Essay

The appropriateness of innovations for the bottom of the pyramid

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An independent survey of 1,000 business executives in a dozen countries discovered that "the greatest innovations in the future will be those that help address human need, more so than those that simply create the most profit" (Lee, 2011). Recently, an increased number of multinational companies (MNCs) are developing products and services targeting the bottom of the pyramid (BOP). As the aim is to achieve a win-win situation through penetrating a new market while improving living conditions of the poor, it is worth investigating whether these product and service innovations are beneficial to the poor. However, not only MNCs but also developmental aid organizations distribute new products, technologies and innovations to those less fortunate while often neglecting the local circumstances and requirements. Moreover, there is a lack of emphasis on innovations by the poor in contrast to managerial innovations (Gupta, 2012, p. 29). This essay will discuss the appropriateness of "Western" innovations directed at the poor by comparing them with small-scale, localized solutions in developing countries.

The development of tools, such as the machines of the Industrial Revolution, has helped people use the laws of nature to their own advantage and advance societies. Without these technologies, the Western world would not be as highly developed as it is now. Innovative machines shaped the Industrial Revolution and led to monetary wealth. However, these machines were largely built by wealthy business people and corporations to maximize profits at the expense of human labour exploitation. These profit-minded priorities are still present today, as most technologies that are imported from industrialized countries still only benefit a small elite while disregarding the poor. Thus,

the poor largely rely on elite entities and Western countries for development. This illustrates the need for a more inclusive approach for developing sustainable solutions for the BOP (Krieg and Reddy, 1978).

The appropriate technology pioneer Amulya Reddy speaks out against the mainstream belief that Western technologies should be transferred to developing countries to foster their progress. Reddy argues that this technology transfer will increase inequality, bringing social power structures of modern industrialized societies into emerging countries (Krieg and Reddy, 1978). Development should satisfy basic human needs, starting from the neediest to reduce income disparities within and between nations. This process should be ecologically and socially sustainable and promote self-reliance through participation. Appropriate technologies should fulfil the needs of the poorest and foster this level of development. In order to find and satisfy these needs it is crucial to include the affected people and future users of these technologies in the front end of the innovation process.

Even though inclusive development is regarded as one of the most important goals for social and economic progress in many developing countries, this inclusion is mainly done by regarding economically poor people as recipients of public aid for basic needs and/or as consumers of inexpensive products made by MNCs (Gupta, 2012, p. 33). However, these approaches usually do not have a positive and sustainable impact on the poor. Rather than treating the BOP as consumers, the poor should be empowered to utilise and build their own capacities to develop innovative and sustainable solutions, which can result in the creation and sales of new products and services. Thus, disadvantaged people could become suppliers rather than solely consumers of innovations for development. This approach can be further supported through partnerships with R&D institutions by exchanging knowledge, reducing entry barriers and supporting the commercial distribution of the innovations.

In order to further advance appropriate technologies, it can be beneficial to involve economically disadvantaged people in their development. Gupta (2012, p. 29) describes this inclusion as the ‘sink’ to ‘source’ model as these poor people are not the ‘sink’ of Western advice, technologies and

Corporate Social Responsibility, but have the chance to become a provider of solutions. Entities such as the Indian Technology Acquisition Fund can also reduce entry barriers for small-scale innovators and entrepreneurs by granting them an upfront compensation before the actual licensing or commercialisation of the innovation has begun. Knowledge management platforms can further assist in providing potential solutions for the poor and encouraging them to become small-scale entrepreneurs (Gupta, 2012, p. 30 ff.). Access to these technological resources could improve opportunities for small-scale entrepreneurs to participate in globalisation and find their niche among the wealthy MNCs that dominate the market. By encouraging appropriate technologies from the BOP, small-scale entrepreneurs can be supported to compete in the global market and improve their livelihoods while creating new jobs for their community.

A positive example of appropriate technologies are community-based biogas plants. The basic construction of biogas plants can be considered a Western innovation. However, their adaptation to community-based plants can be regarded as a localized innovation developed in collaboration with the poor. Instead of only benefitting rich farmers, community-based plants are operated by the village committee and improve the livelihoods of all villagers. Farmers bring their manure to the plant, where it is converted into fertilizer and natural gas. The gas can then be used to power an electricity generator that pumps clean ground water. Often the village committee derives a small profit from the electricity sales and the households near the biogas plant receive enough energy for cooking and lighting. Moreover, biogas plants are a sustainable sanitation solution. Thus, community-based biogas plants foster development through self-reliance and decentralization by showing the villagers how they can benefit through participation and the use of local resources (Angier and Kelly, 1990; Forte, 2011).

Regardless of what type of innovation this example presents, Western innovations can be considered more beneficial than no innovation at all to the poor. Even though Western innovations by MNCs mainly support a small elite, their economic gains could be passed on indirectly to the poor (e.g. through better infrastructure). Moreover, the poor often lack the resources to innovate, as the initial

startup/fixed costs are a large barrier to entry. Thus, some individuals rely on innovations and donations from the Western world. For example, Precious Plastic's open source plastic recycling machines would be e.g. a suitable innovation for people in developing countries with a lot of plastic waste from which they could produce new products as an additional income source. However, when talking with citizens in developing countries, they often state that they do not have enough resources to cover the initial costs for building these machines (in this case around 5k USD) (Sevold, 2016). Furthermore, people in developing countries often do not know how to market their products in order to sell them to the developed world. To solve these problems, partnerships between locals and Western organizations (e.g. as joint ventures) could be beneficial for implementing appropriate emerging technologies.

However, the industry sector of the MNC is important for the appropriateness of these innovations. Luxury goods for the BOP (e.g. face creams) often cause more harm than good as their purchase might substitute that of utilitarian goods like healthy food. On the other hand, utilitarian innovations (e.g. in the health care sector) can improve the livelihoods of the poor. A simple anti-parasite pill can keep children healthy enough to attend school and earn over 20 percent higher salaries as adults in comparison to their peers who did not receive the pill (Karlan, 2015). Furthermore, some Western innovations can be transferred to the developing world without any adaptations and still be beneficial. An example for this would be the Raspberry Pi, a £16 Linux computer, which can help children in developed as well as developing nations to gain programming skills. In order to avoid unethical marketing practices when targeting poor people as customers, companies should select appropriate technologies and products as a first step in order to serve the needs of the BOP. This approach can be facilitated by including the poor in the front end of the innovation process to develop products that benefit the local community while generating profits for the firm.

Even though the creation of new products and technologies for the poor often has a positive impact on the BOP, their production and distribution is challenging as the products need to be produced in a

cost-effective way while ensuring sufficient quality. It is also difficult to target the poor as customers as they often live in remote areas and lack access to proper infrastructure and information. Thus, many companies have little incentive for developing products for the BOP despite the potential of accessing a large market. The production of solar lanterns by the company D.light is a positive example as the company mainly targets people in the developing world but also sells its products to customers in the Western world (e.g. as camping equipment). However, these small-scale innovations can be also considered controversial as they might create a benefit for a single family but do not foster the large-scale development of infrastructure throughout the region. D.light raised $11 Million for its production of small-scale solar lights (Bank, 2014) but could have also used the money for establishing large solar panels for a rural electricity grid as an alternative. Thus, the company's plans appear to be more of an interim invention instead of a long-term innovation for the poor.

In conclusion, Western innovations can become sustainable solutions for the BOP when they are adapted to the local conditions of each developing nation and fulfil the needs of those below the poverty line. By considering the needs of the poor and including them in the innovation process, MNCs can create and distribute appropriate small- and large-scale technologies, foster sustainable innovations and overcome inequality. Western technological achievements can be the basis for these products, but the knowledge of the local community and end consumers are also needed for creating appropriate and sustainable technologies. Moreover, the effectiveness of these solutions depends on the user, making knowledge exchange and collaboration with Western companies and institutions the preferred strategy. By encouraging the creation and implementation of appropriate technologies with and by the poor, their socio-economic conditions can be improved as they become entrepreneurs. Moreover, MNCs can gain profits at the BOP when providing utilitarian goods and empowering the poor to be inventors, employees and/or co-owners rather than merely as consumers. Thus, a win-win situation can be achieved by ensuring the appropriateness of innovations through inclusion and self-sufficiency of the poor.

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