

Where innovation's a matter of life and death

Reverse innovation is the antidote to inflation that Asia's poorer masses need, for access to high-quality healthcare



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In rural Bangladesh, a woman goes from house to house assessing the health of her neighbours for a small fee. Nothing unusual as village health workers have long been the stalwarts of healthcare in rural communities – except that this woman carries the latest ultrasound technology in her pocket.

Data from her hand-held devices no larger than a cell phone are transmitted to a central location for analysis and treatment guidance. This device, GE VScan, is unique in that it takes healthcare to the patient, rather than the other way round. More interestingly, it was developed and manufactured in the markets for which they are designed.

“Reverse innovation” is the term coined by General Electric (GE) chief Jeff Immelt and Dartmouth Professor Vijay Govindarajan to describe such innovations which arise in emerging economies to meet local needs. This is in contra-distinction to the conventional wisdom of developed world inventions being “stripped down” for export to the developing world that cannot afford the full features in the original product.

For the four billion people who live on less than US\$3 (S\$3.80) a day and cannot afford to pay the prices developed country citizens pay, these healthcare innovations are a matter of life and death.

Consider the complexity of caring for premature babies. One key piece of equipment is the Continuous Positive Air Pressure (CPAP) machine which “pushes” air into the babies’ lungs until they are mature enough to take in oxygen on their own. A standard technology in Singapore and other developed countries for years, CPAP was virtually non-existent in Vietnam a decade ago.

Medical Technology Transfer and Services (MTTS), a joint Vietnamese-American venture, adapted Western CPAP technology to the local price points, and further replaced the disposable tubes used in the standard machine with a set of glass bottles and special pipes that can be washed and reused, bringing the operational cost down further. They then worked with the East meets West Foundation to launch the “Breath-of-Life” programme to pilot home-grown CPAP machines, and to provide training courses for doctors and nurses on how to use and maintain the machine.

This programme has helped to reduce 24-hour infant mortality rates from 30 per



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cent to 10 per cent and, today, over 95 per cent of Vietnam’s provinces are equipped with home-grown CPAP machines.

2 IN 3 TREATED FOR FREE

But innovations must extend beyond traditional notions of product development.

True innovation involves thinking differently, creatively and also imaginatively. It includes new applications of old technologies, creation of new processes and structures to adapt to local conditions and exploitation of new technologies to address real business demands which, in much of Asia, means low-cost and high- (but not necessarily highest) quality. What do we mean?

Aravind Eye Care Systems, which *Forbes* magazine calls “super-efficient”, is the poster boy of reverse innovation as a holistic philosophy. Yes, Aravind has innovated and developed a low-cost cataract implant for US\$3 a piece but the real genius of Aravind is in its systems approach.

Monitor Group, a consultancy, describes the Aravind model as combining a clever blend of scale, technology, pricing and process. Aravind re-engineered the surgery procedures enabling its surgeons to each perform over 2,000 operations a year, four times that of American surgeons, and used the volume derived from its free eye-care services to help train doctors and improve quality in its eye-care services.

The business model is also delicately calibrated with a volume mix of two free

patients to one fee-paying patient to ensure financial viability of its operations. Quality is not compromised for non-paying patients as the differences lie in the type of lenses inserted and the amenities. Non-paying patients get a hard lens which requires a longer incision as it cannot be folded and inserted into the eye like a soft lens, and a mat on the floor to recover from surgery; while paying patients choose from an array of soft lenses and select from a menu of room types.

To maintain the high volumes needed for economies of scale in the Aravind model of care, Aravind ventures into Indian villages with eye camps to check and identify patients, provide transportation and meal services to bring such poor patients to the hospital in the city, and uses tele-health so that doctors in the hospital can provide medical advice to patients in small towns and villages scattered over the country.

DOING GOOD, AND PROFITING

Is reverse innovation only good as a social enterprise? No, reverse innovation is not a warm and fuzzy, do-gooder concept; it is a hard-nosed business strategy that can enable “doing well by doing good”.

Aravind has probably contributed more to eradicating blindness amongst the poor than any other organisation in India but its net profits of almost US\$8 million on annual revenues of US\$20 million are respectable by any commercial standard anywhere in the world. In a similar vein, GE developed

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the MAC 800 in 2008, a low-cost portable electrocardiogram in China for China. Two years later, physicians in America enthusiastically embrace the same machine, using it for community screenings for coronary disease.

Asia’s growth has translated into people entering the middle classes in record numbers but yet not rich enough to pay for their own healthcare. Healthcare inflation outstrips general inflation and population wealth creation, resulting in quality healthcare increasingly becoming the playground of the rich elite.

Reverse innovation holds the key to growing the health of Asia in tandem with her wealth. Developing the eco-system to support and promote reverse innovation at the product and process level should be the core concerns of governments and industry players.

Finally we need to remember the power of purpose and passion. VScan started as a vision to bring healthcare to under-served patients, not to miniaturise ultrasound technology. Aravind aspired to eradicate blindness in society, not to offer free eye care to the poor.

Better healthcare for Asia can be achieved only through public health policy that promotes sustained and impactful reverse innovation by the healthcare industry. By its three-pronged agenda of research, high-level policy forums and leadership programmes, the NUS Initiative to Improve Health in Asia hopes to help tackle the real challenge – eradicating inferior health services provided to the poor simply because they are poor. ■

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