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Epilogue

Enhancing Sustainable Innovation by Design An Approach to the Co-creation of Economic, Social and Environmental Value

Research activities and business practices in the field of sustainable *product-service systems* (SPSS) have evolved since the time of the two experimental design workshops described in this thesis. This epilogue aims to provide a few reflections on the latest practical developments of SPSS that have taken place in the international business community and - in particular - in Philips, context of my work.

Two general considerations have emerged from recent practices:

- Companies have a tendency to replace the terminology '*product-service systems*' - mainly used in the European academic environment - with 'solutions', to communicate results of functional or system innovation. As a consequence, the number of articles and publications dealing with this subject has decreased, while the cases of SPSS have seemed to increase.
- Companies working towards the development of SPSS appear to be moving their focus areas from advanced economies to less advanced economies, in which, in many cases, the lack of infrastructures and distribution channels requires, of necessity, a better combination of products and services to fulfil the unmet needs of 4 billion people.

A few specific lessons can be derived from the Philips cases reported below. The cases help to validate further the hypotheses of this thesis, as well as to strengthen some of its conclusions. Both business initiatives deal with healthcare and telemedicine, even if in relation to different levels of market complexity and different regions of the world.

Philips HeartCare Telemedicine Services (PHTS)

In January 2001, Philips Medical Systems established a joint venture with SHL TeleMedicine Limited, an Israel-based provider of personal telemedicine applications and medical call centre services. The joint venture, named **Philips HeartCare Telemedicine Services (PHTS)** aimed to deliver telemedicine cardiology services across Europe.

The launch took place in Germany, offering to heart patients instant access to medical assistance. All it takes is one telephone call to the Philips HeartCare Telemedicine Services Monitoring Centre in Dusseldorf, managed by a team of medical staff. Subscribers are given a 'CardioPocket' that forwards a snapshot of their heart condition through the phone to the centre. In practice, the CardioPocket works as a smart wallet suitable for carrying credit cards, identification cards, etc., but which also serves as a rhythm strip ECG transmitter for diagnosing heart rhythm disturbances. The ECG transmitter inside the wallet encourages the user to contact the Monitor Centre immediately when discomfort occurs. By simply placing the wallet against the chest and using any telephone or cellular phone, the user can transmit within seconds a real-time

ECG strip to the monitor centre for immediate consultation. The staff of the centre can then make quick and accurate diagnosis of the patient's problem and provide advice, reassurance or emergency action.

Joint venture

PHTS was established to offer services using light devices to meet society's increasingly complex healthcare needs. On the one hand, this proposition offered an opportunity to deliver on the Philips Medical Systems' mission: to become the world's premier provider of healthcare solutions.

On the other hand, it also represented a new challenge for Philips Medical Systems, historically a hardware provider. The joint venture with SHL was therefore essential to provide effective healthcare solutions. Indeed, SHL TeleMedicine Ltd. brought to the European market its competencies in the telemedicine domain, particularly in the transmission of medical data by an individual, from a remote location to a medical call centre, via telephone networks. The ambition was to offer a fully integrated range of products and services: hardware and end-user products for call centres and patients, a database management application, software modules for receiving, displaying and measuring end-user data, and Internet technology allowing real time access to subscribers' medical records.

Sustainability aspects

End-users benefits provided by PHTS business proposition included easy of use healthcare services and fast and reliable diagnosis able to save people's lives.

Environmental advantages can be identified too. By leveraging on the use of Information and Communication Technology, and by the miniaturization and integration of technological components into a natural leather wallet, it was possible to reduce the amount of hardware usually required by traditional devices performing similar functions. In addition, this solution reduces the need for non-vital travel for patients; for example, to hospital for a routine check-up.

'CardioPocket' wallet, call centre and medical data



Source: Philips Design, newvaluenews magazine 2002; <http://www.shahal>.

Distance healthcare advancement pilot (DISHA)

Today, in order to bring sustainability to the forefront of the company's thinking, strategy and decision-making, Philips encourages innovative internal business practices that

foster new business models in promising markets. The aim is to meet the unmet needs of people around the world with respect to the natural and socio-cultural environment, while contributing to the long-term growth of the company.

One initiative strongly in this direction is the **DISHA (Distance Healthcare Advancement)** project, carried out by Philips India with the support of a consortium of partners. The goal of DISHA is to deliver high quality, low cost diagnostics to low-income rural communities that are not addressed by the existing healthcare system. To be more precise, DISHA wants to enhance access to primary healthcare services to the approximately 275 million people in India who live on around \$1,000 to \$2,000 a year. For the provision of the healthcare services, a 'tele-clinical' van has been equipped with appropriate diagnostic devices and medicines. Its tailor-made local solutions focus on mother and child and trauma.

The project is not a philanthropic action, but rather a challenging business value creation process designed to combine best Philips' capabilities, technologies and expertise with knowledge and experience of various for-profit and non-profit, governmental and non-governmental organizations active in the field of healthcare. The company belief is that only by cooperating with highly knowledgeable complementary partners is it possible to introduce to low-income communities affordable and sustainable solutions: solutions tailor-made to people's needs in their particular living conditions.

The initial activities of DISHA go back to 2004, when a qualitative and quantitative research was addressed in 60 villages (distributed in Rajkot and Theni districts) to assess health-seeking behaviours and needs, and determine the proper delivery model. As an outcome, the research revealed the fact that people with lower incomes spend a higher proportion on healthcare than those in higher income levels. A large percentage of those costs go to paying high interest rates on loans for healthcare, with the rest accounted for by travel and lost work time.

The first pilot project had its official launch in July 2005, targeting the Theni district: a 'teleclinical' van complete with diagnostic equipment and medicines was scheduled to perform 500 diagnoses and image transfers in the area of Kadamalaikundu in order to test the concept and ensure viability by the end of the year. The intention is to scale up the (adjusted) pilot in other areas of the Theni district first, and to cover other districts in 2006.

Partnerships

Philips India has formed partnerships to bring the project to life. Philips Medical Systems provides for appropriate diagnostic equipment to customize the 'teleclinical' van (x-rays, ultrasound, ECG devices, etc.). Apollo Hospitals provide a male and female doctor and specialists for free consultations. Electronics Corporation of India, a governmental organization, supplies the satellite dish, while the Indian Space Research Organization (ISRO) handles placing the satellite in orbit. Active in social mobilization, micro finance and micro insurance, the Non-Governmental Organization Development of Human Action (DHAN) brings its knowledge of local communities to the project (to estimate demand of various diagnostic services, and to raise awareness of and confidence in this initiative).

The onsite medical consultation is free to users, who pay only for dressings, medicines and specialist diagnostic services. Thanks to the optimisation of the different tasks in the value chain, and to the synchronization of the actions, the consortium has hypothesized the potential supply of healthcare diagnostic services to 13,000 users a year, at an average estimated cost per user of \$ 1.80.

Sustainability aspects

User-benefits include broader access to specialized healthcare; faster reliable diagnosis and improved overall health provision. Lower-income families save money thanks to affordable local provision and reduced travel time - diagnostic facilities are now within easy walking distance, instead of some 45 km away. As a result, many say their costs of seeking specialist healthcare have already halved. In addition, local women have traditionally had poorer healthcare, with the family breadwinner's health coming first. Through its low-cost provision, DISHA serves to help combat this inequity. Hospital consultants are now also able to use their time more efficiently and pressure on existing rural primary health centres has been reduced. Equipment for the DISHA van has also been designed according to Philips' internal eco-design criteria - Green Focal Areas regarding weight, hazardous substances, energy consumption, recycling and disposal, packaging and lifetime.

DISHA van during one of its visit to rural communities to provide healthcare services



Source: Philips, DISHA pictures bank, 2005.

Main lessons from the two Philips cases

Learning gained during the promotion of the PHTS case and the DISHA pilot, respectively in advanced and less advanced markets, present a few commonalities, which reflect many of the conclusions and recommendations derived from the literature analysed in this thesis. Common emerging lessons can be summarised as follows.

- Establish an open mindset in order to manage relationships with complementary business partners, and - in the particular case of DISHA - also non-traditional business partners.
- Foresee the necessary time and negotiation processes to get partnership agreements in place.
- Prepare to shift from a product delivery system to a total solution delivery system to increase locally tailored answers and - in the particular case of DISHA - to overcome the lack of infrastructures.

- Adopt a user-centered approach to ensure thorough understanding of current and potential new market demands.
- Provide services rather than equipment to establish a direct connection with customers, making the Philips brand more visible and trustful.

It is by capitalizing on these main lessons that Philips, like other companies, continues its exploration towards innovative practices able to pursue a sustainable growth. It is in this area too that design competencies are becoming more strategic to support the business community in envisioning and shaping solutions that are not only economically, but also socially and environmentally, valuable.