Frugal Innovation

Ein Konzept zur Erschließung kostensensitiver Märkte

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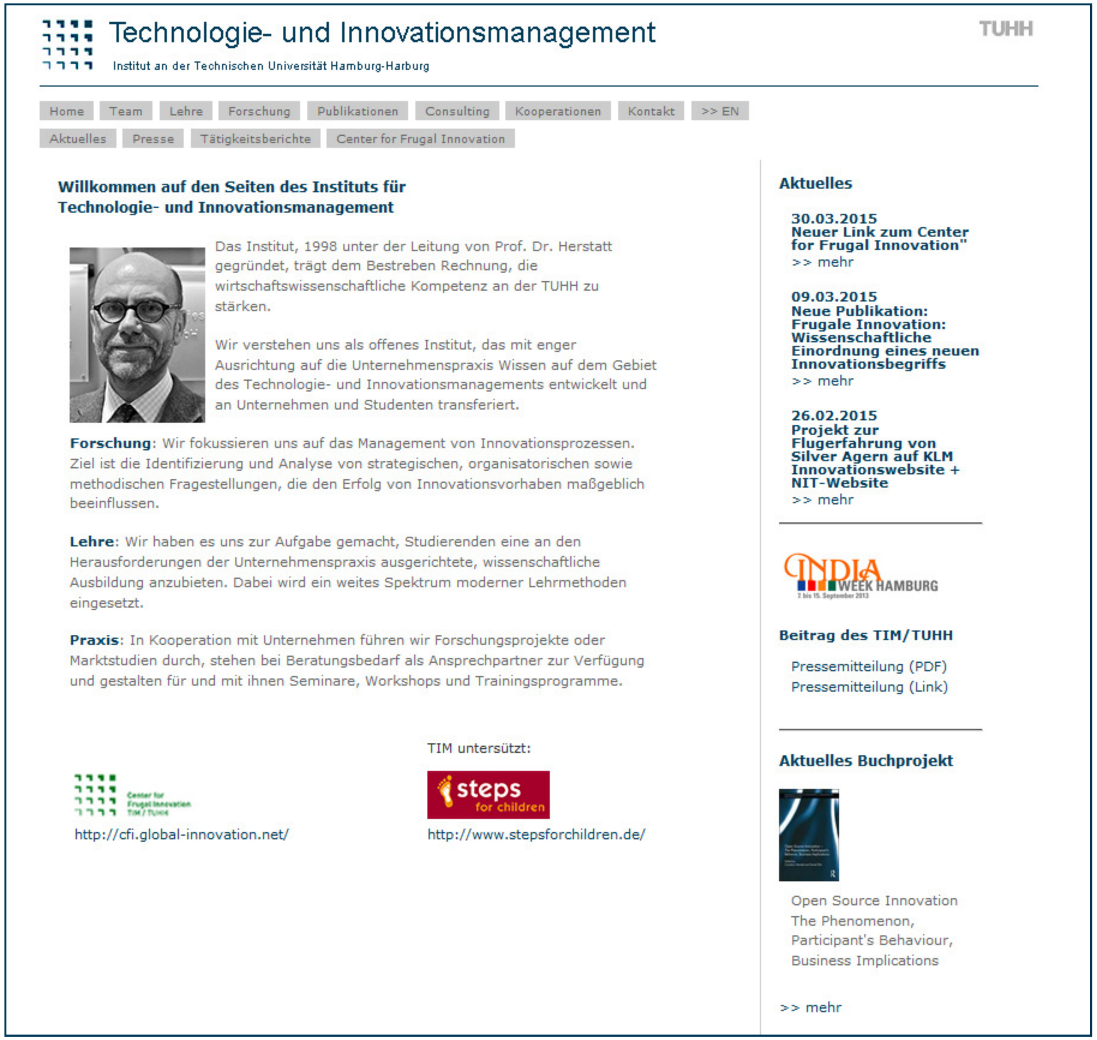
am 15. April 2015 in Hannover

Technologie- und Innovationsmanagement
an der TUHH

TIM @ TUHH

Technologie- und Innovationsmanagement an der TUHH



- Founded in 1998, engaged in teaching, research and industry collaboration
- A 24-members strong team
- Mainly with business management and business engineering background

TIM Research Areas

Technologie- und
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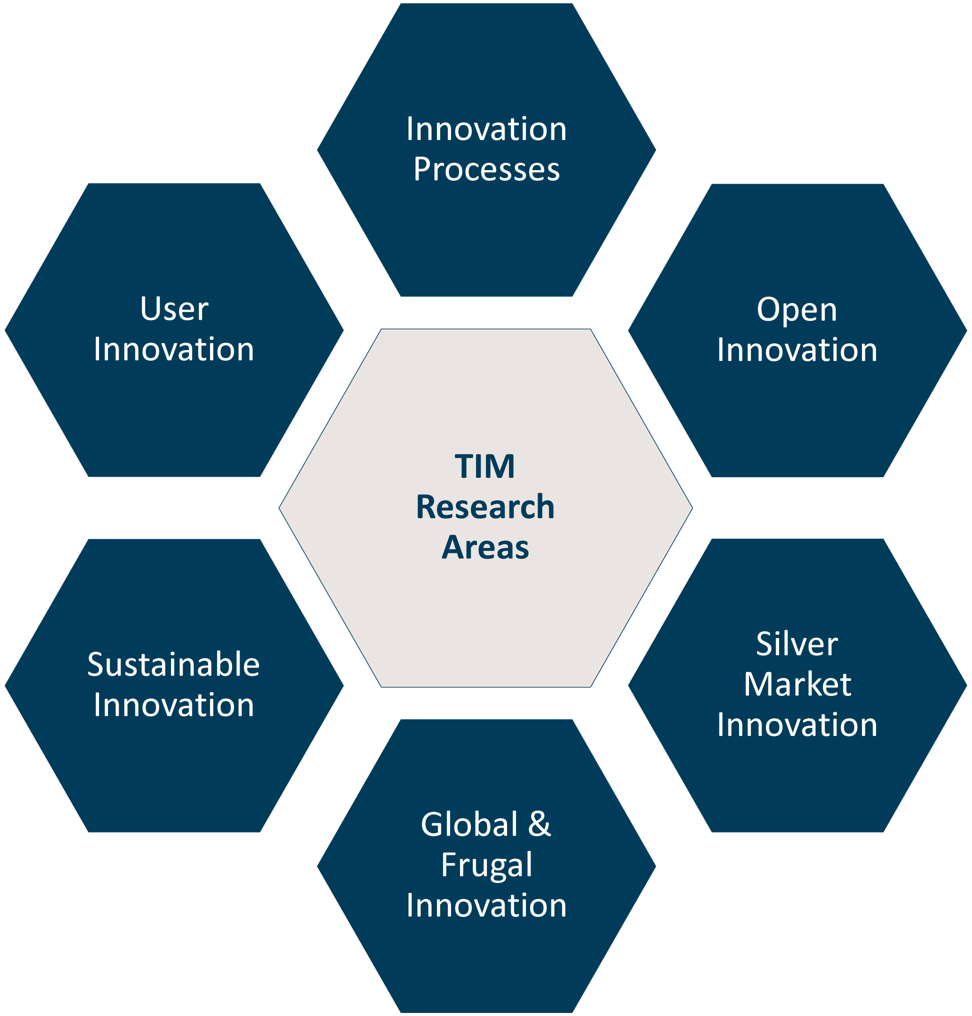

Introduction to CFI @ TIM/TUHH

Founded in Sept. 2013

Mission:

- Address existing and emerging research issues by cooperating with leading research institutions
- Consulting services to firms to develop useful, environment-friendly and affordable products
- Supporting policy makers in creating conducive framework conditions

Agenda

- **New challenges for established (especially western) companies**
- Market cultivation strategies of German Hidden Champions in key emerging markets
- “Frugal innovation” as an answer?

Success of German carmakers in India

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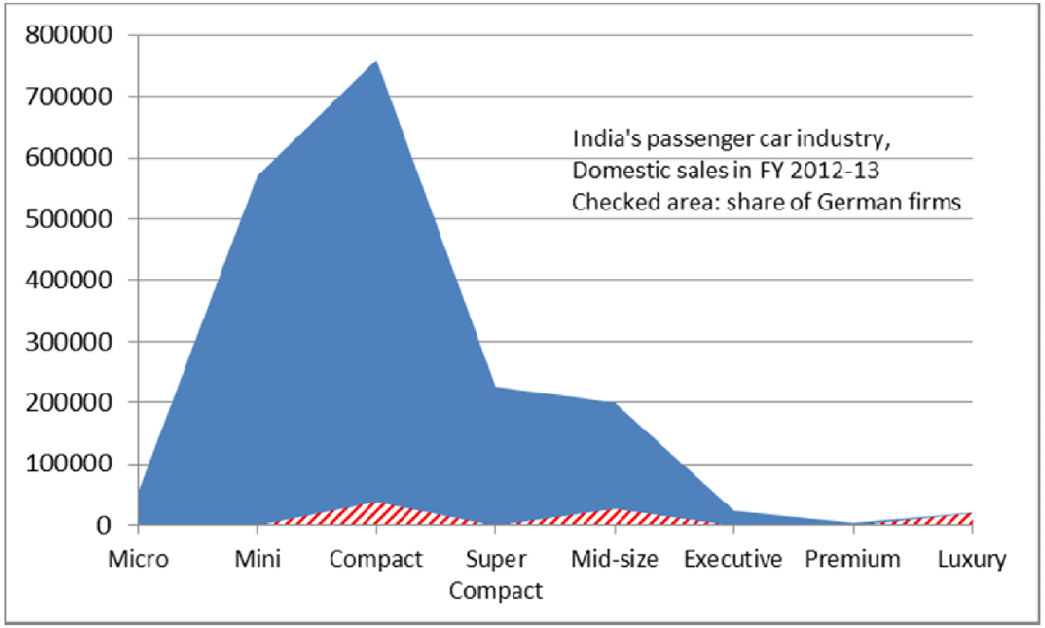
German carmakers dominate the luxury segment of India's passenger car industry almost completely: With a market share of 92.4%.

The problem, however, is the size of this segment. In fiscal year 2012-13, the luxury segment constituted of exactly 20,947 cars.

The luxury segment is undoubtedly growing but so is also competition (relative share went down from 100%.)



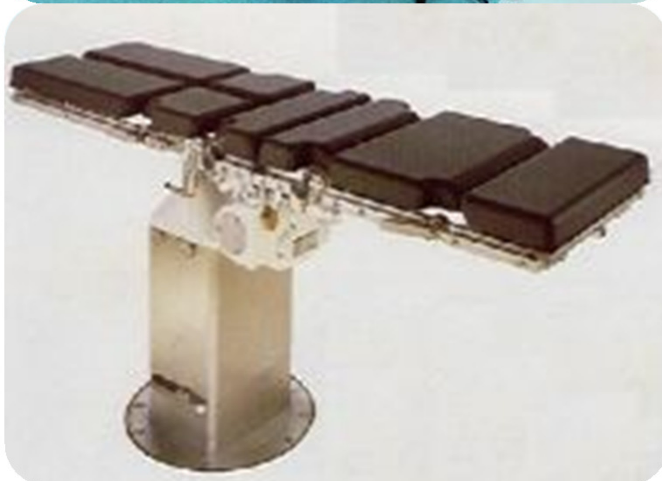
Segment	Market share	German share
Small cars*	86.6%	2.3%
Mid-size	10.8%	12.3%
Executive	1.3%	12.3%
Premium	0.2%	23.7%
Luxury	1.1%	92.4%
Total	100%	4.6%

All data extracted from SIAM (2014). * Small cars have been defined as consisting of Micro, Mini, Compact, and Super Compact cars.

Ensuring Market Participation to Sustain Competitiveness

Case Study

- Hidden Champion from Germany
- Premium Supplier
- Highly Innovative in their Niche
- Market Leader in Europe, USA and Japan
- Present in Asian Markets incl. India
- Loss of Market Share in Emerging Markets



Source: imko-med.de 2015

The Indian Market: Changing Realities

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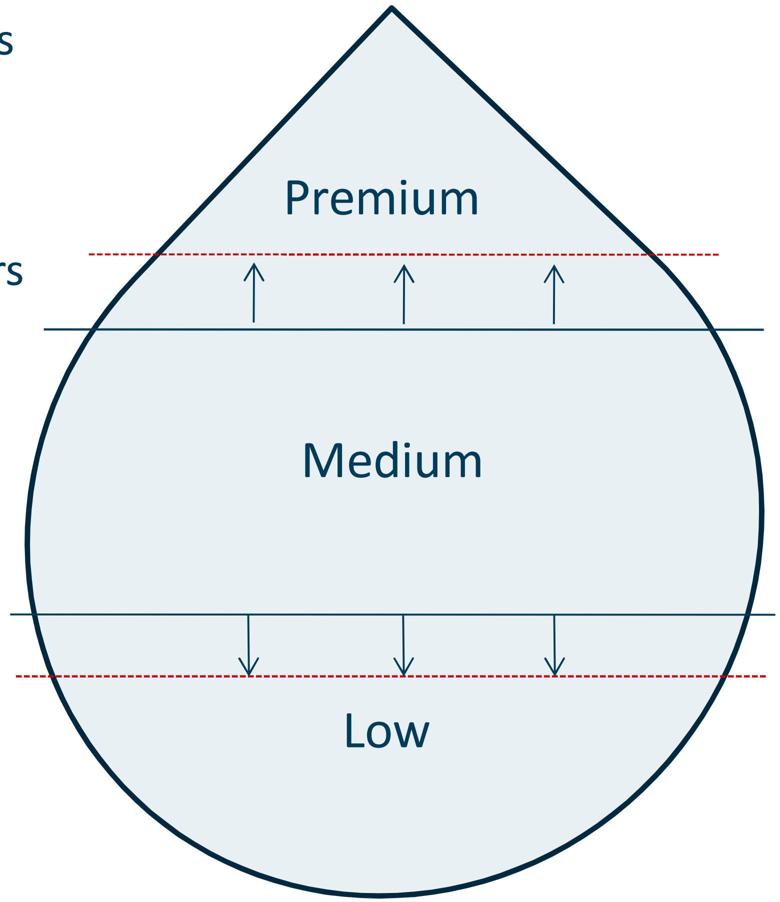
Growing # of customers prefer medium-price products

Especially Asian vendors increase market share due to more favorable cost structure



Impact on the firm:

Market for premium products is shrinking (but the firm will still remain #1 in this segment)

Decreasing unit sales in high- and medium segments because customers look for good quality at lower prices

Too good to succeed?

DIE WELT zur Startseite machen

Abo Shop TV-Programm Wetter WELT KLASSE | Anmelden Registrieren

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Home > Wirtschaft > Deutsche Baumaschinen zu gut für den Weltmarkt

17.04.13 | **Maschinenbau**

Deutsche Baumaschinen zu gut für den Weltmarkt

Maschinenbauer räumen auf der Messe Trophäen ab. Von den Märkten der Schwellenländer aber werden sie verdrängt. Hier ist simple, robuste Technik gefragt – und die kommt aus anderen Ländern. *Von Carsten Dierig*

Foto: picture-alliance/ dpa/dpaweb

Tunnelbohrmaschinen für den Neubau der Kölner Nord-Süd-Stadtbahn von Herrenknecht

Maschinen bauen können die Deutschen. Das hat sich beim Innovationspreis der weltgrößten Baumaschinenmesse Bauma in München dieser Tage wieder eindrucksvoll gezeigt. 156 Bewerber, fünf Kategorien – und am Ende stehen die Deutschen auf dem Treppchen.

Herrenknecht zum Beispiel in der Kategorie Maschine, Wirtgen bei den Komponenten oder Bauer, Bögl und Liebherr in der Kategorie

ARTIKEL EMPFEHLEN

E-Mail | 13 Empfehlen | 7 Twittern | 0 +1

Kommentare (36) Drucken

Source: welt.de 2013

Key growth areas & positioning of Western companies

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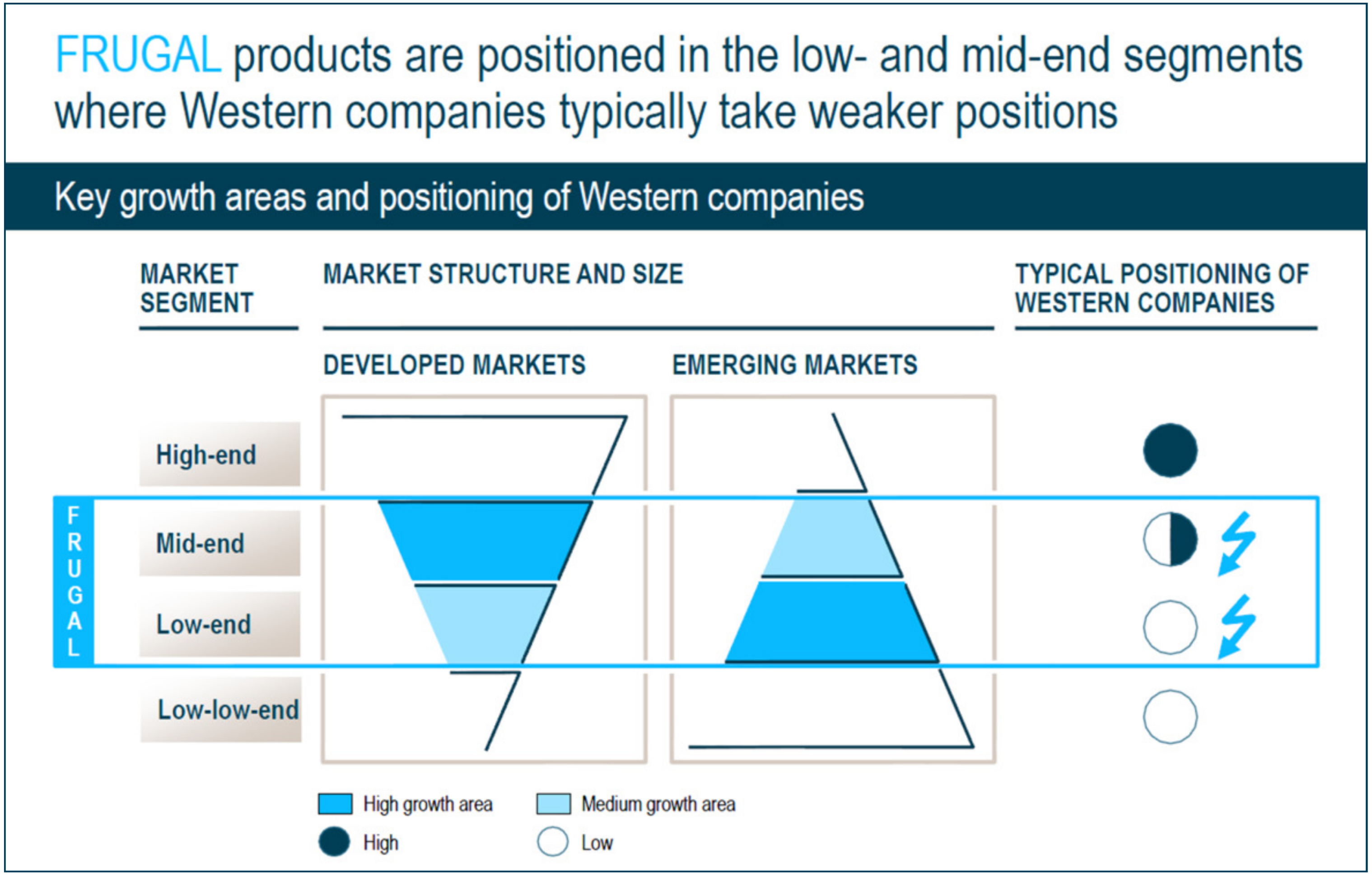
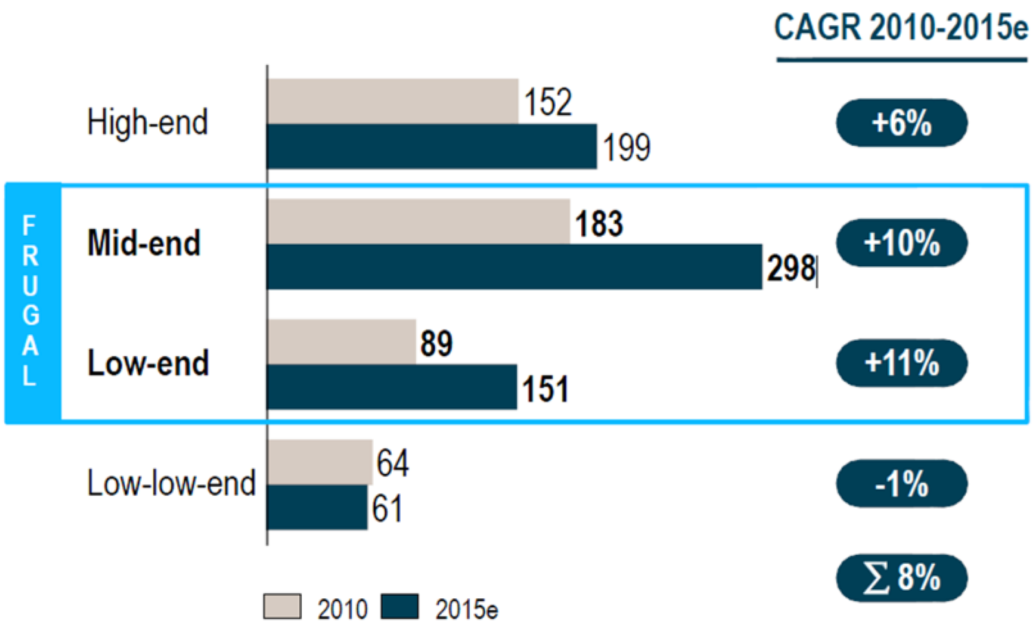


Source: Roland Berger FRUGAL Products Study, 2013

Global engineered products market

For instance, low- and mid-end segments of the global engineered products market are growing well above the world market average

Global engineered products market[1] [EUR bn]



COMMENTS

- **High-end** technologies are growing **below world market average**
- **Mid- and low-end** technologies are growing **above world market average** – Driven by emerging markets as well as developed countries
- **Low-low-end** technologies are **drying up** in the long run

1) Stationary machines for discrete manufacturing without commercial HVAC; production volumes

Source: Roland Berger FRUGAL Products Study, 2013

Food for thought

- Dominant logic of most established firms: “try to enter high end / top margin segments” -> Problem with this approach: a rather limited market, relative share is shrinking and intensity of competition is increasing
- Often neglected: High volume / low margin frugal segment. But, it is enormously large, relative share is growing and hence the competitive pressure is manageable
- Increasing number of (new) competitors focusing on this market segment, many with international sales strategies (competitive threat!)
- (New) competitors which are successful in the “frugal segment” reinvest profits and thus increase their competitiveness in all (low-, medium- and premium) segments . Good examples are: Haier Group, Lenovo, Tata Group

Agenda

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Key results of a TUHH survey

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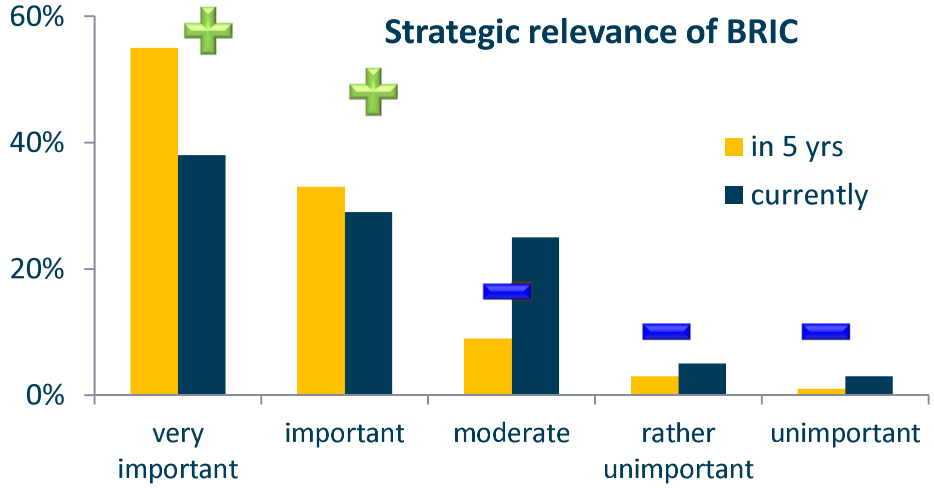
- (An ongoing) Study of “Hidden Champions” in the BRIC countries
- Established firms (on average in business: 90 years)
- Median number of worldwide associates: 2,250
- The majority generates more than €1 billion annually



n = 53

Targeted market segments in China and India

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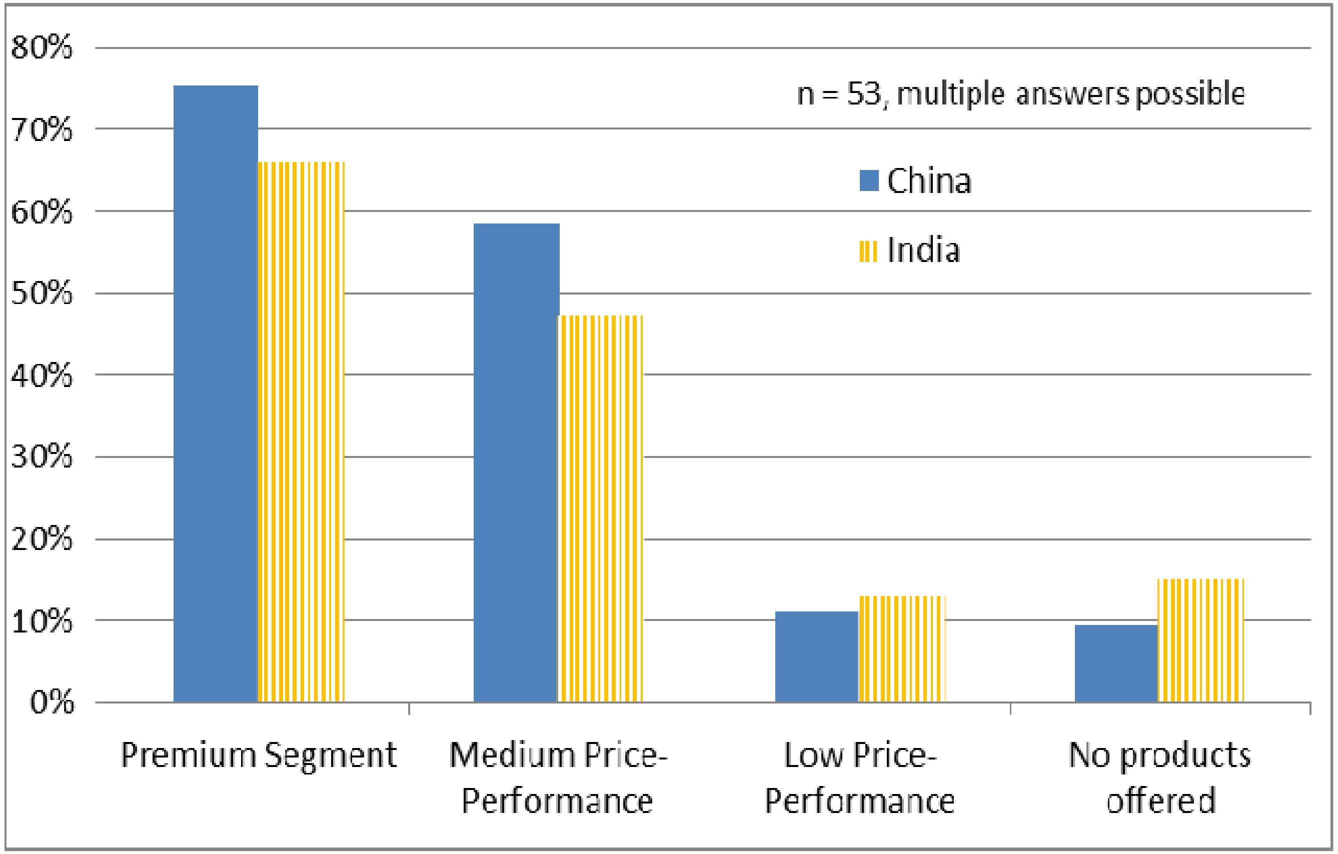

Composition of company product portfolios

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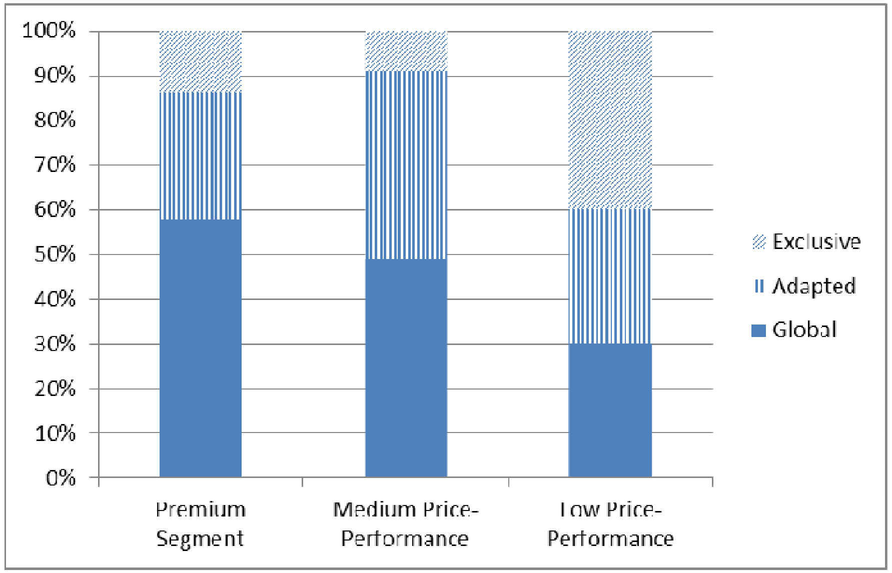
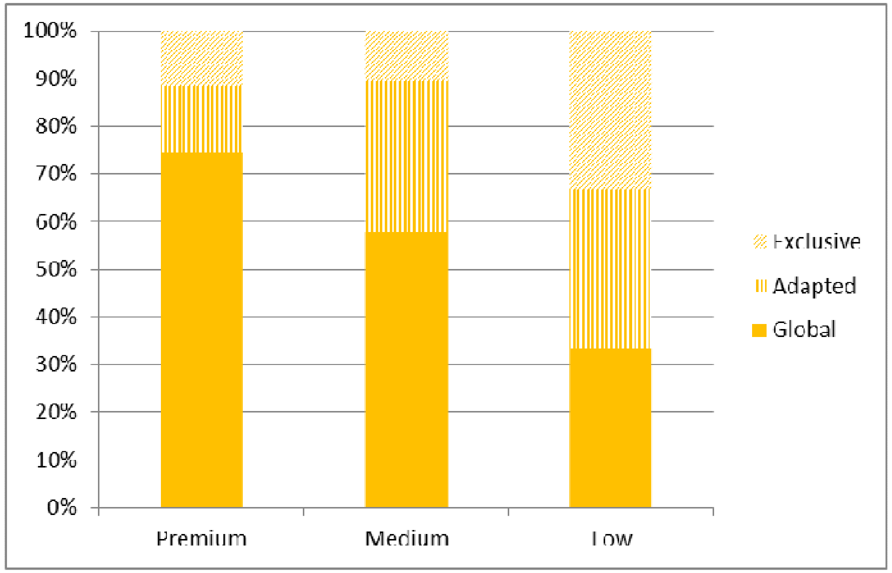


Composition of company product portfolios in China



Composition of company product portfolios in India

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Concept of “frugal innovations”

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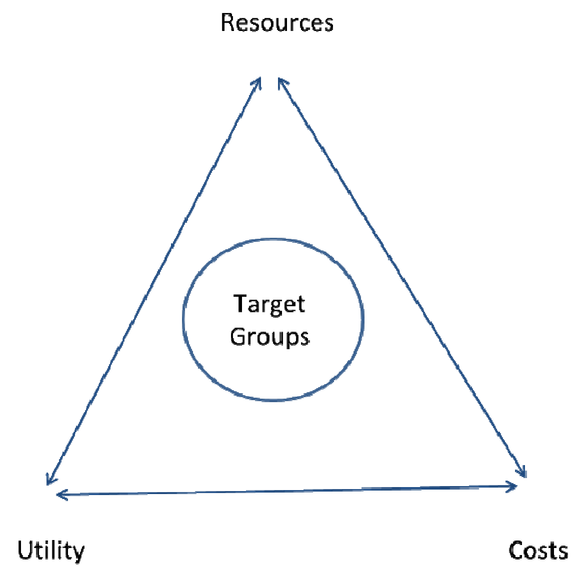
Definition

“Frugal innovations seek to minimize the use of material and financial resources in the complete value chain with the objective of substantially reducing the cost of usage and/or ownership of a product while fulfilling or even exceeding pre-defined criteria of *acceptable* quality standards.”

Source: Tiwari and Herstatt, 2014



Source: Herstatt & Tiwari, 2015

Resources

- **Frugality**
  - "Frugality approach as driving philosophy of innovation management"
  - Minimization of needed financial and material resources throughout the entire value chain & product lifecycle
- **Technology adequacy**
  - Appropriateness
    - right level of needed functionalities / quality
    - „value proposition" very important / not the „cheapest"
    - Fulfilling regulatory norms
- **Scalability**
  - Target customers very price-sensitive
  - Low profit margin require mass market

Tata Nano

"Within 3 years of its launch the A-Star has been sold over 2 million times, making it a resounding commercial success."

Source: Tiwari and Herstatt 2012

Utility

- **Core functionality ("must" criteria)**
  - what is really demanded ("good enough")?
  - avoid any kind of over-engineering
  - intelligent market research (participatory observation, need assessment etc.)
- **Optional upgrades**
  - "dressing up" for more demanding customers
  - as part of a "reverse innovation strategy"
- **Robustness**
  - to cope with infrastructural deficiencies
  - questioning planned obsolescence
- **User friendliness**
  - suitable for unsophisticated (first-time) users
  - intuitive usability

Siemens SOMATOM Emotion CT Scanner

GE MAC i

Costs

- **Low cost price**
  - comparison of frugal and non-frugal products in 13 categories revealed price-differences between 58% and 97% (Rao, 2013)
  - "Stripping down" not sufficient
  - Alternative concepts more suitable (e.g. zero-based approach, target-costing, value engineering)

- **Low costs of usage, maintenance & disposal**

Dacia Logan

CLAAS Crop Tiger

Vortex Engineering: Solar-powered ATMs

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- Targeted at providing banking services to the unbanked in rural/semi-urban areas
- India to require at least half a million such ATMs to serve its hinterland
- Specially designed to suit conditions prevalent in rural and semi-urban areas, e.g. unreliable power supply and higher illiteracy levels of end users
- No need for air conditioning; can cope with temperatures between 0°C and 50°C
- Can run on solar energy
- Total cost of ownership about 50% less than for conventional ATMs

"Highly reliable, rugged, easy to use and eco-friendly" ATMs

Source: Vortex Engineering Pvt. Ltd., India

Key Findings

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- Frugal innovations set to become a **crucial driver for long-term growth** because the…
- … Frugal segment seems to be enormously large, its relative share is growing and hence the competitive pressure is manageable
- Frugal innovation allows the expansion in fast growing good-enough and price sensitive segments in emerging markets as well as in developed markets (“reverse innovation”)
- Frugal innovation might preempt (new) competitors from emerging markets from attending leading companies on their home turf based on their own frugal reverse innovations (“rather self-cannibalization than losing market share to (new) competitors” (CEO of GE)

Thank you for your attention!

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