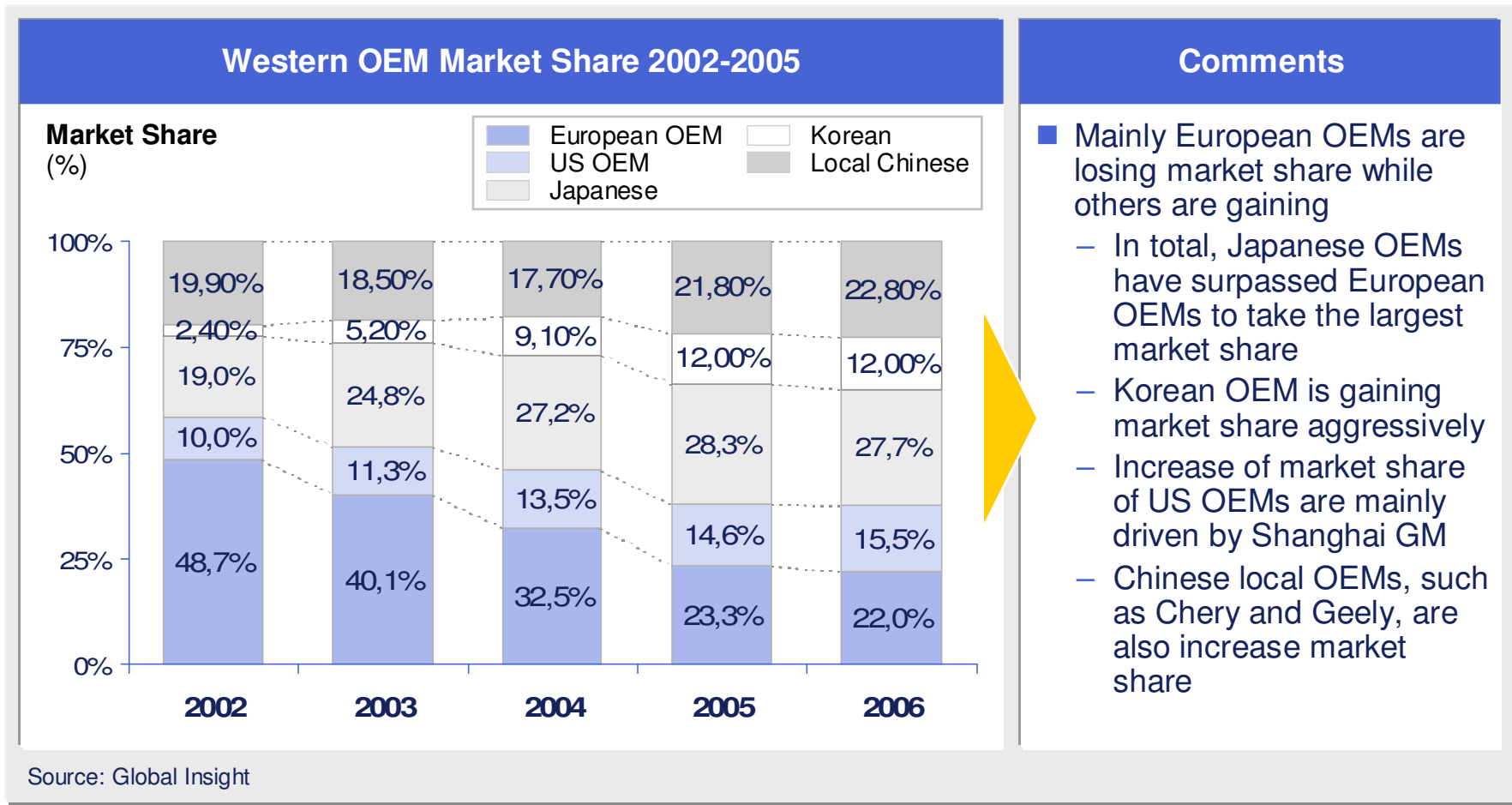


## Declining prices squeeze OEM margins and result in increasing price pressure which erodes supplier margins as well

Price reductions of major models in 2006 March <i>selectively</i>						Comments
Price Range	Model	Original Price (KRMB)	New Price (KRMB)	Price Cut (KRMB)	% Cut	
<50KRMB	QQ(1.1L)	45.8	45.5	-2.3	-5.0%	<ul style="list-style-type: none"> <li>In the short to medium term, with new capacity and new models continuing to enter the market, price competition is expected to remain intense</li> <li>Prices are expected to decline by 10-15% per year, even more in the higher price segments</li> </ul>
	Xiali(1.1L)	41.8	39.8	-2	-4.8%	
50-100KRMB	Fit (1.3L)	96.8	89.8	-7	-7.2%	
	Geely (Youliou)	55.4	51.7	-3.7	-6.7%	
100-150KRMB	Polo (1.4L)	108.5	99.9	-8.6	-7.9%	
	Execelle(1.8L)	130.8	125.3	-7.5	-5.7%	
150-200KRMB	Mondeo(2.0L)	189.8	167	-22.8	-12.0%	
	Bora(1.8L)	169.9	151	-18.9	-11.1%	

Source: Company data

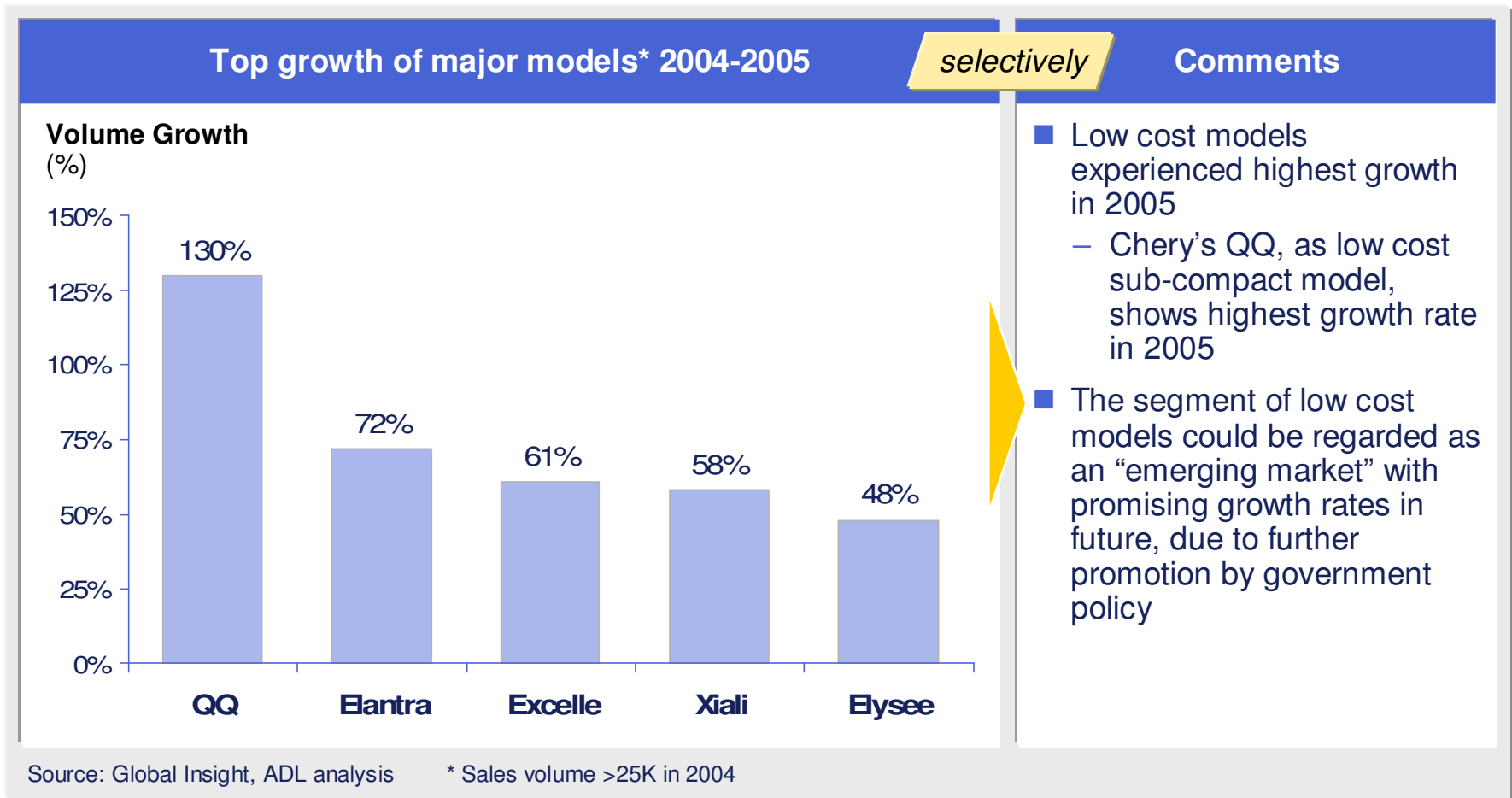
**European OEMs are losing market share while others are gaining: in particular Asian OEMs seems to be most competitive in China**



- Comments**
- Mainly European OEMs are losing market share while others are gaining
    - In total, Japanese OEMs have surpassed European OEMs to take the largest market share
    - Korean OEM is gaining market share aggressively
    - Increase of market share of US OEMs are mainly driven by Shanghai GM
    - Chinese local OEMs, such as Chery and Geely, are also increase market share

Source: Global Insight

The “emerging market” of low cost models is experiencing the highest growth rate – that trend will affect the suppliers too

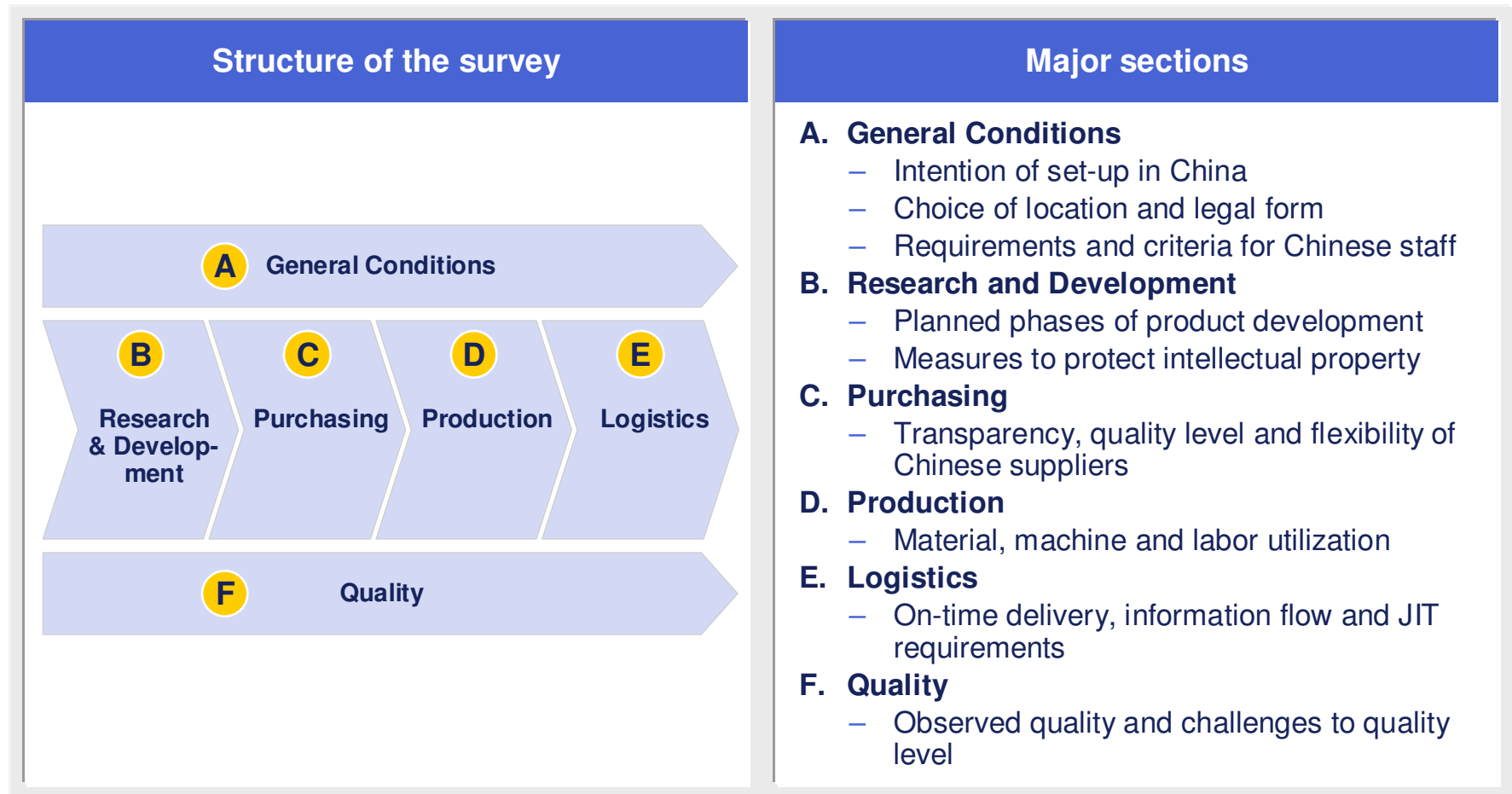


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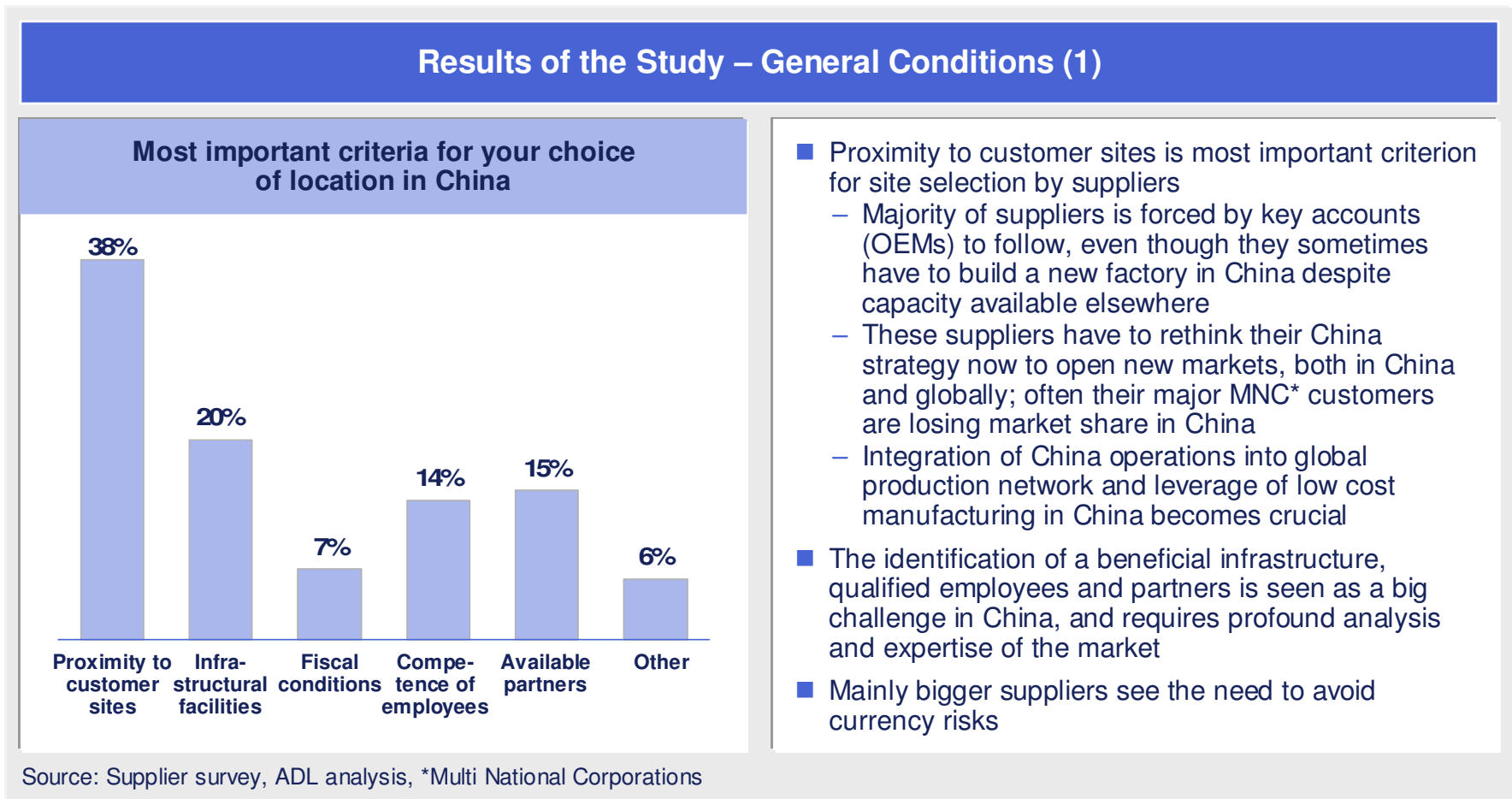
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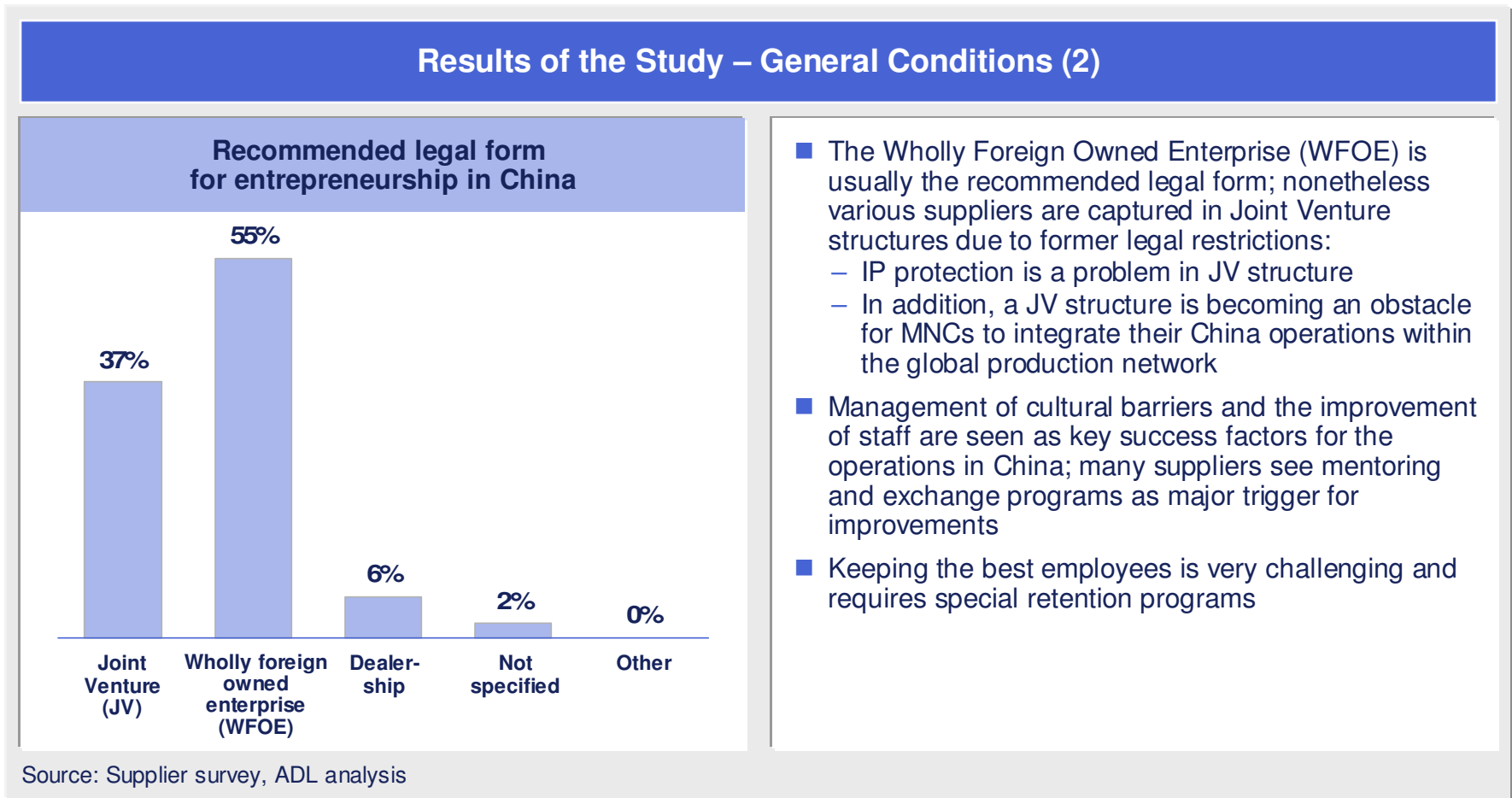
## Arthur D. Little's survey questionnaire covered six major sections along companies' value chains



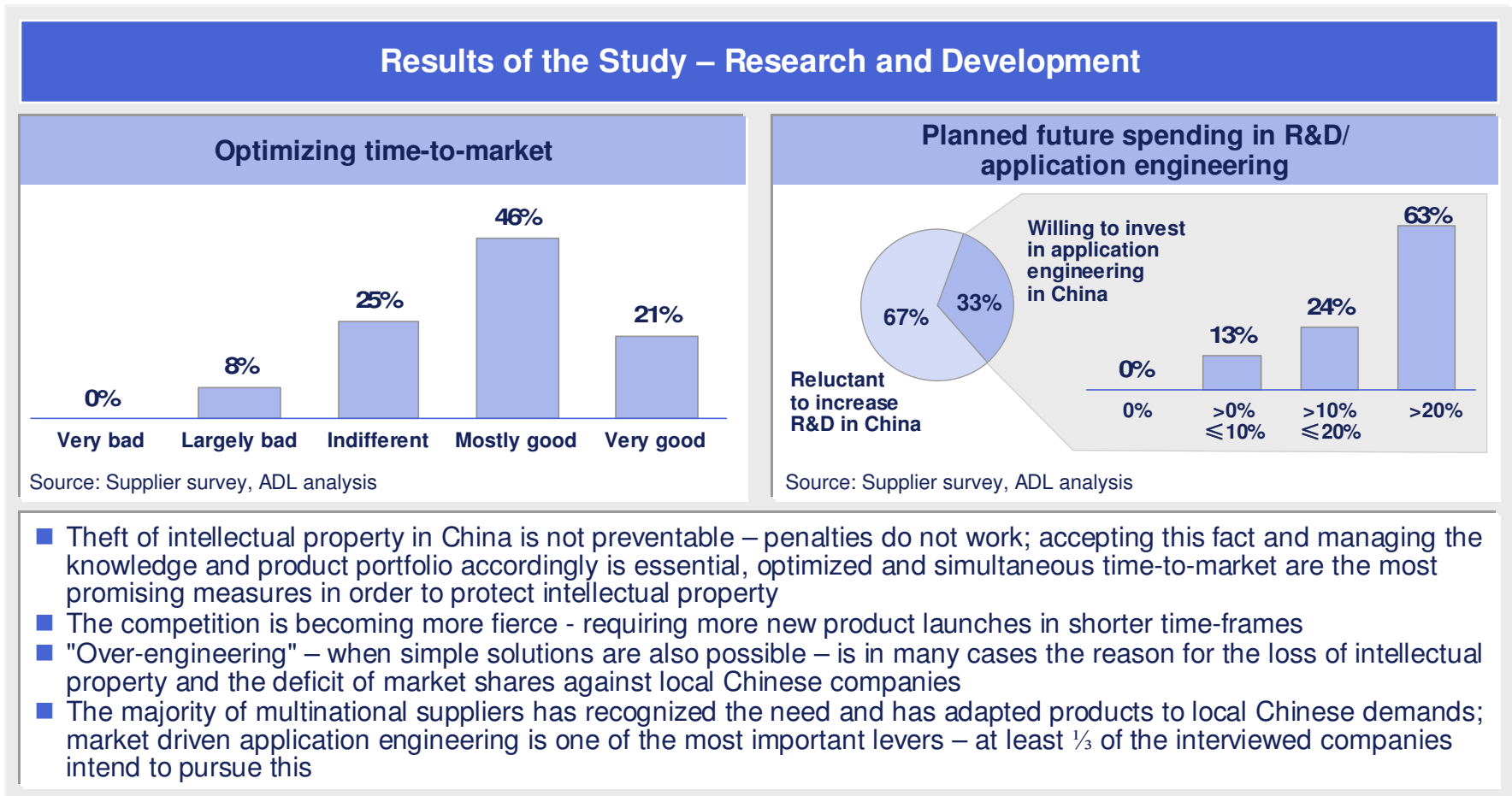
## 1<sup>st</sup> tier manufacturers are primarily interested in proximity to the customer sites (OEMs)



## The appropriate legal form depends on the type of company, government regulations and legal requirements

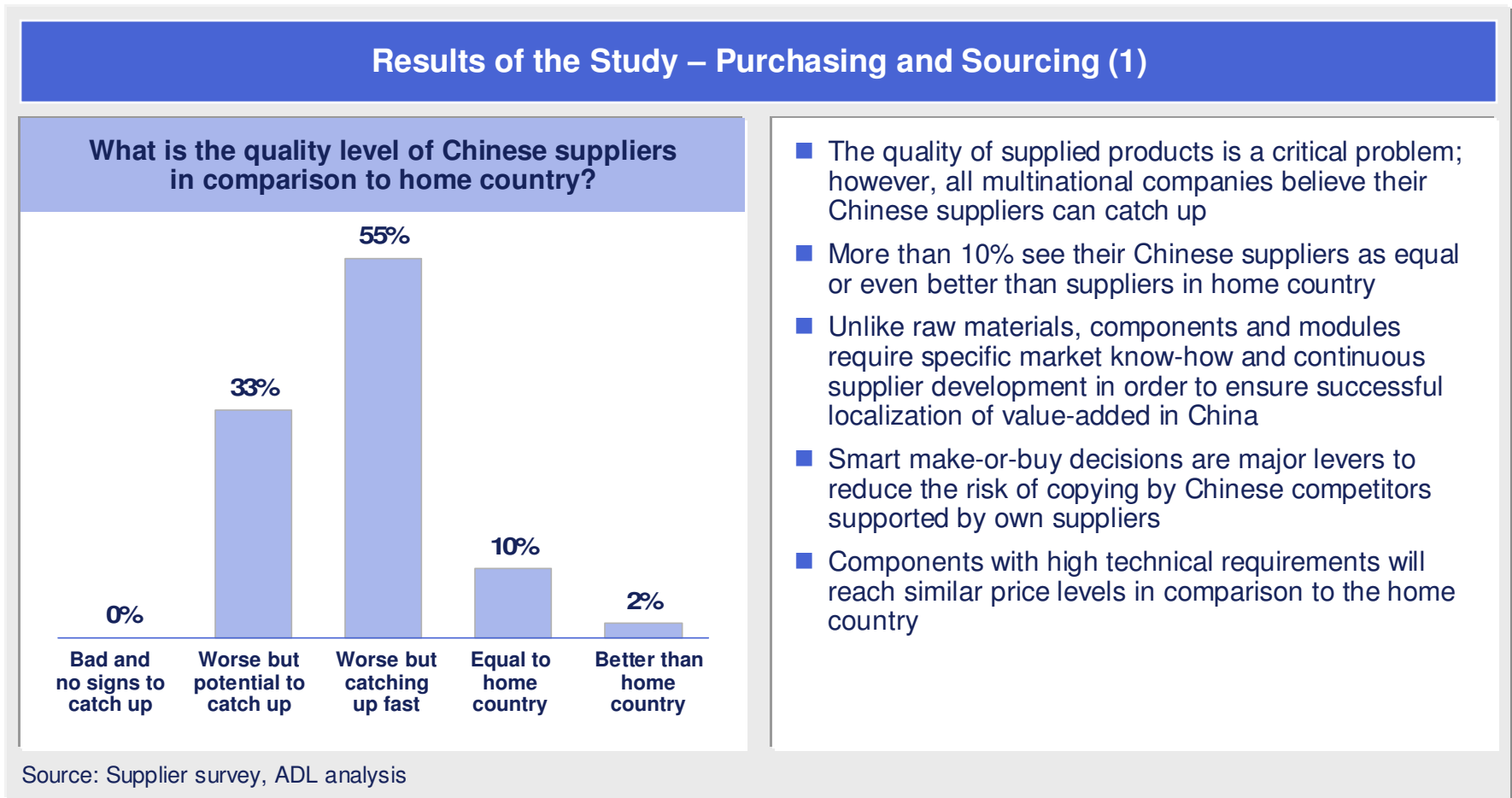


## Foreign companies need to realize market driven application engineering on site in order to produce products suitable for the Chinese market





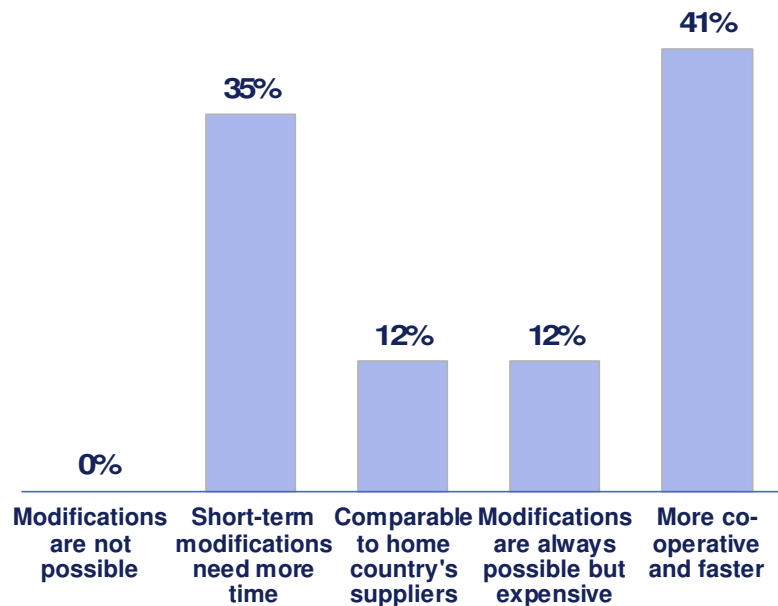
## The quality of supplied products is still a critical problem – high quality products have approximately the same price as in home country



## Continuous communication with local suppliers in China is necessary; strategic sourcing has to go along with leveraging local know-how

### Results of the Study – Purchasing and Sourcing (2)

How flexible are Chinese suppliers concerning short-term modifications in comparison to home country?

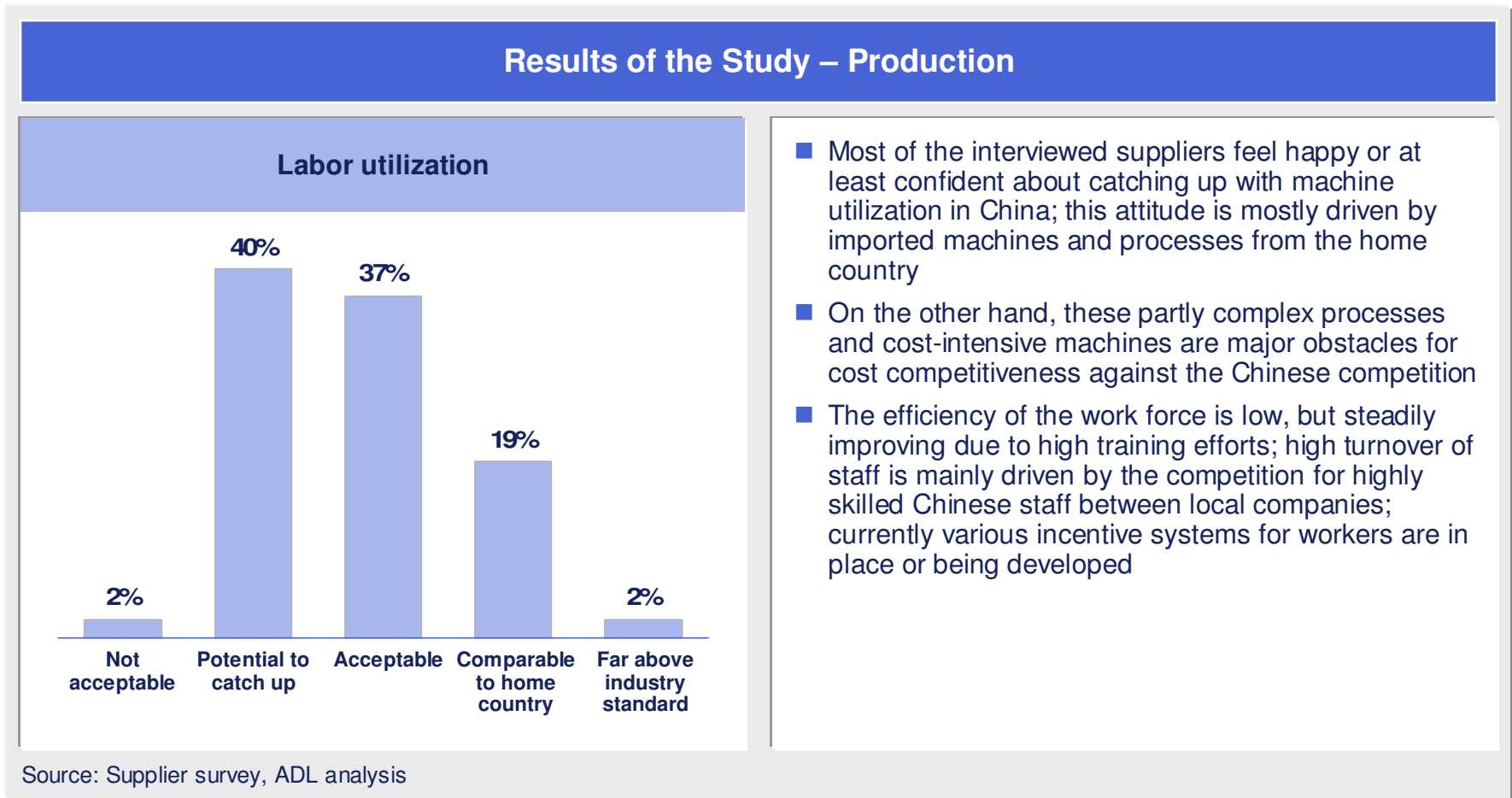


- The flexibility of Chinese suppliers is well known but sometimes misleading:

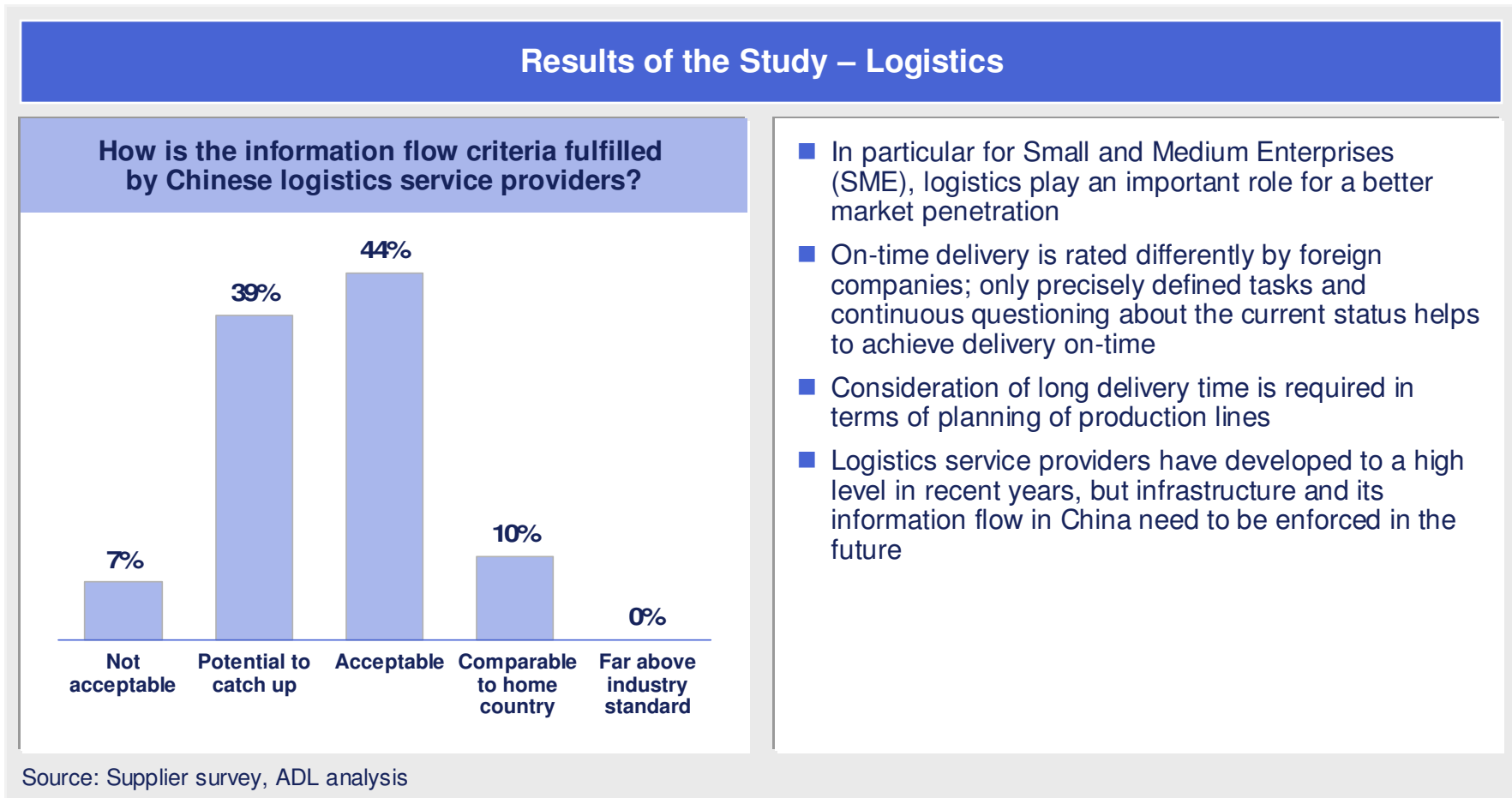
Chinese suppliers are often more cooperative and faster than MNC competitors, but sometimes at the expense of quality ("trial and error" solutions)

Source: Supplier survey, ADL analysis

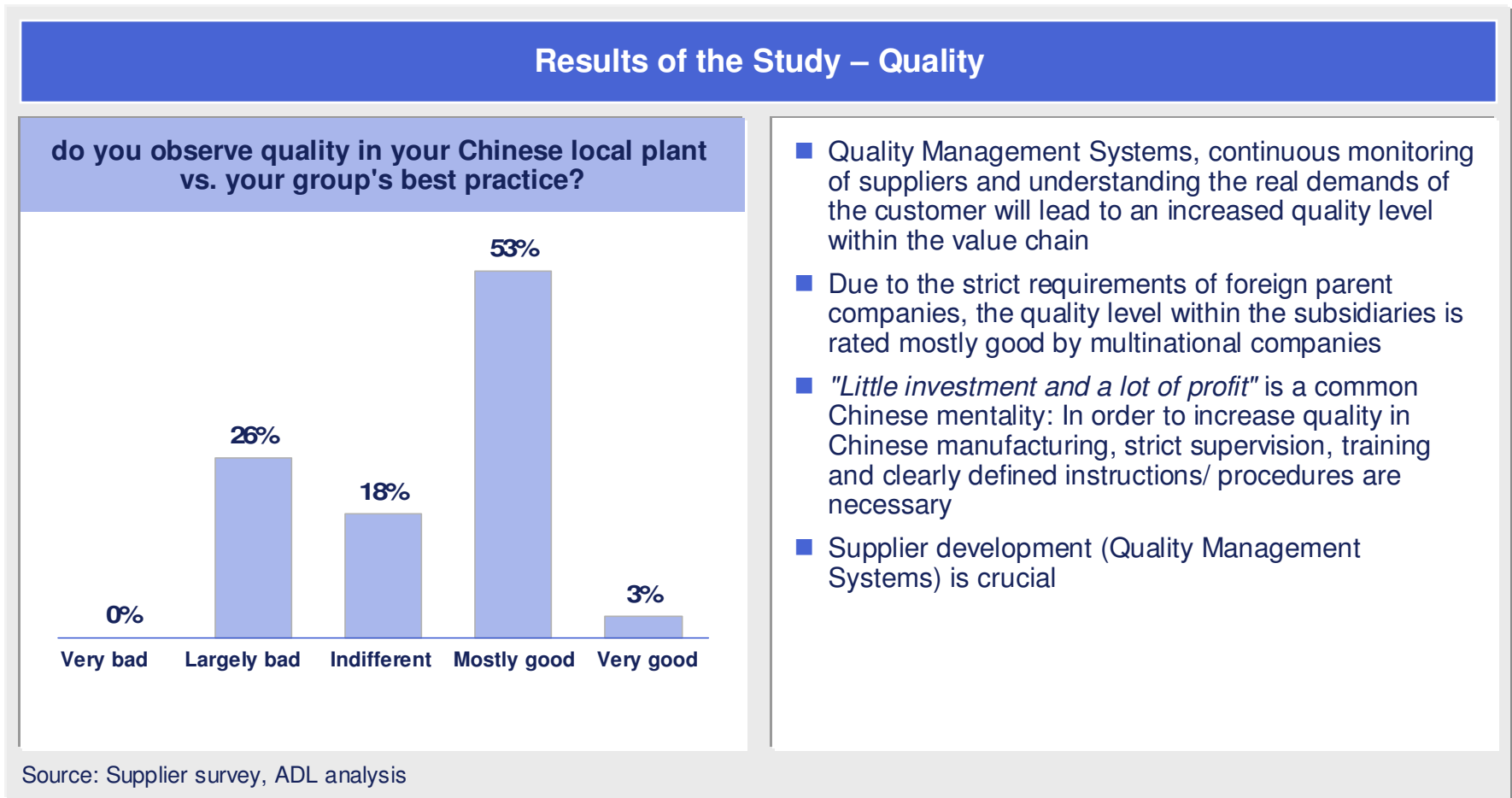
## Highly sophisticated processes and a high rate of automation will not necessarily lead to cost efficient manufacturing



## Logistics service providers in China have developed to a high level very quickly in recent years, but their services are still not as good as in Western countries



## In order to increase quality in Chinese manufacturing, strict supervision, training and clearly defined instructions are necessary



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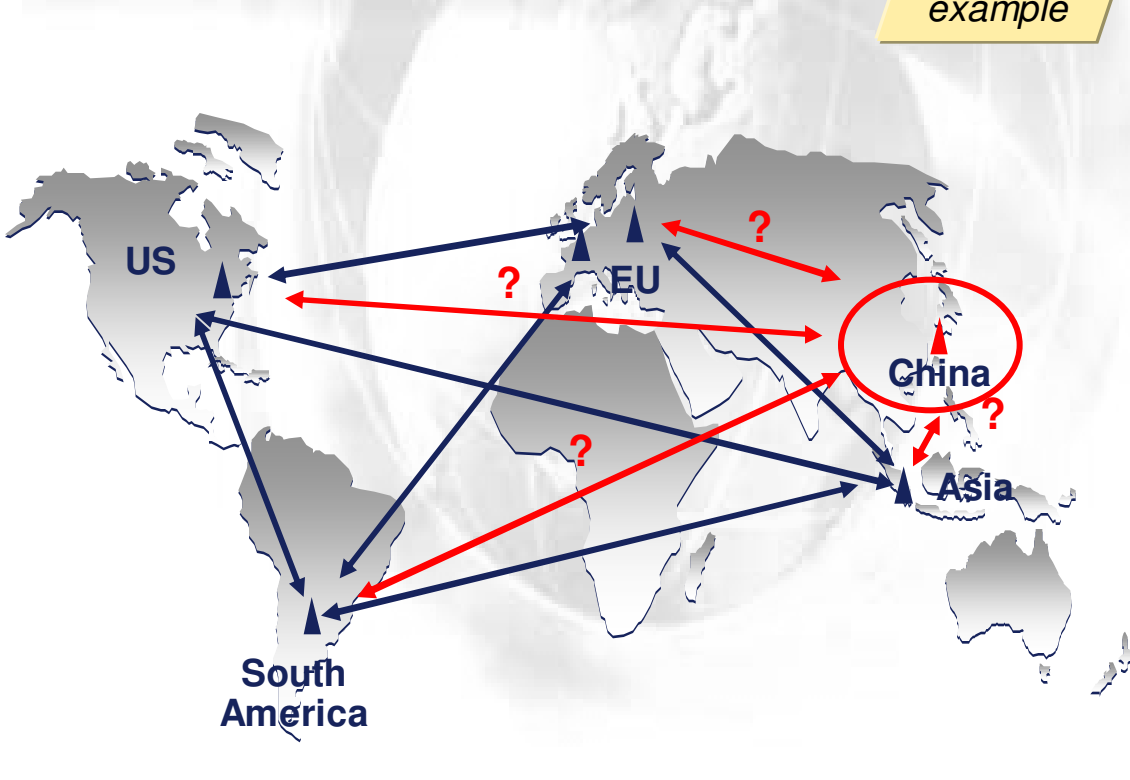
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# Suppliers have to respond to the market trend and Arthur D. Little has seven recommendations



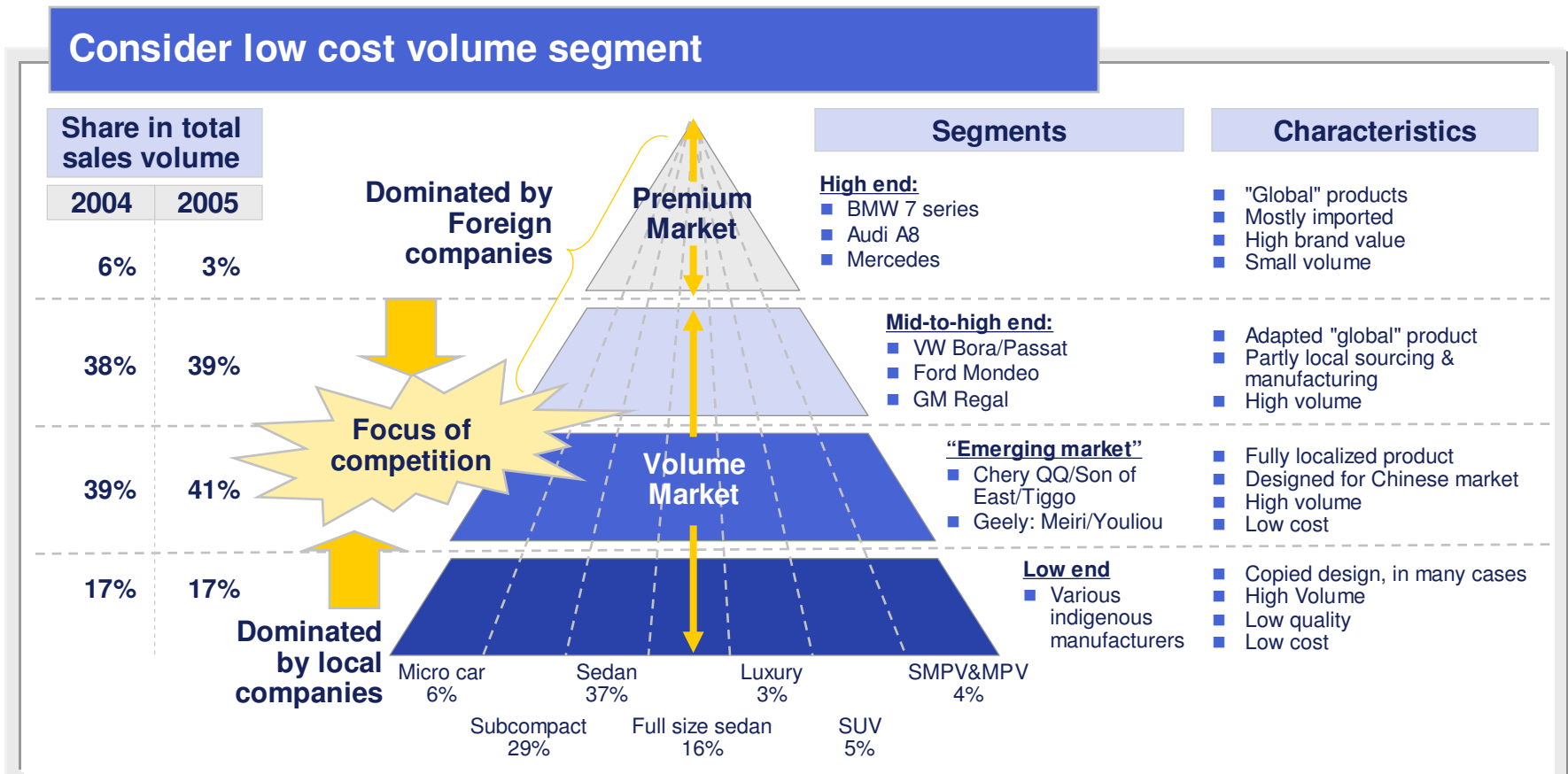
Note: The supplier strategic imperatives and recommendations here are mainly for Western suppliers. For Asian companies, they are doing fine right now, however, they will face similar situation sooner or later

**The Integration of the China operation into global production network is crucial for balancing capacity. If JV structure is an obstacle, evaluate your exit options**

Integrate your production network	Comment
<p style="text-align: right;"><i>example</i></p> 	<ul style="list-style-type: none"> <li>■ JV is mostly an intermediate solution and is either forced by legal restrictions or to close deficits during the market entry phase. However, significant majority control should always be targeted                         <ul style="list-style-type: none"> <li>– The conflicting interests of two parties will often result in higher structural management cost (e.g. double management)</li> </ul> </li> <li>■ The JV structure is mostly seen as an obstacle for MNC suppliers to integrate China operation into their global manufacturing network</li> <li>■ In any case, the business model as JV should be reconsidered, and exit options should be evaluated</li> </ul>






# Entering the low cost volume segment could be an option to substitute declining business with Western OEMs



Source: 1) Automotive Report Market Data Insight, ARA,; 2) China Automotive Review 3) ADL analysis

**Suppliers should take a proactive approach to help OEMs to compete in the “emerging market”. A second product line for the low cost segment, sometimes even a second brand should be considered**

Consider low cost volume segment	Comment
<div style="text-align: right; margin-bottom: 10px;"><i>example</i></div> <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p style="text-align: center; background-color: #d9e1f2; padding: 5px;"><b>High Quality</b></p>  <ul style="list-style-type: none"> <li>■ Movable, with damper</li> <li>■ Special requirement for surface</li> <li>■ Ergonomic design and durable material</li> </ul> </div> <div style="width: 45%; text-align: center;">  </div> <div style="width: 45%;"> <p style="text-align: center; background-color: #d9e1f2; padding: 5px;"><b>Low Cost Design</b></p>  <ul style="list-style-type: none"> <li>■ Simple design</li> <li>■ Low cost production machine and raw material</li> <li>■ Easy for manual assembly</li> </ul> </div> </div>	<ul style="list-style-type: none"> <li>■ The customer requirements for local Chinese market differ from those of western countries – low price is most important key buying criteria against others, e.g. quality, functionality and life-cycle costs</li> <li>■ To compete in the low cost segment, sometimes MNC OEMs and suppliers need to downgrade their product specs to a more reasonable level– and sometimes it cannot be done by simply adapting their global products. A complete re-design of the product might be needed</li> <li>■ A second brand should be considered, if MNC wants to protect the value of their prime brand</li> </ul>

# Suppliers should work closely with OEMs in order to eliminate over-engineered components and carefully adapt product design for cost reduction

## Adapt your product design

Illustrative

**Powertrain incl. Engine (25% of total costs)**

- Ensure compatibility with regulations
- Specify according to driving profiles with less power

**E/E (20-25% of total costs)**

- Carefully selected functions
- Consider more low-spec, e.g. regarding temperature range, for non-essential functionality

**Interior (15-20%)**

- Up-to-date design
- Less refined tolerances
- Cheaper materials
- Manual assembly

**Chassis (15% of total costs)**

- Specify according to local driving profiles, not to Western standards

**Body (15-20% of total costs)**

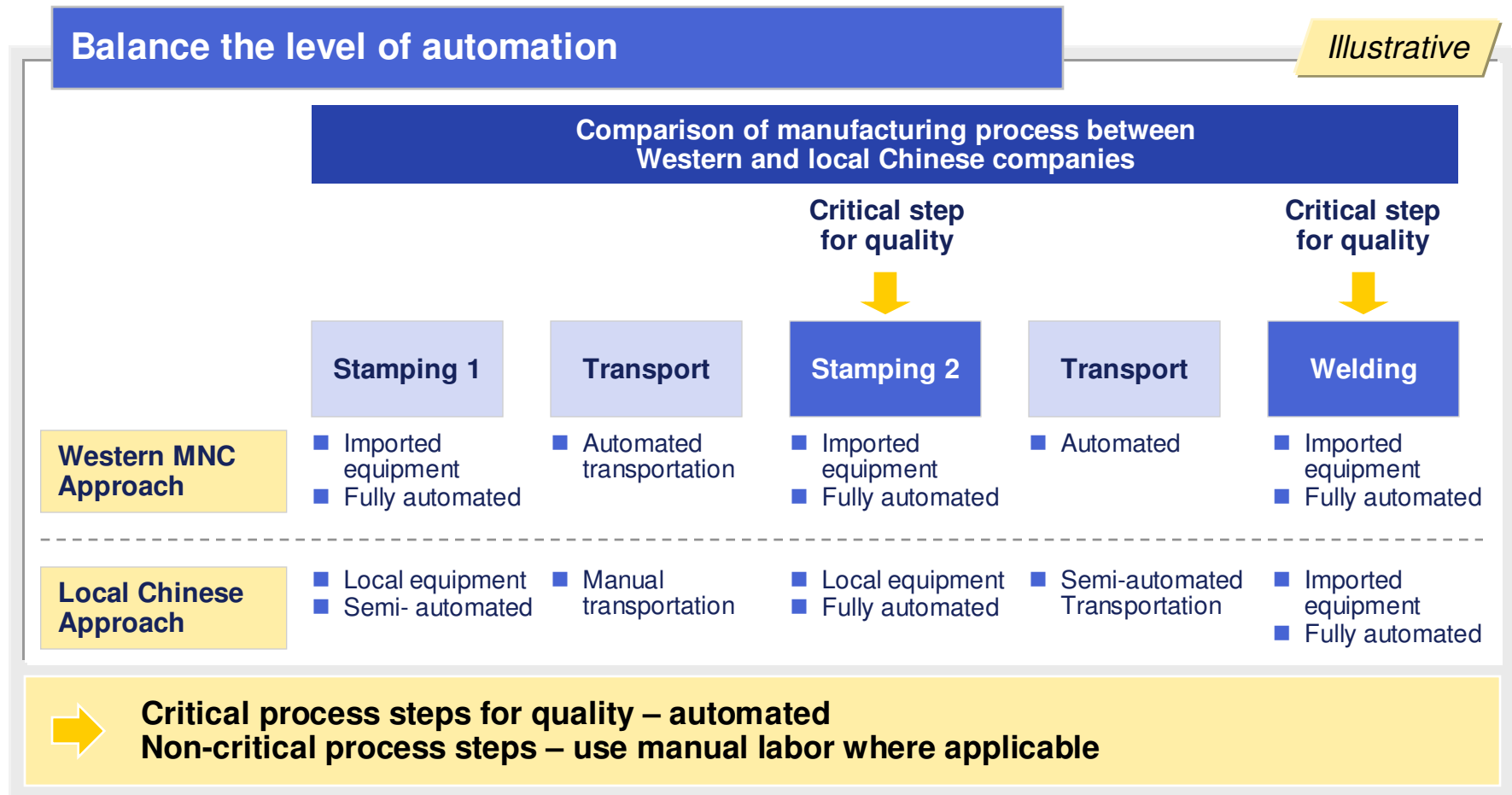
- Adopt to local needs: stiffness, tolerances, ...
- Design for manual assembly

Relevance to core functionality	High	<b>Selectively</b>	<b>No</b> <b>For example:</b> Seals on engine Bearings on engine
	Low	<b>Yes</b> <b>For example:</b> Infotainment Interior and exterior trim Coatings, ...	<b>Selectively</b>
		High	Low

**Feasibility for low cost design**

➔ A more radical approach, such as a complete re-design, should be considered if the low cost target cannot be achieved through localization

## Use labor where applicable to leverage low labor cost in China – critical quality steps and specification define level of automation needed



## Requirements of Chinese customers have to be implied in product development – local R&D is required at least for application engineering

Establish Local R&D	
<p><b>Responding to customer needs</b></p>	<ul style="list-style-type: none"> <li>■ Customer requirements for local market should be well understood and translated into product design</li> <li>■ Over-engineering should be avoided</li> <li>■ Shorter time-to-market is the key for success</li> </ul>
<p><b>Organization and Process</b></p>	<ul style="list-style-type: none"> <li>■ It is important for suppliers to integrate into OEM's R&amp;D processes</li> <li>■ Local R&amp;D center is needed, at least for application engineering                             <ul style="list-style-type: none"> <li>– Close to customer for better communication, e.g. co-location of tier one supplier's design center with OEM</li> <li>– Leverage local talent pool</li> </ul> </li> <li>■ Efficient product development processes are crucial</li> </ul>
<p><b>Core Technology Competencies</b></p>	<ul style="list-style-type: none"> <li>■ System integration capabilities are more and more required by OEMs                             <ul style="list-style-type: none"> <li>– Simultaneous engineering capabilities</li> <li>– Ability to integrate systems/modules within and beyond own component scope</li> </ul> </li> <li>■ Keep the advantage of leading-edge technology to block local competitors</li> </ul>

## Optimizing time-to-market is one of the most favored measures to protect intellectual property and to acquire new customers in China

Shorten time-to-market	
IP Protection	<ul style="list-style-type: none"><li>■ Optimizing time-to-market and simultaneous introduction of products compared to home country is one of the most favored measures to protect intellectual property in China</li><li>■ By doing so, copying these products is no longer that attractive for Chinese manufacturers</li></ul>
New Customers	<ul style="list-style-type: none"><li>■ Competition is becoming more fierce, thus requiring a higher rate of new product introduction</li><li>■ The ability to rapidly respond to customer needs is crucial to win new customers</li></ul>

# Create smart make-or-buy decisions specifically for China to protect your IP and achieve cost savings by using local suppliers

*Illustrative*

## Create smart make-or-buy solutions

**1 De-couple the product into smaller modules for better IP protection and for more labor intensive manufacturing**

Core module, IP intensive

Non-core modules, de-coupled so that these components can be easily manually manufactured/assembled

**1 Specific make/buy decision:**

- Keep core technology in home country
- Keep integration in-house
- Take advantage of low cost production of local suppliers

		External Availability	
Strategic Impact	Make		
	Make or buy		
	Buy		

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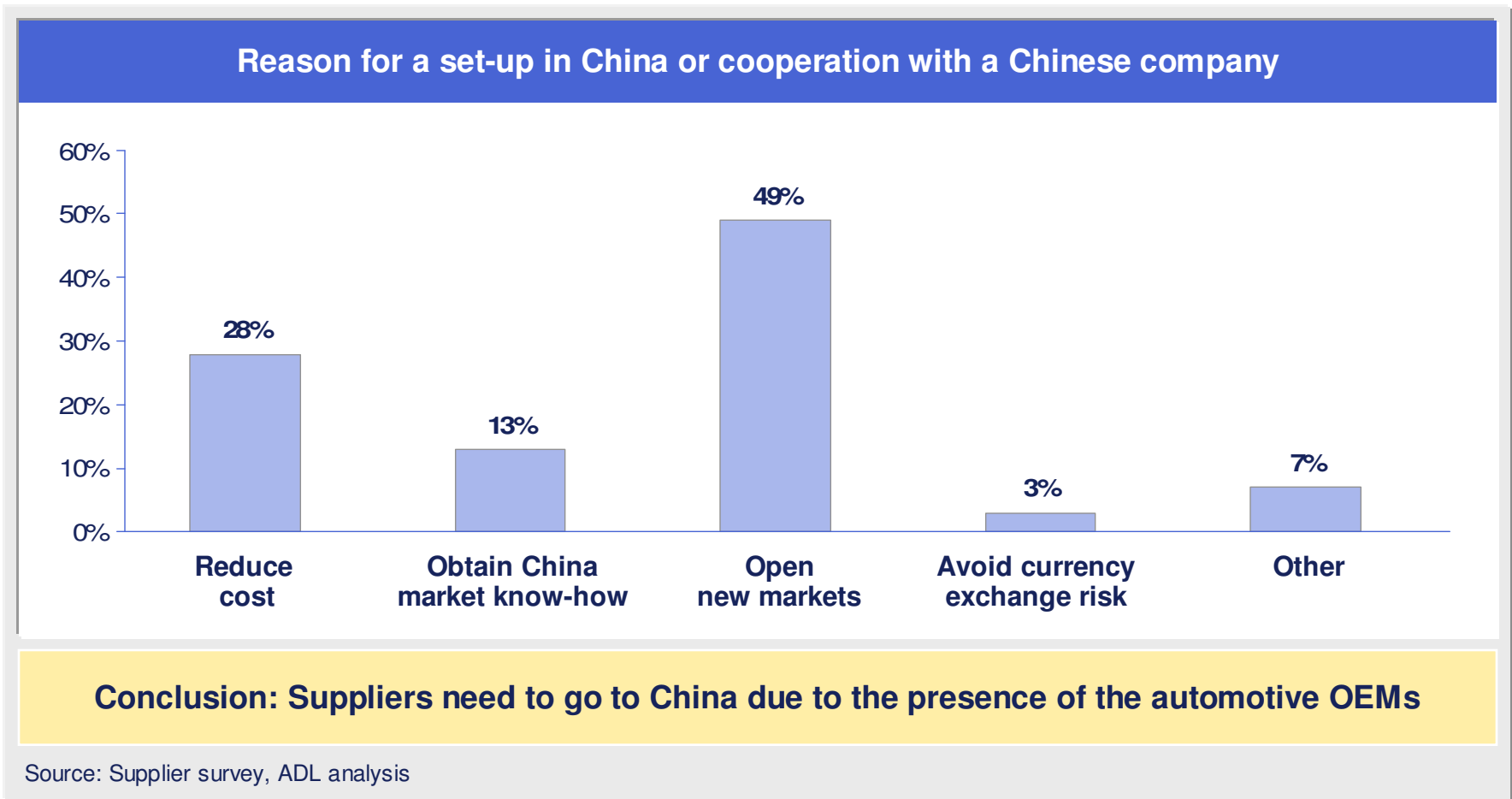




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## "Open new markets" is the main reason for setting up operations in China

Excerpt of section A



## Foreign companies' plants in China are often cost-intensive; processes need to be designed with a widespread manual content

### General Conditions – Intention for set-up in China

#### Core Statements

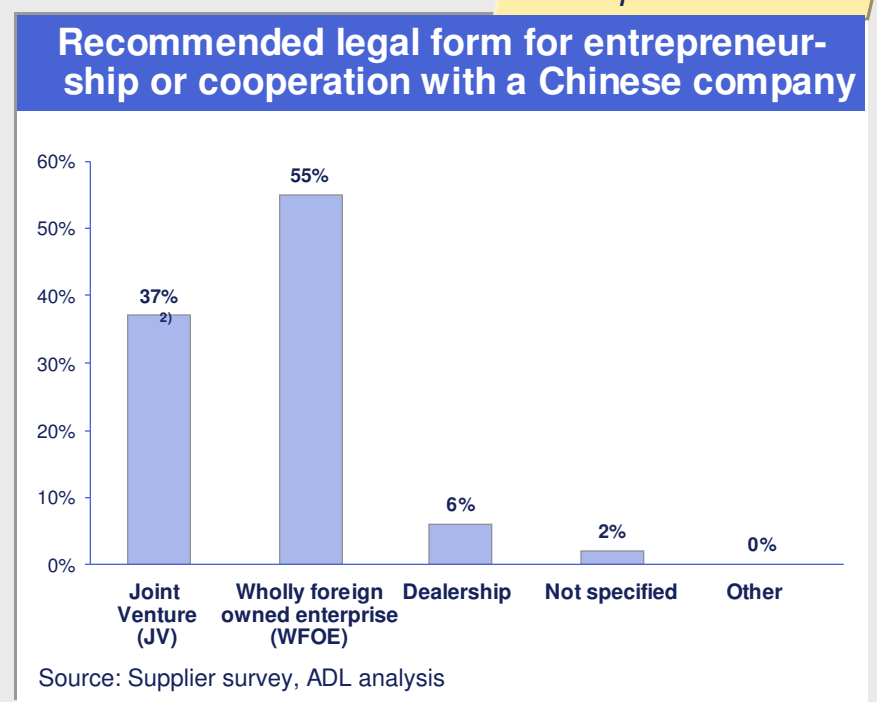
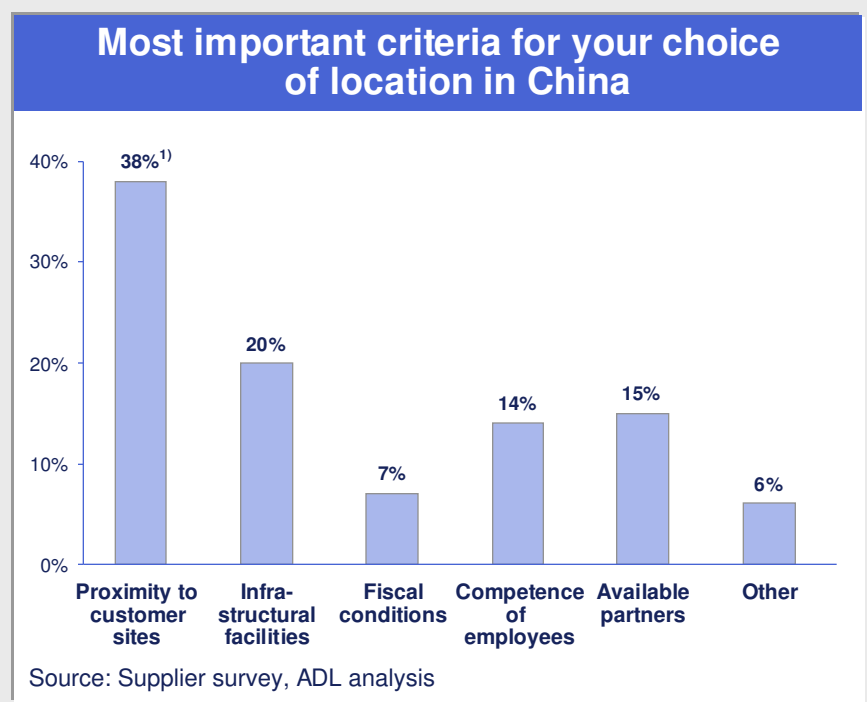
- Reducing costs is currently not an essential reason for a start-up in China: *"Suppliers have to follow the OEMs to keep the business with them"*
- Finding the right location and the right kind of legal form requires intensive analysis and Chinese expertise
- Capital intensive processes in conjunction with highly trained Chinese employees are currently gainless: *"Local content is currently not profitable for a foreign company"*
- For suppliers which do not require investment-intensive assets, the cost reduction aspect is more significant

#### Comments

- The answers given by the companies largely correlate with the age and size of the interviewed companies: It is more likely that bigger companies set up in China in order to avoid currency exchange risks or to reduce costs. "Newcomers" in China are primarily interested in opening new markets or in obtaining Chinese market specific know-how

## 1<sup>st</sup> tier manufacturers are primarily interested in proximity to the customer sites (OEMs); the WFOE is significantly recommended as legal form

*Excerpt of section A*



**Conclusion: Finding the right location and the right kind of legal form requires intensive analysis and Chinese expertise**

1) "Proximity to customer sites" is in addition to good infrastructural facilities driven by enforcements from the customers (OEMs) and governmental regulations  
 2) The comparatively high proportion of the recommended legal form "Joint Venture" is essentially caused by answers given from Chinese interview partners. Multinational interview partners significantly prefer the WFOE as recommended legal form

## The kind of legal form depends on the kind of company, government regulations and legal requirements

### General Conditions – Choice of location and legal form

#### Core Statements

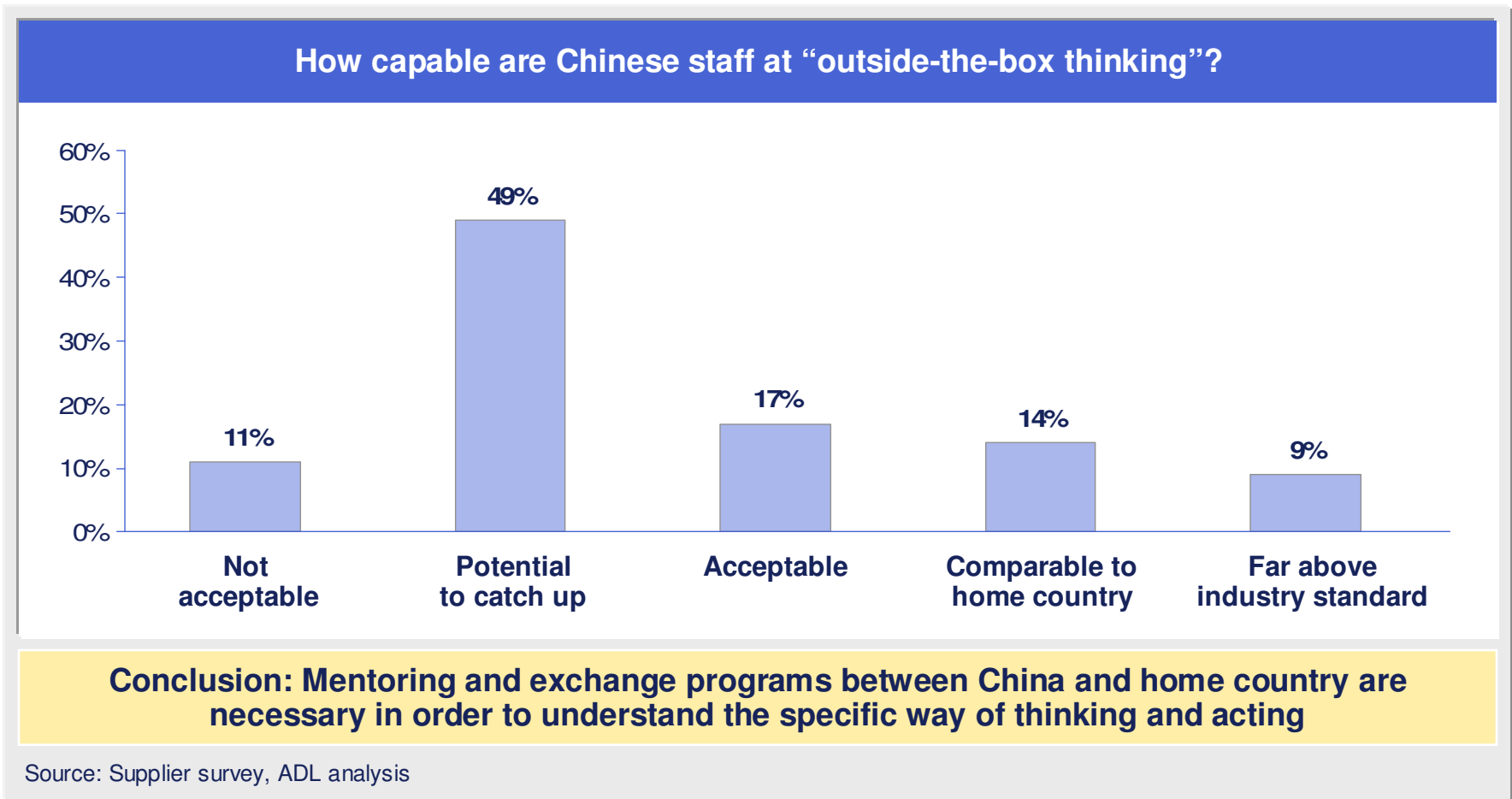
- Proximity to the production sites of the automotive manufacturers is the most important issue for the choice of location in China, *"vis-à-vis the customer"*, which also implies good infrastructural facilities
- Foreign companies definitely prefer the Wholly Foreign Owned Enterprise (WFOE) as legal form in China. Joint Ventures (JVs) are risky due to possible know-how transfer to the Chinese partner company and possible cultural differences
- The legal form depends on the kind of company and government regulations. However, in special cases the JV legal form is mandatory: *"JV only if necessary"*
- The importance of availability of highly skilled employees and government incentives depends on the kind of manufacturing which is planned on-site

#### Comments

- The expertise of the bigger companies came at a high price, due to unfortunate Joint Ventures within the last 15 years

## Chinese employees need to be trained in "structured" and "outside-the-box" thinking from the interviewees' point of view

Excerpt of section A



## China has developed very fast – both from the technological and working style point of view

### General Conditions – Requirements and criteria for Chinese staff

#### Core Statements

- *"Structured thinking and creativity"* and *"outside-the-box thinking"* are the most observed unfulfilled requirements by Chinese employees mentioned by the interviewees
- Concerning requirements where the local staff is better than expected, *"total dedication to work"* was very often stated regarding flexibility and motivation
- The requirements of Chinese employees in general do not differ significantly to those of the home country, e.g. language skills, process related and analytical thinking, expertise and know-how, teamwork spirit, etc.
- Training of traditional business skills needs to take place step by step, combined with mentoring and exchange programs between China and home country

#### Comments

- Creative ideas are largely influenced by the social environment and educational opportunities which have dramatically changed in China within few years
- There might be a danger that multinational companies could underestimate the Chinese way of thinking and working

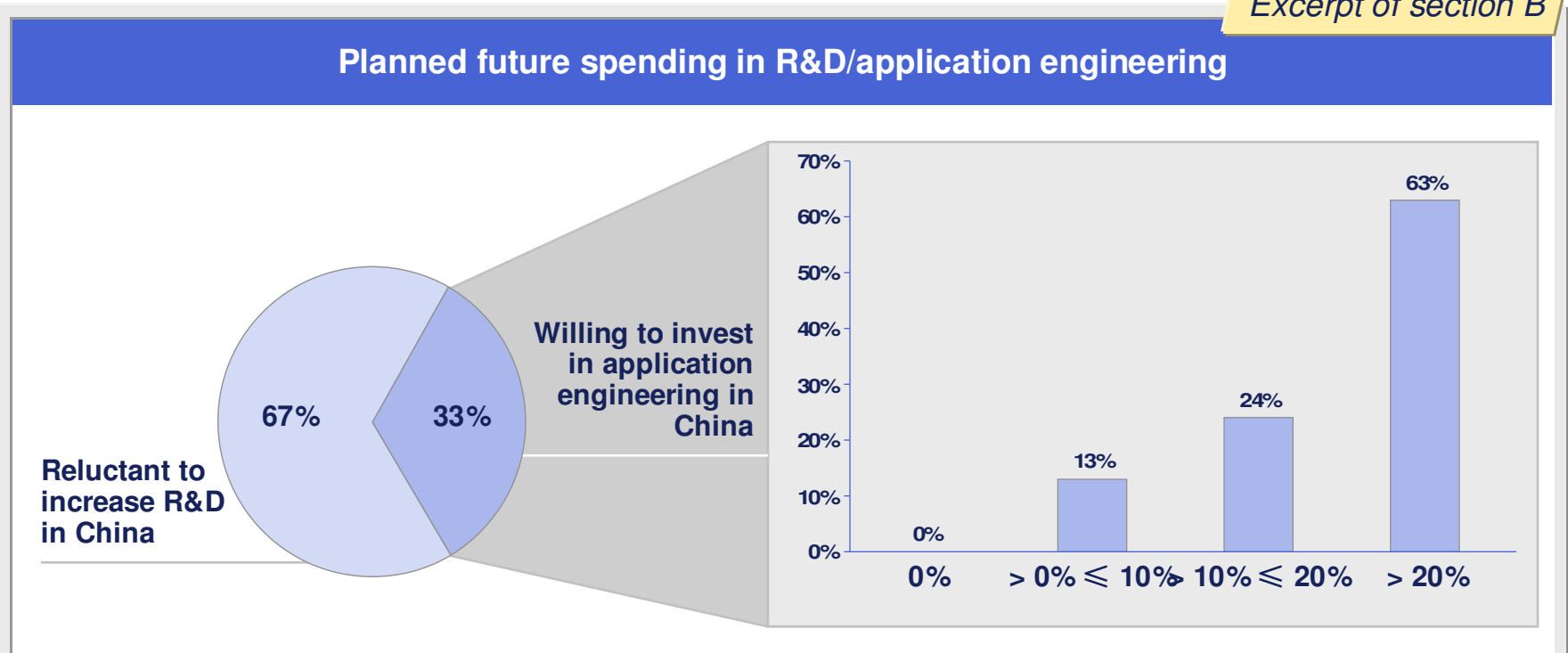


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## Two thirds of the interviewed companies are reluctant to increase R&D in China due to intellectual property issues

Excerpt of section B



**Conclusion: Companies which are able to deal with intellectual property issues will invest significantly in application engineering in China; others are reluctant**

Source: Supplier survey, ADL analysis

## Foreign companies have to realize market-driven application engineering on site in order to produce goods appropriate for the Chinese market

### Research and Development – Phases of product development

#### Core Statements

- Up to now there is significant reluctance regarding Research and Development (R&D) in China: *"All R&D activities will remain in Europe or in the United States"*, *"If there is an opportunity to get any information which can be copied, it will happen"*
- Nevertheless, 1/3 of the interviewed companies are currently planning to have R&D in China; these companies will invest increasing amounts in R&D on-site, 10% or more
- R&D on-site is predominately *"Application Engineering"* caused by the market and customer needs in China: Modern but not highly sophisticated products engineered for the Chinese market and needs are important in order to be successful in long-term

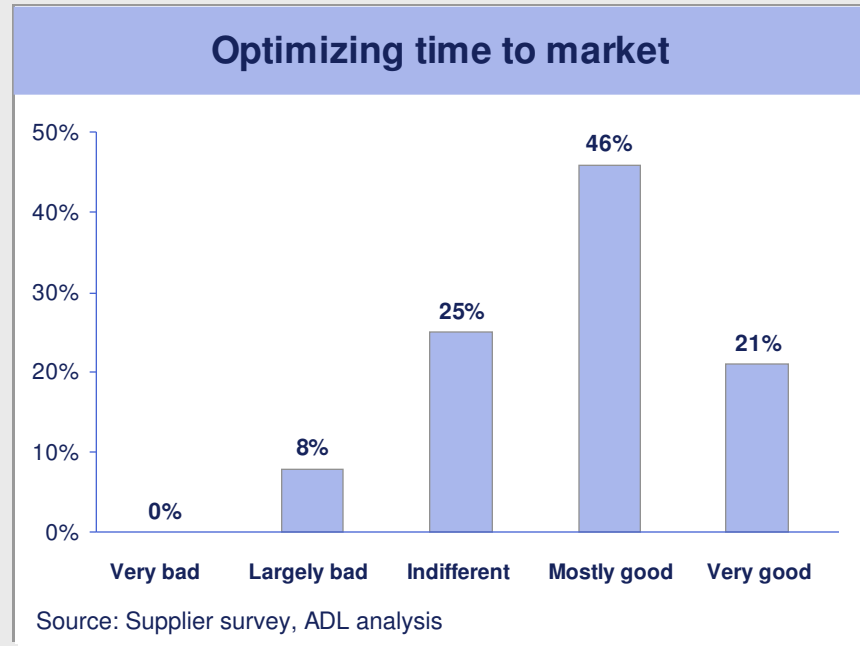
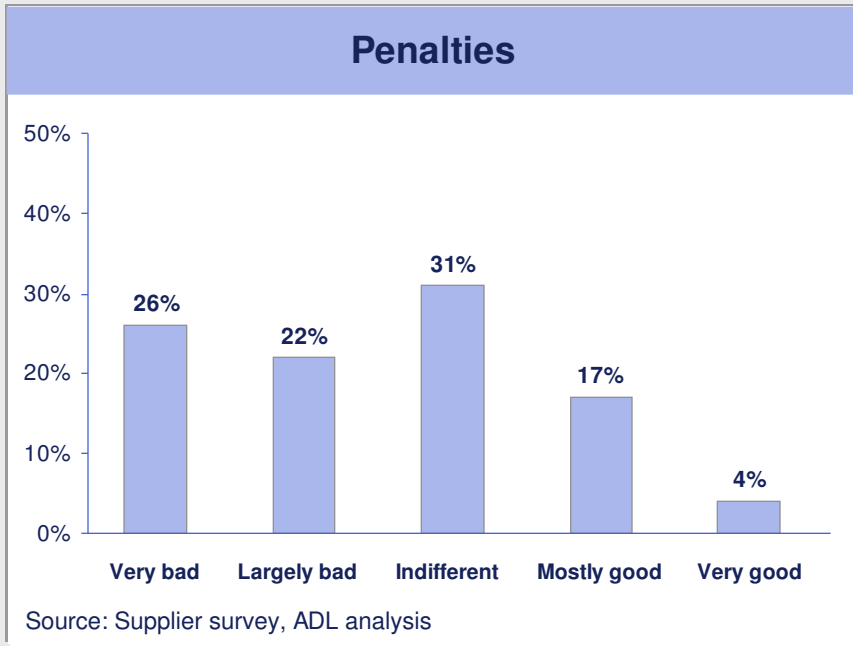
#### Comments

- "Over-engineering" – when simple solutions are also possible – is in many cases the reason for failures or loss of intellectual property to local Chinese companies
- Chinese market orientated R&D has to be the most important driver for further investment in R&D; market driven R&D does not necessarily mean cheap, it means appropriate!
- Otherwise, foreign companies have to cope with the risk that their own developments will flow off to local competitors who may be able to produce the same product at considerably less cost due to less sophisticated processes, more local manual labor and even lower quality standards
- Compared to the portfolio of different attitudes of foreign companies in China, the two attitudes of companies' behavior have been confirmed: Attackers *"Prospective Eagles"* who face the challenges of the Chinese market and the Hesitators (including *"Neutral Island"* and *"Ant-hills"*)

## Optimized and simultaneous time-to-market are the most promising measures in order to protect intellectual property

*Excerpt of section B*

### What kind of measures would you recommend to protect intellectual property?



**Conclusion: Theft of intellectual property is not preventable in China; accepting this fact and organizing the knowledge and product portfolio accordingly is essential**

## Foreign entrepreneurs cannot expect the Chinese market to retain an awareness of the value of intellectual property or to acknowledge their product identity

### Research and Development – Intellectual property

#### Core Statements

- Intelligent engineering, such as optimizing time-to-market and simultaneous introduction of products, is one of the most favored means of protecting intellectual property in China; copying such products is less attractive for Chinese manufacturers
- Positive measures such as rewards for own inventions or retention measures are consistently supported by companies, for the purpose of protecting intellectual property
- Sanctions such as penalties or limited access to knowledge transfer or documents are less promising, and are essentially a traditional approach to solving that problem

#### Comments

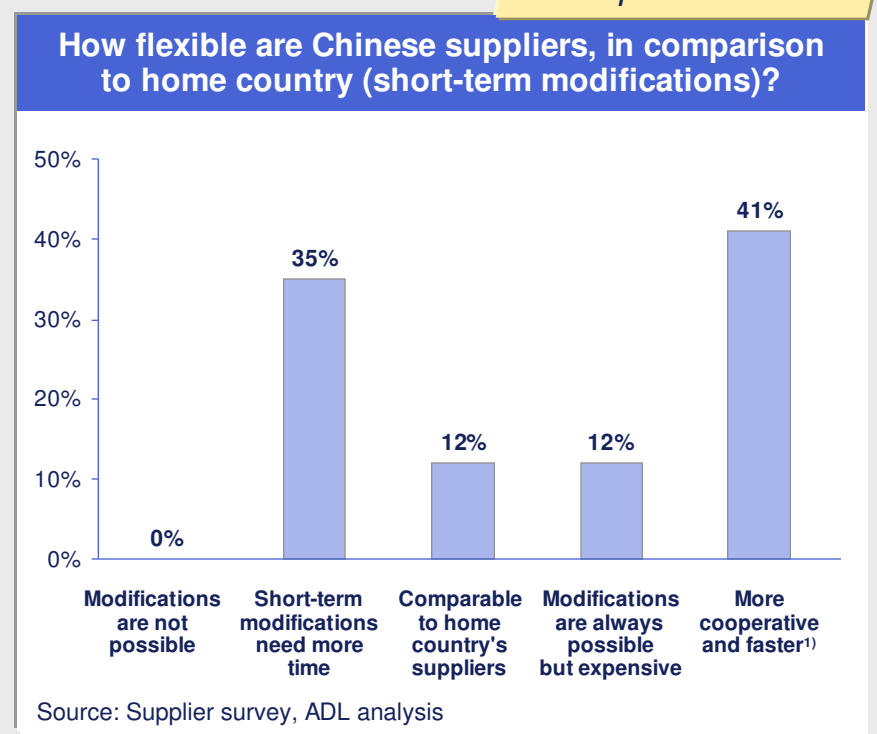
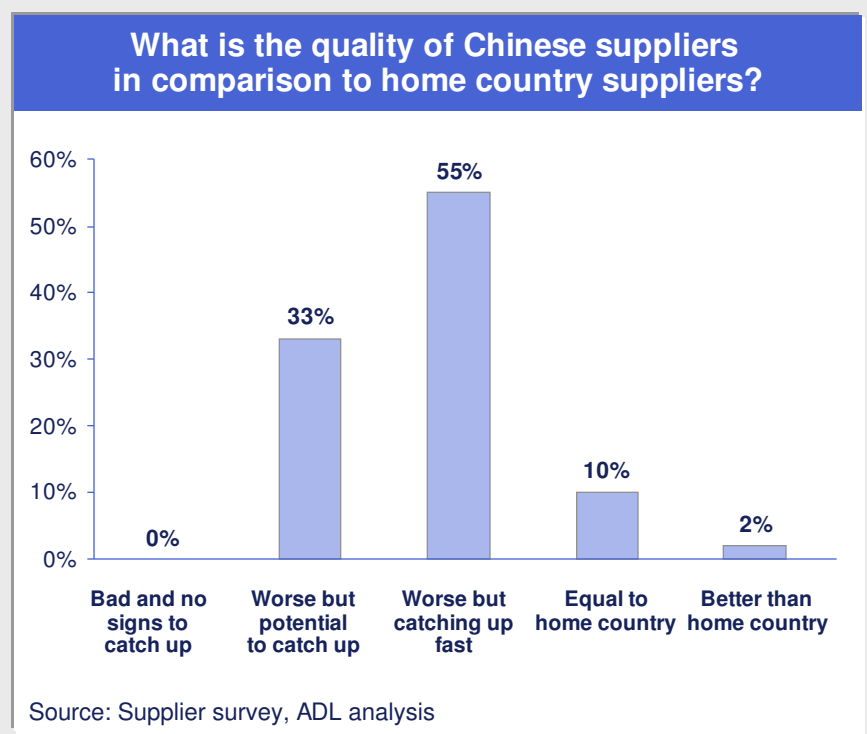
- *"Copying products is nothing scurrilous in China and has a long tradition. Calligraphy, poetry and porcelain manufacturing have been copied for centuries."* This fact needs to be acknowledged by multinational companies
- Multinational companies often overrate their knowledge. If intellectual property will get lost in China, it will happen step by step: *"No Chinese engineer would copy a Porsche"*
- For this reason, three steps need to be considered:
  - Evaluation of technological competency and capability
  - Determining what multinational companies are willing to give and how
  - Establishment of control and management measurements for a controlled flow of IP
- It is recommended that the source R&D stays in the home country. Application engineering should be established in China



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## The quality of supplied products is still a significant problem, but major advantages regarding flexibility of suppliers are identified

*Excerpt of section C*



**Conclusion: The level of advanced and continuous communication with local suppliers in China needs to be enhanced; strategic sourcing has to be coupled with leveraging of local know-how**

1) "More cooperative and faster" might be misinterpreted due to the fact that this statement also included lots of "trial and error" solutions caused by the Chinese suppliers

## The quality of suppliers' products has approximately the same price as the quality of home country manufacturers' products

### Purchasing

#### Core Statements

- Transparency in the Chinese purchasing market is evaluated differently: With regards to raw materials, there is relatively high transparency, due to international markets
- Local contacts and personal networking are fundamental to successful sourcing
- Good quality of suppliers depends on time to conduct research: Find people who know the Chinese market well and create a list of requirements, which should be harmonized with the supplier
- The quality of suppliers' goods are, in the majority of cases, worse than in the home country, but there is the potential to catch up: Suppliers who are comparable to MNC companies charge approximately the same prices
- Regarding flexibility, Chinese suppliers are often more cooperative and faster than MNC competitors, although this is sometimes achieved at the expense of quality ("trial and error" solutions)

#### Comments

- High-quality products are also available from local suppliers in China. These products have similar prices and longer production times in comparison to the home country.



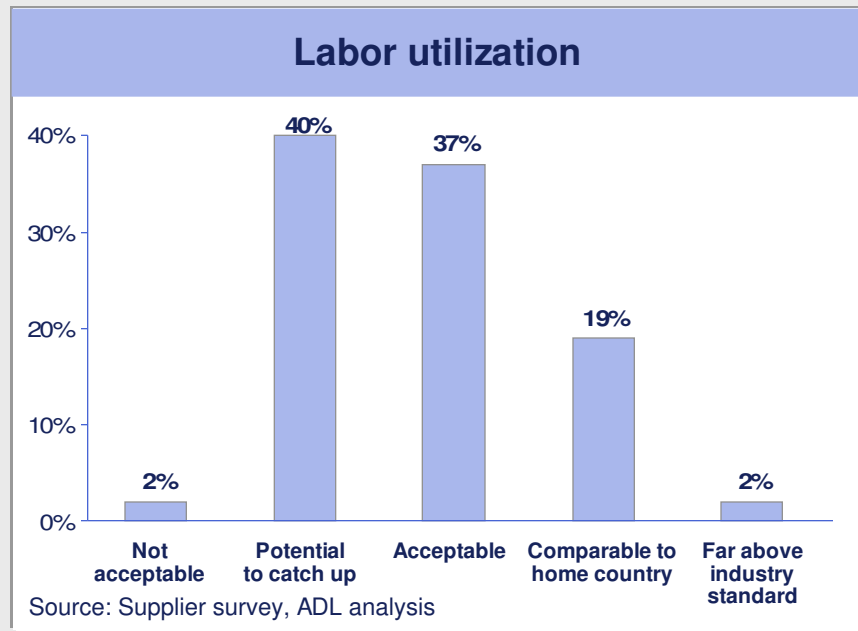
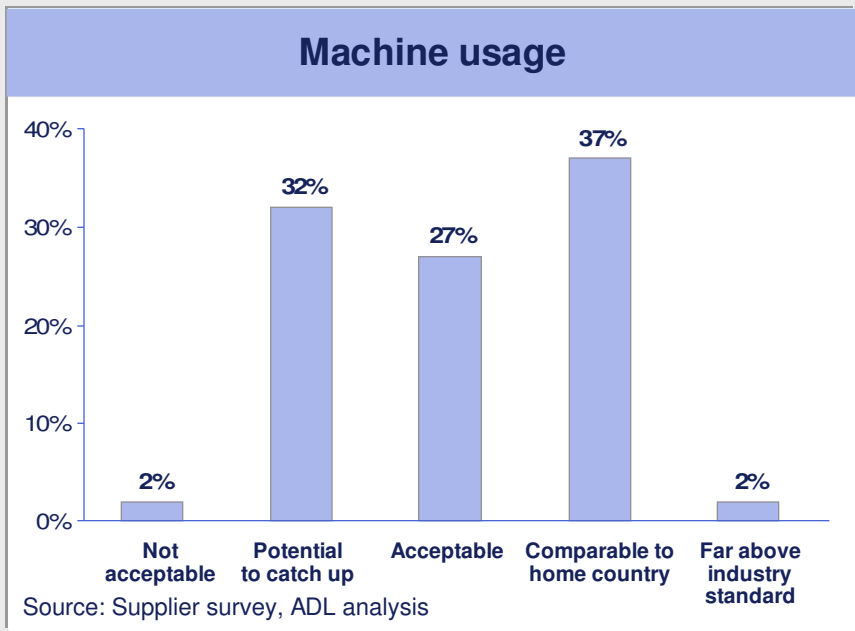
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## On-site material and machine utilization is acceptable in foreign companies, but labor workload can be increased

*Excerpt of section D*

### How would you rate the productivity of Chinese plants?



**Conclusion: Training of Chinese workers is necessary in order to increase knowledge and quality awareness This can be achieved through a very strong and clear work culture and a company organization that takes Chinese culture into consideration**

## Highly developed, complex processes and a high rate of automation will not necessarily lead to cost-efficient manufacturing

### Production

#### Core Statements

- Due to the fact that machines and processes are mostly imported from the home country, both material and machine utilization is acceptable
- There are accumulated needs with regards to labor efficiency: *"A western worker can service 2 or 3 machines; a Chinese worker can only service one machine due to his/her lack of technical education; however, in the long term, Chinese workers will be comparable to their western colleagues"*
- The fear of doing something incorrectly is very common amongst Chinese employees. This risk averse behavior raises the issue of work organization and its alignment to Chinese circumstances
- Highly developed, complex processes and a high rate of automation will not necessarily lead to cost-efficient manufacturing; the complexity of machines needs to be lowered within pricing aspects:  
*"The real problem is the on-site maintenance and repair of machines, rather than the utilization of the machines"*
- Training of Chinese workers is necessary in order to increase knowledge and quality awareness and this can be achieved through a very strong and clear work culture and company organization

#### Comments

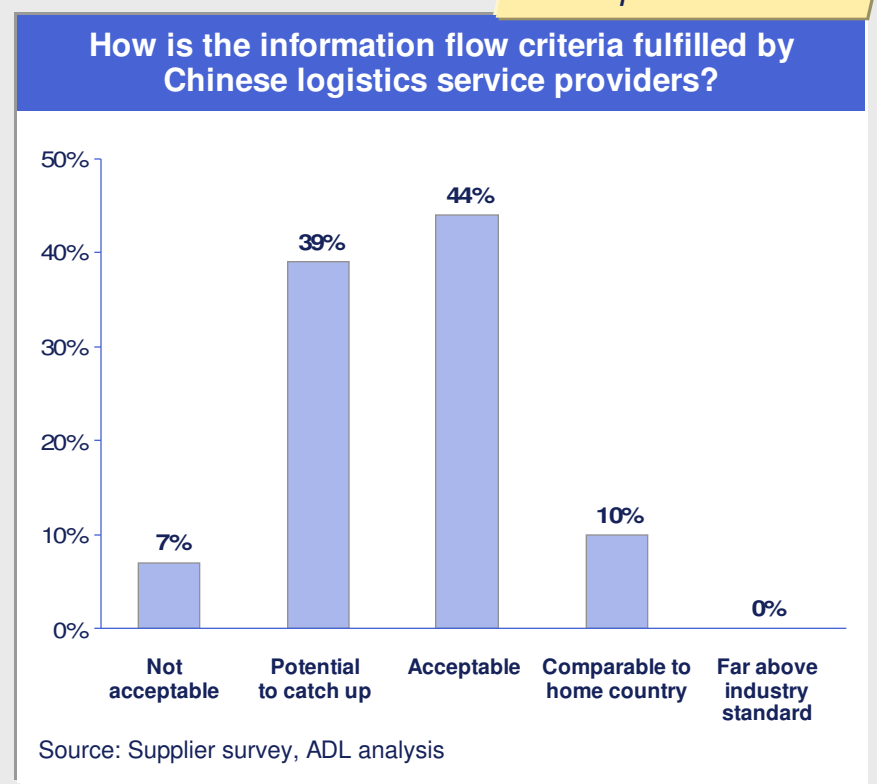
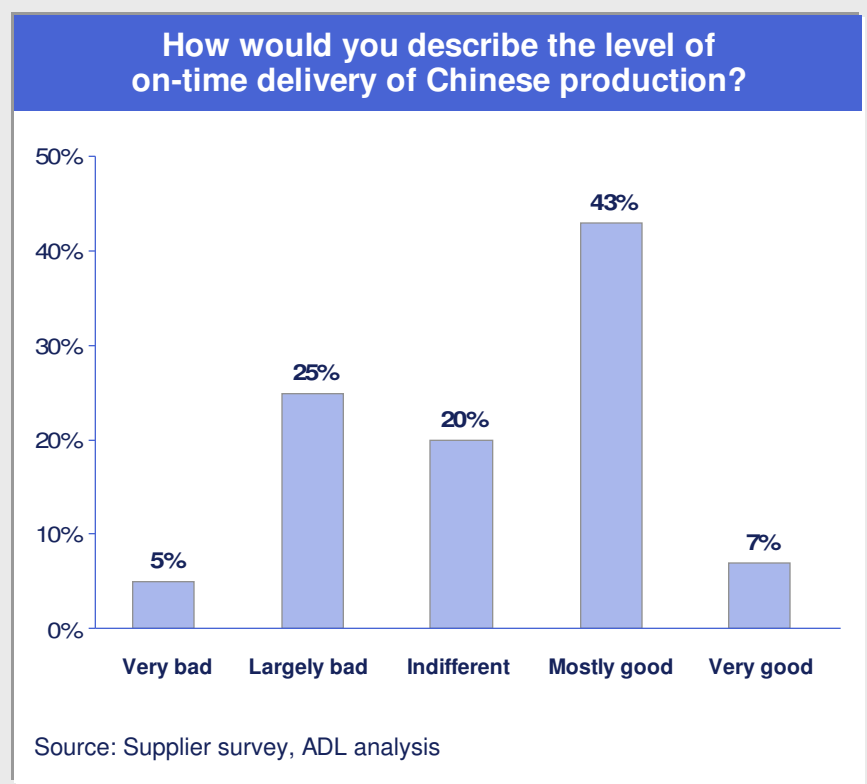
- Automation for quality reasons will be problematic for low-price targets; establishing manpower-driven and well organized processes, combined with an intelligent bonus/malus-system for workers, will lead to a well-developed quality/price ratio
- *"Chinese employees need to better their interactions with Western people and processes"*. On the other hand, foreign companies have to enhance communication with Chinese staff, in order to reduce the lack of understanding of on-site employees



<b>5</b>	<b>Appendix- Detailed results of the survey</b>
5.1	Section A: General Conditions
5.2	Section B: Research and Development
5.3	Section C: Purchasing
5.4	Section D: Production
<b>5.5</b>	<b>Section E: Logistics</b>
5.6	Section F: Quality

## Logistics service providers in China have developed to a high level, especially in recent years; however, their services are still not flawless

*Excerpt of section E*



**Conclusion: On-time delivery must always be controlled and monitored; consideration of long delivery times is required for planning of production lines**

## The infrastructure and its information flow in China must be developed in the future

### Logistics

#### Core Statements

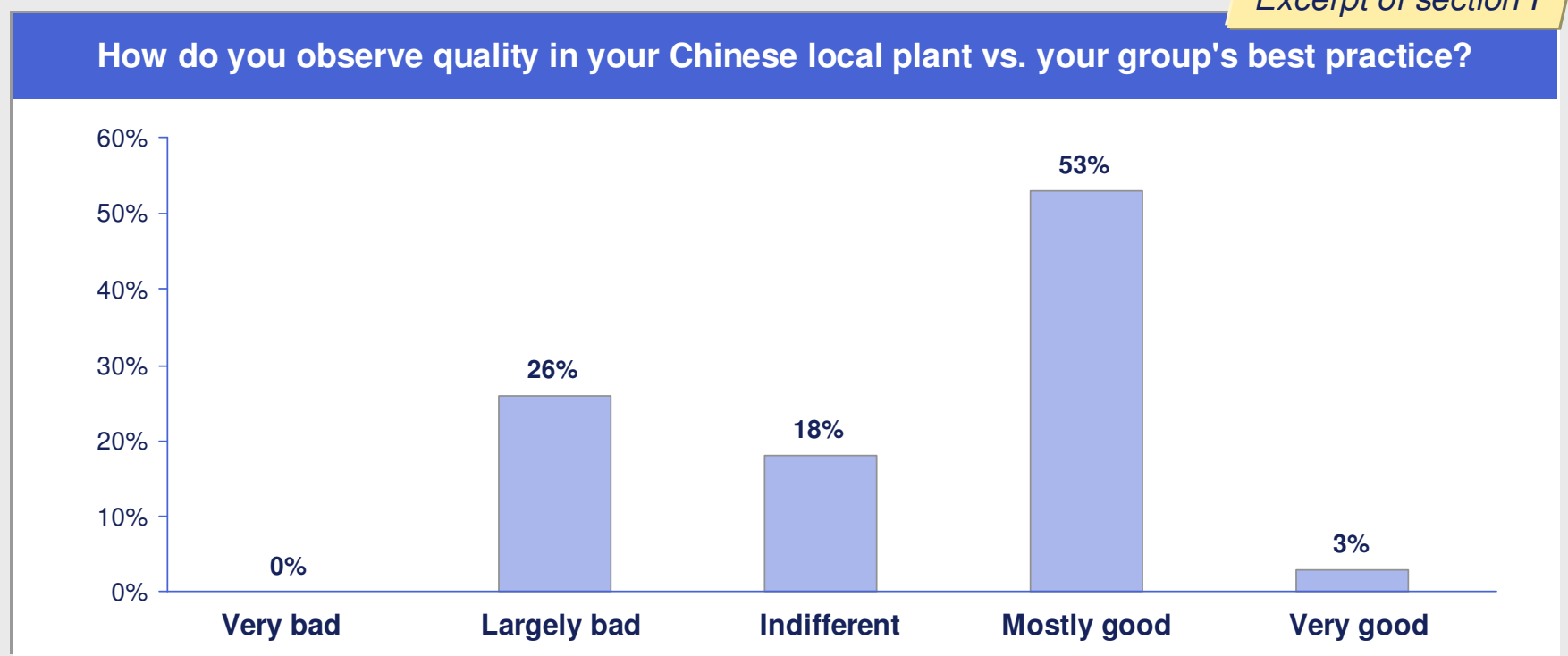
- Chinese logistics providers are mostly comparable to home country providers, although good logistics providers also charge high rates
- Logistics providers are improving rapidly, because the infrastructure is improving
- On-time delivery is rated differently by the interviewed companies; only precisely defined tasks and continuous questioning about the current status helps to achieve on-time delivery
- Just-In-Time (JIT) requirements must be defined by the customer and long-lasting delivery must still be considered
- Regarding the delivery information flow, continuous control is necessary:  
*"As long as you ask the service provider for information, it works fine. You don't get information independently from him"*



<b>5</b>	<b>Appendix- Detailed results of the survey</b>
5.1	Section A: General Conditions
5.2	Section B: Research and Development
5.3	Section C: Purchasing
5.4	Section D: Production
5.5	Section E: Logistics
<b>5.6</b>	<b>Section F: Quality</b>

## Due to strict requirements of foreign parent companies, the quality level is mostly good; suppliers need to be trained with Quality Management Systems

Excerpt of section F



**Conclusion: Quality Mgmt. Systems, continuous monitoring of suppliers and understanding the real demands of the customer will lead to a heightened quality level within the value chain**

Source: Supplier survey, ADL analysis

## In order to increase quality in Chinese manufacturing, strict supervision, training and clearly defined instructions are necessary

### Quality

#### Core Statements

- The majority of the interviewed companies evaluate their quality level as mostly good compared to other Chinese plants
- The company internal quality level normally corresponds to the strict requirements of the parent company
- Quality levels need to be fitted to local demand
- Suppliers and employees must continuously be trained in quality issues
- An essential future challenge will be to stabilize processes together with the suppliers; this will demand an integrated Quality Management System, spanning the value chain, which has to be transferred into a standard code on national level

#### Comments

- The required quality can be delivered by Chinese companies, but it sometimes does not fit with the associated investment; the only solution is continuous employee training in quality issues
- *"Little investment and a lot of profit"* is a common Chinese mentality; in order to increase quality in Chinese manufacturing, strict supervision, training and clearly defined instructions/procedures are necessary

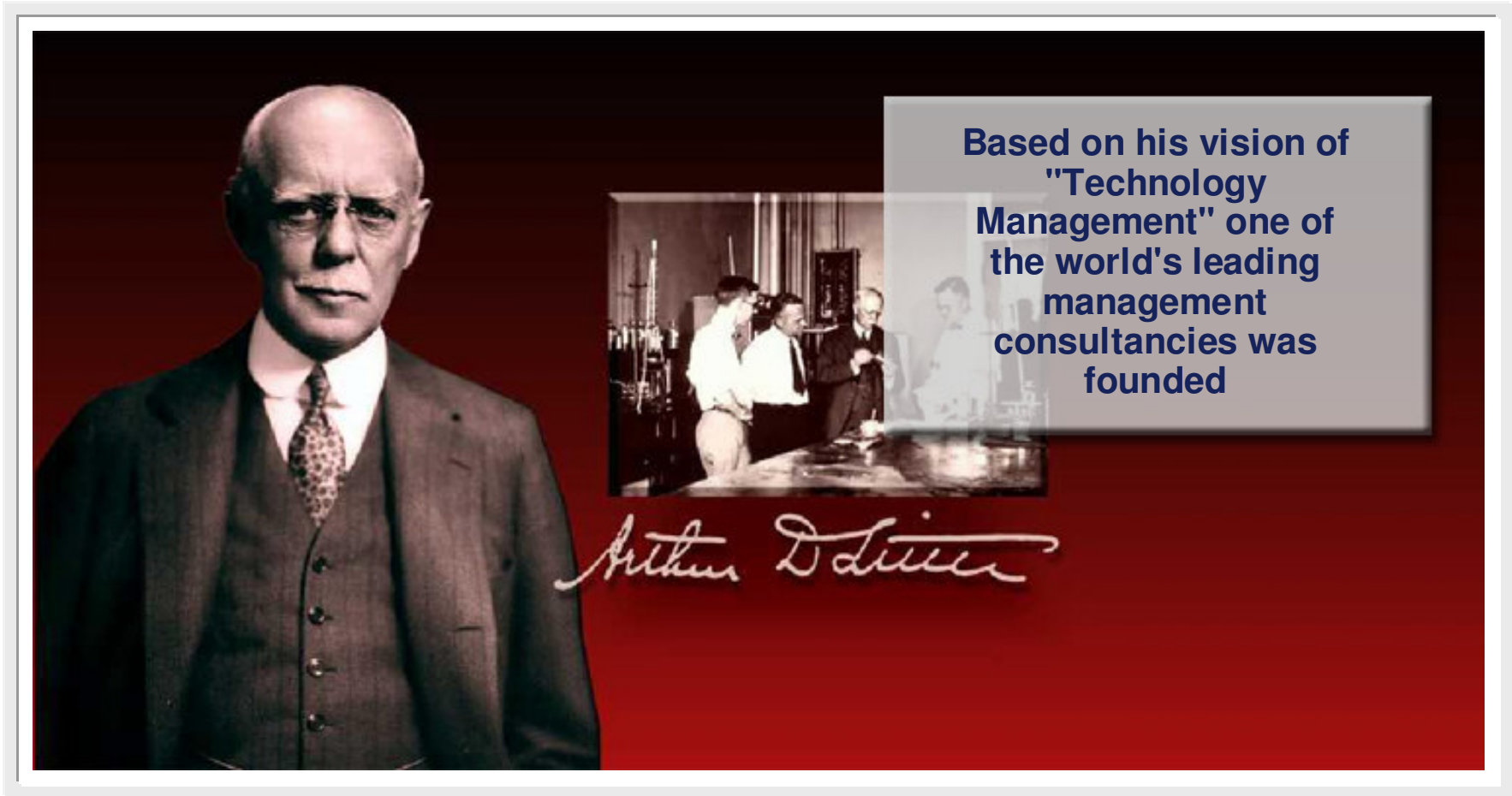


## Contents

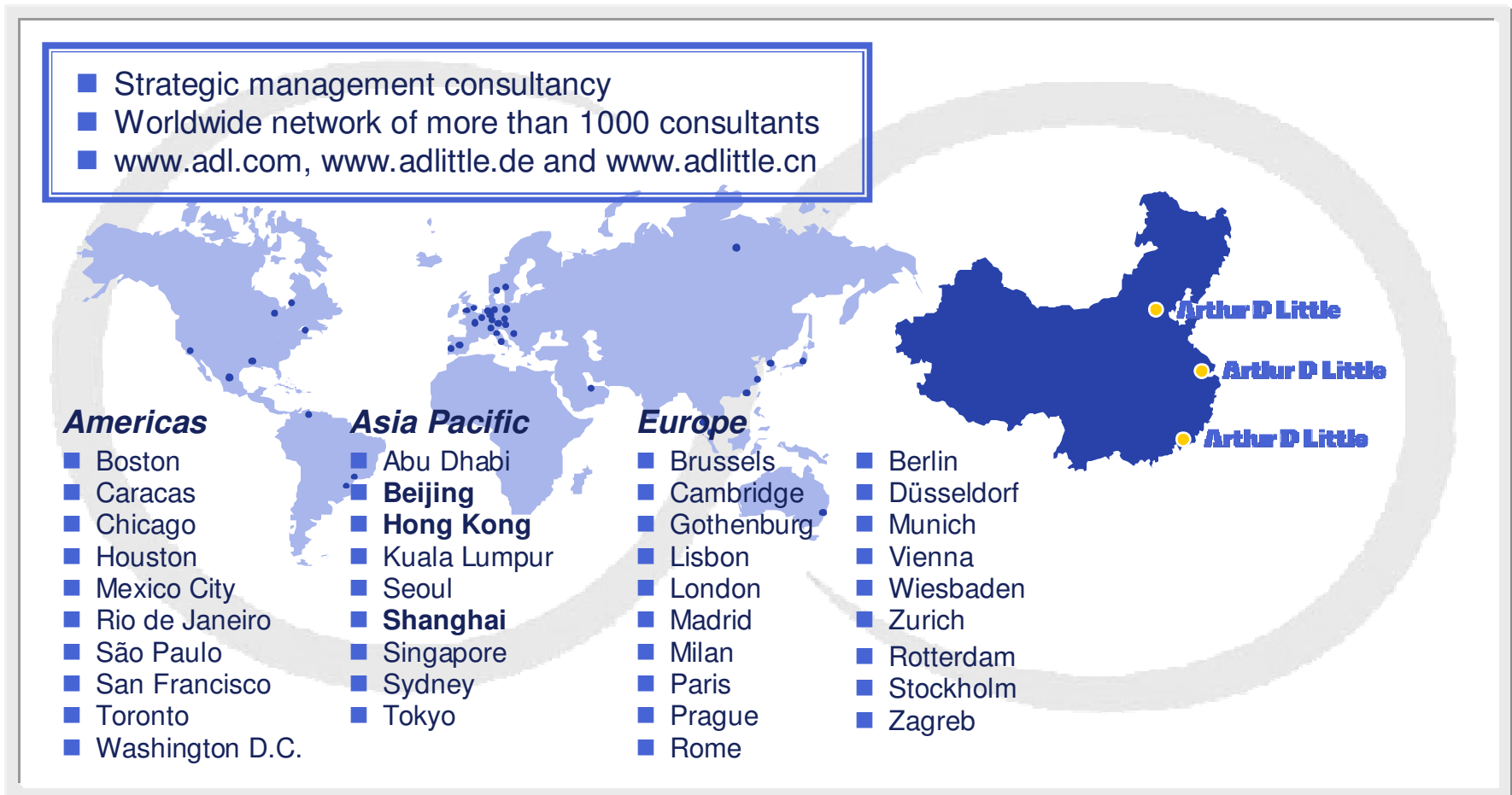
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1	Objective and methodology of the study
2	Chinese Automotive Market
3	Key findings from the survey
4	Conclusions and recommendations
5	Appendix- Detailed results of the survey
<b>6</b>	<b>About Arthur D. Little</b>

**Arthur Dehon Little, Professor at the MIT, founded the "Research Palace" in Cambridge, Massachusetts in 1886**



**Arthur D. Little combines global presence – 38 offices in 25 countries – with a strong position in Central Europe, which supports our Chinese operations**



## Besides experienced management consultants, we have numerous senior advisors to fulfill your management consulting needs in China

### ADL Network and Office Infrastructure in Greater China

The map displays the geographical layout of ADL's offices in Greater China. Three callout boxes provide details for each office:

- Beijing**: Office established 2004
- Hong Kong**: Office since 1986
- Shanghai**: Office established 2000

The map also shows the Yangtze River and the regional boundaries of the area.

- ADL can provide a team of Chinese and multinational consultants with broad experience in supporting Western corporations in China
- In addition, ADL has copied the Chinese system of networking and information sourcing with senior advisors
- ADL management consultants use senior advisors to gather information and support our clients in market penetration
- Those senior advisors are former top-business managers, political leaders or members of one of the top universities and are familiar with their industry in China

Source: Arthur D. Little



## Some final words

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### Disclaimer

This study is authored by and draws upon research and analysis of Arthur D Little. The conclusions are the results of the aggregation of public materials and information provided in the course of recent interviews with a sample of industry players. At no point in the development of this study was access given to the research team to client confidential information held by Arthur D. Little as a result of our recent and ongoing consulting work in this area. Use of this study by any third party for whatever purpose should not, and does not, absolve such third party from using due diligence in verifying the study's contents.

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