Frost & Sullivan

Global Growth Consulting Company

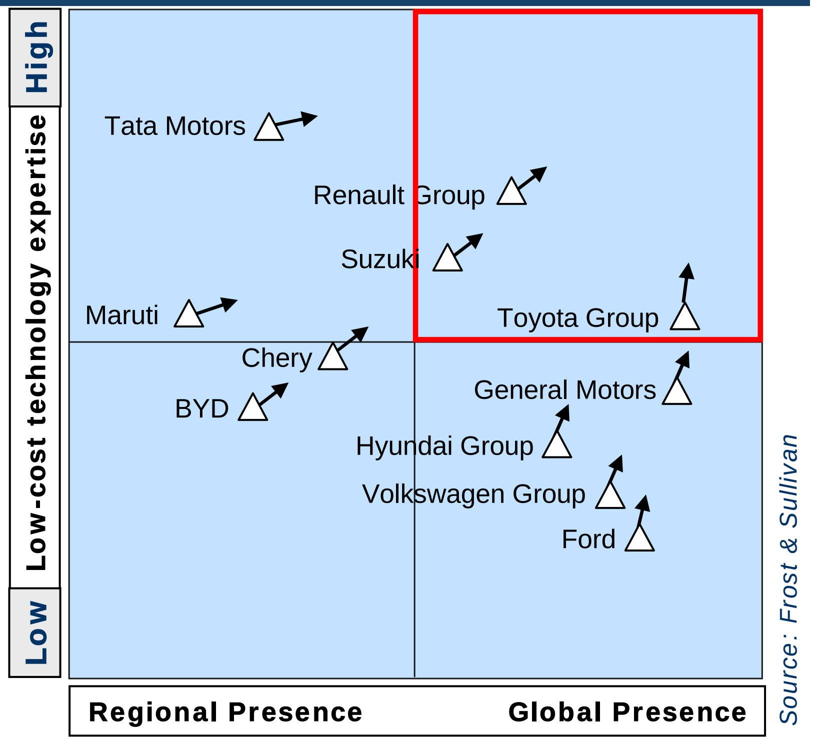
ANFIA Components Group
General Assembly
Turin, 28th May

Global Market for Low-cost Vehicles

1.1 Top level strategic fact sheet

- Global suppliers are partnering increasingly with local regional suppliers for low-cost competence and understanding of local market know-how
- In addition to local players, all key European, Japanese and American VMs are planning on huge investments to make India as a low-cost car hub

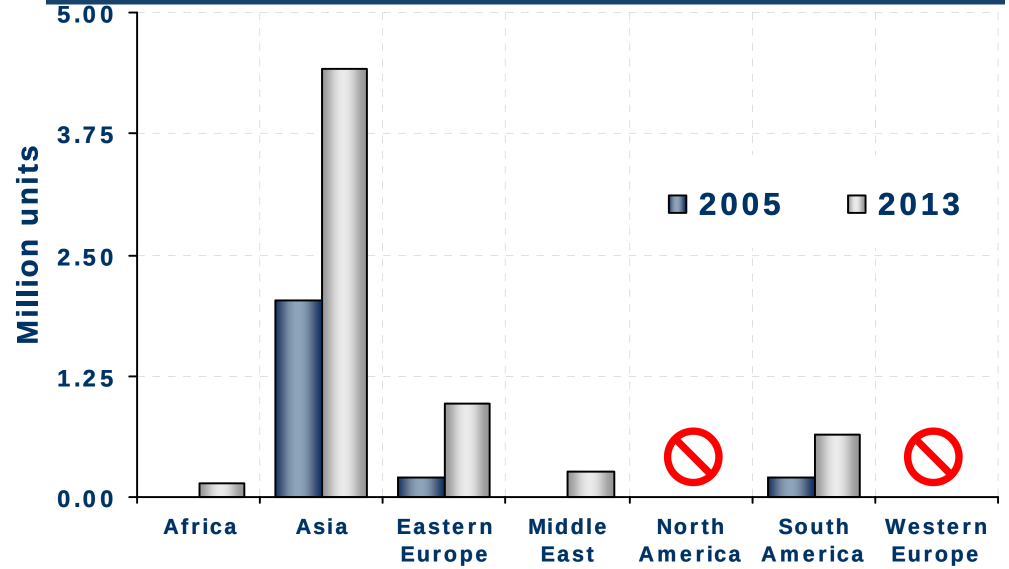
Global Market Position of Low-cost cars VMs, 2007



Source: Frost & Sullivan

Note: *Arrows represent future direction of the VM's business*

Global Production of Low-cost cars – by Country, 2007



Base Year is 2007. Source: Frost & Sullivan

Global Market Position of Low-cost car Suppliers, 2007

Supplier	Vehicle Area	Low-cost Investment
Bosch	Engine, brake, electronics	
Continental	ABS, injection sys, safety	
JCI	Seats, instrument cluster	
Caparo	Body-in-white	
Ficosa	Shifters, mirrors, wiper	

High

Low

2.1 Definition of Low-cost Vehicles

" Low cost cars are seen as vehicles with a niche focus catering to the end-user preferences of a specific region or segment "

- A low-cost vehicle is built for an audience that has similar consumer behavior and purchasing power
- Expectations are far different for a consumer base of first-time car-buyers in emerging countries, compared to those of a buyer in developed economy
- For example, the target segment of the Tata Nano, priced at roughly $2,500 is a first-time car buyer who are up-grading from a motorcycle to a car
- Demand for low-cost cars is a niche market in developed markets especially taking into account the needs and purchasing power of the consumers in these countries

Manufacturer & Model	Country Built	Target Group	Price Range
Tata Nano	India	Indian middle class – First time car buyer owning a motorbike	< US$ 5,000
Dacia Logan – Renault	Romania	Eastern European buyers	< US$ 10,000
Chery QQ3	China	Chinese buyers	< US$ 7,500

Definition of Market Participants

" Bosch's perception of a low-cost car is not a vehicle for Europe but for the BRIC market. Europe needs a different set of cars and from a design perspective cars sold in Europe are not the same segment"

– **Robert Bosch, Europe**

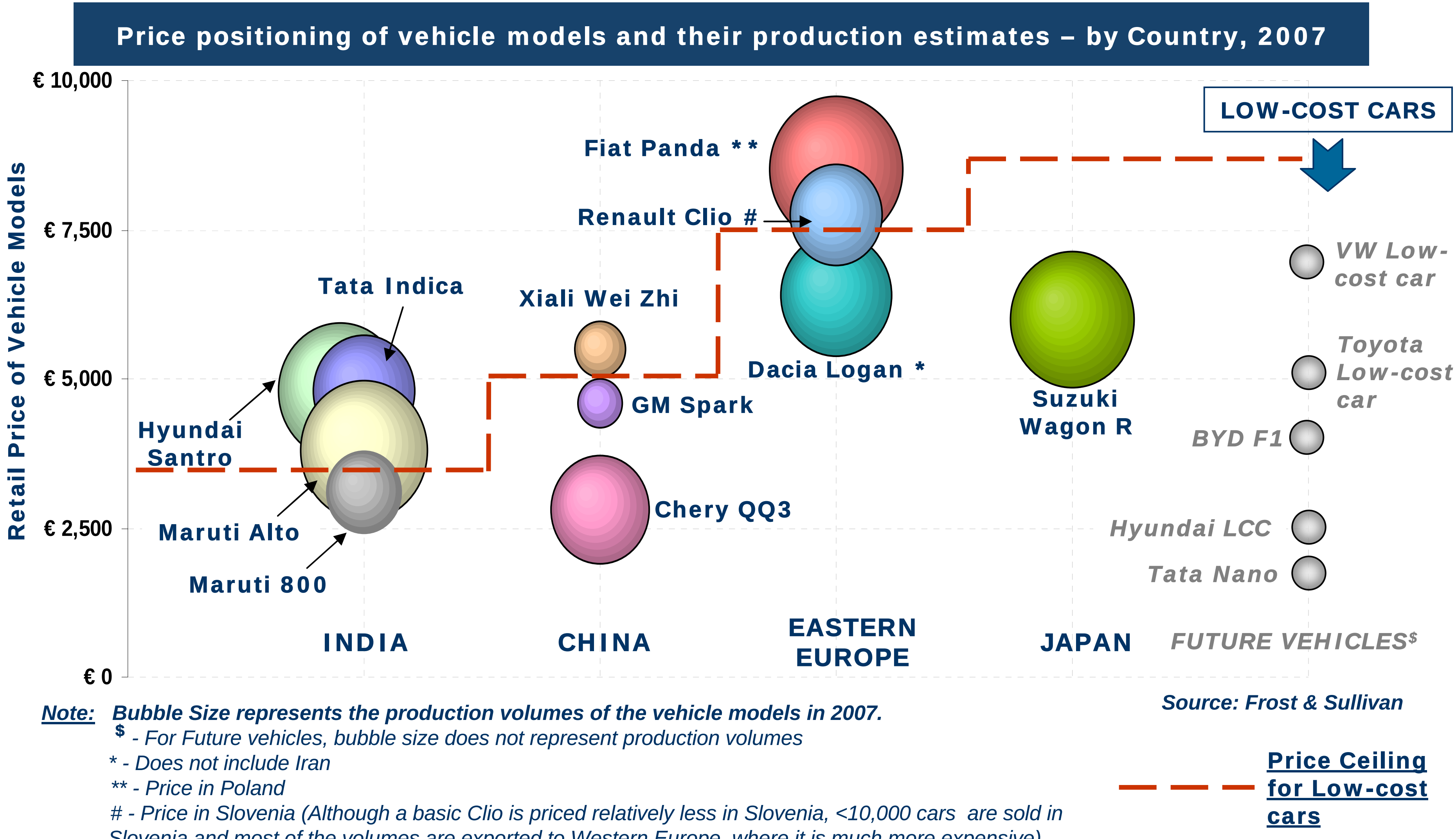
" The definition of a low cost car changes by geography, It is basic in terms of India however for developing countries it is far superior "

– **Continental, India**

" In literal terms a Low Cost Car is defined in terms of price. However, with the pace at which technology is influencing the auto industry, it is not just a price war, but a battle of maximum features offered at that minimum price "

– **Tata Motors, India**

2.1 Definition of Low-cost Vehicles



Source: Frost & Sullivan

Note: ***Bubble Size represents the production volumes of the vehicle models in 2007.***

$ - For Future vehicles, bubble size does not represent production volumes

** - Does not include Iran*

*** - Price in Poland*

 # - Price in Slovenia (Although a basic Clio is priced relatively less in Slovenia, <10,000 cars are sold in Slovenia and most of the volumes are exported to Western Europe, where it is much more expensive)

2.2 Drivers and Restraints for Low cost cars

Market Drivers

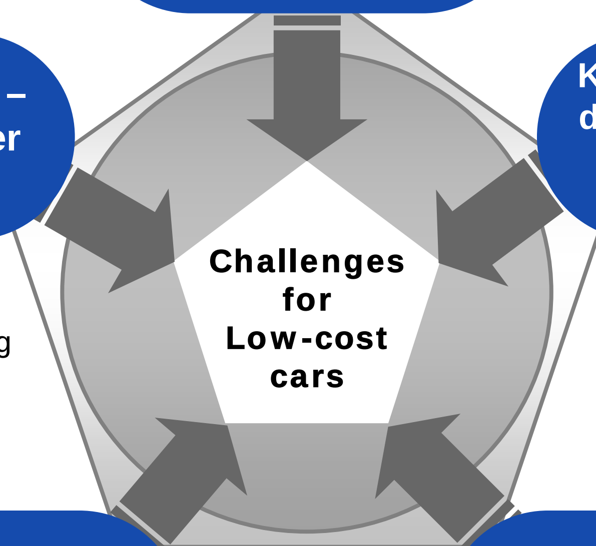
- New vehicle segment constituting first-time car buyers and people switching from two-wheelers to cars
- Increasing purchasing power of a growing middle class in emerging markets – increasing demand for affordable cars
- Increasing interest of global automakers to tap the low-cost car segment and create new products
- Limited public transportation infrastructure and a demand for affordable transportation
- Government policy encouraging small-displacement and low-emission cars

Market Restraints

- Low-margins and fear of bleak chances for profitability
- Increase in vehicle costs due to legislations on safety and emission standards
- Competition from used-car market
- Lack of infrastructure to support growing vehicle population
- Brand image erosion

Source: Frost & Sullivan

2.3 Industry Challenges for Low cost cars



Providing low-cost products with acceptable quality and performance

- Suppliers and OEMs need to generate innovative design concepts to reduce system costs without loss of quality and offering the same functionality

Price competition – Reduced profit per car sold

- Low margins is definitely the norm with Low-cost cars and chances of profitability would depend solely on the sales volumes generated
- Eg., Chinese manufacturer, ChangAn estimates its profit margin at less than 5 per cent for a single car due to increasing production costs and price competition

Keeping prices low in developed markets in spite of offering advanced features

- Low cost cars sold in developed economies need to conform to a higher standard of safety, emission and advanced technology required in these markets
- Value-for money is the success factor rather than price in these markets

Cannibalization

- Sales cannibalization is especially a problem for Indian and Chinese VMs who already sell low-cost cars at present
- For example, sales of the Maruti 800 was severely hit when Maruti Suzuki launched its Alto model in India

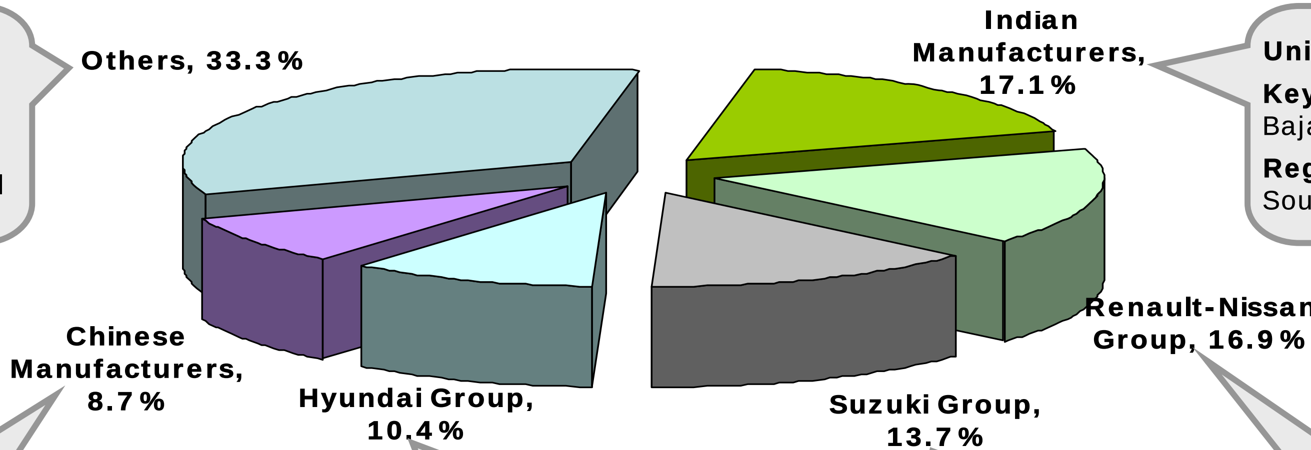
Brand image erosion – low-cost image

- Consumers sometimes consider low-cost cars as a product with low price, low technology and low safety quotient
- For example, consumers attribute some low-cost Chinese brands to low safety and emission standards

2.4 Competitive Landscape

Tata, Renault and Suzuki are expected to account for about 50% of the global Low-cost car production by 2013

Estimated Market Share of Low-cost car Manufacturers, 2013



Others

Units: 2,135,731

Key VMs: GM, VW, Toyota, Fiat and Honda (Kei cars)

Regions: Across all geographies

Indian Manufacturers

Units: 1,094,499

Key VMs: TATA, Bajaj + Renault

Regions: India, South Africa

Chinese Manufacturers

Units: 560,155

Key VMs: Chery, BYD, Changan, Hafei

Regions: Eastern Europe/Russia, China

Hyundai Group

Units: 664,454

Key VMs: Kia, Hyundai

Regions: India, South Korea

Suzuki Group

Units: 878,474

Key VMs: Maruti, Suzuki

Regions: India, Japan (Suzuki-Kei cars)

Renault-Nissan Group

Units: 1,082,795

Key VMs: Renault, Dacia & Nissan

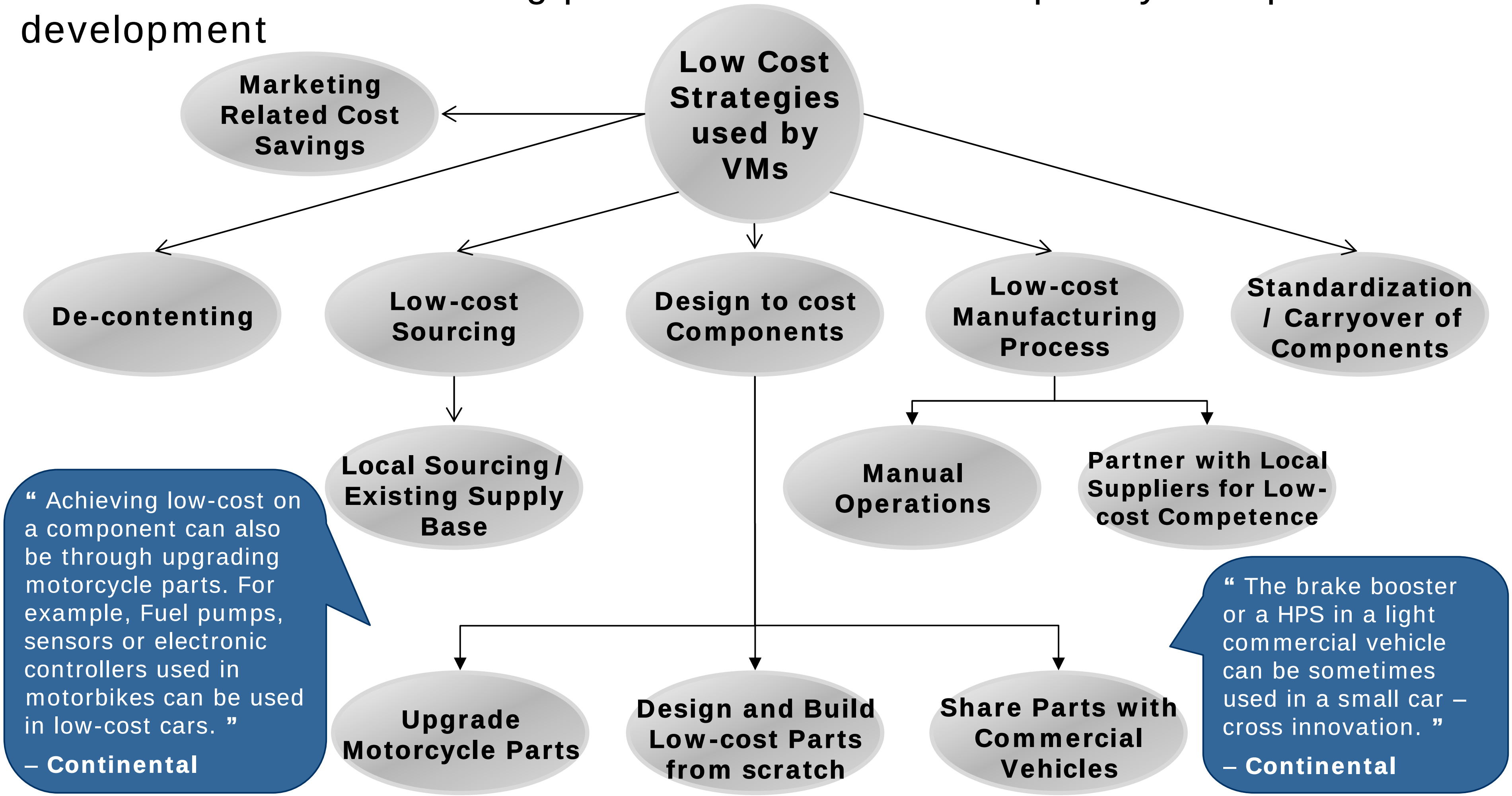
Regions: Eastern EU / Russia, Japan (Nissan-Kei), South America, S. Africa

" Most of Chinese OEMs are looking forward to entering the oversea markets, but more than 90% of them can only enter the underdeveloped or developing markets or countries now "

– **Chang'an**

2.5 Low Cost Strategies used by VMs

Low-cost cars will use innovation as a means for better product features and efficient manufacturing process rather than completely new product development



2.5 Low Cost Strategies used by VMs

Cost-savings through Product and Process Innovation on the Tata Nano

No passenger side mirror and radio & a/c offered as an option

New type of Seats with **integrated head rests**

Just **one** wind-shield **wiper**

Plastic panels innovatively designed to eliminate the need for screws

Similar door handles & mechanisms for left & right side doors

Instrument cluster located in the center with only **analog displays**

Rear-mounted engine layout eliminates drive-shaft (space and weight savings)

Extensive use of Hydroforming and roll-forming

Compact size and packaging of components contributes to cost savings due to lesser material costs (steel, rubber etc.), and energy costs

Two-cylinder engine for lower cost & **better fuel efficiency** with Euro IV compliance

Source: Tata Motors

Tubeless tyres to save weight and avoid punctures thus enabling **low running costs**

Centre mounted instrument cluster – Same instrument panel can be used across left and right hand drive variants

- Innovative Features / Design Innovation
- Manufacturing Process Savings
- De-contenting

2.6 Impact of Legislation on LCCs

There is a big gap in Safety and Emission standards of cars manufactured in Europe compared to those in markets such as India and China

EXISTING

CHINA

SAFETY

- C-NCAP launched in 2005 based on Euro NCAP model
- Safety airbags / ABS is not mandatory at present

EMISSIONS

- Light-duty vehicles: mainly Euro III at present and OBD System required by Jul. 2008
- Heavy-duty vehicle: Euro II at present

INDIA

SAFETY

- There is no NCAP program and it is not expected before 2010
- Safety airbags / ABS is not mandatory

EMISSIONS

- Bharat Stage III standards in 11 major cities since 2005

  (equivalent to Euro III norms)

RECYCLING

- No formal regulations regarding recyclables and disposal of ‘end of life vehicles’ (ELV)
- No infrastructure for organised collection, dismantling, shredding and processing auto scrap

EUROPE

SAFETY

- All cars need to pass the EURO NCAP for type approval
- Safety airbags (driver & passenger) and ABS is mandatory

EMISSIONS

- Euro IV Norms across Europe

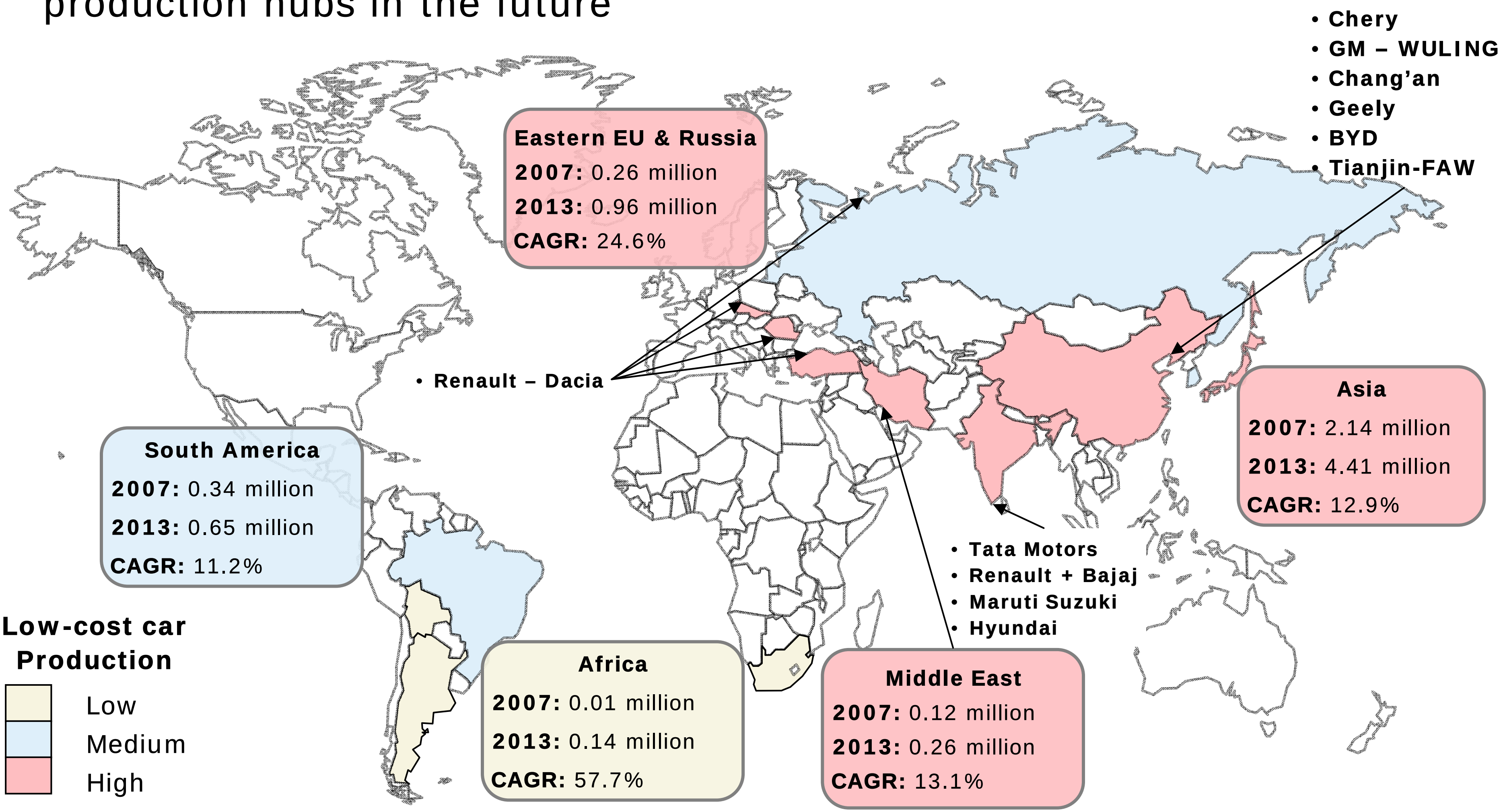
RECYCLING

- At least 85% by weight of the vehicle must be recovered and 80% re-used or recycled from 2006

Global Production Forecasts for Low-cost Vehicles

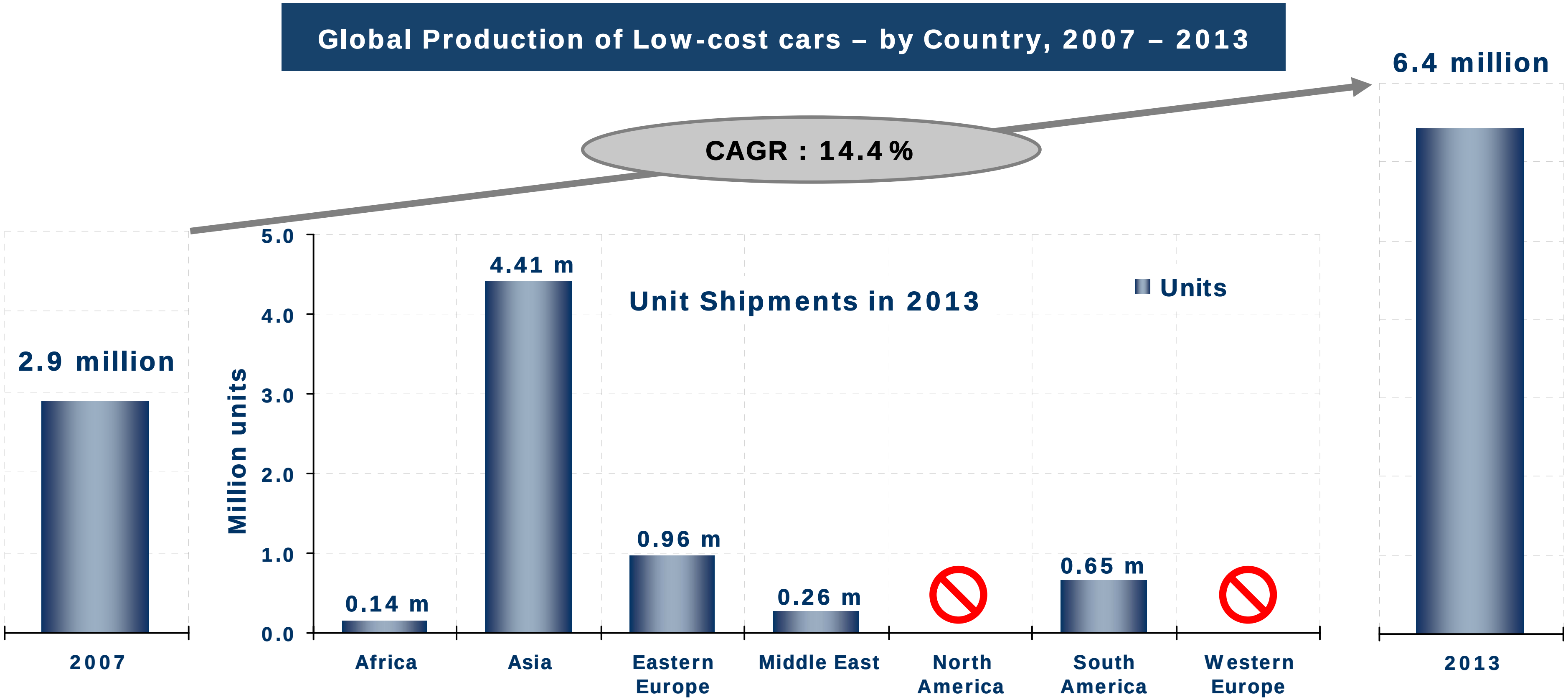
2.7 Global Vehicle Production Forecasts and Trends for Low-cost Vehicles

India, China, Thailand, Romania, Turkey to emerge as key low-cost production hubs in the future



2.7 Global Vehicle Production Forecasts and Trends for Low-cost Vehicles

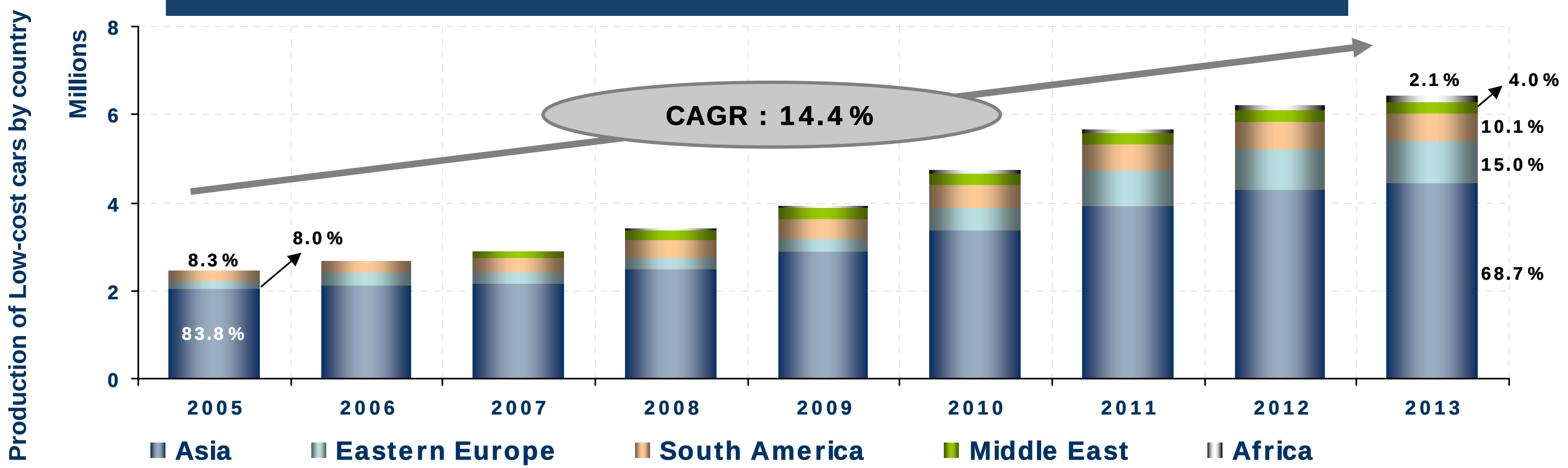
More than 4.4 million vehicles to be produced in Asia by 2013 – India to emerge as the low-cost car production hub



Note: *Base Year is 2007. CAGR calculated only for the forecast period between 2007 and 2013*

2.8 Scenario Analysis – Frost & Sullivan Scenario

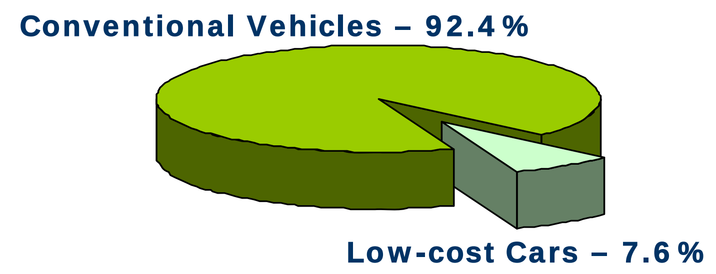
Global Production of Low-cost cars – Frost & Sullivan Scenario, 2005 – 2013



Note: *Base Year is 2007. CAGR calculated only for the forecast period between 2007 and 2013*

- Frost & Sullivan estimates that the LCC market is expected to grow at a CAGR of about 14.4 per cent realistically, due to the various challenges inherent in operating in a new segment such as global expansion, production ramp-up, supplier base acquisition etc.
- Production capacity of Indian manufacturers (including Tata and Renault + Bajaj partnership) is expected to drive LCC production with a combined CAGR of 45 per cent between 2007 and 2013
- The LCC market is expected to have a year-on-year growth of more than 15% between 2008 and 2011 due to many VMs planning low-cost model launches during this period

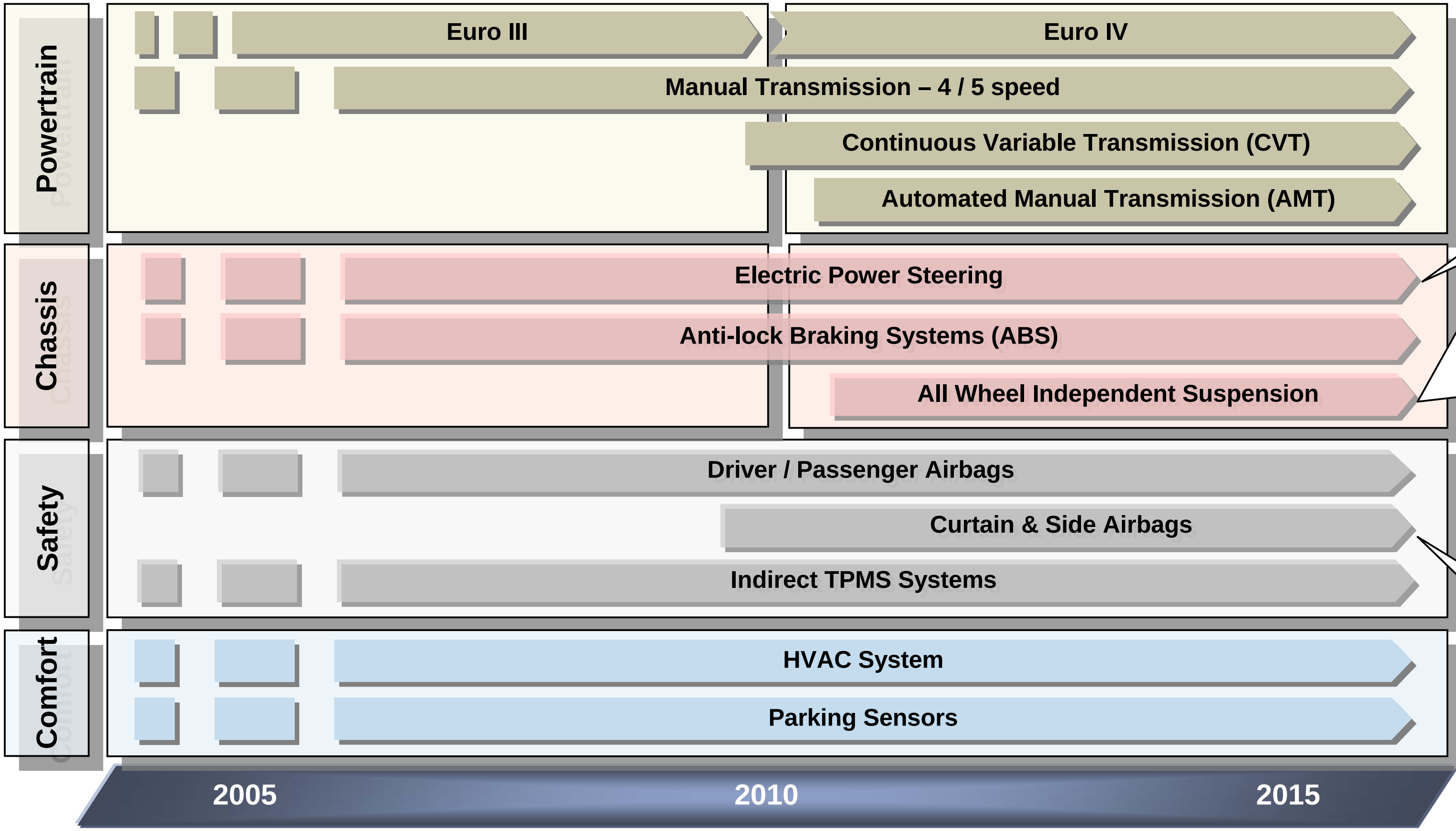
Global Passenger car Production in 2013 – Break-down by vehicle type



Technology Used in Low-cost Vehicles

3.1 Technology Roadmap for Low-cost Cars – China

Chinese vehicles have safety systems designed even for low-cost cars, available as options, although it lags on emission regulations



Offered mostly as an option. Eg., Changhe Ideal, Chana Benni

Most small cars in China have an independent suspension only for the rear or a torsion beam for the rear at present

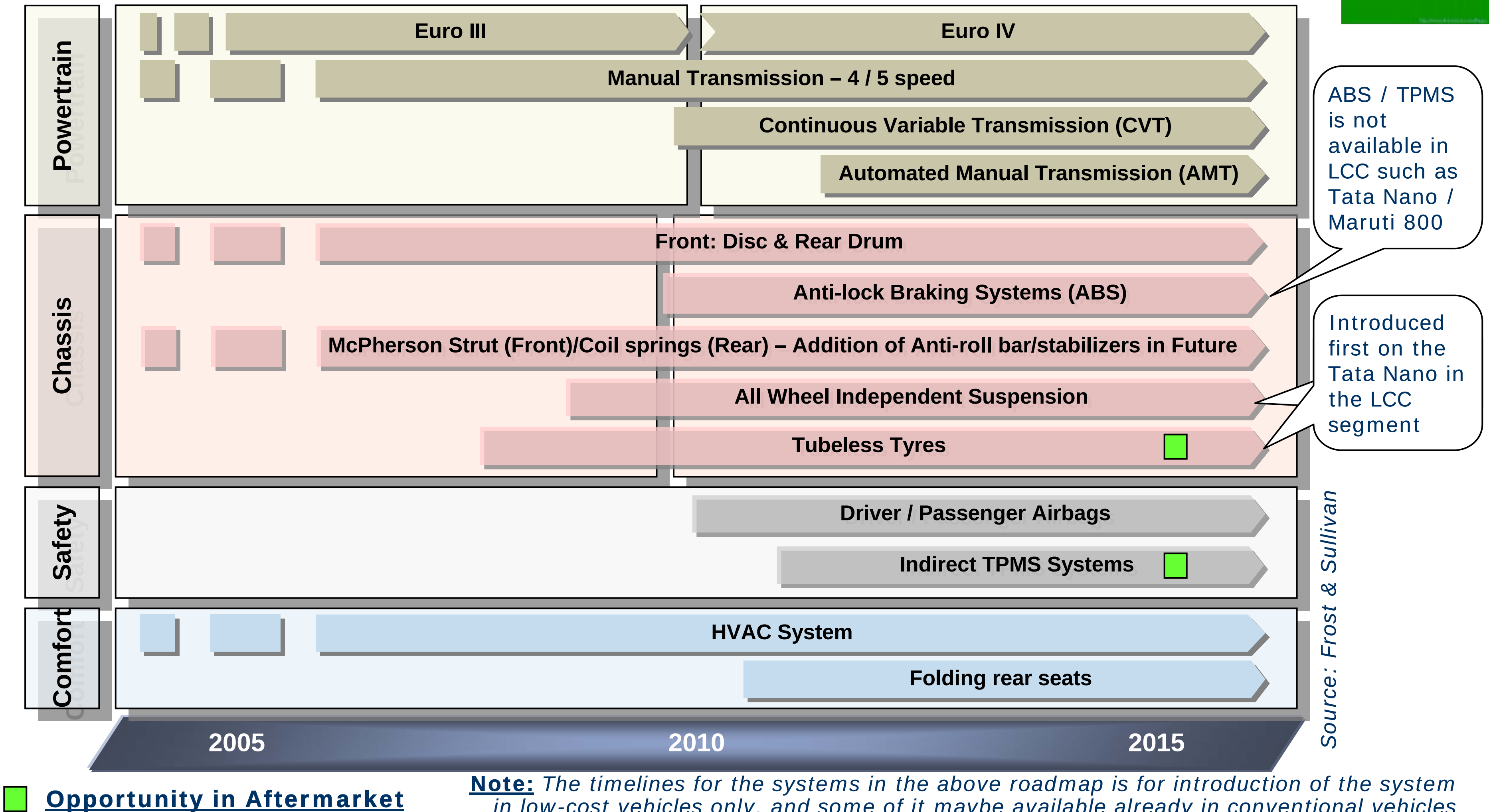
Curtain or Side airbags are not present in low-cost Chinese cars today

Source: *Frost & Sullivan*

Note: *The timelines for the systems in the above roadmap is for introduction of the system in low-cost vehicles only, and some of it maybe available already in conventional vehicles*

3.1 Technology Roadmap for Low-cost Cars – India

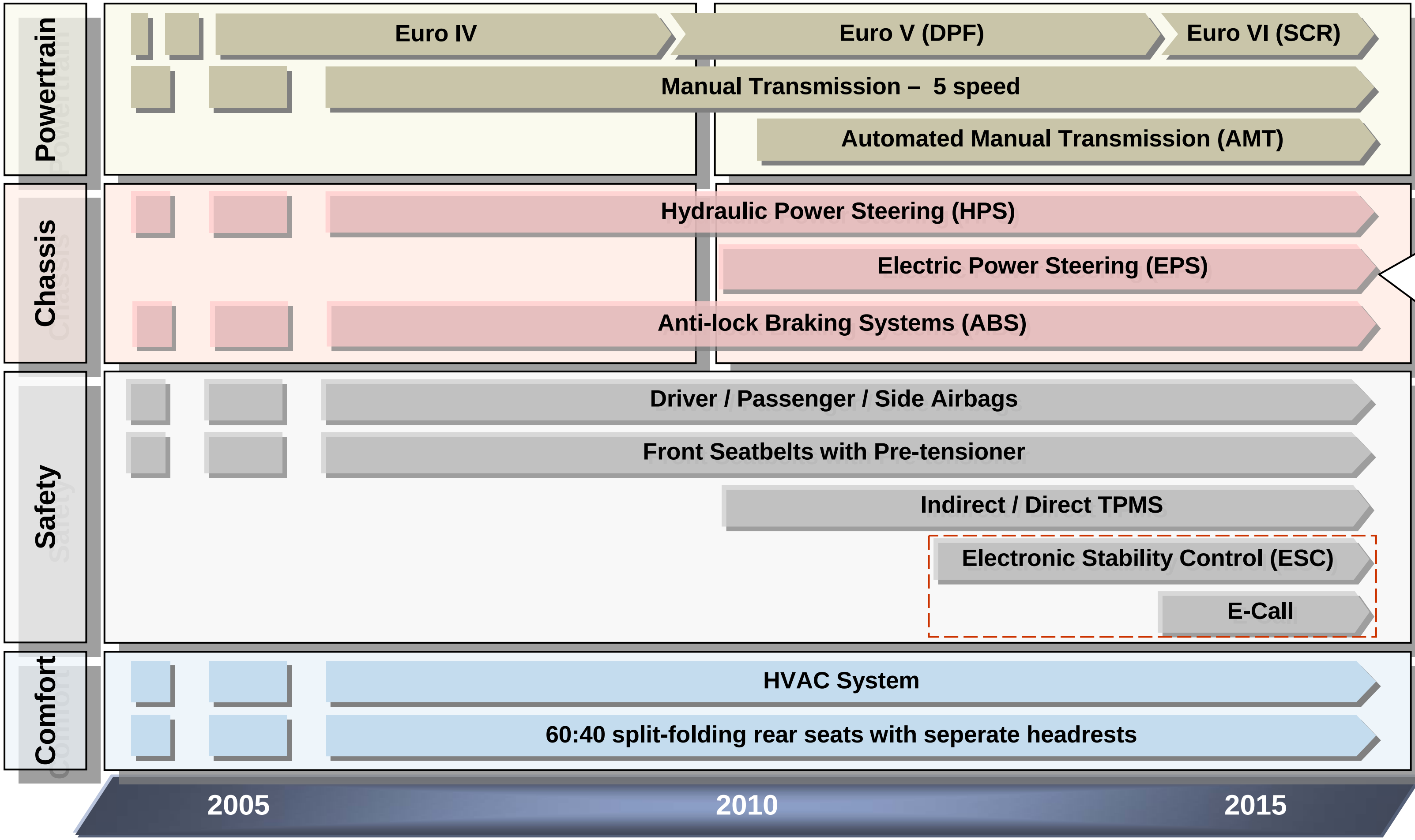
Indian market has lower cost for safety compliance due to the poor penetration of Active / Passive safety systems



Note: *The timelines for the systems in the above roadmap is for introduction of the system in low-cost vehicles only, and some of it maybe available already in conventional vehicles*

3.1 Technology Roadmap for Low-cost Cars – Europe

EC drive towards safer cars will prompt for additional safety systems in European low-cost cars, posing a huge challenge for LCC VMs



The Logan has a HPS and EPS will come in Europe LCC with new VW low-cost model

Source: Frost & Sullivan

Mandated by Legislation

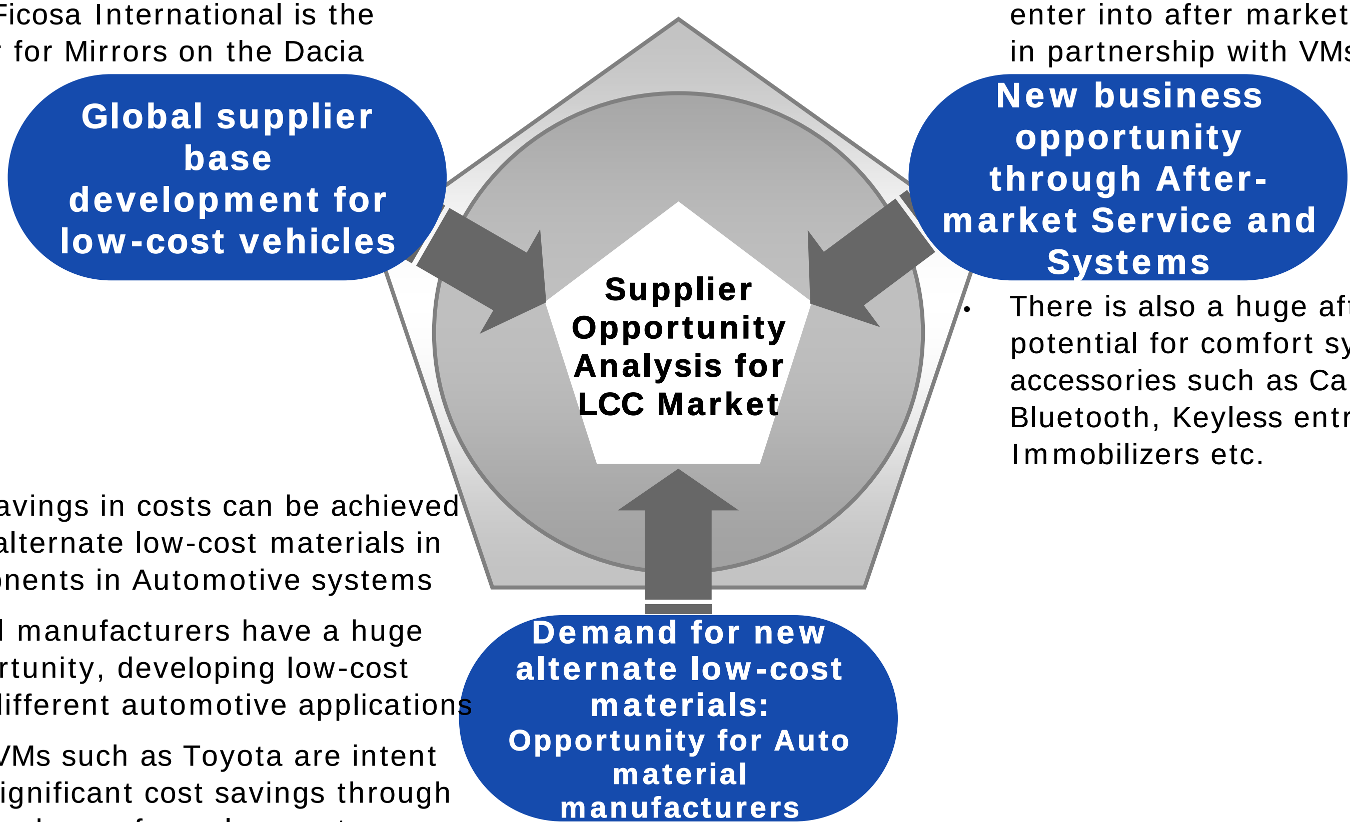
Note: *The timelines for the systems in the above roadmap is for introduction of the system in low-cost vehicles only, and some of it maybe available already in conventional vehicles*

Key Conclusions – Opportunities for Suppliers and VMs

7.3 Supplier Opportunity Analysis for LCC Market

- Most OEMs try to retain the same supply base for their low-cost car projects across geographies – Suppliers get an opportunity to develop low-cost products that will help them obtain global contracts
- For example, Ficosa International is the global supplier for Mirrors on the Dacia Logan

- The huge volumes of vehicles sold will require a lot of service outlets for after-sales service
- This provides an opportunity for many small service suppliers and enterprises to enter into after market service business in partnership with VMs



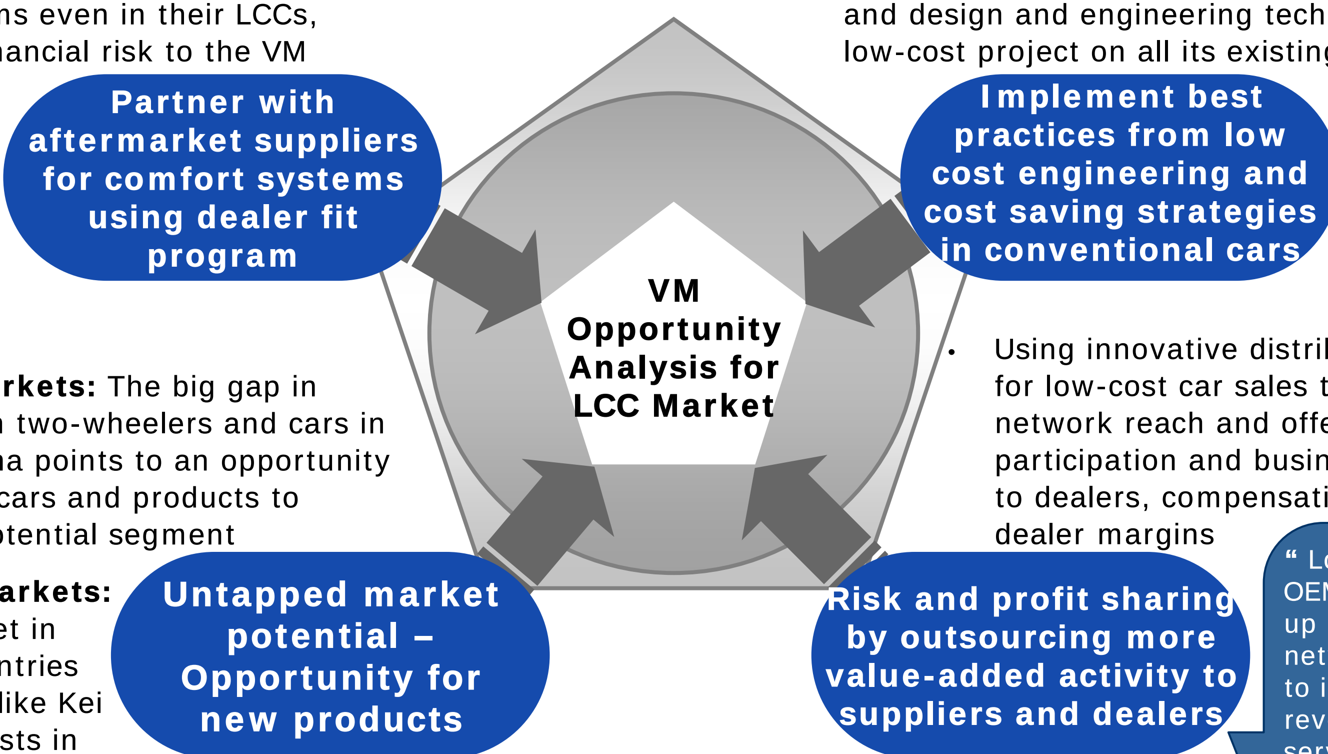
- There is also a huge after-market potential for comfort systems and accessories such as Car audio, TPMS, Bluetooth, Keyless entry systems, Immobilizers etc.

- A significant savings in costs can be achieved by the use of alternate low-cost materials in various components in Automotive systems
- Tier 2 material manufacturers have a huge business opportunity, developing low-cost materials for different automotive applications
- For example, VMs such as Toyota are intent on achieving significant cost savings through development and use of new low-cost materials

7.4 VM Opportunity Analysis for LCC Market

- Pushing non-critical business to aftermarket reduces vehicle development costs and time to the VM
- Dealer fit programs also helps retain consumers who would like additional comfort systems even in their LCCs, without any financial risk to the VM

- There is a huge opportunity in terms of cost-reduction and profit margin improvement in the auto industry by implementing best practices from the LCC market
- For example, Toyota plans to use low-cost materials and design and engineering techniques from its low-cost project on all its existing business



- **Emerging markets:** The big gap in prices between two-wheelers and cars in Brazil and China points to an opportunity to create new cars and products to capture this potential segment
- **Developed markets:** The LCC market in developed countries could become like Kei cars – Save costs in Powertrain and host a lot of advanced safety and comfort features

- Using innovative distribution channels for low-cost car sales to improve network reach and offer better participation and business opportunity to dealers, compensating for low dealer margins
- For example, Tata is considering distribution of knocked down car kits that can be assembled at dealerships

" Local low-cost car OEMs are willing to set up their own service network in China so as to increase their revenue from after-service and promote customer satisfaction and loyalty. " - **Chang'an**

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Thank You !