Partnering with Developing Economies

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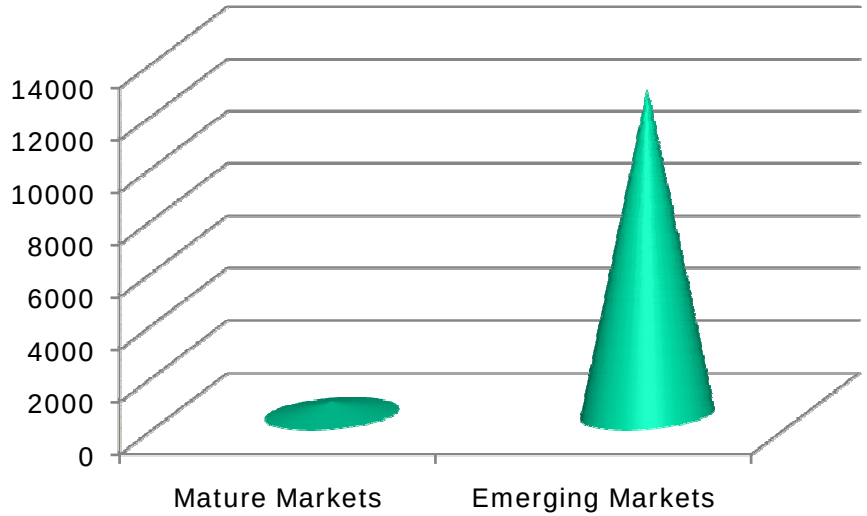
Structure of this presentation

- Changing nature of markets
- Legislative requirements
- Demand side imperatives
- Engineering challenges
- Resource constraints
- The early mover advantage

Changing nature of markets

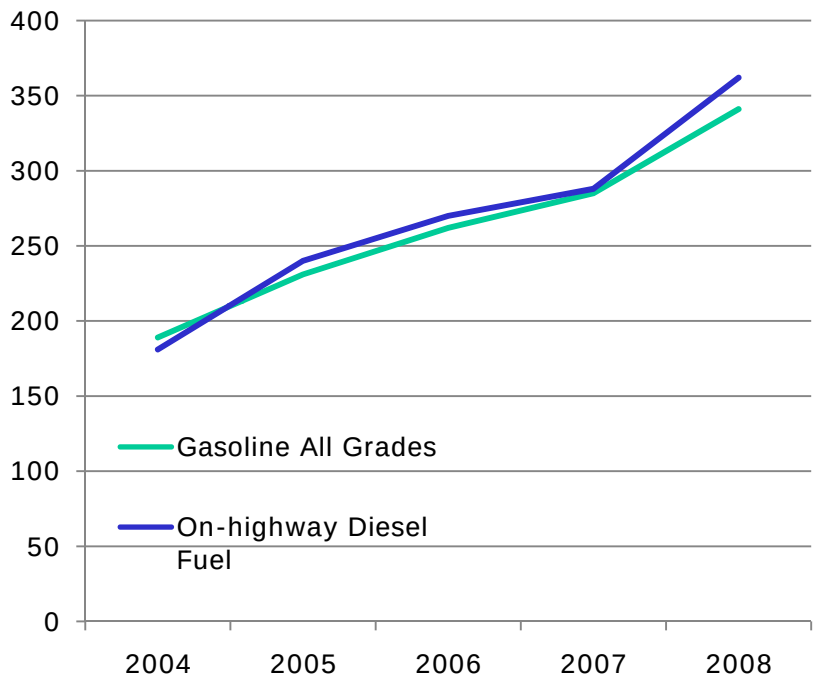
- By 2015 emerging markets are expected to contribute 95% of the auto industry's growth.
- By 2020 prevailing notions of what a car costs, its production and its usage are likely to change significantly.



Projected growth in global assembly by markets 2007 to 2015 (figures in '000s)

Impact of oil prices

- **Oil prices have risen by 375% over the last five years.**
- **Explosion in demand from emerging economies – rising auto sales.**
- **Global trend is towards smaller vehicles.**
- **Which in turn would increase proliferation of vehicles and higher demand on oil.**



US Energy Information : Retail prices

Increasingly stringent legislation

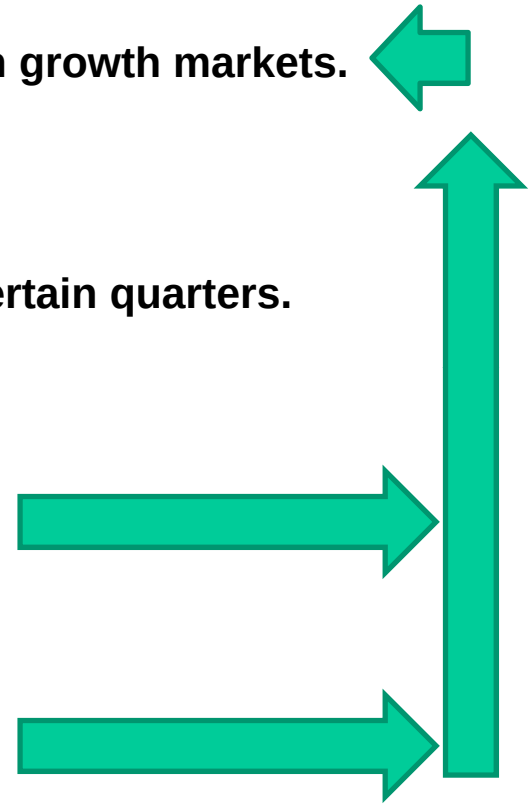
- **Increased pressure on R&D activities to deliver on reducing CO2 and increasing fuel economy.**
- **US CAFÉ standards revised from 27.5 mpg to 35 mpg by 2020.**
- **Bonus / penalty system introduced in The Netherlands in 2006, resulting in a consumer shift towards smaller vehicles.**
- **Italy had provided incentives to consumers to shift away from older vehicles towards low emission vehicles.**
- **French penalty system will eventually force auto makers to maintain an average below 130 gm /km CO2 emissions by 2012.**
- **Developing economies are taking the cue on tightening legislation.**

Other factors

- **European OEMs & Tier 1 suppliers can expect a further squeeze on margins beyond 2010 arising from possible changes to block exemption rules.**
- **Conditions favour entry of low cost competition into mature markets.**
- **The onus is on the automotive engineering community for “out-of-the-box” thinking to ease the situation and enable growth.**

Demand side imperatives

- **Rapidly changing demographics of consumer profile in growth markets.**
- **Road and parking infrastructure remains an issue in certain quarters.**
- **Availability of lower cost, “no-frills” small vehicles.**
- **Easy availability of vehicle finance options.**



- **Limited budgets for purchase, operation and maintenance of vehicles.**

Demand side imperatives

- **Focus areas in emerging economies change significantly. Typical examples include:**
  - **Extreme sensitivity to price, operating costs, service costs and service intervals.**
  - **Growth areas in mature markets such as infotainment and navigation are not high on priority in emerging economies.**
  - **Durability requirements especially on safety parts (eg. horns , braking systems etc.,) are more stringent.**
  - **Mountings for engine / powertrain require reinforcing.**
  - **Climate control, average passenger occupancy etc. also differ.**

Few other engineering challenges

- **As markets evolve, a whole new set of challenges also come into play.**
  - **Re-engineering the product for international adaptations.**
  - **With low product development spend.**
  - **A design to cost approach.**
  - **For a completely different set of driving and duty cycles.**
  - **With wider ranges in temperature and dust conditions.**
  - **Average available fuel quality not yet on par with developed economies.**
  - **While meeting globally converging legislative and statutory requirements.**

Few other engineering challenges

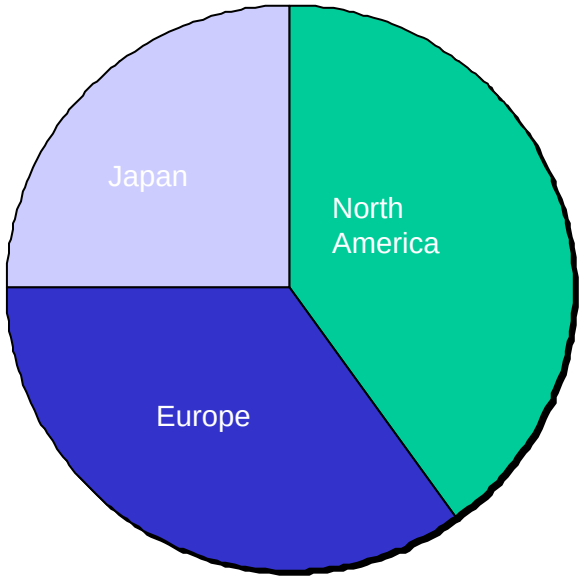
- **Consumer preferences and tastes differ widely.**
- **Overload factors , especially in commercial vehicles.**
- **Consequently, the ratio of successful product launches to unsuccessful ones is far higher in developed markets than in growth markets even with re-engineered international adaptations.**

Downsizing trends

- **Considering the shift to smaller vehicles and from a cost / benefit perspective a clear trend is noticeable towards engine and vehicle down-sizing especially in the growth markets.**
- **The benefits of down-sizing are greatly enhanced in conjunction with light-weighting.**
- **Which in turn is expected to result in development of alternate materials to offset NVH effects.**
- **Re-engineering for international adaptation is therefore likely to add significant costs on a per unit basis, if product development continues to be handled in traditional ways.**

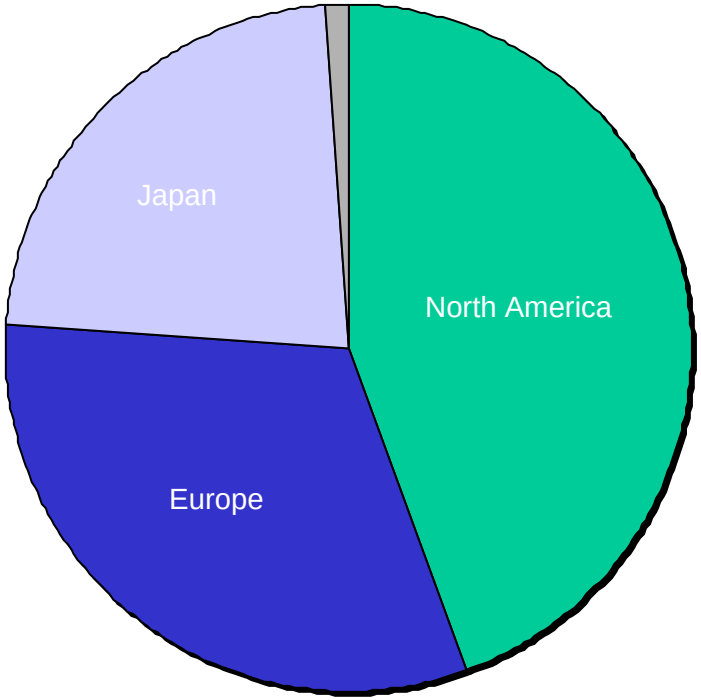
Financial impact on R&D spends for meeting growth requirements

Auto R&D spend US $ 75 to 100 Bn



2007

Auto R&D spend US $ 93 to 112 Bn

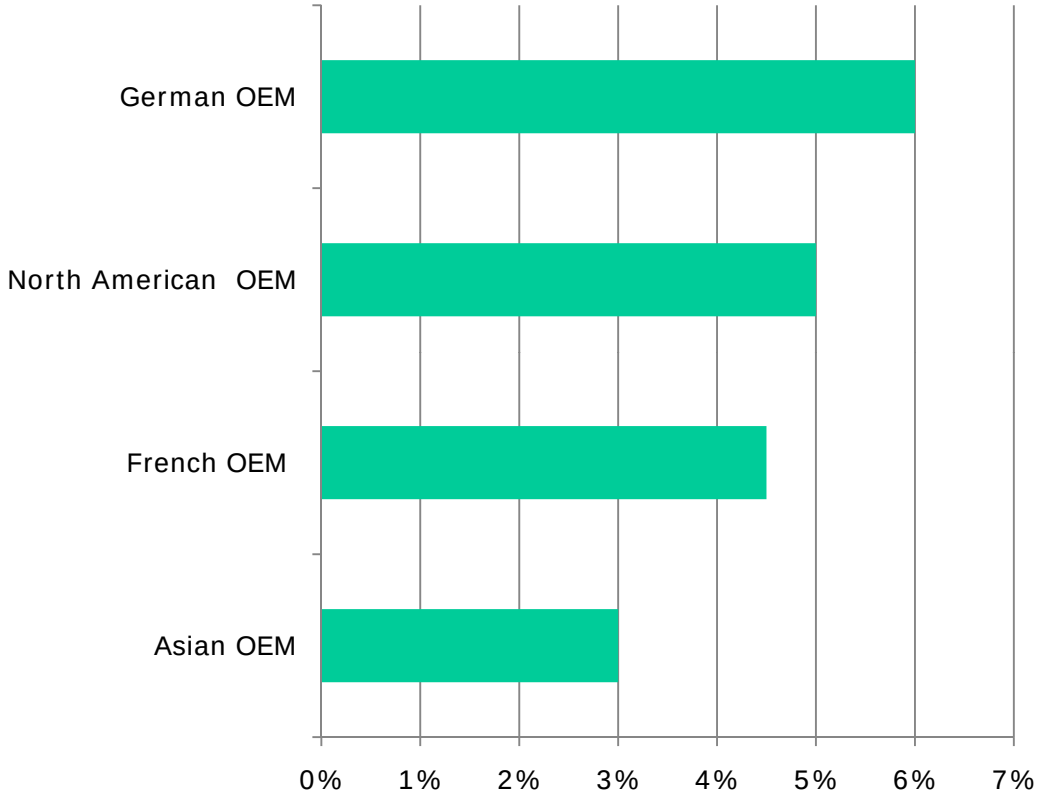


2012

Booz Allen Hamilton reports

Implications in a global scenario

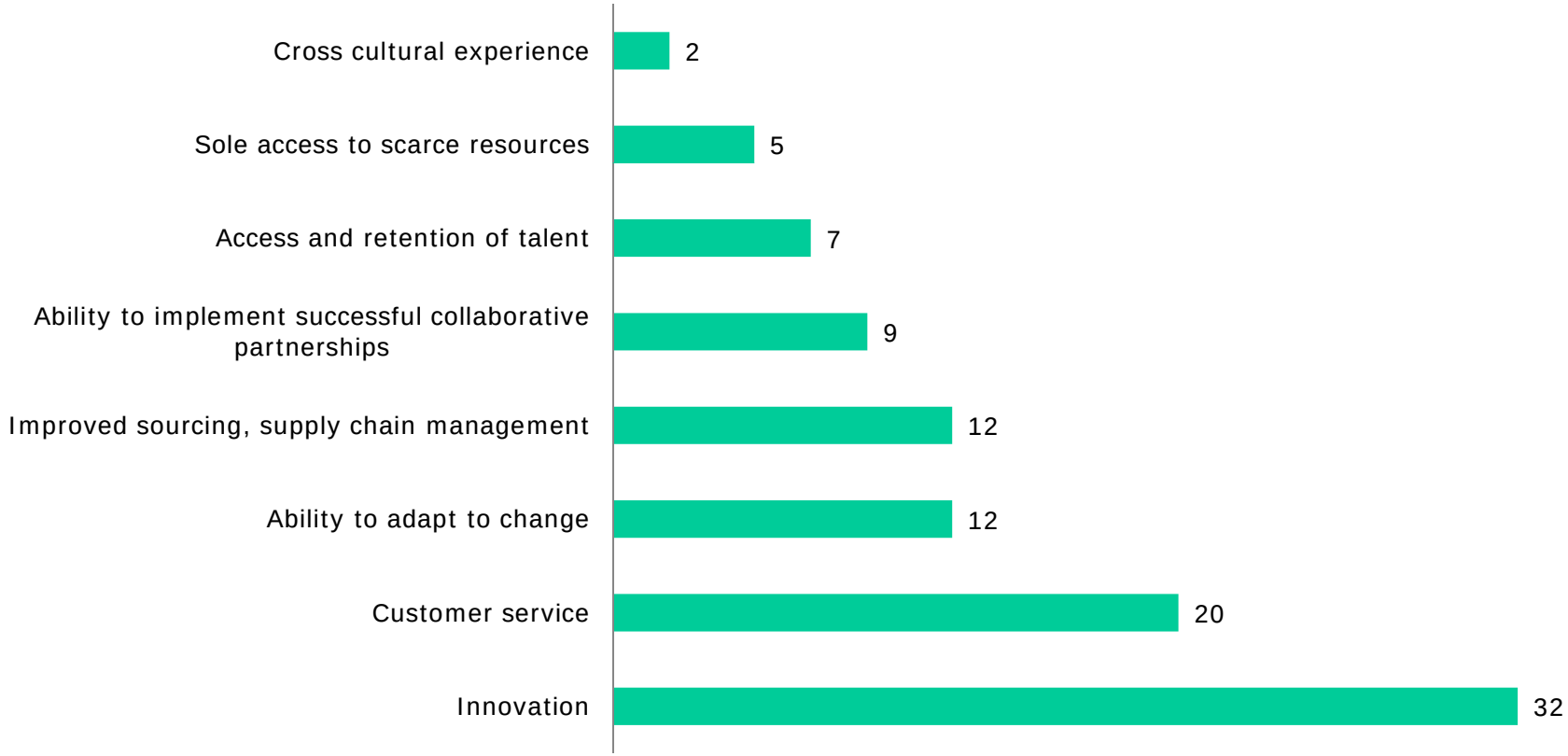
- **Asian OEMs and the tiered supply chain industry tend to be globally competitive by virtue of a lower R&D spend as a percentage of revenue.**



Typical R&D spends as a % of revenue.

Gaining competitive advantage

Innovation, improved customer service, coping with uncertainty & improved are on the agenda of most Auto company CEOs.



Data from PWC Annual Global CEO survey

Globalising the R&D is no more a tactical choice but a strategic necessity

Infotech
Creating Business Impact

Options include:

- **No change from the present practice. Sit still.**

OR

- **Setup captive centres at low cost locations in the proximity of manufacturing plants and markets. Pre-requisite is engineering talent availability and scale.**
  - **Managing innovation in a foreign culture is a challenge.**
  - **Most captives end up operating sub optimally, defeating the very purpose of their creation.**

OR

- **Setup captive centres at low cost locations and augment with resources from suppliers.**
  - **Resultant = disparate teams & conflict management rather than innovation & support.**

Early mover advantage

- **OEMs & tiered suppliers are already moving into strategic relationships with engineering focused firms who provide the needed scale with a global delivery foot-print.**
- **Typical parameters considered in the selection of partners include:**
  - **Engineering focus, as demonstrated by revenue and staff.**
  - **Non alignment with any specific group within the auto industry.**
  - **Proven track record of delivering on complex requirements across the value chain of R&D activities.**
  - **Proven track record of establishing a dedicated global footprint for clients.**

Thank You !

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