

Innovation for a new world?

Emerging markets, frugal innovation and changing R&D

India is developing to a global center for frugal innovations and frugal engineering. This is most notable in the area of small and inexpensive automobiles, but also in other fields such as medical and space technology. The Government of India is also seeking to systematically support this kind of innovation although currently there are few concrete programs.



Dnr 2011/028
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Content

1	Summary and Swedish summary	5
2	Innovation for a new world	6
2.1	A change in the making	6
2.2	What is it to Sweden?	6
2.3	Is Sweden ready?	8
3	India: Frugality and Indovation	8
3.1	Private actors	9
3.1.1	Indian Actors	9
3.1.2	Multinational Firms	11
3.2	Public actors	12
3.2.1	Indian government	12
3.2.2	International bodies	13
4	More than a new gadget.....	13
4.1	Business models for serving the base	13
4.2	IKEA as an example of frugal engineering	14
5	Re-connecting to Sweden.....	15
5.1	Concluding words	15

1 Summary and Swedish summary

There is a global shift underway. China and India will soon have among the largest economies in the world, and by 2050 most predictions place them among the top three economies. The ascent of the Chinese and Indian economies is largely a demographic story; with large numbers of inhabitants in working age the absolute size of the economy grows. An important difference to the economic world-order as we know it today is that while these economies will be large, the per-capita income will remain low - in comparison to OECD countries. Mega markets with micro consumers will therefore be an important aspect of the future global economic landscape.

With respect to innovations this means that returns to innovations for consumers with lower purchasing power will become increasingly more interesting. Frugal innovation is one of many terms that denotes innovative activities that seeks to develop products that consume less resources and that trade off some functionality for low cost.

India is developing to a global center for frugal innovations and frugal engineering. This is most notable in the area of small and inexpensive automobiles, but also in other fields such as medical and space technology. Most of the innovative activities are happening in the private sector, led both by Indian and multinational corporations alike. However, the Government of India is also seeking to systematically support this kind of innovation although currently there are few concrete programs.

From a Swedish perspective it is important to consider the possibilities of expanding the successful innovation system that is currently focused on high-technology for established markets to *also* enable Swedish innovation for emerging and new markets.

Sammanfattning

Det pågår just nu en förändring i globala marknaderna. Kina och Indien kommer inom en snar framtid att vara bland de största ekonomierna i världen; till år 2050 pekar de flesta förutsägelsena på att de är bland världens tre största ekonomier. Framväxten av de kinesiska och indiska ekonomierna är i hög grad en demografisk historia. Med stora befolkningar skapar man stora nationella ekonomier. En viktig skillnad mot den rådande ekonomiska världsordningen är att percapita inkomsten i dessa ekonomier kommer att vara låg i jämförelse med OECD-länderna. Mega marknader med mikro konsumenterna kommer därför att vara en viktig aspekt av det framtida globala ekonomiska landskapet.

När det gäller innovationer innebär detta innovationer för konsumenter med lägre köpkraft kommer framgent kommer att bli allt mer intressant. Frugala innovationer är en av många termer som betecknar innovativ verksamhet som syftar till att utveckla produkter som förbrukar mindre resurser, ofta genom förenklad funktionalitet, för uppnå låg kostnad.

Indien utvecklas nu till ett globalt centrum för frugala innovationer. Detta är särskilt märkbart i fråga om små och billiga bilar, men också inom andra områden såsom medicin- och rymdteknik. Det mesta händer i den privata sektorn, under ledning av både indiska och multinationella företag, men även den indiska regeringen söker sätt att systematiskt stödja denna typ av innovation.

Ur ett svenskt perspektiv är det viktigt att överväga möjligheterna att utveckla den framgångsrika innovationssystem som för närvarande inriktad på högteknologiska för etablerade marknaderna till att även stödja svenska innovationer för nya marknader.

2 Innovation for a new world

2.1 A change in the making

Highlighted by the most recent global financial crisis, the sustained growth rates of the emerging economies have rapidly moved these onto the centre stage of the global economic landscape¹.

A likely consequence of this development is the increased importance of a new category of global market: mega markets with micro consumers. Because of the size of their populations China and India will (in the intermediate term - until 2050) both have economies that are among the largest in the world in absolute terms, while the average per-capita will remain below those of OECD countries. Chinese per-capita income (in purchase-power adjusted terms PPP \$) is today about one fifth of that of high income countries, and in India it is about one tenth. By 2030 when China is projected to be the largest and India the third largest economies the average Chinese income will be about half of that in high-income countries and in India it is projected at barely one fifth².

While classic economic theory suggests that factor prices (i.e. cost of labor and thus incomes) harmonize through trade, current theory puts this into doubt³. Even if this would happen, it will take place over a long time period – long enough for imbalances to significantly influence markets and the fortunes of firms and nations. A reasonable conjecture is thus that future global demand will to a greater extent be defined by consumers with a lower purchase power (in absolute terms) than today⁴.

2.2 What is it to Sweden?

Global markets change continuously, and a pertinent question to pose is whether the emergence of these new economies is of any special importance to Sweden. After all, there is nothing new with a changing global economic landscape. Japan emerged as an economic power in the 1980's, and since the 1990's South Korea has more or less caught up with the OECD countries. While these developments led to pressure on some sections of the Swedish economy to change, most notably the ship-building industry, Sweden and Swedish firms on the whole were able to benefit. Is there any reason to take special notice now?

One important reason to take notice is that this change is by magnitudes larger than any other change in the economic landscape in modern history. In a long term perspective the economic dominance of the eight OECD economies, which to most people have an air of naturalness about it, is a cursory blip in history; a period of 150 years in a history of two thousand years⁵.

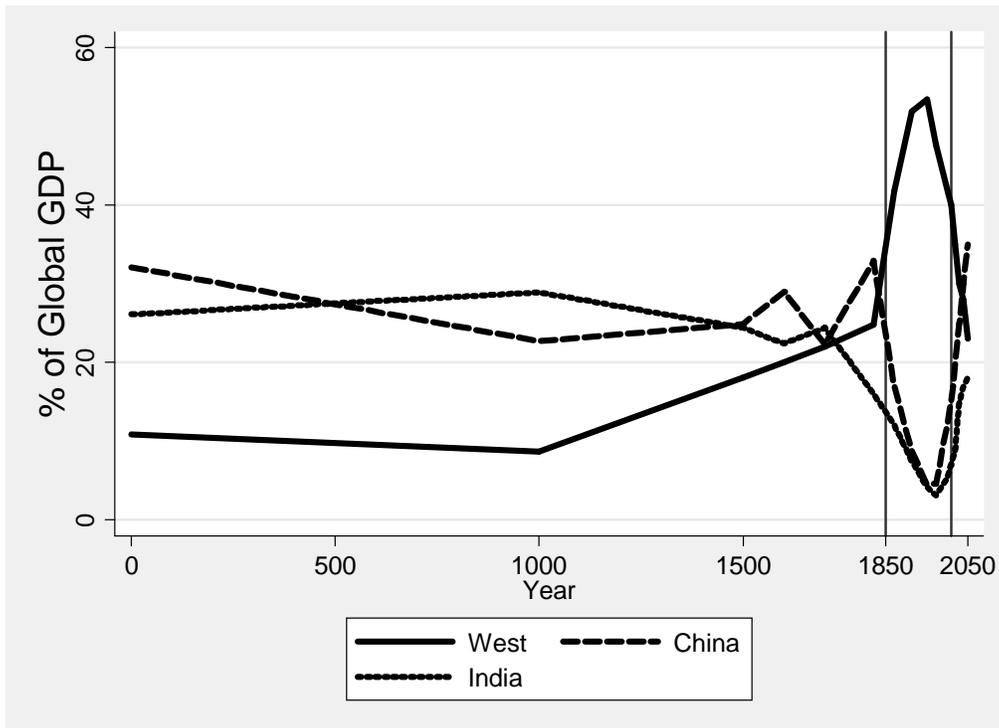
¹ *World Economic Outlook, 2008*

² *Bussolo et. al. (2007) "Global Growth and Distribution: Are China and India Reshaping the World?" Policy Research Working Paper 4392, The World Bank. Development Economics Prospects Group.*

³ *See "Globalisation and Income Inequality", Chapter 4, World Economic Outlook, October 2007.; "Global Growth and Distribution: Are China and India Reshaping the World?" Worldbank Policy Research Working Paper 4392, 2008. Leading trade economist Paul Krugman has come to similar conclusions – see, for example, "Trade & inequality, revisited", VoxEU.org, June 2007.*

⁴ *Citi (2008) Global Macro Themes – Economic and Market Analysis. May 2008.*

⁵ *Maddison 2001, The World Economy, A Millennial Perspective, OECD.*



Source: Adapted from Maddison 2001 & PWC 2009⁶.

As the figure shows, India and China have dominated the world economy since as long as we can look back – until the early 1800s - and in most projections this will again be the case by 2050.

A second reason to take note of this development is that incumbent in the emergence of mega markets with micro consumers are potentially changing returns to innovation, and the possibility of the development of a new R&D paradigm. Consumer demand is an important driver of R&D, and the question is whether an R&D innovation paradigm focused on consumers in developed markets can respond effectively to the emergence of a new category of consumers.

An early observer of this challenge was CK Prahalad, who popularized the idea of a “fortune at the bottom of the pyramid” (later re-phrased into the more politically correct “fortune at the base of the pyramid”). While his idea was developmental in its origin, emphasizing the empowering effects of including low income groups in a market economy, it more importantly points to the need for substantial changes in innovative practices to identify and serve needs particular to low income groups. Among some multinational firms, efforts are on to diversify current R&D portfolios and processes to be able to innovate for the ‘next billion’ consumers. One of the leading proponents of the need to re-formulate the approach to large emerging economies is the investment bank

⁶ Maddison 2001, *The World Economy, A Millennial Perspective*, OECD; PriceWaterhouseCooper (PWC) 2009, *The World in 2050 - Beyond the BRICS: a broader look at emerging market growth prospects*. http://www.pwc.com/en_GX/gx/world-2050/pdf/world_2050_brics.pdf.

Goldman Sachs that in 2003 introduced the analytical category of “BRIC countries” (Brazil, Russia, India and China) to denote the rapidly emerging markets and their impact on global industries⁷. An understood recipe for success in this market segment is the ability to offer products and business models that are tailored to the special needs of these markets⁸.

While there is a burgeoning literature on the developmental and business aspects of working with the lower income groups and an emerging middle class⁹, no attention has been paid to possible challenges and opportunities this development may have on the innovation systems of nations. The next section elaborates on this question.

2.3 Is Sweden ready?

From a Swedish competitiveness perspective it is relevant to ask how well suited the current innovation system is to respond to and benefit from and interact with the emerging economies. On the one hand the Swedish system, with its dominant share of R&D in large corporations, should much like any multinational firm be strongly incentivized to adapt to changing market needs as a result of increased feedback from business involvement in the emerging markets. We can already see that happening, with R&D centers of Swedish MNCs shifting closer to emerging markets. On the other hand a national innovation system is more than the global firms, and other parts of the system may not be equally incentivized or able to adapt to these new challenges. In particular small and medium sized enterprises, without a global reach, are likely reliant on the institutions of the innovation system (such as Vinnova, Tillväxtverket, Mistra) for inputs and resources to change. Whereas the Swedish innovation system is renowned for its ability to foster innovative high technology firms, the question remains open whether or not the system is ready to respond to a challenge to *also* develop products that correspond more closely to the needs of a growing global middle class.

This report is a first effort at raising this question for discussion. It takes stock of current efforts – public and private – towards adapting national R&D systems to a more price sensitive market in India. Common experiences and challenges are pulled together to generate possible learnings for the Swedish innovation system.

3 India: Frugality and Indovation

India is rapidly emerging as one of global hotspots for the development of innovations tailored to the needs of lower income groups¹⁰. There are even several concepts frequently used in media to describe the focused effort to innovate to produce something that uses fewer resources (and costs less), but often with a trade-off in functionality. “Frugal

⁷ GoldmanSachs 2003 “*Dreaming with BRICs*” . *On the usefulness of BRIC as an analytical category, see further Armijo, L E 2007 “The BRIC Countires (Brazil, Russia, India, and China) As Analytical Cateogry: Mirage or Insight?” Asian Perspective, Vol. 31, No. 4, 2007, pp. 7-42*

⁸ Gupta and Wang (2009) “*Getting China and India Right*”. Jossey-Bass Publisher.

⁹ See for instance: IFC, IBLF and Kennedy School “*Business Linkages: Enabling Access to Markets at the Base of the Pyramid*”, 2009; World Economic Forum “*The Next Billions: Unleashing Business Potential in Untapped Markets*”, WEF 2009.

¹⁰ Kubzansky and Karamchandani (2009), “*Emerging Markets, Emerging Models: Market-based solutions to the challenges of global poverty*”, Report March, 2009 Monitor Group.

www.monitor.com.

engineering” and “Indovation” are two such terms that denote innovations that are affordable, although not always as high-performing as other products; i.e. innovations specially tailored for the price sensitive Indian consumers¹¹. The canonical example is the Tata Nano, which is rapidly making a name across the world as the world’s cheapest manufactured car. Other examples include range from innovative ICT solutions for Indian farmers to a cost-effective national space program.

There can be any number of reasons for why India is emerging as a center for frugal innovation, but one important factor is most likely a long period of (both imposed and self-chosen) strategy of technological self-sufficiency which has fostered a culture of innovation under resource constraints, as noted by the former Director of the Indian Council for Scientific and Industrial Research, Dr R A Mashelkar¹². Necessity has long been recognized as the mother of innovation, and in the Indian case this seems vindicated.

Another reason is the explicit socio-political agenda behind past and current Indian research policy and funding. The Indian S&T system is heavily state funded – about 80% of total R&D expenditure is by the government. Apart from the sizable spending on defense related R&D, S&T investments have often had a very strong ‘pro-people’ and social dimensions. The Indian space program, widely recognized for its low cost launch vehicles, was for instance largely developed to support the green revolution and Indian agriculture by improving the Indian meteorological capabilities. Similarly, the current biotechnology research programs are heavily geared towards agricultural research – in an effort to usher in a new green revolution. The influential Planning Commission is expected to highlight frugal innovation as a specific mean for the future Indian economic development. As a result, several related innovation policy initiatives are expected to be announced.

The most noteworthy and globally most competitive initiatives, however, are found among private actors – both Indian and multinational. Below are a few examples, chosen to illustrate different aspects of frugal innovation.

3.1 Private actors

3.1.1 Indian Actors

Tata Motors Limited - Tata Nano

The Tata Nano is in many ways an apt example of what is called frugal engineering. With a price of Rs 100 000 (SEK 16 000), it is the cheapest manufactured car in the world. It has been hailed as a “game changer” by a number of automotive market analysts and has been compared to the introduction of the model T Ford¹³. The Nano has sold about 25 000 units since sales started in 2009, and deliveries are fully booked through 2010.

¹¹ See *Financial Times* article January 20, 2010 (http://www.ft.com/cms/s/0/346b7c84-0574-11df-a85e-00144feabdc0.html?nclink_check=1).

¹² IDEAS- RS 2008 “Gandhian Engineering is not just for the poor”, Interview with Dr R A Mashelkar. For an analogous example of the relationship between isolation and structure of innovative capabilities from the erstwhile DDR, see Kogut and Zander (2000) “Did Socialism Fail to Innovate? A Natural Experiment of the Two Zeiss Companies”, *American Sociological Review*, Vol. 65, No. 2, pp. 169-190

¹³ See for instance “What can Detroit learn from Tata Nano?” http://www.businessweek.com/innovate/content/mar2009/id20090318_012120.htm; or “Game

What is interesting is that it is not a stripped down ordinary car built using cheap materials, but it represents a new way of thinking about what a car is and *who* it is for. The Nano is designed, from the outset, with a very clear consumer group in mind: the urban lower middle class in India. The redesign has also involved research and innovation, resulting in to the filing of about global 35 patents for the Nano. The Nano was not initially conceived of as a direct competitor to other cars, but as a substitute to two-wheelers that are currently used by entire families. The main point of comparison was thus an open, two-wheel, highly affordable vehicle. To achieve the necessary cost-structure whereby a car can come close to compete with a two-wheeler, a number of innovations were necessary, as well as a number of tradeoffs. For instance, the wheel bearings are only rated for driving up to 70 km/hr, and it does not have an air-conditioner or power-steering. Such trade-offs may seem harsh from the perspective of a Swedish buyer, but if the choice is sitting four on a two-wheeler the trade-off is less severe.

Contrary to popular perception, the Nano is not a rolling environmental disaster. The Nano, for instance, gives significantly better gas mileage than the Toyota Prius¹⁴, and it conforms to Euro IV emissions standards.

Like many of the other frugal innovations, it will soon be launched in developed markets. Tata Motors Limited will launch the Nano Europe, showcased in Geneva in 2009 – with a more powerful engine – in 2011. Tata Motors is already working on the development of its Nano Europe for the U.S. market, to be introduced in 2013¹⁵. The Tata Nano will not compete with Volvo cars for market shares, as they appeal to very different customer groups. The long term competitive implications of a low-level entry into a scale dependent industry such as the automotive industry are however potentially very different, as exemplified by the entry of Japanese automakers from the 1970's and onwards.

Organizational innovation: Aravind eye hospital¹⁶

Frugal engineering is not limited to technical innovation; the concept of doing more with less is equally powerful with respect to organizational innovations. An example of an organizational frugal innovation is Aravind Eye Hospital, headquartered in the southern Indian town of Madurai. It is today the largest ophthalmological institution in the world, treating 2.4 million outpatients and carrying out 286 000 cataract surgeries every year. The founding idea is to eradicate unnecessary blindness, which means treating a large number of resource constrained patients and the challenge of making more efficient use of surgeons, as the number of blind in India by far outstrips the capacity of the existing surgeons.

Achievements since inception in the late 1970's are exceptional; through a series of mainly organizational innovations the treatment capacity has grown exponentially while the cost of each treatment has dropped significantly. Today, the hospital is run at approximately one third the cost of comparable hospitals and the productivity of surgeons has increased manifold.

changers of 2009"

<http://www.thehindubusinessline.com/catalyst/2009/12/31/stories/2009123150090300.htm>

¹⁴ "Analysis: Nano Hypocrisy?" *Environmental News Network*, January 16, 2008,

<http://www.enn.com/business/article/29401>.

¹⁵ *The Hindu Business Line*, March 24, 2009, "Tata Motors to redesign for US Market.

¹⁶ *The description draws on Munshi, P (2009) Making Breakthrough Innovation Happen: How 11 Indians pulled off the impossible, chapter 3, Collins Business.*

Initial inspiration for the development of the special care system developed at Aravind was the production line and standardization efforts of MacDonald's. By applying similar principles to the eye hospital, significant efforts have been invested in standardizing procedure and materials and re-engineering the operating processes. Key to the re-engineering is the training of paramedics, who take over a number of the functions that are otherwise carried out by surgeons – allowing these to focus on their core skills. An average ophthalmologist operates on 250 to 400 patients a year; at Aravinds they operate around 2000 per year – this means that they are both more productive and develop their own skills at a higher rate than in the average case.

3.1.2 Multinational Firms

India has been a favored destination of multinational firms for setting up R&D centers for well over a decade. Texas Instruments is often credited as a pioneer, setting up a research centre in India in the early 1980's. By 2005 many of the fortune 500 firms were invested in India in some form of R&D venture.

While many of these firms have chosen India because of its reputed large pool of English speaking, well educated, and comparatively cheap engineers, several firms are also explicitly focusing on India as a global center to develop cost-efficient products. The term “Frugal innovation” was made popular by the CEO of Renault-Nissan Carlos Ghosn, who decided to concentrate the firms development of low-cost cars to India. Also Ford Motors has recently declared India as a global hub for the development and export of small cars¹⁷. GE-health announced in May 2009 that it would invest USD 3 billion to develop at least 100 new products that would increase the affordability and reach of medical technology. A major part of this development work will take place in India and China. GE established its first ever global R&D center outside of the U.S. in Bangalore, India (and the second has been established in China). Two of the flagship products developed are a handheld electro-cardiogram that costs 1000 USD, and a portable pc-based ultrasound machine that sells for 15 000 USD. These products were developed for the Chinese and Indian markets, where the needs for health care products are enormous but the ability to pay precludes the sales of normal ultrasound machines that cost in the range of 100 000 USD.

With the U.S. working to cut expenditure on its health care, however, GE is seeing opportunities to sell these products in the U.S. market. While this is a strategy that is difficult to argue within a firm (as it cannibalizes an existing market), GE reasons that it is a matter of time until another firm from India or China does the same and they would then be in a much worse competitive position¹⁸. Another example of what is called “innovation blowback”, i.e. when a product developed for a market outside the home market rebounds and sells in the home market¹⁹,

¹⁷ <http://www.financialexpress.com/news/ford-looks-at-india-as-export-hub/503681/0>

¹⁸ See Immelt, Govindnarajanc and Trimble, “How GE is Disrupting Itself” HBR October 2009 for a full description of the GE case.

¹⁹ The term was coined by John Seely Brown and John Hagel in their 2005 McKinsey Quarterly article “Innovation blowback: Disruptive management practices from Asia”

Bosch is now selling a high-pressure pump for diesel engines that was developed for Indian conditions and costing a third of standard pumps, in Europe²⁰. The list of firms that are investing seriously in developing frugal engineering skills is growing. Philips, for instance, has established a Base of Pyramid research center at Manipal University, in southern India and Intel did a large part of the development of its new cheap and energy efficient Atom chip in India. A recent estimate by Navi Radjou of Cambridge University estimates that of the Fortune 500 Global firms, about seven out of ten are currently investing in R&D activities in India and China and about two out of ten are actively involved in what can be termed frugal engineering²¹.

The few academics that have studied this type of reworked R&D model within multinational firms point to a couple of common features, which also present very real challenges in relation to existing R&D setups.

1. Since innovation is closely related to market-based signals, there is a need to shift power and responsibility to where the growing markets are. A centralized R&D system where decision making powers are concentrated in developed markets may prove problematic
2. New offerings need to be built from the ground up. Competing for new markets with stripped-down versions of products developed for developed markets will be hard pressed to offer the same kind of cost-reductions as products developed for a specific group from scratch. A rule of thumb says that over the product life-cycle, about 80% of the cost-reduction potential is in the design stage.
3. Special organizational units may need to be established to break away from taken-for-granted remits and intellectual legacy systems. Innovation literature shows the powerful role of legacy, organization and tradition in precluding radically new solutions.²²

3.2 Public actors

3.2.1 Indian government

While the term “frugal innovation” resonates with many policymakers and bureaucrats and there is a fair amount of talk around the subject, there are very few concrete policy initiatives as yet. One is the CSIR 800 program of the Council for Scientific Industrial Research, which is the premier industrial research funding organization. In 2007 they took up the 800-program²³, which means *Innovation for the 800 million* (poor), with a focus on supporting innovations that better the lives for those living under or around the poverty line. Examples of projects under this program is the Soleckshaw (a hybrid solar-pedal

²⁰ Munshi, P (2009) *Making Breakthrough Innovation Happen: How 11 Indians pulled off the impossible*, chapter 6, Collins Business.

²¹ Radjou, N 2009 “Polycentric Innovation: The New Global Innovation Agenda for MNCs” <http://blogs.hbr.org/radjou/2009/11/polycentric-innovation-the-new.html>

²² See for instance Henderson and Clark (1990) “Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firms”, *Administrative Science Quarterly*, Vol. 35

²³ See <http://rdpp.csir.res.in/csir/CSIR800.aspx>

powered rickshaw) that costs about INR 16 000 (approximately SEK 3000) and the open source drug discovery program for developing affordable tuberculosis treatment²⁴. There are other initiatives on the way, but these have not been made public as yet.

3.2.2 International bodies

There are a number of initiatives by public bodies, that have not made it into national policy but that may develop into more policy oriented national level initiatives. Below is a non-exhaustive list of examples.

- Biotechnology and medicine. Paul Yock, director of the Stanford Biodesign program, includes frugal engineering principles in the core curriculum of the biodesign engineering program, and they have several collaborations with India and Indian medical organizations to learn frugal engineering²⁵.
- Design is another area where attention is being paid to developing different skills and mindsets at university. University of Delft²⁶ in the Netherlands, have a special Bottom of Pyramid program at the industrial design school.
- In business studies, the Willaim Davidson Institute at the University of Michigan focuses on research and teaching with a focus on questions related to the Base of the Pyramid²⁷.

4 More than a new gadget

4.1 Business models for serving the base

Accessing a new group of consumers, or changing the way consumers view and use a product, often necessitates changing more than the product (or service) itself; the business model may need to be changed. A business model, in simple terms, is something that creates value and allows someone to capture part of that value. Several of the most important competitive innovations are essentially business model innovations, coupled with technical innovations. The success of Swedish TetraPak, for instance, is largely a change in the business model whereby the old way of selling machinery was substituted for a leasing model (which created value to the customer) and a model for capturing part of that value based on selling the packing materials.

The global consultancy Monitor Group, in a survey of new business models²⁸ that function in emerging markets, outline four generic models.

- *Pay-per-use approach*. Consumers pay a lower cost for each use of a group-owned product or service. An example from India is, for instance, mobile phones

²⁴ See <http://www.osdd.net/>

²⁵ See article in *Economist special issue on health*.

<http://www.mim.monitor.com/downloads/Economist-LessonsfromaFrugalInnovator.pdf>

²⁶ See <http://www.io.tudelft.nl/live/pagina.jsp?id=4637a1df-e2a4-4289-b96a-9683ff14a34d&lang=en>

²⁷ <http://www.wdi.umich.edu/ResearchInitiatives/BasePyramid/>

²⁸ Kubzansky and Karamchandani (2009), "Emerging Markets, Emerging Models: Market-based solutions to the challenges of global poverty", Report March, 2009 Monitor Group. www.monitor.com.

that in rural villages often are used on a pay-per-use basis. Nokia has recognized this and has in its models developed for the rural Indian market, for instance, multi-user functions not found in other phones.

- *No frills service.* Through a high-throughput model, even services with very thin margins can generate acceptable returns. Aravind eye hospital is one such example. Low-cost airlines, such as Southwest Airlines or Ryan Air, are other such examples.
- *Paraskilling.* Combining no frills service with reengineering of complex services into a set of disaggregated, standardized, tasks that can be undertaken by workers without specialized qualifications. This is one of the main innovations of Aravind eye hospital, and it is also extensively used to extend primary education in rural Gujarat (an Indian state).
- *Sharing channels.* Piggybacking products and services through existing customer supply chains can reduce costs and extend the reach of distribution. The Indian food processing giant ITC has established a highly successful simple electronic marketplace for rural areas – *e-choupal* - which now covers over 4 million farmers in rural India and works not only as a collection system of agricultural produce but also as a distribution channel of several services and products into rural India²⁹. Nokia is one of the firms that are collaborating with ITC on the e-choupal system³⁰

4.2 IKEA as an example of frugal engineering

There is little new under the sun, as is often remarked in academia. This applies also to “new” concepts such as frugal engineering. In a sense, some of the most important Swedish success stories could be labeled frugal engineering, the best known probably being Ikea. In contrast to the more traditional “genius industries” of Sweden, such as Atlas Copco, Nobel, Aga or Sandvik, that were initially built around some globally unique technical advantage, Ikea owes much of its success to a set of organizational and business model innovations that, combined, has allowed for a globally strong low-cost competitive position. It is easy to recognize significant differences between Ikea and budding global competitors that focus on frugal engineering in emerging markets. It is however instructive to also recall the historical context of early Ikea, founded in post-war Sweden with the explicit vision to furnish the Swedish million-program apartments that were part of a gigantic social engineering project to cater to an emerging Swedish middle class that lacked traditional purchasing power – much like emerging middle classes around the world today.

An interesting question to muse over is: why have we not seen a Swedish technology based version of Ikea?

²⁹ For more information on ITC and the e-choupal, see <http://www.itcportal.com/rural-development/echoupal.htm>

³⁰ <http://www.pluggd.in/nokia-partners-with-itc-e-choupal-rural-india-297/>

5 Re-connecting to Sweden

The aim of this brief report was to lift for discussion the observation that there are structural changes underway in global consumer markets that, possibly, can have implications for Sweden and its competitive position. In brief the argument is that over time, large markets (in terms of number of consumers) with individually price-sensitive consumers will increase in global importance. To service these markets it is – at least in the medium time range - necessary to develop new categories of products and services that are designed to have a low cost of delivery.

The question raised is to what extent this development will impact the Swedish innovation system. A first, tentative, answer is that it probably will but that the extent will vary according to industry. It is however important to not overstate the novelty or complexity of ideas such as “frugal engineering” and to keep in mind that it is at most an *additional dimension* to a Swedish innovation system. Advanced markets, with its demand for cutting edge products and innovations will most likely remain core to Swedish competitiveness – and it is where Sweden traditionally has a core competence. On the other hand, it is also important to recognize that the global economic landscape has changed, and will continue to change to a state where emerging economies become more important players than they currently are.

A re-phrased question, in light of this report, should perhaps be how best a Swedish innovation system can be organized to support competitiveness in both mature and emerging markets. A casual observation from having spent three years in India is that Swedish small and medium size firms that seek to enter India do not lack technical sophistication; the problem is the ability to compete on price. In the case of environmental technology, for instance, there are enormous needs in India, and Swedish technology often enjoys a positive perception – but the pricing is often problematic. The issue is that while having a 100% efficient cleaning plant always is preferable, an affordable plant that cleans 50% is still better to an Indian municipality than no plant at all. Another, related, casual observation is that while there are several funding avenues for firms that want to push the technological frontier, there are few available funding avenues in the Swedish innovation system for those firms that need to develop a technology to become cheaper (and perhaps less effective or less complex). From a competitiveness perspective, the latter may be as important as the former.

5.1 Concluding words

As the aim of the report is to raise questions for discussion, it ends with some food for thought.

First, there seems to be a need to study more the practices and policies developing around the world with respect to innovations for emerging markets. While there is a burgeoning business and development literature, very little in terms of policy reflections or prescriptions are available. There is also limited first-hand knowledge among policy makers of what is going on in countries like India. Further studies may therefore be a good idea.

Second, from several casual observations made, there seems to be an empty space in the support system of the Swedish innovation system for product development that is for developing cheaper versions of Swedish technology. Alternative resource systems to those focused on high technology solutions may be of interest.

The Swedish Agency for Growth Policy Analysis (Growth Analysis) is a cross-border organisation with 60 employees. The main office is located in Östersund, Sweden, but activities are also conducted in Stockholm, Brussels, New Delhi, Beijing, Tokyo and Washington, D.C.

Growth Analysis is responsible for growth policy evaluations and analyses and thereby contributes to:

- stronger Swedish competitiveness and the establishment of conditions for job creation in more and growing companies
- development capacity throughout Sweden with stronger local and regional competitiveness, sustainable growth and sustainable regional development.

The premise is to form a policy where growth and sustainable development go hand in hand. The primary mission is specified in the Government directives and appropriations documents. These state that the Agency shall:

- work with market awareness and policy intelligence and spread knowledge regarding trends and growth policy
- conduct analyses and evaluations that contribute to removing barriers to growth
- conduct system evaluations that facilitate prioritisation and efficiency enhancement of the emphasis and design of growth policy
- be responsible for the production, development and distribution of official statistics, facts from databases and accessibility analyses.

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