

# THINK ACT

POINT OF VIEW

BEYOND MAINSTREAM

F R U G A L

## SIMPLE, SIMPLER, BEST

Frugal innovation in the engineered products and high tech industry

DECEMBER 2014

**Roland Berger**  
Strategy Consultants



# FRUGAL PRODUCTS

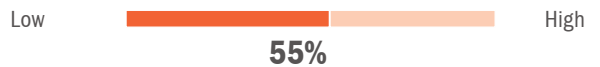
Growing sales volumes ...

ENGINEERED PRODUCTS AND HIGH TECH  
COMPANIES' SHARE OF SALES WITH  
FRUGAL PRODUCTS



... but low market  
success yet ...

MARKET SUCCESS OF OWN COMPANY'S  
FRUGAL PRODUCTS



... and unsatisfactory  
profitability.

SATISFACTION WITH PROFITABILITY OF  
OWN COMPANY'S FRUGAL PRODUCTS



Source: Roland Berger study with 60 top managers (two-thirds of participants in industrial/manufacturing industry)

# Rising demand for frugal products is changing corporate innovation processes from the ground up.

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It struck at 8:45 a.m. Measuring 7.7 on the Richter scale, the earthquake that ravaged the state of Gujarat in western India was the worst to hit the subcontinent in 50 years. The epicenter was north of Bhachau, but houses 150 miles away in Ahmedabad collapsed. Bridges and dams gave way. Trains went off the rails, mines were destroyed, whole villages razed to the ground. The final tallies: 20,000 people dead, 200,000 injured, 400,000 left standing before the rubble of their homes. It was January 26, 2001: Republic Day, a national holiday in India.

Mansukhbhai Prajapati survived, but he lost everything. The young potter from rural Gujarat faced utter ruin. His workshop destroyed, he had no electricity, and food spoiled in a matter of hours in the brutal heat. After months in this situation, Prajapati developed the unconventional apparatus that would make him famous: a refrigerator made out of clay. He named this ungainly curiosity "Mitticool".

Mitticool functions on the principle of water evaporation. Behind a pane of glass, a simple two-chamber system keeps fruits and vegetables fresh for up to five days, milk for up to two. And Mitticool doesn't need any electricity or chemicals. People in rural areas – cut off from India's uphill struggle for global player status, they view conventional refrigerators as blessings from another world and electricity as the last word in luxury – are eagerly snapping up the clay fridges.

The idea has caught global attention, with interest from electronics giant BSH Bosch and Siemens Home Appliances. Prajapati is the star of a generation of young entrepreneurs who make very much out of very little. For them, the everyday lack of resources and capital is not an obstacle to growth – it's a pure driver of innovation.

This phenomenon is called "jugaad" in Hindi; we might call it "resourcefulness" or making do with what you have. Managers of Western companies are adopting this idea and translating it into a new business model. Jugaad is becoming "frugal innovation" – the art of creating sometimes radically new products and services with limited resources. The new creations are much simpler and more affordable, but offer at least the same value in terms of functionality. Made mostly for and in emerging markets such as China, India or Brazil and perfectly tailored to the specific demands of the lower and middle market segments, these products target the growing purchasing power of the rising middle classes. From there they come to more established markets as "reverse innovations". The suspicion is growing in these countries that overengineered everyday gadgets do not truly reflect the reality of the average consumer – especially given resource scarcity, lack of disposable income and pressure to cut costs.

"Good enough" instead of "high value for money", "spend less and innovate" instead of "spend money and innovate" – the change in direction also addresses a problem of mentality. Low-cost engineering is frequently mistaken for poor knock-offs of expensive originals, which offend the quality awareness and prevailing taste of discriminating customers. And no wonder: the industry tries to paint each previous product generation as a relic of the Stone Age compared to the new one. But the average customer often fails to appreciate the refinements of the sophisticated inventor, and has no clue how to use them. Frugal innovation, in contrast, offers a more moderate ideal: the simplest solution offering the same value that can be realized with existing means.

CHARACTERISTICS OF FRUGAL PRODUCTS

**F**UNCTIONAL

**R**OBUST

**U**SER-FRIENDLY

**G**ROWING

**A**FFORDABLE

**L**OCAL

# High tech is good – especially for those who can afford it. But it has its critics.

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"We have forgotten how to make products and services that actually solve problems," says well-known innovation researcher and book author Navi Radjou ("Jugaad Innovation. Think frugal"). Companies also tend to forget that the growing middle class in the emerging markets has different desires. Products for them have to be affordable, easy to operate, economical and robust, while still offering the same level of performance – in short, frugal! Design, unnecessary features and prestige take a backseat. The products have to work under normal everyday conditions and mustn't break down the first time the power fluctuates or cuts out.

Manufacturers wishing to move in this direction have to completely revamp their business models. For a long time, one simple principle held sway: developing countries are sales markets. And what no longer sells in the industrialized world is still good enough for them. The poster child for this philosophy was the Mercedes truck. The legendary heavy-duty truck with the short snout was developed in 1950s Germany and removed from the Western Europe market 20 years later. However, Mercedes's Indian partner Tata kept the truck afloat until the turn of the millennium. But although it worked in this case, companies must not come to the wrong conclusion that they have a perennial recipe for success at hand. Times change, as do markets. That's why frugal products are becoming ever more important for Western companies. Their contribution to sales is growing a good deal faster than that of high tech – globally by 7% each year, and even up to 10% in China and India. Frugal products currently account for 12% of sales at the companies surveyed by Roland Berger Strategy Consultants for a study entitled "Emerging markets are changing the global innovation agenda".

The share of sales is expected to nearly double (to 22%) until 2018. At the same time, these companies predict that by 2018, frugal products will generate more than 18% of overall profits, up from 10% in 2013. These numbers are impressive, but the reasons behind them are not particularly surprising. Over two decades ago, Unilever and Procter & Gamble started selling small volumes of shampoos and detergent in what were then still exotic markets such as India. These products were customized for often modest living conditions and leaner budgets. Sporting goods giant Nike designed the first full-body sportswear for Muslim women, and Samsung developed a washing machine with a special cycle just for saris – keeping the long and colorful clothing of Indian women from becoming entangled in other laundry items.

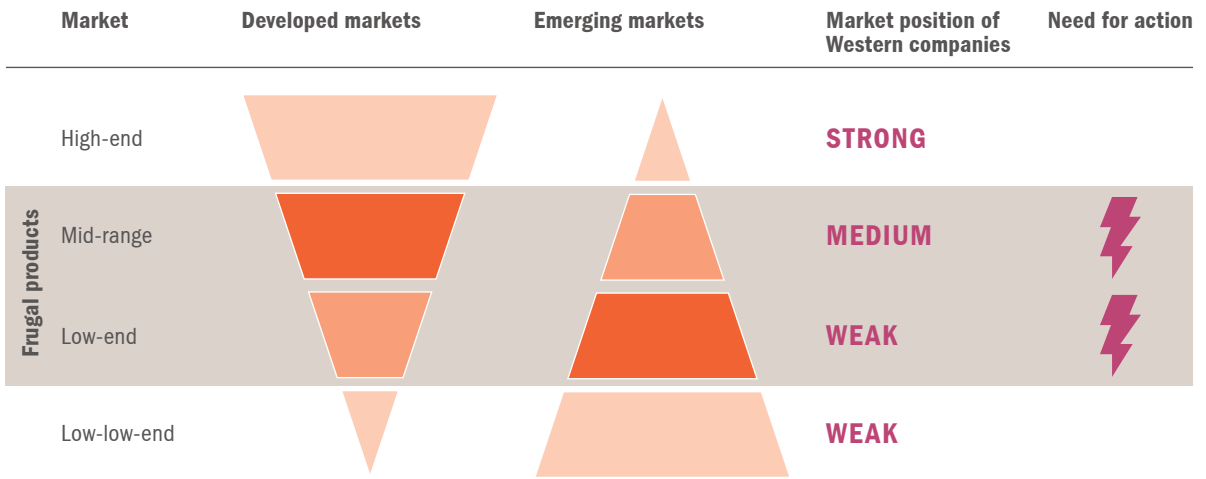
Frugal innovation goes a step further and plays a role in the third wave of globalization. Instead of constantly upgrading and reworking existing products for new markets (processes carried out primarily in their home markets), Western companies are completely redesigning their innovation processes. The technology company Philips calls this "decentralized creation of business" – the fundamental transformation from single to multi-R&D processes. In other words, decentralized product research and development.

Frugal innovation systematically works its way toward the local customer. The starting point is asking what consumers really want and need and – most importantly – what they don't. What product features are truly necessary? Which can be left out? And what will the customer actually pay for?

"Many companies don't pay enough attention to the local customer needs in their sales markets, and their products are too expensive for their potential cus-

WESTERN COMPANIES AT A DISADVANTAGE

Western companies frequently have a weaker positioning in rapidly growing market segments



Growth potential: ■ High ■ Medium ■ Low

Source: Roland Berger

tomers," criticizes Jonathon Wright, Partner at Roland Berger's Boston office. Tailored, affordable solutions are needed. Keeping development and production close by is key, as is collaborating with local suppliers. This gives rise to products and services that, once shorn of their dead weight, are often reduced to their core functions but are still complete. They boast the same quality and performance, but offer exactly what is required given the different levels of purchasing power and user habits in each market. What's more, they often enjoy healthy demand among customers in industrialized countries who can't or won't cope with high tech.

Siemens Healthcare's Multix Select DR is one such product. Representing the first step toward digital radiography, this X-ray machine covers nearly all clinical applications, is simple to operate and costs about one-third less than its comparable predecessors. These features make it particularly attractive for emerging markets as well as established markets that have to use analog radiography for cost reasons. The Multix Select DR provides the doctor with an X-ray im-

age in just seconds. Special software ensures image contrast, which was previously reserved for high-end products. The system was developed by a Chinese-German-Spanish team.

"Simple", "Maintenance-friendly", "Affordable", "Reliable", "Timely-to-market" – SMART is the acronym of the Siemens strategy and growth program in emerging markets. When the program was launched, it targeted Brazil, Russia, India and China and the Middle East. It now includes Mexico, Colombia, Chile, Poland, Turkey, South Africa, Vietnam, Thailand and Indonesia. The core of the program is localizing the entire value chain in each location.

This example shows how dramatically innovation management is changing at multinational companies in the West. The big question is: How can existing models hold their own against inevitable competition with innovative development divisions at Indian or Chinese companies?

The answer: they can't. At least not always. Renault-Nissan CEO Carlos Ghosn promotes frugal innovation by letting developers compete. In one in-

stance, teams with similar capabilities and resources from France, India and Japan submitted a proposal for solving a certain technical problem. All three groups independently arrived at similarly satisfactory solutions. However, the Indian team offered their solution for a fifth of what the French and Japanese teams were asking.

"It's not about market share; it's about creating a market," says Vijay Govindarajan, former Chief Innovation Consultant at global group General Electric (GE) and co-author of the business bestseller "Reverse Innovation". He calls for a cultural shift away from "exporting to emerging markets" to "inventing for emerging markets."

This realization is not sinking in everywhere. The varying levels of purchasing power in rapidly expanding economies, the unexpected consumer behavior of unfamiliar populations, fast growing, sometimes extremely volatile markets, the lack of infrastructure as well as markedly different living conditions in predominantly rural regions can hardly be sorted out merely by adjusting innovation management. What's needed is a complete overhaul using "local growth teams", who can act independently of the central office, according to Govindarajan.

## Frugal innovation turns this lack of resources and capital into a driver of innovation



# FRUGAL INNOVATION

## SIX SUCCESS FACTORS

1

### Fitness check

Define target markets and customer segments. First, ask whether the current product or service range is suitable for new markets and what potential it has. Depending on the results of this analysis, you have three options: Keep the current range, change/adapt it or completely redevelop it.

2

### Market analysis

Now look at the defined target markets and target customer segments in detail. What do the new customers really need? And especially, what don't they need? How much are they willing to spend on which product features? These models include an idea of the right price range and possible profit.

3

### Product design

Imagine you are designing the product. What is its core? What is indispensable? What extra features do you need? What fits the desired user behavior and what doesn't? All these questions can be answered by a technological concept including target costs and a bill of materials.

4

### Value chain integration

This involves deciding how much to outsource and creating a tailored solution for each stage of the value chain – from development (where will the product be made?) to marketing and sales (is a dual brand strategy best?).

5

### Roadmap

The roadmap doesn't just describe the situation; it also includes the conclusions and the preferred solution. It is a straightforward business case – with an honest risk assessment, implementation plan and clearly allocated responsibilities.

6

### Change management

Frugal innovation transforms thinking at all levels. Executives and employees often meet such changes with incomprehension and skepticism, or they create obstacles. That wastes time and money. Change management processes accompany the transformation; not just to overcome reservations, but also to create enthusiasm for the new idea.

Source: Roland Berger

# The end of glocalization.

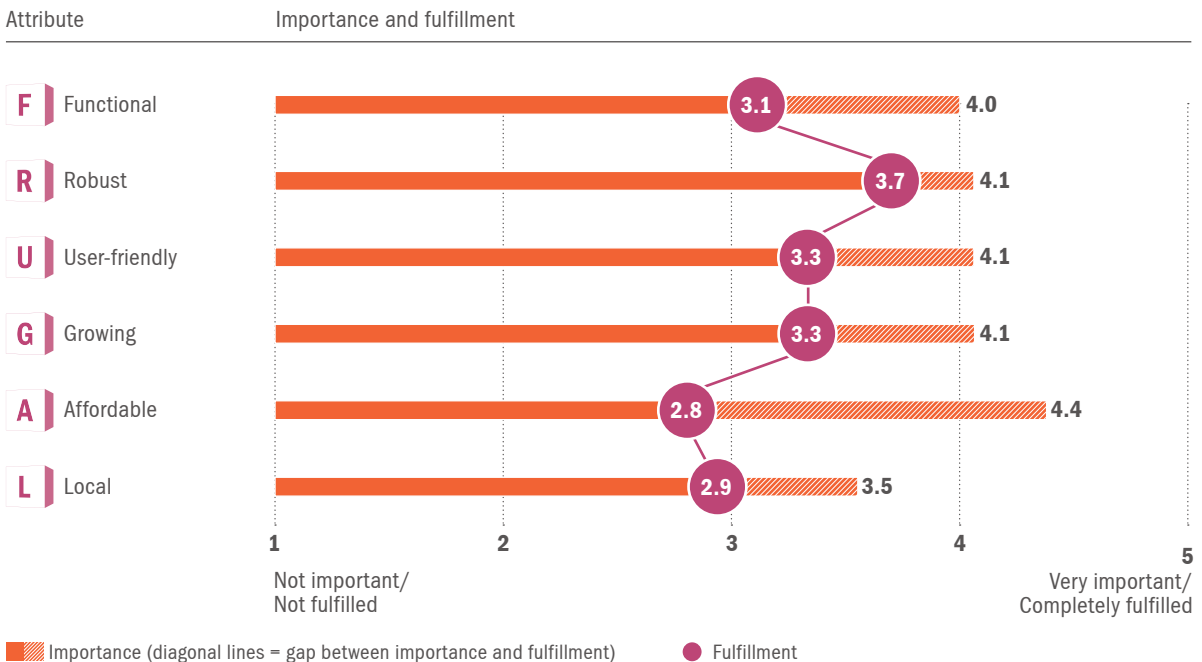
Roland Berger Strategy Consultants calls this the "end of glocalization". The term refers to selling locally developed Western products globally. The time is ripe for a paradigm shift. In contrast to their position in premium segments, Western companies are frequently weak in the lower and middle market segments of emerging economies. Not even half of the companies (45%) surveyed by Roland Berger for the abovementioned study describe the success of their frugal products as "high" or "very high" (measured in terms of sales). Even fewer are satisfied with product profitabil-

ity: less than 30%. "Most companies have recognized the enormous potential of these simple products," says Oliver Knapp, Partner at Roland Berger's Stuttgart office, "but many still don't have a clear idea of the actual success factors."

The prospects are tremendous: According to the United Nations, 95% of the global population growth before 2030 will take place in emerging markets. These markets will also generate 70% of the increase in global GNP, as well as 70% of the profits of Western companies. Already by 2020, consumption in emerg-

## ARE COMPANIES READY FOR FRUGAL PRODUCTS?

Self-assessment on the importance of frugal criteria on market success and own products' degree of fulfillment



Source: Roland Berger study with 60 top managers (two-thirds of participants in industrial/manufacturing industry)

ing markets will see double-digit growth in areas such as food, fashion, health, leisure and education.

For a long time now, these markets have been more than a place to generate billions in new sales — they're also an arena for keeping the competition in check. The pressure on the R&D divisions of Western companies is growing as emerging markets unleash the power of their own research capabilities. As the CEO of General Electric, Jeff Immelt, puts it, if Western companies don't create innovative products for developing countries and sell them globally, then companies from emerging markets will do it. "Traditional competitors can't destroy us, but 'emerging giants' can."

"Today, companies in so-called low-cost countries are investing more and more frequently in development projects and thereby creating their own competitive products," explains Oliver Knapp. The biggest drivers of innovation are China and India. These two alone account for one-fifth of R&D investment worldwide. Of the 20 most innovative companies in the world today, 5 are from China, India or Brazil. That should come as no surprise, for these 3 nations are among the "Focus 20" — economies that are predicted to see the greatest growth by 2030. Even if China's economic miracle is waning somewhat, the world's second largest economy will have replaced the US as the world's largest consumer goods market by 2018 at the latest. "Western businesses have to take action if they wish to succeed in developing countries with innovative and competitive solutions," summarizes Jonathon Wright. For instance, Kenya's 40 million people comprise the world's second largest market after Asia for mobile telephony, but not because multinational providers are showering the East African country with powerful cell phones and flat rates. Instead, the winning combination is phones that offer extremely good value for money plus prepaid cards.

This doesn't always work. In 2008, India's Tata Motors introduced the hotly anticipated Tata Nano city car amid massive global fanfare. Even European carmakers eyed the discount offer with growing concern for their own portfolios. Yet an export version of the Nano, announced at the 2009 Geneva Motor Show to be

"The way to wealth is as plain as the way to market. It depends chiefly on two words, industry and frugality: that is, waste neither time nor money, but make the best use of both. Without industry and frugality nothing will do, and with them everything."

**BENJAMIN FRANKLIN, AMERICAN WRITER AND STATESMAN**

launched in 2010, disappeared into thin air. The Nano – 1,300 pounds, 35 hp, a top speed of 65 mph and costing the equivalent of less than USD 2,000 – is considered a massive flop even in India. Nevertheless, Tata should not be underestimated. Where Ford and BMW failed, the Indian company succeeded by investing billions: rescuing and reestablishing the traditional British automotive brands of Jaguar, Range Rover and Land Rover.

In its home country, Tata became a synonym for frugal innovation. "The Tata Nano of household appliances" – that's the moniker given the ChotuKool refrigerator made by India's Godrej & Boyce Group. A conventional refrigerator has 200 parts, whereas ChotuKool (or "Little Cool") needs just 20. It is probably not only the smallest, but also the cheapest appliance of its kind in the world. ChotuKool has handles so that migrant workers can carry the fridge with them to keep their food cool. It runs on the same technology used for cooling computer chips. An integrated battery and thick insulation ensure that the refrigerator can continue to function during power failures. It's not sold in stores, but door to door – delivered by post, each costs about USD 69.

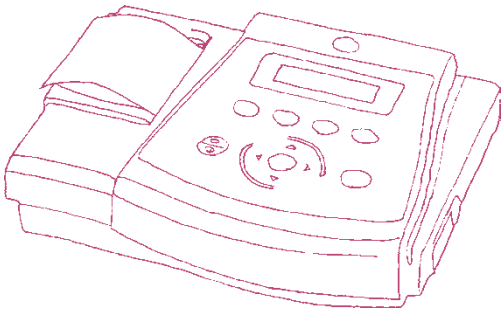
"As the world's economic center of gravity continues to shift – and as new consumers continue to emerge – it's clear that the logic and business practices that drove yesterday's success won't drive tomorrow's."

**AJAY BANGA, INDIAN PRESIDENT AND CEO OF MASTERCARD**

"Industry is fortune's right hand, and frugality its left."

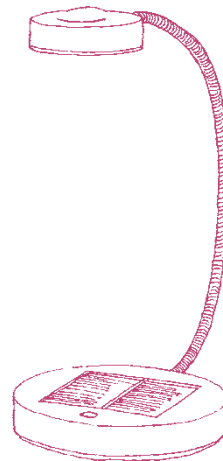
**JOHN RAY, ENGLISH NATURALIST**

# EXAMPLES OF SUCCESSFUL FRUGAL PRODUCTS

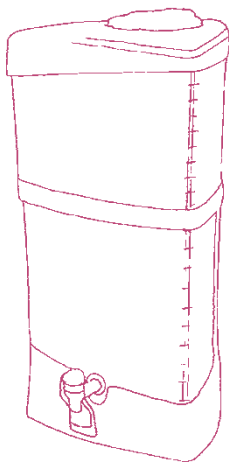


The portable, battery powered "Mac 400" ECG by General Electric costs less than half the price of a conventional device. Treating a patient costs just one dollar rather than the usual ten. It has only four buttons, and the printer is the same model used on buses to print tickets. Developed for undersupplied rural areas in India, the device has also been a big hit worldwide.

Ikea's "Sunnan" lamp turns sunlight into electricity, ideal for countries and regions with frequent power outages or no power supply. Light emitting diodes give the lamp a long useful life. Children in India and Pakistan can use it to read, write and do their homework after dark.



In 2009, Tata launched the "Swach", the world's most cost-effective water purifier to improve affordability of safe drinking water in India. With a sales price of USD 16 only and fulfilment of all frugal criteria, sales volumes evolved strongly in recent years. Main principle for design was to strongly focus on consumer requirements. Another success factor was to build the device on existing experience and solutions – in this case, a purifier based on rice husk ash has been created.



Source: Company information

# Conclusion.

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Thanks to ChotuKool, Godrej & Boyce has been ranked one of the world's most innovative companies by US magazines Bloomberg Businessweek and Fast Company. And Forbes named earthquake survivor Mansukhbhai Prajapati one of the seven most powerful rural Indian entrepreneurs, who could change the lives of millions of people across the country.

However, frugal products do not only offer opportunities for companies and entrepreneurs from emerging markets. Well-established enterprises in the Western world can also participate in this growing segment. Especially product portfolios of US-based players in the business of Engineered Products and High Tech include complex and feature-rich products which are ripe for being made "frugal-ready". It's time to *think* – and *act!* ♦

*Authors: Marc Winterhoff, Thomas F. Wendt, Jonathon Wright, Oliver Knapp, Dr. Michael Zollenkop, Dr. Sebastian Durst, Christian Boehler*



# ABOUT US

## Roland Berger Strategy Consultants

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Roland Berger Strategy Consultants, founded in 1967, is the only leading global consultancy with German heritage and of European origin. With 2,400 employees working from 36 countries, we have successful operations in all major international markets. Our 50 offices are located in the key global business hubs. The consultancy is an independent partnership owned exclusively by 220 Partners. **WWW.ROLANDBERGER.COM**

### Further reading

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#### THINK ACT COO INSIGHTS – INDUSTRY 4.0

Industry 4.0, the comprehensive interconnection of processes in production, logistics and services, is a huge issue at practically every large manufacturer in Europe. Yet not all companies have identified and tackled the resultant opportunities.

Based on talks with management and associations, we compiled a COO Insights issue on Industry 4.0 and its many facets. Our cover story deals with how fully digitized production is revolutionizing the value chain. And our major interview with Harald Krueger, Chief Production Officer at BMW centers around how digitization is changing car production.

The COO thus has the chance to assume a decisive leadership role. Leadership means clearly communicating the urgency of this topic, standing up for a digital vision, grasping the overall complexity and developing a roadmap that gives the company focus and direction. Industry 4.0 is a huge opportunity for the competitiveness of production "made in Europe". The future has already begun.

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