

**REVERSE THE FLOW OF THE GANGES: EMERGING MARKET INNOVATION  
FOR DEVELOPED MARKETS**

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**The Leading Question:** What Western multinational corporations (MNCs) need to know to successfully reverse their innovation flow i.e. launch new products developed in emerging markets in their domestic markets?

**Main Findings:**

- Realities in emerging markets are well suited for designing basic products that can be the starting point for product up-contenting.
- Products originally developed for emerging markets can be successfully adapted for sale in developed markets – a “reverse” innovation flow gains momentum.
- This strategy can both help to unlock new customer segments in wealthy markets and to compete against emerging MNCs, private labels, and generics conquering these markets bottom-up.

**From Recipient to Donor**

In the last decades, it seems that the innovation landscape has been set once for all. The North gets the newest gadgets, the South whatever the North doesn't want any more. In the North we drive a fancy sports car while the less lucky in the South have to settle for a clunker, we get a high-tech cell phone, the others outdated brick-sized handsets, we wear stylish sport shoes, the rest of the world whatever we have donated to charities... Reversing the flow of goods and ideas seemed neither possible nor desired in the past.

Things started to change in the last years. Not only do MNCs conduct research and development (R&D) in emerging markets for local demand but they increasingly repatriate innovative ideas and even full-fledged new products to developed markets. Clearly, emerging markets are becoming valuable laboratories of innovation helping MNCs to secure new competitive advantages at home. However, turning around the innovation flow is not always straightforward. In order to gather interesting lessons learnt by companies in this field we have studied several firm examples (See Figure 1).

-- Figure 1 about here --

### **Three Waves of Innovation in Emerging Markets**

#### ***Forward transfer***

In the first wave of innovation for emerging markets there were no tailor-made products for these regions. Innovation used “to waterfall” from developed to developing markets. This “push” strategy was mainly driven by the desire of the MNC to expand internationally. Most of them started their local activities by selling home-developed products often at the end of their life cycle. Some minor price or promotion adjustments were the only modifications undertaken at commercialization stage. Put differently, the classical MNC transferred its accumulated innovation knowledge only one-way, from its domestic to emerging markets. What’s more, a majority of these exports catered to premium segments of developing markets only. For instance, Siemens started its local engagement by selling high-end medical equipment to high-end hospitals in China and India.

#### ***Local innovation***

The second wave of innovation, namely its localization, was driven by local market needs i.e. market “pull”. In the last years emerging markets have witnessed an unprecedented economic growth catapulting millions of people out of poverty und turning local governments into solvent customers. Especially the middle class is swelling rapidly. Thus logically, after already existing local production facilities, MNCs started to set up local R&D sites responsible for deeper product adaptations or the design of unique products matching local demand. Consequently, innovation started to happen within emerging markets for emerging markets.<sup>1</sup> To succeed the MNC blended its domestic knowledge with some local knowledge but still the latter wasn’t leveraged globally on a regular basis. A good example is again Siemens which established R&D centers in China to develop medical equipment for the Chinese entry market segment.

### *Reverse transfer*

However, as emerging market's R&D sites are maturing, local customers are becoming more brand-conscious and local governments are investing in science and higher education, the innovation flow starts riding on its third wave "backwards" from emerging to developed markets.<sup>2</sup> And this affects not only intermediate goods but also full-fledged new products as some pioneering companies like Siemens, Renault or Nokia demonstrate. Obviously, this "push back" strategy is driven by competence accumulation in emerging markets. Just consider Siemens which introduced a China-developed computed tomography (CT) scanner in Europe. This device originally aiming at the entry level market segment in China turned out to be attractive for first-time buyers in developed markets, too. Cost-effective, robust, and user-friendly it is a smart option for smaller clinics for basic day-to-day examinations. Similarly, the Renault-owned Dacia car family is currently conquering Western Europe from its base in Romania. Even besotted with their national brands Germans buy Dacia cars strengthening the position of Renault as Germany's biggest car importer. Figure 2 summarizes the three waves of innovation.

-- Figure 2 about here --

Clearly, we are facing a paradigm shift with regard to new product development (NPD) activities of MNCs turning established processes upside down. The new innovation strategy of first developing products for emerging markets and then repackaging them for developed markets is gaining momentum. Companies doing it profit from talented local R&D communities eagerly participating in innovative endeavors and blowing fresh wind into sometimes plugged-in home-based R&D departments. This revolutionary approach can help companies to save both time and money as they don't have to develop products for each world region from scratch. What's more, the MNC's product portfolio can be enlarged by offerings attractive for so far underserved customer segments in wealthy markets. And this in turn can help MNCs to compete against private labels, generics or emerging market rivals conquering Western markets bottom-up. This new strategy will evidently hold not only in times of economic recession as

developed market customers are more often than before rethinking their value expectations and becoming more price sensitive.

In the following we will explore how MNCs can turn emerging market constraints into opportunities helping them to develop competitive products for both emerging and developed markets. Furthermore, we will describe how innovations from emerging markets can be best transferred to developed markets and give some recommendations on how to master major pitfalls on this way upstream. As Siemens and Renault have demonstrated, redirecting the innovation pipeline is worth the effort.

### **Turn Constraints into Opportunities in Emerging Markets**

To repatriate innovations from emerging markets MNCs have to set the base by developing competitive products for local markets. And this can be hard as realities in China or India differ significantly from those faced at home. Poor infrastructure, harsh operating conditions, limited purchasing power of customers, and scant resources are the main challenges that have to be overcome. Company examples show however, that these limitations also have a bright side as they can boost creativity and widen the search for unconventional innovative solutions.

Firstly, the infrastructure in emerging countries leaves a lot to be desired. Just consider the telecommunication market in India. There are lacking or outdated landline networks, omnipresent power blackouts, and logistic challenges. Telecommunication services all over the country seemed unrealistic a decade ago. However, Vodafone and Nokia Siemens Networks (NSN) tackled these problems by leapfrogging landline telephony all together: They went for mobile networks right from the start. What's more, after the mobile phone market in large cities is saturating Vodafone and NSN are conquering rural areas where doing business is even harder.

Secondly, harsh operating conditions being it extreme climate, pollution, space shortage and over average usage rates are the rule not the exception. Most Western products wouldn't work in these settings

for a long time. So what do inventive companies do in order to succeed? These tough circumstances can be seen as a chance to design environmental friendly, robust, and simple products as well as test “green field” settings i.e. starting projects “ground up” without the sometimes suffocating legacy of headquarters. Such freedom of operation helped NSN employees to set up the *Village Connection* project outside the scope of daily business. This innovative solution extended telecommunication offerings to rural areas of India in a commercially viable manner.

Thirdly, most people in developing economies can’t afford existing product offerings. For instance, the average return per unit (ARPU) for mobile telecommunication providers in rural India is just about US\$ 2 to US\$ 3 per month whereas the prevalent business models and technological solutions applied in developed markets are commercially viable with an ARPU of about US\$ 8 to US\$ 10 per month. In these frugal conditions MNCs are forced to deliver completely new price-performance offerings. Luckily, large local sales volumes help reducing prices due to strong experience curve effects. The example of Vodafone indicates too, that margins in India are comparable to those in Europe.

Last but not least, emerging markets are plagued with resource scarcity like limited R&D budgets, limited supplier capabilities and high R&D employee turnover. But some companies can even take pleasure in these restrictions. They help them to develop a new scarcity mindset and organizational flexibility. Thus making products smarter in terms of simplicity and robustness may become an equally acclaimed achievement within the company as developing products full of newest bells and whistles. Vodafone for instance, is reorganizing its value chain in India by outsourcing all but core competencies to create a lean organization and Nokia uses fewer parts in its phones than competitors. Table 1 provides an overview of the constraints and opportunities in emerging markets and the resulting innovation types.

-- Table 1 about here --

## **Scarcity is the Mother of Invention**

Companies like Nokia and Vodafone have learned how to convert harsh operating conditions into opportunities for NPD. Let's take a closer look at the resulting breadth of different innovation types coming about in emerging markets.<sup>3</sup> They are the starting point for potential new offerings in developed markets, too.

*Offerings* are a company's new products and services. To succeed their unique selling proposition has to be valued by customers. Just recall Siemens' medical equipment or Renault's Dacia cars.<sup>4</sup> They have a "just enough" functionality meeting the demand of customers with limited budgets, limited experience and facing other environmental restrictions. Also Siemens' solution for monitoring wind power turbines in China rests upon a simplification making the offering more attractive for Chinese wind park operators.<sup>5</sup>

A *platform* can be defined as a set of common parts, assembly methods or technologies that constitute building blocks for a portfolio of products or services. The key to success here is the exploitation of different modules to design a diverse set of derivative offerings faster and cheaper than if they were stand alone items. Renault for instance, created a full car family on the basis of the Dacia *Logan* model cross-using parts from existing Renault models.

A *solution* is a customized, integrated combination of products, services, and information solving end-to-end customer problems. NSN has been so successful in emerging markets because it created a new business model providing access to telecommunication for people at the bottom of the economic pyramid. Its *Village Connection* delivers cost effective network capacity in rural India due to two key factors. Firstly, the system's architecture eliminates traditional network hierarchies for traffic between neighboring villages. And secondly, it rests upon a franchise system.

*Customers* are the individuals or organizations consuming or using the company's offerings. Siemens has learned that crucial for success in emerging markets it to find first-time buyers i.e. organizations that have never bought a product in the given category before or have never bought a Western branded product. These customers usually constitute the biggest slice of the market. Just have a

look at Chinese hospitals buying Siemens medical equipment. They are to a high extent either mid-size state hospitals upgrading old equipment or booming, recently permitted small private hospitals.

**Customer experience** means redesigning customer interactions across all touch points and all moments of contact with the company. A good example here is Vodafone which offers its emerging market customers a totally new quality of life with services like mobile telephony, text messaging, m-banking, music downloads and many more. To increase interaction with customers Vodafone goes to great lengths to be where its customers are via a fleet of vans, thousands of kiosks and hawkers.

A company can redesign also its core operating **processes** for greater efficiency, higher quality or faster cycle time. In the era of omnipresent robotization Renault's main Dacia manufacturing site in Romania looks like strayed from a different era: A noisy shop floor with about 1,000 workers and only one robot responsible for applying glue to windshields moving down the production line. This practice is however, part of a stringent design-to-cost approach allowing considerable savings as labor is relatively cheap in Romania.

**Organization** is the way in which a company structures itself, its partnerships and its employee roles and responsibilities. To better meet local demand Siemens opened up local R&D facilities in China. These highly specialized sites have far reaching ownership for the development of local products from scratch and offer attractive careers for local R&D talent, too.

A company can also streamline the flow of information through the **supply chain**, change its structure or enhance the collaboration of its participants. To alleviate a lacking supplier base in Romania Renault convinced its established suppliers to follow its way by demonstrating far reaching commitment to its new manufacturing sites. Siemens in turn has developed a local Chinese supplier to be able to build a LCD monitor for its CT scanner.

**Presence** is defined as new distribution channels or places where offerings can be bought or used by customers. Nokia illustrates very well how these processes can be adjusted to reach new consumers. Low-end customers for instance, want face-to-face support not contact via call centers. The company therefore uses vans touring rural areas to sell products and provide after sales services.



## **How to Swim Against the Stream?**

Several new products from emerging markets can be successfully translated into developed markets. However, as the demand in both market types differs from each other the transfer procedure has to be carefully managed. A “reverse adaptation” of innovations in terms of positioning, pricing and feature sets is necessary in most cases. The successful strategies applied by the companies we studied can be summed up as follows:

### ***Leverage local core competences!***

To set the base for a successful transfer Siemens acknowledges core competences of different world regions among them emerging markets, by building different Global Technology Fields (GTF) within its corporate R&D. This approach facilitates transfer of new knowledge and learning in trend-setting technologies and applications within the company as a whole. The fact that GTF directors hold global responsibility for their respective fields further enhances the transpiration of new products and solutions at Siemens.<sup>6</sup> As India for instance, has a clear focus on IT industry Siemens’ Indian R&D competence is software development. Likewise, the GTF for Embedded Hardware is led by Siemens’ Bangalore site because the city is a global hardware platform development hub. As a result, Siemens’ Indian engineers are working on embedded software for driver assistance systems. Learning from emerging markets is also possible in the service sector. Vodafone India constitutes the company’s test laboratory for cost reduction approaches leveraging the local cost minimization culture. Apart from the already mentioned outsourcing of peripheral competencies, Vodafone’s Indian employees serve more than twice as many customers as an average employee in Germany.

### ***Empower local R&D teams!***

In order to profit from emerging market innovations a company has to create conditions nurturing innovative ideas locally. The sole delegation of back-office operations, repetitive tasks, and minor product adjustment projects to emerging market R&D employees will result in anything but motivation. To

unlock the innovative potential of these well-educated people and support a long lasting employer-employee relationship MNCs have to assign innovative internationally-oriented projects and responsibility for their outcomes thus a far reaching autonomy to these facilities. Recall Siemens' CT scanner project. Siemens' Shanghai R&D location was assigned the global competence mandate for developing entry-level CT scanners while the German headquarters still account for high-end and mid-range R&D.

***Attract new customer segments!***

If one examines developed market buyers of Dacia cars and Siemens' Asia-developed medical equipment it is quite straightforward that they are mostly first-time buyers located at the lower-end of developed market segments. Some of them might not be extremely brand-conscious, too. Because of limited disposable income most of them haven't been approached by existing offerings. By introducing their new product ranges Siemens and Renault try to fill untapped market niches and convince so far unnoticed customers to buy their products before price-aggressive emerging market MNCs will do so. Let's have a closer look at Dacia in Germany. The company typically targets three customer groups: People buying a *Logan* instead of a used car, people buying it instead of a cheap Asian import, and finally those choosing it over a very small US\$ 13,000 European car that doesn't meet Dacia's price-performance mix. Likewise, Siemens sells its equipment to smaller hospitals and private practices that couldn't afford a high-end device so far. Further, such equipment is interesting for basic examinations in established hospitals to disburden the existing high-class machines as well. What's more, decreasing investment volumes in numerous German hospitals might lead the one or the other hospital manager to rethink his new equipment "wish list".

***Clearly communicate the product's core advantage!***

A car should be primarily a safe means of transport. No more, no less. In recent years a whole "low-cost-no-frills-movement" has been overrunning Europe. There are low-cost airlines, low-cost car

rentals, discount hotels, discount supermarkets even low-cost cruises. Dacia hit the spirit of time very well and understands how to focus on the very basic need its products have to cater to. The car manufacturer points out that it offers the best space-price ratio in its car segment accompanied by an exceptional reliability. No other car manufacturer offers “so much new car” for such a competitive price in Germany. Further, Dacia communicates to customers in a very transparent way how the low car price is made possible. The product’s reliability for example, through an industry-common 100,000 km guarantee for new cars as well as regular product quality checks are also highlighted. Similarly, the fifth place of Dacia in the 2008 yearly car customer satisfaction survey of the German Automobile Club is emphasized. The newcomer left such industry leaders as Mercedes Benz and Volkswagen far behind.

### ***Upgrade product platforms!***

Dacia further demonstrates how to successfully upscale a low-cost product platform developed in emerging markets. As already noted, realities in emerging markets are well suited for designing basic products that smart MNCs use as a starting point for product up-contenting. Consequently, Dacia firstly developed a simple product chassis for emerging markets and upgraded it for developed markets with more safety features as well as more appealing exterior characteristics like alloy wheels and metallic paint. This allowed increasing the car’s price tag in Western Europe. In emerging markets Dacia charges around US\$ 6,500 for its *Logan* basic version, in Germany the customer has to pay at least US\$ 9,400. Dacia also successfully followed current trends on the automobile market and enlarged its car family with several new models: a pick-up, a van, a station wagon, and a mini SUV have been already introduced.

### ***Identify new applications!***

Also Siemens India approaches several different industries with its novel flexible and inexpensive camera system for computer-aided image processing in industrial automation applications. The camera system has been already installed in India in cigarette factories, automotive supplier production lines, and industrial bakeries. The need for such solutions emerged from the cost-constrained operating conditions

of the Indian environment, but the innovation has been picked up by Siemens' Industry Sector headquarters for global roll-out.

***Apply a guerilla marketing approach!***

When Renault introduced Dacia to Western Europe it was advertised via radio and newspapers only. Deemed too expensive, TV spots were not taken into account. To be consistent in its low-cost product strategy, Renault went for a coherent low-cost marketing strategy with the slogan “Be logical, be *Logan*”. Dacia was also sold via existing Renault dealerships further decreasing distribution costs. During the present economic recession Dacia is being advertised in Germany as the “*Getaway car from the financial crisis*”. Additionally, a first TV spot was introduced matching the idea of a “no-frills car for masses” in an imaginative way by referring to well known leaders of communistic revolutions worldwide.

Figure 3 offers an additional case study about Bosch.

-- Insert Figure 3 about here --

**Major Pitfalls on the Way Upstream**

Swimming against the stream i.e. introducing new products developed in emerging markets in wealthy Western markets can be difficult, especially for beginners. As our examples demonstrate, some homework is inevitable for success. Let's therefore take a closer look at the key challenges and ways to overcome them.

***Uncoordinated transfer attempts***

Firstly, to induce such a major shift in a company's NPD activities a strategy adjustment is inevitable. Consider Siemens anchoring the necessity of developing products with both higher quality and lower cost – a fact long regarded as contradictory – in its NPD strategy. S.M.A.R.T., the latest company-wide initiative, standing for simple, maintenance friendly, affordable, reliable, and timely to market

products, sets the stage for such a meaningful change. It pursues two central aims. The first is to enhance successful NPD for emerging markets through best-practice sharing between different business units. The second is to profit from emerging markets in worldwide markets through component and full-fledged new product sourcing.

### ***Headquarter-centered R&D organization***

Secondly, the shift in innovation strategy has to be mirrored by organizational amendments. To increase the inflow of innovative ideas and open up its innovation strategy to the East Siemens established a Technology-to-Business (TTB) office in Shanghai. This vehicle helps the company to profit from China's innovation potential and cost-effectiveness by systematically scouting for new start-ups and inventions to leverage them across the globe. In a similar vein, establishing numerous scientific co-operations with premier local universities or research institutions is a decisive step to position emerging markets as a highly visible spot on the company's innovation map.

With regard to specific new product transfer projects our experience about NPD in general suggests to implement heavyweight project teams where the project responsibility lays in the hands of an autonomous, knowledgeable, well-networked, senior project manager. Lessons learned from NSN and Dacia confirm that a successful vehicle can be separately located NPD teams freed from everyday business operations that can fully concentrate on this new endeavor.

### ***Presence of the not-invented-here (NIH) syndrome***

Thirdly, the issue of adapting a product designed in a remote R&D location might pose difficulties due to sheer reluctance of headquarters' employees to accept solutions coming from outside of their department – a phenomenon known as the NIH syndrome. This liability of foreignness can be exacerbated by prejudices with regard to emerging markets. Successful companies like Siemens show that minimizing this stigma of origin is possible by fostering an international NPD culture. Such a culture emphasizes openness to external ideas and an equal standing of all R&D locations within the company.

International experience of managers responsible for NPD additionally helps to assess the potential of different products from emerging markets. Therefore Renault introduced a diversity charter acknowledging international experience among employees. As a result some 25 % to 30 % of new hires have an “international profile”.

### ***Communication obstacles***

Fourthly, a successful adaptation may be hindered by translation challenges. Employees from both markets may experience difficulties stemming from different cultural backgrounds and the resulting “thought worlds”. Knowledge exchange processes should be also enhanced by a bunch of formal and informal measures like international NPD teams, re-location programs of R&D personnel and joint training sessions. Furthermore, an important precondition of information exchange between members of virtual teams – and this is mostly the case regarding transfer of emerging market innovations – is to meet personally and speak a common language. Because of this Siemens regularly holds internal innovation management conferences at different company locations while Renault asks its managers to pass a standardized English language test.

### ***Cannibalization of existing products***

Finally, one might ask if putting aside all euphoria about the success of emerging market products in the West they are doing it at the expense of existing offerings. There is no magic receipt how to assure no substitution of products at all. Renault’s management, for instance, decided to keep the brand name of the acquired Romanian Dacia to prevent the Renault brand itself to be associated too much with low-cost simple cars. Renault also plans to retain the distinctiveness of both brands for example, through the development of independent Dacia dealerships. The company’s representatives claim that product cannibalization is not an issue in Germany, as both customer groups differ significantly: A Dacia customer wouldn’t probably consider buying a new Renault and vice versa. Siemens on the contrary, doesn’t introduce separate brands for its entry-level products. The company wants to profit from its strong

brand name and help the new products to gain momentum in developed markets. In the end Siemens guarantees the same quality of its products regardless of design or manufacturing location as all its subsidiaries adhere to the same strict quality guidelines.

## **Summary**

Emerging markets may well be a source of innovations for developed markets as they call for new dimensions of efficiency and emphasis on value creation. Harsh local realities and the resulting constraints can help MNCs to boost their creativity and cost-awareness for developed markets advantage, too. R&D operations in India or China further allow MNCs to tap and leverage extraordinary local talent and local pockets of innovation they wouldn't be able to attract in a different way.

Pioneering MNCs already demonstrate how to adapt products developed in emerging markets for developed market use. A mixture of specific project best-practices like attracting new customer segments, emphasizing the product's core advantages, introducing new marketing measures or identifying new applications should be blended with company-wide deeper cutting adjustments. In this regard an MNC should take steps to create a truly international and open innovation culture, adjust its NPD strategy, and guarantee a formal and informal organizational structure supporting reverse knowledge transfer as well as implement training measures helping to bridge internationally scattered R&D locations. In the end a successful repatriation of products from emerging to developed markets can be only achieved if both the headquarters and the involved local subsidiary act in concert.

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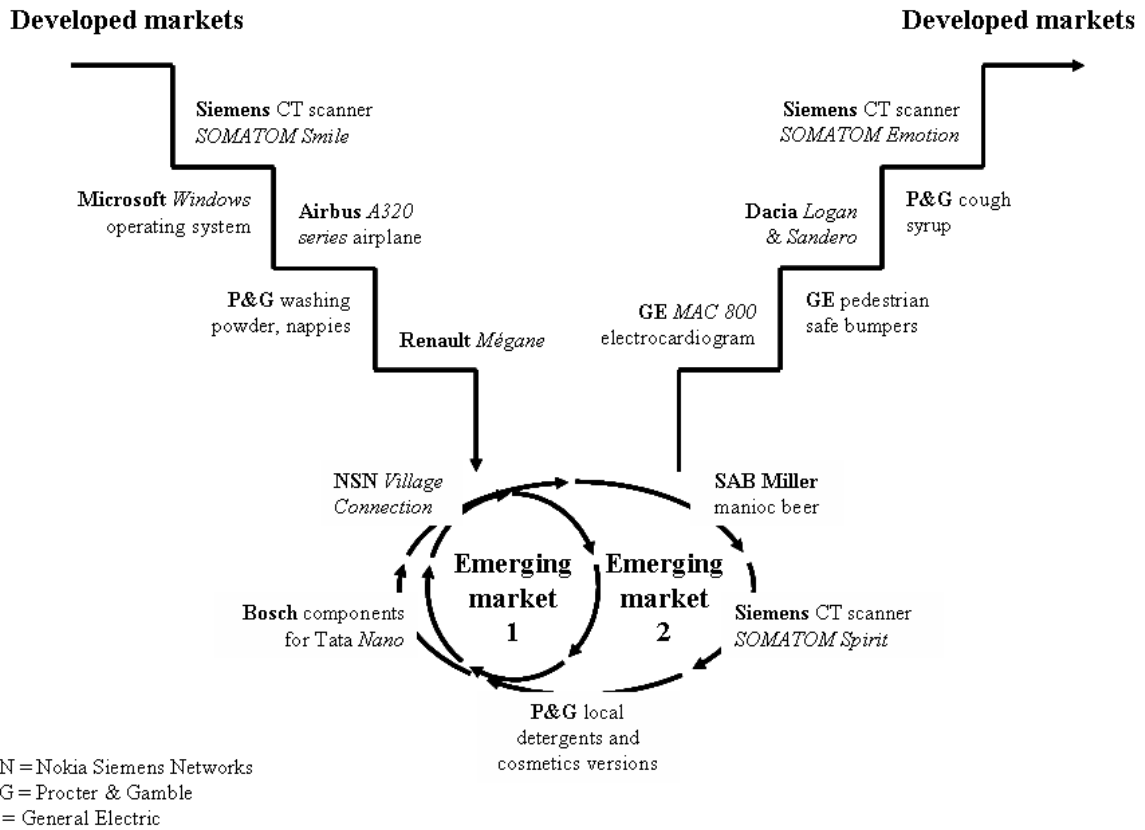


## **Figure 1: About the Research**

### **About the Research**

With regard to the research design, we firstly extensively reviewed managerial and academic literature to identify best practice examples of how to profit from experiences in NPD for emerging markets in established Western markets. We also identified and analyzed several existing new products initially developed for emerging markets and after that successfully (planned or “by accident”) introduced in Europe or the U.S. On this basis, we conducted 30 interviews with experienced managers from 15 German and U.S.-American companies. Additionally, we conducted in-depth case studies with four companies interviewing up to ten people per company and traveled to India several times to experience on-site NPD for emerging markets

**Figure 2: Three Waves of Innovation**



**Table 1: Turning Constraints into Opportunities in Emerging Markets**

<b>Constraint</b>	<b>Opportunity</b>	<b>Types of innovation for emerging markets</b>
<b>Poor infrastructure</b>	<ul style="list-style-type: none"> <li>• Leapfrog technologies</li> <li>• Overcome the “we-have- always-done-it-like-this” attitude</li> </ul>	<p><b>Offerings:</b> Portable medical equipment (GE)</p> <p><b>Solutions:</b> Mobile phone data based traffic measurement system (Siemens)</p> <p><b>Customers:</b> Residents of rural areas (Allianz)</p> <p><b>Customer experience:</b> Product display centers in retail shops (Dell)</p> <p><b>Presence:</b> Distribution via hawkers (Unilever)</p>
<b>Harsh operating conditions</b>	<ul style="list-style-type: none"> <li>• Test “green field” approaches</li> <li>• Lower complexity</li> <li>• Go “green”</li> <li>• Design more robust and compact systems</li> </ul>	<p><b>Offerings:</b> Recyclable energy-saving solar lamps (Osram)</p> <p><b>Solutions:</b> Intuitive operating software of medical equipment (GE)</p> <p><b>Customers:</b> Midtier hospitals (GE)</p> <p><b>Processes:</b> “Stability environmental rooms” to test resilience of products (P&amp;G)</p> <p><b>Organization:</b> “Special tasks” NPD teams (Dacia)</p>
<b>Limited purchasing power</b>	<ul style="list-style-type: none"> <li>• Boost creativity</li> <li>• Avoid over-engineering</li> <li>• Design products from scratch</li> <li>• Yield profits through mass market</li> </ul>	<p><b>Offerings:</b> “Pre-paid” PC sale system (Microsoft)</p> <p><b>Solutions:</b> Energy saving network management (NSN)</p> <p><b>Customers:</b> People at the base of the economic pyramid (Unilever)</p> <p><b>Processes:</b> Computational modeling (P&amp;G)</p> <p><b>Organization:</b> Local R&amp;D sites (SAP)</p> <p><b>Supply chain:</b> Use of components from less sophisticated devices (GE)</p>
<b>Resource scarcity</b>	<ul style="list-style-type: none"> <li>• Change innovation culture “do-more-with-less”</li> <li>• Be flexible</li> </ul>	<p><b>Platform:</b> Part sharing across different product lines (Nokia)</p> <p><b>Organization:</b> Partnerships with local universities and business (Evonik Degussa)</p> <p><b>Supply chain:</b> Local material and machine suppliers (P&amp;G)</p>

### **Figure 3: Bosch's Tata Nano Project**

#### **Bosch Helps an Indian Dream Come True and Profits from It at Home**

As of today only eight out of thousand Indians own a car. But this may change in 2009 with the introduction of the Tata *Nano* for about US\$ 2,500 – the price of an air-conditioning system in a premium German car. Even if an Indian product, the *Nano* is packed with Western technology. One of the main part suppliers is Bosch. To meet Tata's ambitious cost targets and local emissions regulations coming into force in 2010 Bosch's Bangalore-based engineers came up with creative solutions. They decided to hone the injection technology for two-wheelers and adapted it for use in a car injection. For the diesel engine, by contrast, they simplified a tried-and-tested product. Finally, a cost-effective off the shelf plug-in

pump was used to generate injection pressure.

The engagement in the *Nano*-project helps Bosch not only to break into a new market but also provides valuable lessons-learned for its activities in developed markets. The first insight is value-engineering – the ability and will to design products meeting tough cost constraints. Also German car manufacturers are thumping their suppliers to decrease prices every year. And the trend to smaller, lower-cost cars is observable in Germany, too. In hand with the first insight goes the second, that is stimuli to simplify offered products and systems. As German engineers are often inclined to apply the most advanced technological solution the *Nano* project helps them to acknowledge that simplification can be of great value for customers as well.

Furthermore, Bosch is also considering after some adjustments the application of its *Nano* solutions to European three cylinder motors (the *Nano* motor has two) or other Bosch products like power tools or electronics for motorcycles.

The successful reverse knowledge transfer from India to Germany is made possible by excellent personal networks of employees in Bangalore and Stuttgart resting on regular personal contacts through reciprocal visits and joint training, accompanied by some degree of exchange process formalization and the overall strategic guidelines of the company as a whole. And last but not least, the high quality standards for Bosch products are the same regardless of location thus making them attractive for application in worldwide markets.