

**TRANSFERABILITY OF MANAGEMENT PRACTICES
LEVERAGING THE BOTTOM OF THE PYRAMID FOR SOCIAL PURPOSES,
THE CASE OF ARAVIND EYE CARE SYSTEM**

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ABSTRACT

Transferability is a controversial issue. Discourses on transfer of know-how are intertwined with the role of private sector and the objectives of not-for-profit organizations. It will be proven that private structures ease the transfer of management practices; under the condition they convey a concept rather than an entire model. A gradual adjustment of the basic model to local initial settings leads in effect to a successful spreading of idea. To prove this assertion we have used the case of a young non-profit trustee, Aravind Eye Hospital, created in 1976 in South India, which successfully combines business principles and social objectives to improve people's welfare and health. The key point is the ability of private not-for-profit organization to leverage the business and expand geographically worldwide.

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1. Introduction

A dichotomy exists between not-for-profit and for-profit organisations, which leads to assign them different objectives and practices. However, an increasing number of organisations choose to combine their aims and strategies because of the sustainable socio-economic outcomes they can get. The success of a strategy of development doesn't only lie on its design but also on external factors linked to specific assets in the geographical location of the action. Asia is different from Latin America or Africa. Their specificity though doesn't impede the implementation of strategies of development with similar axes of action. Thanks to the case study of Aravind Eye Care System, we will highlight how, using a business model and a flexible way to transfer knowledge, an Eye Care System has been successfully imitated in localities with different features. Can we conclude however that a universal best practice exists? We will examine not only the possible combination of business and social activities, but also the transferability of knowledge.

To understand how knowledge is transferred from one environment to the other, we conducted a qualitative analysis by interviewing with the principal actors of the geographic expansion of Aravind in India, Latin America and Africa, by phone (land line and Skype). The methodology and objectives of the research will be presented more extensively in the next part. We will thereafter deal with the controversial issue concerning the transferability of knowledge and management practices. Thereupon the main conditions of success and the limitations in the process of transfer will be highlighted. By confronting the case study of Aravind with the theory, it will be proven that a social not-for-profit trustee can manage, using the business principles of the Bottom Of the Pyramid (BOP), to transfer its knowledge and principles of functioning, subject to the transmission of the concept in an enough flexible manner to be adapted to local specificities.

2. Objectives and methodology of the study

2.1. Objectives and research questions

Not-for-profit organisations are often considered as handling non business-like activities and being financially under-efficient. However, the contrary will be proven. In a first time, we will underline the importance of combining social and business objectives when setting up sustainable social development projects. In effect, transferability doesn't exist without long term results. The issue of transferability of know-how is thereafter examined under different angles in sort of defining the conditions for a successful transfer. In a second time, the situation of the health care system throughout the world will be evaluated to best position Aravind's activities. Following this assessment, the factors easing the geographic expansion of the Eye Care System will be highlighted (use of the BOP principles, leadership and trust building, proactive research of demand, use of innovative advanced technologies). We will finally answer to the question of the transferability of the model of Aravind in term of factor of success and limitations.

2.2. Hypothesis

Hypothesis

Aravind has been successful because of the image and brand it built, which attracted sponsors and employees. In addition, the organisation has used an efficient and effective strategy to deliver care. Specific local conditions contributed to the development of the organisation, as an increasing demand for eye care and deficiency of the offer for this service. The model is entirely or partially exportable in other countries.

Alternative hypothesis

The success of Aravind is specific to a location/milieu. The model is not exportable.

2.3. Methodology

The methodology adopted to realise the qualitative analysis consisted in organising semi-structured and unstructured telephone interviews with people of authority as consultants, professors

in charge of workshops for building capacities abroad, and doctors importing the concept: Keerti Bhusan Pradhan, Senior Faculty, working at Lions Aravind Institute of Community Ophthalmology (LAICO), a World Health Organization (WHO) collaborating centre for the prevention of blindness, Raheem Rahmathullah, Sustainability Specialist at the International Eye Foundation (IEF) in charge of the geographic expansion of Aravind Eye Care System in Latin America and Africa, Dr Nkume Batumba, at the Lions College of Medicine - Malawi, Dr Asim K Sil, applying the model in West Bengal, Vivekananda Mission Ashram. Raheem Rahmathullah has worked for 13 years in Aravind and then joined in 2000 the International Eye Foundation (IEF). The interviewees were chosen in regard of their responsibility in the geographic expansion of Aravind. General and specific individual information were gathered. The questionnaires (cf. Appendices 3, 4, 5) dealt with Aravind's objectives and principles, the means employed to reach these latter. It shed a light on the factors of success of the geographic expansion of Aravind by analysing its strategy in term of operation, marketing, and human resources. Were also explored the limitations of the transferability.

3. Literature Review: Transfer of knowledge, practices and technology

3.1. Combining profit making and social aims: the philosophy transferred

Private firms are more representative than public ones, which can ease the process of know-how transferability. They raise more funds, would they be not-for-profit or for-profit, and if well invested engender more positive social outcomes. Though, public-private partnership is needed to optimise social development. The way social issues are managed in private health care structures reflect their focus on indigenous need which asks for tailored actions and reinvestment of profits in the development of the structure.

3.1.1. Importance of the private sector

Private sector completes public sector because of its higher representativeness of the local societies and the higher economic efficiency resulting from this relationship. Alexis Charles-Henry de Tocqueville is famous for his writing about American liberalism and the 'organic development' of

their institutions, from the bottom up in contrast with the French top-down strategy (Weber, 2001). He advocated decentralisation of power from the State to local institutions, civil society or private organisations. In effect, the general trend in the 50's-60's was to centralise the mean to trigger economic growth. The problem was that the State couldn't foster/subsidise enough the demand to match to the offer created. Economic situation improved in the 80's, when adopting a politic of 'associational liberalism' (Op.cit.:118), which took more into consideration the development of the civil society and the private sector, engaging decentralisation and bridging local societies to the administrative power.

Privatisation presents many advantages (World Bank, 2006). Private hospitals possess in general more funds, they offer more tailored care than public hospitals since their survival depends of their fitting to local needs, they provide services for the rich and the poor (charity beds), and they are likely to be less corrupted (Griffin, 1989). However the need for the government remains and it has to intervene where it is difficult to force the private sector to act as in the case of the uninsurable patients 'Handicapped, mental impaired, permanently disabled, predictable hospitalisation at the end of a long natural life' (Op.cit.:22). Different proportion of private and public services offered exist throughout the world. As an example, in the United States, the trend is to develop private health care supply, whereas in Europe, it is to enhance the public sector. In developing countries, Africa has a more developed public health sector while in Latin America it's more privatised (Rahmathullah, 2006). The most efficient health care system should result from a public-private partnership laced with an external third party payment. The combination might help to render the system more social in sort of having an access to care for everybody, in remote rural as well as urban areas (Griffin, 1989; Pauly et al., 2006).

3.1.2. Profit does not impede the realisation of social objectives

The way an activity is handled by a manager and profit is used, depends totally on his personal ethic and his social objectives. Friedman (1970) has tried to deconstruct the common belief that business has to bring positive social outcomes. He strongly accused businessmen who were

‘preaching pure and unaltered socialism...unwitting puppets of the intellectual forces that have been undermining the basis of a free society’ (Op.cit:1). So, market and profit making are not social unless the manager wants it. The only obligation of business is to follow the rules of the market without defrauding. Glaeser and Schleifer (1998) support this idea and further develop the theme of social management practices. Not-for-profit organisations are in general headed by managers with specific social aims and not necessary profit seeking interests. Their policy is centred on employees and customers. Improving the quality of the working environment is straightforwardly a goal for them, as well as offering accessible services and products of quality to customers. Though, a maximum of funds are gathered and reinvested in the structure to increase its competitiveness. Thus, 40% on average of the not-for-profit labour input are volunteers (Ibid; Sil, 2006). The portfolio of services offered, considering the willingness to pay, allows the structure reaching the poor and the rich while having a positive balance (Prahalad, 2005). In the case of Aravind, its self-sufficient financial system engaged a re-injection of all the revenues in the structure to increase its efficiency and consequently its accessibility (Pradhan, 2006). Contrary to a common belief, tax exemption doesn’t motive the creation of such organisations since NGOs existed before the instauration of income taxation, e.g. in the United States. Moreover, the majority of the sponsors are small donors who don’t benefit from tax relief, and not all the not-for-profit organisations can be tax exempted. In general ‘not-for-profit organisations replace weak state or consumer in term of monitoring, and non-profit status is a signal of a taste for quality’ (Glaeser et al., 1998:17).

3.1.3. Use of innovation and channelling of knowledge

Aravind Eye Care System is a not-for-profit trust which is run similarly to a social enterprise in term of the use of the innovation. The social entrepreneur is a ‘pioneer in applying new idea in a creative way’. He artistically ‘combines business like discipline, social mission, innovation and high-tech pioneering’ (Dees, 2001:1). In the 17th century, the entrepreneur used to be considered as the one who innovates and contributes then to the economic growth. The notion has evolved through centuries and concerns now the individual who seizes the opportunity and shapes it to produce

profit, economic and social (Friedman, 1970; Drucker in Dees, 2001). Social activities, though, are difficult to evaluate in term of profit production, since the return on investment is hardly measurable with accuracy. Nevertheless, the objectives set should lead to positive social outcomes, by preventing along with curing (e.g. Outreach activities (Pradhan, 2006)), by being sustainable in the search for results and the use of resources to avoid limitations on the long run (secure granters, minimum revenues and efficiency in production of goods and services) (e.g. BOP strategy (Prahalad, 2005)), and by structuring flexible solutions dynamic through time and embedded in the locality (e.g. Diversification of activities (Sil, 2006)), as well as handling evaluation of the impact of the enterprise on an ongoing base (e.g. Counselling (Rahmathullah, 2006)) (Dees, 2001).

3.2. Barriers to transferability

Model or set of practices are hardly transferable as a whole. Best practices can be enounced under the condition they are sufficiently modifiable to adapt to local specificities. Barriers to transferability are also kinked to the nature of the knowledge to transfer, conditioning the need in time and money. Adversarial relations between donors and recipients and between departments in charge of receiving the funds and allocating them can also hamper the process of transfer.

3.2.1. Best practice and transferability

If not tailored, a strategy of development is likely to fail. There is no best practice which could be used universally to obtain a successful socio-economic development. According to Storper (1995:1) ‘The true secrets of success lie in the rules of coordination, both formal and informal, of the learning process’. Every strategy of development intended in developing a geographical area should be tailored to the local history, socio-cultural setting, and business environment. The United Nations defines best practice as ‘actions that have made a lasting contribution to improving the quality of life and the sustainability of...cities and communities’ (UN-Habitat, 2006). So, best practices are hardly definable but it seems that some general axes of development exist, which allow setting up projects with higher probability of success, subject to adapting them to local specificities.

3.2.2. Adversarial goals

Problem at the macro-level: Demand and Supply failure and de-coordination

Not-for-Profit organisations can't be profitable. They are dependant from grantors who are likely to pursue non altruistic aims and therefore don't allow the maximisation of the social outcomes of the organisation dependant of them. The Demand-and-Supply side theory of non profit organisations, advanced by Ben-Ner and Nar Hoomissen (1993), highlights the weaknesses of the non profit sector if considered as a business. So is Aravind profitable and efficient? The theory defines the demand side as composed by those willing to pay for a reasonable ratio quality/quantity and price. The problem here is the non rival characteristic of non profit goods and services, available for everybody, which implies market failure. Setting a price is difficult. Government might not be able to correct the failure. The supply side as for it is represented by the sponsors who provide funds, either by ideology or because of the potential tax relief and/or subsidies they can obtain. Recipients are dependant from them even if their objectives differ. So, at the macro-level some problems of governance can arise due to a lack of empowerment of civil society and the corruption or low involvement of the public grantor. So Demand and Supply side have to be coordinated by fostering transparency, circulation of information and knowledge, and by giving incentives.

Problems at the micro-level: Interdepartmental de-coordination

Tensions can be observed in non-profit organisations between Fundraising and Service providing departments, because of a lack of coordination and communication between them (MacKeith, 1993). There might be a 'competition for funds (sponsorship) or grants (public)', due to divergent perception of priorities taking its roots in different responsibilities, socio-economic background and education. Fundraisers are in general biased toward profit-making, whereas service providers are defined as more 'relaxed and academics' (Op.cit:432). Dissension can occur for four reasons: '1) the type of service provided (no profit), 2) the quality of the service (no quality), 3) the way in which the recipients of the service were represented to the public for fundraising purposes (no representativeness), 4) and the percentage of funds raised allocated to the services: often the need of

fundraiser prevails' (Op.cit.:435). This can be observed in Africa, less in India and Latin America (Nkume Batumba, 2006).

Competition between for-profit and not-for-profit hospitals

Contrary to what Ben-Ner and Nar Hoomissen (1993) advance, not-for profit can be a business. For-profit and not-for-profit hospitals have similar social and financial outcomes. They are working on the same market and consequently are in competition with each other. This can provoke adversarial relations, which impedes an efficient local action. Sloan and Vraciu (1983) have challenged the conventional wisdom that investor-owned hospitals don't lead any humanitarian activities (e.g. Free care), since they are only profit and business driven, more costly than not-for-profit hospitals, but also that not-profit hospitals have a negative return on investment and are totally dependant from sponsors and grants. They argue investor-owned and not-profit hospitals are not different in term of revenue rising and social aid. The only significant difference concerns the accounting report. Hence, can we expect Aravind's concept to have problem of transferability due to adversarial competitive environments?

3.2.3. Cost of technology and knowledge transfer

The transfer of technologies or concept is costly when slowed down by the complexity of the object to transfer and/or the lack of capacities of absorption of the recipient. Information shared concern generally the 'methods of organisation and operation, quality control; and management procedures' (Teece, 1977:244). On average, a non negligible part of the total project budget (19%) is invested in the transfer of theory, process, product design, and training. The variation around the mean depends on the ability to absorb of the transferees, conditioned by their technical and managerial knowledge, the size of the firm –the bigger, the more workforce to internalise activities and the lower the costs-, the age of the technology –the older, the more explicit but also tacit knowledge, by accumulation, on the technology (Polanyi, 1966) –, and the competition, which influences downward the cost (Teece, 1977). Thus, state-of-the-art technologies are less expensive to transfer than leading-edge ones, mostly if the transferee's country possesses low developed

infrastructures and institutional setting, which explains why it is then more advantageous to export a concept than a technology, as Aravind has strategically done it. In international transfer, many factors are considered when gauging the possibilities of a transfer (Ibid): distance, communication infrastructures, language differences as well as cultural and behavioural norms, level of socio-economic development, legal framework, and the quality of the business environment. Low labour costs can't always counterbalance the cost of transfer linked to the factors cited above. So, the transfer takes time (building capacities) and is financially demanding according to the initial setting in the country/area of export.

3.3. Theories of transferability

According to the type of knowledge, the quality of the sources and the recipients, but also the initial setting, transferability will be more or less easy and possible. The way knowledge is managed and who does it will affect its transferability.

3.3.1 Transfer of know-how

Knowledge is very ambiguous and therefore difficult to define and transfer. Its physical and human embeddedness influences its ability to spread (Nonaka, 1994). Some forms of transfer have been identified, as 'transfer through strategic alliances, transfer across partners, or from the parents to the joint venture, through collaboration' and dynamic trust building through time (Simonin, 1999:464). Market knowledge is either highly codified and explicit or tacit and attached to a history and a culture. Thus the propensity of knowledge to be transferred is conditioned by its embeddedness in its context of creation and the capacity of the recipient to integrate the concept and imitate the strategy¹. In addition, intermediary organisations (e.g. consulting), have to be able to transmit the knowledge from one part of the chain to the other without modifying it dramatically. It is possible to mitigate knowledge fuzziness by fostering collaboration on the long term, which levels up trust and the development of internal capacities of the firm. According to the nature of the

¹ As an example, Disney wasn't successfully internationalised because of its specific requirement in term of local environment (Simonin, 1999).

knowledge transferred, the process can be eased. Then, transferring ‘procedural’ (technique/practical science) and not only ‘declarative’ knowledge (static/informational data) is more successful (Anderson, 1982; Ibid). Aravind engaged in a long term process of development of both types of knowledge – Tacit and Explicit - worldwide, by the training of the future local trainers of Aravind’s principles (Rahmathullah, 2006).

3.3.2. Knowledge management: How to use efficiently an innovation

Transferability is managed through the efficient use of innovations, e.g. the adoption of the BOP principles to medical care in India and afterwards the creation of similar health system in other countries. The complex notion of knowledge can be interpreted in multiple ways, in time and space so that one can distinguish between local and global knowledge but also past, present and possible future knowledge (Göteborg, 1999). Some types of knowledge are of an easier access, the explicit, codified and pulled in database knowledge, which doesn’t involve a great part of learning by doing and learning by experience, as Mc Donald did it (Nonaka, 1994; Simonin, 1999).

		Origin	
		One	Many
Recipient	One	1) Apprenticeship 2) Coaching 3) Mentoring	Networks
	Many	1) Presentation 2) Books 3) Articles	Leverage

Table 1: ‘Knowledge Management challenges’ (Göteborg, 1999:4)

This matrix shows the importance of having a good balance between those who nurture the system and those who just enter in it and need to learn to be fully effective. The idea is not to be innovative and creative, but rather to be efficient in the use of a novelty. This rejoins the concept of social entrepreneurship developed above (Dees, 2001). However, this doesn’t preclude from

innovating, as a constant of the dynamic of the system through time. Aravind locates in the one-by-one case when counselling, and many-to-many at a global scale (cf. Table 1).

3.3.3. Successful organisational transfer

Different types of knowledge management exist (Nonaka, 1994) which differentiate in Top-down management, Bottom-up management and Middle-Up-Down management. Middle-Up-Down managers are the key agents in knowledge creation in the organisation as the intermediary between the lower layer of the hierarchy and the higher one. They ‘synthesize the tacit knowledge of both frontlines, make it explicit, and incorporate it into new technologies and products. They are the true knowledge engineers of the knowledge creating organisations’ (Op.cit:32). But organisations, rather than individuals, are essential for the process to function efficiently as the meeting point of tacit and explicit knowledge which then enrich mutually, e.g. Aravind’s counselling cell plays such an important role. The success of a knowledge management project, as highlighted by Davenport et al. (1997:9), can be assessed through the analysis of four indicators: ‘growth in the resources attached to the project, growth in the volume of knowledge content and usage (documents, participants), the likelihood that the project would survive without the support of a particular individual or two, as an organisational initiative, and some evidence of financial return.’ The authors found eight factors of success: ‘1) economic performance, 2) technical and organisational infrastructures (physical and human), 3) knowledge structure (or the ability to give a dynamic flexible structure to the knowledge in order to classify it, as an example in a data base) and 4) knowledge-friendly culture (sharing the knowledge, without constraint of job security and professional secret, or cultural differences), 5) clarity of purpose and language, 6) different motivational practices to foster sharing of knowledge (awards, trip...), 7) multiple channels for knowledge transfer (mostly face-to-face contact, but also non human channels), and 8) senior management appreciation and support (messages, funding, meetings)’ (Op.cit.:12-19).

4. Case study: Aravind Eye Care System

4.1. Health care system throughout the world

4.1.1. World avoidable blindness

‘80% of world blindness is avoidable, 90% of the problems arise in developing countries. Over the past 30 years the magnitude of blindness has steadily increased, with southeast Asia carrying the greatest burden (disproportionate to the size of its population), followed by the western Pacific region, sub-Saharan Africa, Europe, Eastern Mediterranean and Latin American regions. The risk of blindness increases significantly with poverty, age and gender’ (Rao et al., 2005). Different kinds of eye disorders provoke blindness. Most of them are due to refractive errors (myopia, hyperopia or astigmatism), natural or artificial, or congenital. On top of this there are cataract, glaucoma, diabetic retinopathy, and corneal scar. All these disorders can be more or less severe but are easily cured if correctly detected and operated by refractive surgery (insertion of an artificial lens) and/or the use of external correctors: eyeglass or contact lenses. In 2001, the WHO classified refractive errors as the second cause of blindness after cataract (Thulasiraj et al., 2006,). 80% of the blindness is caused by cataract. But, it is estimated that about the double amount of person suffer from uncorrected high refractive errors. Africa is more touched by cataract-like disorder than Asia, however Asia faces not only this problem but also high uncorrected refractive errors. Uncured, both are ‘responsible for 5.1% of the blindness among blind-school children in India’ (Dandona et al., 2001).

Despite these evidences, it’s only since the mid 80’s, 90’s that attention has been given to accessibility to health care for the poorest, because of a huge demographic expansion, technology advances, and increase in diseases. It has been advocated by the WHO to inject more inputs in the health care system (drug stocks management, skilful manpower, and consciousness rising campaigns). However, it would be fairly expensive for most of the low income countries (Geyndt, 1995). Also attention has been drawn on the efficiency of the investment. ‘In the 80’s huge funds were invested in urban hospitals whereas around 80% of the population lived in remote areas and didn’t have easy access to these hospitals’. 60 to 80% of the public funds went to these semi-useful hospitals, e.g.

Bangladesh was highly dependent from foreign funds to finance its hospitals, Ethiopia's government invested 65% of its budget in hospitals, and Malawi 60% in 1984' (Griffin, 1989:13), 80% in 2006 (Rahmathullah, 2006). Finally, the general tendency is to privatisation. But, there is no typical health care system in developing countries, it's continuously and unevenly modifying (for some trends, cf., Appendices 1). Privatisation should be fostered to help to the development of efficient health systems and discharge governments not replace it (Mills et al., 2002).

4.1.2. Situation in India, Latin America, Africa

In India

45 million people worldwide are touched by blindness, among which 9 million in India (Prahalad, 2005). But the Indian health system is ill adapted. Only 4% of the population was covered by health insurance in the 90's (Griffin, 1989:21). Still today, 14% of the population is in need for care services but only 1,5% have access to it because of a lack of human and physical capital (Thulasiraj et al., 2006). In effect, 'rural health care in most states in India is marked by absenteeism of doctors/health providers, low levels of skills, shortage of medicines, inadequate supervision/monitoring and callous attitudes' (Patnaik, 2006), and 'while India's economy is booming, its publicly provided core services such as healthcare, education, water, power and transport – appear to be deteriorating' (World Bank, 2006). Public investments in health are very low (The Hindu, 2006). The private sector is relatively more developed ('60% of physicians are private' (Hanson et al., 1997)), but 'medical care is now the second most common cause of rural family debt. Public ill health, private profit is the partnership forged' (Sainath, 2006). Numerous are the evidences showing the weakness of the public health sector, and of the private sector, whose services don't target the lower layers of the society. The problem of blindness is important in India. Only a quarter to half of the people touched by highly refractive errors in India wear spectacles, which above all are not necessarily adapted to their sight (Dandona et al., 2001). Blindness impedes families to get a reasonable earning and pushes them in precariousness. So the access to care in India is in asking for

improvement. Aravind's activity is then highly justified. A similar situation is encountered in Latin America.

Latin America

'In Latin America, the health sector is a powerful economic force, employing about 5% of the economically active population. Expenditures on health represent on average 5.7% of gross national product (GNP)' (CEPAL, 1994 in Fleury et al. 2000). However, states spend more money in supporting income level than health sector, and devolve power on health care to sub-national governments and private organisations (Govindaraj et al. 1997). In effect, the economic crisis in the region has weakened states and the dominance of military right-wing neo-liberal governments (e.g. Mexico), accompanied by policies of structural adjustment, have pushed downwards public investment in health care (Cornia, 2001; Gill et al., 2005; Levy et al. 2006).

Africa

Human and physical capital shortages are the main reasons to the non expansion of the system in Africa (e.g. Nigeria) (Thulasiraj et al., 2006:23). In Africa, the dominating sector is public, but it is highly subsidised by international organisations and humanitarian organisations for about '1/4 of health care funding in 35% of African countries', and NGOs play an important role (Hanson et al., 1997). 'How to finance health care in Africa is challenging as the tax base is low, unemployment high, illness ubiquitous, and inequity of access huge' (Logie, 2006). So, 'the bulk of health care provision is carried out by the private sector, much of it in the form of small-scale, disorganized private dispensaries and clinics' (Ibid).

4.2. Aravind strategy: Building the success

4.2.1. Aravind Eye Care System Model

Five basic principles of functioning of the organisation can be highlighted. 1) 'Scaling up', the number of hospitals as well as the number of surgeries, but also, 2) 'replicate the strategy' in foreign countries while building local capacities, 3) providing 'affordable services' through time, 4) efficiently manage 'resource utilisation' in a sustainable way, and 5) 'enhance access to services by outreach

programs and use of Information and Communication Technologies (ICT)'. The culture of the structure is altruist, its adage: 'service, humility, kindness, and equality'. The principal obstacle to the spreading of the strategy employed by Aravind is the lack of managerial capacities. However, recent experiences of export of the concept in Latin America and Africa have proved the enterprise feasible and sustainable on the long run (Pradhan, 2006). Aravind's aim is to spread procedures to ease the transfer, render the activity more efficient, sustainable, cut costs related to inefficient practices and wastes, and improve quality of the services delivered (Rahmathullah, 2006).

Agenda: 1) Financial self reliance

Self sustaining financially and minimum dependence from grants and sponsorships were researched, in order to deliver a sustainable service. After five years of reliance on State's help, Aravind reached its financial autonomy (Pradhan, 2006). It relies only on its own funds. Since the 70's when the first hospital was founded, the model of functioning has spread successfully. Now five hospitals are run in India, and more than a hundred operate according to Aravind's/BOP's principles throughout the world.

Agenda: 2) Price and salaries

One aim is to obtain 70% of customers under the so called social regime (low pricing), 20% under the private pricing (high pricing) and 10% under the zero cost service. Thus, in this system considering the classes, fragmental lines of the Indian society, the richer pay for the poorer (Pradhan, 2006). Free treatments and tailored pricing, along with fix prices for specific services are proposed. Only outreach patients don't pay, except from that, free cares as free surgeries were introduced progressively with financial independence, e.g. freeness for specific patients critically threaten of blindness or children whose parents can't afford the care (Rahmathullah, 2006). The lower **prices** for the poor are obtained by using indigenous, standard material. Those who have the willingness and the capacity to pay ('First class vs. Second class') have access to different materials of different origin. The access to free care is limited and controlled in order to avoid clientelism and the 'bankrupt' of the organisation. The price for services and products in 'partner' hospitals is set according to the liquidity of the hospital linked to its efficiency and investment, but also the affordability of people

served. The **salary** is fixed according to the income of the hospital and earnings in other hospitals (Sil, 2006). It is independent from the type of service delivered. **Surgeons are dedicated to their task** and work 7 hours a day intensively. They are paid on average 20% more than their Indian colleagues working in the public sector (de Cherisey, 2006:30). The **success** of the hospital lies in **its goal setting**: research of profit as well as social positive outcomes, transparent management and collaboration employees/management boards.

Agenda: 3) Economies of scale

Manpower grows as volume increases. The system works well because of the **economies of scale and scope**. It is beneficiary for over 50% - 51,59% (Ragan, 1993). They result from an ongoing research of innovations ('I-curve', price performance), but also the commitment to sustainable development principles (less energy use, use of green process and products as much as possible). Efficiency is reached through self reliance (centre for manufacturing lenses (Aurolab), pharmacy, institute for training, institute for research, international eye bank, women and child care centre, post graduate institute of Ophthalmology, centre for community outreach programs, and consultancy services for capacity building, LAICO) (Pradhan, 2006). Aravind is also capital intensive. It uses **expensive apparels**, which contributes to the efficiency of the production (Pralhad, 2005). The **efficiency commitment is** fixed to 2600 surgeries per doctor per year, against 400 per doctor per year on a national average. 95% of surgeries are realised by insertion of intraocular lenses (IOL), against 30-60% on a national average. Aravind in Madurai is now performing 5 % of the national rate of surgeries (Pradhan, 2006). The intervention is cost-effective and efficient, since it allows creating jobs, increasing productivity of the workers cured, this increasing the local revenue for the inhabitants and the local government and as an extension for the nation (Sil, 2006).

Agenda: 4) Participatory approach and embeddedness

The **embeddedness of the founders** in their milieu has eased the clairvoyance of the design and implementation of the project. The **gradual development** has allowed many little adjustments. The **approach is participatory** and local communities are involved as much as possible (volunteer for outreach activities of screening in remote areas, local staff, involvement of the patient's family in

the post-operative care, useful practice when wanting to cut expenses and increasing accessibility to medical cares of quality (Mc Laughlin et al., 1995)). Different categories of specialists are hired: doctors, senior medical officers, head of clinics, permanent medical officer, nursing and paramedical staff, who come from all over the country when working for a shorter period and chosen among locally available people for longer contracts. Doctors are not allowed handling private practices, and no part-time or external doctors from foreign countries are hired. Only two foreigners have visited the West Bengal teaching faculty so far (Sil, 2006). Aravind believes in the 'leading by doing' and 'learning by doing' effect on every people employed whatever skills they possess at the beginning of the training (Prahalad, 2005; Pradhan, 2006). However, the **employment system is different** in Aravind and in partner's hospitals (e.g. West Bengal). The staffs are hired from the local college of medicine after two years of training (Sil, 2006).

4.2.2. The BOP strategy

Aravind Eye care System targets a global market for which few enterprises have placed an interest in because of the dominant logic in business which claims social concerns are not compatible with an optimal business activity. Though, the Bottom Of the Pyramid (BOP), the part of the population which is too poor to afford high to middle or even low class services, constitutes 70% of the world population, i.e. 90% of the developing world population, which is a non negligible market. The BOP strategy (cf. Appendices 3) consists in producing in mass 'small unit packages' with a 'low margin per unit but high return on capital employed'. This practice has revolutionised the access of the poor to the market since the single-serve service allows them to spend a little amount of money daily or sporadically according to their financial capacities. Aravind supplies services tailored to the customer's capacities thanks to the use of advanced technologies allowing economies of scale and quality production (Prahalad, 2005). In the BOP philosophy, the time taken to adopt new technologies is shortened so that instead of an 'S-curve', the pattern shown is an 'I-curve'. Then, an innovation which would take 15 years to be adopted in general markets would just take 5 years to be integrated in BOP markets (Op.cit.:51). Thus, 40% of Aravind's patients pay their care a relatively

high price (from 50 to 300\$ US, whereas in the USA expenses vary from 2500 to 3000\$ US) and cross subsidise the poorer care.

4.2.3. Leadership and trust building

Leadership is essential for spreading ideas. ‘The artistry of leadership’ as defined by Richard Kay (1993) distinguishes from management. Leadership is the ‘sense-making and sense-shaping from a personal experience, history, and culture’ (Kay, 1993:285). It is a mix between hierarchical domination and influence on associates, transformation and interaction between the different layers of authority through time, subjective perception of the future, and the actions to be done in this regard. The most risky feature of leadership is the ‘psychic prison’ as ‘people can become imprisoned by their ideas, thoughts and actions’ (Morgan, 1986 in Kay, 1993:290). Without leadership, Aravind couldn’t spread. Each person conveying the concept has to present a strong leadership to convince future partners. As Asim K Sil underlined it (2006), the initial **challenge** when importing the concept was to find people to understand what he intended to develop and possessing sufficient skills to set common goals and implement the concept. The success in Aravind’s operations was rendered possible because of the strong vision of the founder, Dr G. Venkataswamy, or Dr V., the chairman of the non-profit Govel trust (Aravind) of eradicating blindness thanks to the business principles of the BOP philosophy (Prahalad, 2005). He used the ‘Mc Donald recipe’ to create a new health care system more efficient and effective in term of quantity, quality and time of surgeries, e.g. surgeon in Aravind perform a ten time faster surgery (2500 per year instead of 250 (de Cherisey, 2006:19:21).

Without **trust building**, leadership has a limited efficiency. Trust is an unconditional element of the success of Aravind. In a relation ‘Provider-Recipient’, trust brings ‘satisfaction, repurchase, positive word of mouth, new customers’ (File et al., 1993:270). This interaction takes place at different level: between the donors and the organisation, between the organisation and its partners, and between the organisation and the customers (class belonging). Multiple motives push to donation such as a common interest, ‘culture, personality, altruism, ethnicity and class, time sparing, but also tax avoidance’ (Op.cit:271). Trust is forged through a gradual improvement, e.g. in Honduras at the

very first contact, people had to be convinced of the efficiency of Aravind's concept. By reorganising the outpatient patient flow management, the efficiency of the work increased dramatically from 4 to 1 hour for the same amount of patients. Were modified: the readiness, the manpower availability on time, the distribution of tasks and the coordination between services (Rahmathullah, 2006). A step by step improvement fostered by an ongoing process of self-evaluation accompanied by feed-back to the stakeholders is the most convincing argument.

4.2.4. Proactive research of the demand

Diversification of the supply of services and economy of scale and scope

'Focus on service', as Disneyland, Mc Donald and Club Med have done it, is managed by the 'differentiation and selection of specific market segments, the adjustment of the process and infrastructure, (but also) parameters of the service delivery system to meet the needs of those specific market segments.' It is different from 'narrowing or standardizing the product line' (Mc Laughlin et al., 1995:1185). The disadvantage of focusing on one service (Disneyland) is the loss of economies of scale and scope and the increase of marketing costs, which one can avoid by diversifying the offer in the same branch to penetrate the market (Mc Do, Club Med). In West Bengal, they adapted Aravind's model to the local demand by diversifying their activity. Standard cataract surgery and refraction constitutes the basic level of an Ophthalmologist. Further trainings of specialisation were undertaken in function of the local need and **several specialities** were introduced in addition to cataract, glaucoma and refractive errors surgeries and care, paediatric care, and nutritional related blindness (Sil, 2006). The difficulty with services is that they are consumed as soon as they are produced, so that it is less easy to monitor offer and demand for medical care (surgery, insurance). They are not stable through time, as it depends on preferences of surgeons, patients, and their family. The **internalisation of the activities** has allowed Aravind to control these factors of production and lower the costs of operation, increasing accessibility to care for the BOP (from 250\$ to 5\$ a pair of lenses produced by Aurolab, which is now the second world producer of lenses) (de Cherisey, 2006).

Strategy of reaching out, the strength of Aravind

Reaching out the poorest, who haven't got a wide access to either preventive or curative care, is a proactive strategy which can help fighting against poverty (WHO, 1994). Local communities are empowered through education about diseases and medical practices, resource and finance planning and management. This is permitted by the cooperation of international organisations, local governments, NGOs and private sector organisations for a better circulation of information, in quantity and quality, more manpower and qualifications to teach and learn, but also a greater access



Graphic 1: In this satellite map graphic of the Aravind network, green lines indicate links from the central hospital to rural vision centres in five rural towns. All distances are in kilometres.
(Graphic by Sonesh Surana in Greensfelder, 2006)

to credit for the poorest. The WHO, in general, offers technical, logistic and financial support in urban and rural area. Where the departure capital is low and the area is not very accessible, 'ambulatory surgery in a freestanding surgicenter' can be adopted since they don't involve high level of technical knowledge, schedule setting is more flexible, and the patients treated can be easily transferred to closed local

hospitals if complications arise. The price is fixed, according to the type of care, or in regard of its length in hour (Mc Laughlin et al., 1995). **Aravind's success** lies partly in this strategy of free tracking of curable blindness (de Cherisey, 2006). Outreach camps are organised in sort of having in time and place available manpower and venues where to settle down the temporary camps for screening (schools principally). To render the system more efficient, teachers or volunteers of the local communities are trained to handle future prevention campaign of eye disorders. People screened and living in very remote areas, have to come by their own (Thulasiraj et al., 2006). Otherwise, several low accessible points can be connected by internet to a central node in the same

region. This allows educating people to recognise the different illness and diseases to treat them or redirect the patients to more adapted centres (cf. Graphic 1).

5. Discussion

In Latin America, Africa, and India, the private sector has an important role to play on the setting out of a health care system for the poor as mentioned earlier, would the public or the private sector be more developed than the other (cf. 4.1.). Aravind system in that sense has a good opportunity of implantation in developing countries and is likely to be welcome and rapidly adopted by local communities in need of care. The transfer of the concept of functioning allows avoiding the trap of best practices which doesn't fit to local conditions. The limitation of the transferability lies in the cost and time of the transfer when the initial setting in the country is poor (institution, skills, infrastructures, but also politics).

5.1. Limitations to transferability

5.1.1. Challenging transferability

Six barriers limiting the expansion were found:

- 1) Location disadvantages (remote areas)
- 2) Partnership with local authorities or local institutions not always fruitful
- 3) Lack of finance
- 4) Problem of governance
- 5) Lack of infrastructure and/or equipment: no cheap place for surgery
- 6) Lack of skills: leadership, management practices and evaluation, outreach activities.

1) The transfer is less successful in remote areas of limited accessibility (Mission) (Shah et al., 2004).

However, where the connectivity can be established, there is good hope of accelerating the process.

2) When working on a country where the health system is managed by the government, a more important focus has to be paid on the training of people. The difficulty when dealing with a

government setting is its power over policy-making, finance and human resources. The work has to be integrated in the government activities which can turn out to be inefficient when it is understaffed, plus a supplementary work on policy change has to be handled. When the majority of the health care providers belong to the private sector, it is easier to export the model, since they already have the knowledge, the technique and the structure, e.g. Latin America rather than Africa. In a government setting the costs are higher since the process of transfer is longer and public investment might not be enough, e.g. 150.000\$ for a transition of over 2 to 3 years, instead of 60.000 to 100.000\$ for shorter transitions of 1 to 2 years as in El Salvador (1 year) or Egypt (2 years). **Though, the length of the transfer doesn't undermine its success.** So even if it might take longer in Africa, the transfer is likely to be successful, as the example of Malawi shows it. After 3 years of implementation, the hospital is now recovering 20% of its total cost, and it offers free cares. However, the government of Malawi finances 80% of the total costs of the hospital by paying for the salary of the staff, the water, and the electricity. 3)4) The problem of finance and governance can be solved thanks to a synergetic action of the public and private sector, but also through the coordination of the different projects run in the same field, or locally. Policy makers have to focus on 'the whole ecosystem' to level up the effectiveness of the local development. They have to work on the 'asymmetry of the information' in order to obtain win-win situations of equal opportunity access (business, free care). They have to support the 'building of self governance capabilities' by increasing the access to micro credits, educating local societies and fostering leadership to nurture the development of the private sector (Prahalad, 2005:70). One major obstacle in developing countries nevertheless is corruption and the lack of a well dosed, attractive, legal framework and institutional environment, which sustains black market or opportunist/free rider behaviour. 5) A lack of infrastructure slows down the setting of the activity. Renting the place is in general expensive. 6) Poverty in skills, it is the principal obstacle in Africa. The infrastructure might be already in place but not the practices to commit with Aravind's principles, which asks for new attitude, processes, techniques, and education towards this specific activity. The most successful ground for Aravind is Asia where the project was initiated and where the socio-economic and cultural background is similar.

5.1.2. Differences between transferees

In term of similarities, they have the same structure of society with a majority of poor people, similar earning capacities, similar legal framework, laws and regulation in regard of the health system, but different attitudes and motivations due to country/region specificities, e.g. Distrust because of past missionaries' activities in Latin America. Africa is the less doted and possesses the more centralised health care system (cf. Table 2).

	India	Latin America / El Salvador	Africa / Malawi, Egypt, Ghana, Tanzania
Population	High density	Low density	Low density
Class	Important middle class	Middle to low class	Big low class-subsidised
Language barrier	No	Yes	Yes
Health care system	Mostly private	Idem	Mostly public but low cohesion
Infrastructures (transport)	Good enough (roads, local transport, train, boats)	Good enough	Pb in Malawi, not in Ghana
Skills	Available	Available	Lack
Auto financing	Cafeteria – Optical Services	Idem	Low capacities
Stay in hospital	2 days	1 day	Both
Accommodation	Different: Rich/Poor	Same	Different
Impact of surgeries on total population	5% of India's surgeries ensured by Aravind, a lot of patients come from neighbouring countries (Nepal, Bangladesh)	20% of Guatemala's surgeries ensured and caped to the country's citizen: even if the volume of surgeries is smaller than in India, the population is smaller.	In 2005, 0,1% of Malawi's surgeries ensured (7.5% of the totality of the people screened)

Table 2: Raheem Rahmathullah (2006) Differences between transferees

5.2. Transferring the concept

5.2.1. Building the success of Aravind

(cf. Appendices 6 – Table 4)

Hypothesis tested: the model is partially transferable

The model is effectively partially transferable. Aravind managed to build its image, attract a motivated staff, and increase the number of its customers worldwide. But rather than the model, it is the concept which is transferred.

Evidence of success 1: Growth in the volume of services and financial returns

Aravind is a private not-for-profit trust which strategic axiom is the improvement of social conditions at the BOP. The focus is on local needs, hence the innovative diversification of activities according to the local demand, helped by open discussions with counsellors. The barrier constituted by untailed best practices is then overcome. A closed-loop financial system turned towards self development is set out. So, a cost of transfer exists but is counterbalanced by an effective economy of scale and self financing activities (optical services, cafeteria, and contests) (cf. Table 2,4).

Evidence 2: Increasing number of persons involved in the spreading of the concept and absence of conflicts

As knowledge is deeply embedded in a locality, it asks for time to be transferred successfully, which Aravind considers. An acceleration of the process can be handled with LAICO and a quality counselling (meetings on a regular basis) to improve planning, efficiency, and effectiveness of the partners. So far, the transfer is successful. LAICO works with hospitals in Malawi, Tanzania, Nepal, Indonesia, Cambodia, and Egypt for general services and administrative tasks, and in Nigeria and Bangladesh for Intra Ocular Lens (IOL) microsurgery trainings (cf. Table 3). The bulk of the technique adopted is the ‘training of trainers’ which speeds up the transfer as the barrier of the language is overcome and a relation of trust is more easily obtained, e.g. in El Salvador and Honduras. A constant effort to set international partnership is maintained (cf. Table 3). The idea is spread through different channels: counselling, mentoring, but also media coverage, internet,

magazines, studies, and book through an enlarged market (Leverage (Göteborg, 1999)). In general no conflicts are observed, Private-public-third party or/and inter-departmental. Partnership public-private is possible, though the North of India (West Bengal) has a less dense institutional setting than the South and the coordination is not well instated. However, the hospital in West Bengal cooperates with the government on several programs from cataract surgery to school screening and prevention campaigns (Sil, 2006).

	Existing services and product	New services and products
Existing market	Penetration of the market: refractive errors, cataract, glaucoma cares	Development of new services and products: use of advanced technologies
New market	Development of the market: Asia, Latin America, Africa	Diversification in other activities: e.g. paediatric care, optical services, cafeteria

Table 3: de Laigue, I. (2006) Strategies of development: increasing the size of the market

5.2.2. Transferability of the model?

The existence of a huge demand, the efficiency of the care, assessment of workability and capacity building, financial autonomy, as well as trust creation and networking are the key to the success of the transfer of concept. ‘Eye care has some unique characteristics that make it possible to transfer the model directly. One characteristic is the high volume: about 20% of the population needs glasses and 1% of the population has cataract. Secondly, the intervention for the most part is one-time, because it is not a chronic disease, or one needing long-term treatment like cancer. The intervention is also quite low cost compared to other interventions’ (Thulasiraj in Shah et al., 2004). But best practices have a strong tendency not to work. Consequently, the strategy of expansion adopted by Aravind focuses on **transferring the concept** of functioning of the organisation, in a flexible manner (Rahmathullah, 2006).

Workability - Building a chain of knowledge

When the new concept is brought, a workability plan is realised which assesses the local capabilities. Public and private resources, legal and institutional framework of the country, but also

local manpower capacities are reviewed. The best is to network all the existing institutions working in the same field (Governmental and non governmental, small groups of social activist...) (Sil, 2006). The transition takes a **minimum of two years** which corresponds to the introduction of the new idea followed by the building of local capacities for the new branches to run properly and be self-sufficient. The process can be accelerated if people in place have already the required management skills thanks to their national system of education or because of Aravind's trainee of trainers. In effect, the model spreads through time thanks to the pioneers in the country/continent who help to create a **chain of knowledge** transmission, e.g. in Latin America, a specific chosen team was formed and trained in-house in India on a one-by-one basis, in English. Afterwards, they were able to transfer their knowledge in their mother tongue in Latin America, accelerating the process of adoption of the concept. The **counselling through mentoring** is made on a one-to-many and one-by-one basis. It is the most important factor of transferability of the knowledge on how to increase value and quality of services offered. Each person of the team is **personally trained** and individual meetings are organised every 1 to 3-4 months during the first two years of the implementation of the concept according to his degree of autonomy. **Brainstorms** are also organised to make groups share experiences and transfer knowledge. Advanced internet technologies are used for helping the sharing of tacit and codified as well as informal knowledge. The counselling office monitors all the activities to **check the commitment** to the basic principles of Aravind: gender, revenues, outcomes, cost operatives, regular feed backs through oral and/or written reports (Skype). Though, **local actors are empowered**, and free to modify their management practices. The constant is the technical approach: Camps, eye check, care for the people needing and willing it, follow-up.

Self-reliance and efficiency

During these first two years, a **financial support** is also provided by the parent structure for the local hospitals to obtain a place, or renovate and modify what exists, get in supplies of the basic equipments (kits supplied by Aurolab, LAICO, Aravind hospitals), instruments, organise outreach activities or activities which can allow them being self sufficient, as **optical services** (eye check, spectacles supply) or **cafeteria**, and offer workshop in India to the teams or locally thanks to already

trained people. The medication is not imported since the same quality product is available in the country, at lower prices most of the time. **Volunteers** who are employed for the outreach activities allow cutting the costs of operation. **Optical services** is important for the structure to be financially self-reliant. This service though asks for a minimum starting investment of about 15,000\$ and personal needs to be trained to use the machine. The efficiency gained by this **economy of scale** allows decreasing the costs for a pair of spectacles, e.g. from 56\$ to 10\$, which permits the reinvestment of the benefits in expand the activities of the hospital. In addition, the price is set in function of the affordability of local communities. Thus, the average monthly earning capacity is estimated and the price range between social and private practices (free, arranged, and charged) is fixed. **Aurolab is specific to Aravind** and replaced in foreign countries by these optical and cafeteria services as an alternative source of revenues. The key point is to obtain **gradual positive results** to foster the willing of the stakeholders to invest in the development of the activity. An increase in the volume of services provided ensures its efficiency and quality. It eases the transferability and absorption of the concept. Outreach activities ensure the marketing of the structure as a cost-effective and social organisation which offers services of quality at affordable prices.

Trust building and networking

Building **trust** in the organisation is one of the main drivers for the sustainability of the hospital, as Aravind Eye Care System has managed it in India. In effect, trust in the quality of the services has attracted an increasing number of customers toward this structure rather than other hospitals nationally. The factor behind this faithful behaviour is principally the number of surgeries not followed by any complications handled by the surgeons in the structure, which guarantees a minimum experience. Some figures obtained in Guatemala illustrate well the efficiency and the success of the service, as from 250 surgeries per year, doctors managed to realise, after four years, 2000 surgeries per year. Once the new structure has a stable activity, it can start to do consultancy with other hospitals in the continent, consisting in evaluation, monitoring, assessment on a regular base, workshops, and trainings. **Networking** is made by word of mouth, as for attracting new customers. Relationship with the private sector is not adversarial since the population targeted is not

exactly the same: BOP market, zero and social cost patients, in other words low and middle income people, and a few high income people.

6. Conclusion

Qualitative analyses are relatively subjective, but we can draw some conclusions. Transferring the concept, readjusted model, is what led Aravind to its successful geographic expansion. The six limitations, location disadvantages, lack of coordination and cooperation between local institutions, problem of governance and degree of centralisation, lack of finance, lack of infrastructure and/or equipment, and lack of skills, mostly represented in Africa, can be overcome. Leadership, but also trust building, through embedded activities, transparency in pricing, financial independence in a closed-loop scheme and friendliness of the staff, were employed to reach the objectives of the structure. The success of the expansion of the structure is also rooted in a good matching between the offer and the demand of services, e.g. willingness to pay, or delivery of spectacles in quantity in a certain area so as to have a 'mass delivery' corresponding to a 'mass demand' prepared in advance by the screening of the population through outreach camps (Thulasiraj et al., 2006), but also scaling up, building of local capacities, sustainable use of resources, and use of advanced technologies (Pradhan, 2006). Aravind works with the business logic and social leaders. The geographic expansion of the system depends then on the existence of managers committing to the goals of Aravind (Shah et al, 2004). Finally, the transfer has been so far successful disregarding the component time. In term of social benefits, growth of local small business has been fostered. Price of real estate in the locality also went up. An improvement of the quality of life of the citizens and the prevention of economic loss has been observed. Also, social entrepreneurship is enhanced by ingeniously replicating useful experiments and/or gaining confidence through others experiences (Sil, 2006).

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Appendices

Appendices 1: Input and output in health care

Four differences in 'health care financing and delivery' can be identified:

- 1) 'Health expenditure and income': '3% of GDP in low income countries, 5,5% of GDP in middle income countries and 7% of GDP in industrialised countries',
- 2) 'Government spending': 'less than 50% of the total health spending' is taken in charge by the government whereas this percentage of participation is of minimum '70% in industrialised countries',
- 3) 'Government vs. private spending': with time governments in developing countries discharge from health expenditures and rely increasingly on the private sector, and
- 4) 'Government revenues, health care system and equity': the tax system is a 'burden for the poorest' and there should be some adjustment in sort of having a 'tax proportional to income and use of health services' (Griffin, 1989:8).

Appendices 2: Strategies to eradicate blindness

The philosophy of the BOP can be enounced in 12 principles (Prahalad, 2005:25):

- 1) 'Price performance' fitting to BOP's market capacities (material used and its origin)
- 2) Use of advanced and innovative technologies, 'hybrids' New-Old (scale effect)
- 3) Design for international adaptability to different BOP markets throughout the world: 'gaining scale of operation' (Arolab's lens sale at the international level)
- 4) 'Focus on conserving resources, being eco-friendly'
- 5) 'Understanding of functionality according to the milieu'
- 6) 'Build logistic infrastructures and educate consumer' (Training trainers, supply the necessary)
- 7) Low skilled workers taken into consideration
- 8) Education on usage for consumer
- 9) Products must be usable in hard conditions
- 10) Adaptability to the diversity of consumers (different language, culture)
- 11) The product has to access rural and urban BOP markets
- 12) BOP markets ask for ongoing innovativeness, adaptability

A model for eradicating blindness

Eradicating blindness can be managed by the delivery of eye care through an adequate infrastructure. A pyramidal model has been proposed by Rao et al. (2005) which engages different investment in money and human resources according to the targeted population. The four levels of the pyramid are linked by a factor 10 increase in money to invest in the building and the functioning of the centres, but the cost per person (pp) remains of 20 cents pp. Thus at the very bottom of the pyramid, the setting up of basic infrastructure requires 20 cents per person to reach an initial capital requirement of 10.000\$ US. The basic infrastructure built allows providing the basic primary cares, screening the population and redirect them to the appropriate departments/hospitals. The second level infrastructure costs 10 times the first one, 100.000\$ US, 20 cents per person, and requires 10 times the number of staff. It handles surgeries, proposes diverse services, further diagnosis. At the third level of the pyramid, secondary to tertiary eye care, simple and more complex surgeries can be handled, and training are organised in centres 10 times more expensive than the one of the second level. At the top of the pyramid, on the fourth level, tertiary cares, surgeries using advanced and new technologies, training, research and development activities are run. In total for about 1\$ US pp, the pyramidal system can be implemented. The total cost will vary according to the infrastructure in place and the need for upgrading skills, either in developed or developing countries.

Appendices 3: Success of the exportability of the model of Aravind I

1. What has been done in terms of:
 - a. Operations
 - Is it more efficient than what already exists in India? (Private, Public, For-profit and Not-for-profit)
 - In term of what? How/Why?
 - Is there a private-public partnership or devolution of power from the government to the private sector? Or is there a conflicting relation private-public activity?
 - b. Finance
 - Who finances activities? (State, Sponsors)
 - Are there conflicts between Donors and Recipients' interests?
 - Often problematic relationships are observed between fundraising and service providing department? Are we in this situation in Aravind's hospitals or hospitals built according to this model?
 - What are the interests of the sponsors in each country, if the motivation is different? Will they play a great role in the creation of camps, in the outreach activities?
 - c. Marketing/advertising
 - How does your organisation manage to get known among customers? How is the trust built?
 - Do you want the model to be standardized? Massively adopted? Isn't it an utopia?
 - d. Hiring / Human Resources
 - How do you attract highly qualified personnel? (Nationals mostly but also foreigners?)
 - How do you train them?
 - How do you make these talents stay in the organization?
2. What are the drawbacks of the model?
 - e. What has been changed since the implantation of the organization?
 - f. In other words, what have been the challenges encountered when setting up and running the project?
 - g. What are the difficulties in exporting the model in Latin America and/or Africa?
 - h. Are there laws and policies limiting the activities?

Appendices 4: Success of the exportability of the model of Aravind II

1. What can be transferred?
 - a. Context
 - Is there any difference of what can be transferred in/between Latin America and Africa?
 - b. Demand
 - What is the demand for what kind of care (refractive errors, cataract...)? This asks for what level of technologies?
 - c. Human and social capital
 - What knowledge/skills will have to be possessed by surgeons? Is there any specificity?
 - How is the network built? Is it different from how it is done in India?
 - d. Price/Market
 - How is the price fixed for the care? How is the salary fixed for surgeons? Is it different from what happens in India?
 - e. Infrastructures, logistics
 - Will it be two hospitals, for the poorer and for the richer? Are other infrastructures needed?
 - Do hospitals encounter cold chain problems or any other obstacles limiting their activities on the short and long run? How is it overcome?
2. What can be replaced in the model to better fit to the local conditions? What can be neglected in the model for it when implemented in Latin America and/or Africa?
3. Social contribution: Why is it valuable to society?
 - Gain of local population?
 - Gain of the nation?
 - Gain of global population in term of learning about social ‘entrepreneurship’?
4. Why it is better than what exists? If this is a “market” solution (i.e. not enforced by government) why would it be better?

Appendices 5: Why is the geographic expansion more or less successful?

1. Environmental factors: what are they? Is it possible to give a specific example for each case?
 - a. Place?
 - b. Local cultural background?
 - c. Attitudinal factor?
 - d. Level of socio-economic development in the area?
2. Complexity of the transfer: What are the most complex features of the transfer process?
3. Of what consists the transfer of know-how? Transfer of the:
 - a. Organisational methods?
 - b. Quality. Is there a control of the Commitment to the principles of Aravind / BOP?
 - c. Management procedures?
4. Easy absorption of the concept?
5. What is the procedure of transfer? How does the transfer take place? E.g.
 - a. Theory
 - b. Then, Process/Management practices
 - c. Thereafter, R&D activities
 - d. And, Learning, training on an ongoing base
6. How to leverage the business? How does the transfer of the concept take place? How does it ensure a success? E.g.
 - a. One-to-one transfer of know-how (Coaching, mentoring)
 - b. Or one-to-many (Articles, presentations)
 - c. Many-to-one (Network to a contact 'importing' the concept)
 - d. Many-to-many (Leverage or mix of every action)... The transfer might be handled differently, how?
7. Is there an average time to wait for the transfer of the model to be assessed as successful?
 - a. On average 5 years for an SME to pass below the 50% of chance to run out of business
8. Do you think the factor time/epoch of implementation plays an important role in the geographic expansion of the model or in the adoption of the concept?
9. Is the 'transferee' chosen? How? If not, what motivates the transferee? What ensures the success of the transfer?
10. Difficulties encountered when integrating the concept in the general management? Are there differences with Aravind hospitals? Eg.
 - a. Not a trust? More Innovations? Improvement? Or just social entrepreneur behaviour? Different Hiring system, services?

Appendices 6: Building the success of Aravind

	India (West Bengal)	Latin America (El Salvador)	Africa (Malawi)
Operations			
Economy of scale	2.600 surgeries per year per surgeon against 400 on a national average (North)	2.000 per year per surgeon from 250 per year (Guatemala)	Cataract surgeries increased up to 139%, IOL ² passed from 20% to 95%
Auto-financing	Fast acquisition	Fast	Slow
Finance			
Sponsors	Local and international investors, low State share, auto financing	Few sponsors, self-reliance	International funds and NGOs dependent
Interest of the sponsors	Local sponsors: build infrastructures International sponsors: partly finance outreach camps	Idem	International aid: 84% of all revenue comes from non-patient fees and 96% of patients still receive treatment free of charge
Conflict Donors-Recipients	No. Common agreement before donation	No	Suppressed (recipient under the yoke of the donor)
Marketing, Spreading			
Trust building with partners and renown among patients	Through consultancy, and initially through outreach camps and consciousness rising campaigns	Idem	No active marketing. Being the only public institution patients have no other choice
Hiring system: how to attract and keep?	Good working conditions, opportunity to learn, financial benefits, transparency in administrative procedures, personal contact with the leader and empowerment	Idem	No existing strategy yet This is yet to be experimented by preferential package
Training	In house and in different apex institutions	India, In house and in partners' structures	School, NGOs, India

Table 4: de Laigue, I. (2006) Building the success of Aravind

² Intra Ocular Lens surgeries