Up-scaling and replication? 150 Experiences

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Abstract

Successful Telecenter based ICT4D projects encounter enlarged challenges, due to increased demand for up-scaling and replication that emerge from innovation and impact. The vertical and horizontal up-scaling and replication challenges existing project strategies, organization capacity and hierarchy to reach sustainability. This paper examines the knowledge emerges from Shilpa Sayura - local language e leaning project up-scaling and replication success with references to the experiences, challenges and lessons learned to emphasize how new forms of partnerships catalyzed an evolutionary process of Up-scaling and replication to ensure long term sustainability and hope to initiate a discussion on challenges of Up-scaling and replication to influence policy and future design approaches of Telecenter based ICT4D projects,

In conclusion, Up-scaling and replication challenges project strategies demanding changes to overcome socio-economic, geographical and policy barriers. Committed individuals significantly increase potential for ICT4D success and wider institutional base is required for up-scaling and replication. Successful pilot projects undergo a transition phase of survival needing collaborative action. In up-scaling and replication stage wise approach is important. Creating local support structures are important and require formal arrangements. Ownership sharing is a vital strategy to facilitate emergence of local leaderships to strengthen the human line up needed for Up-scaling and replication process for long term sustainability.

1.0 Introduction:

Successful ICT4D pilot projects encounter enlarged challenges that arise from the demand created by the success. Shilpa Sayura pilot project becoming a global example for rural education development created an island wide demand for up-scaling and replication. During last three years Shilpa Sayura content base has up scaled by 200% and replicated in150 Telecenters. Now there is a need for reaching 600 Nenasala Telecenters nationwide which demand further innovation to overcome socio-economic, geographical and policy challenges.

1.1 Nenasala Telecenter Network:

Nenasala is a community owned Telecenters network in Sri Lanka, setup by government ICT Agency (ICTA), under e Sri Lanka project. 600 Nenasala Telecenters have been setup in the 1000 Telecenter rollout plan. A typical Nenasala Telecenter has 3 PCs, a printer, webcam and a broadband internet connection and provides ICT literacy training, internet access, and communication services; mostly run with volunteer assistance, serves average 100 users and most rural ones serve 30-40 users.

3.0 Aim:

This paper intends to initiate a discussion on up-scaling and replication of Telecenter based ICT4D projects with reference to the knowledge emerging from Shilpa Sayura experiences by examining the challenges, solutions and lessons learned to improve the understanding of ICT4D up-scaling and replication to influence future design and policy approaches for sustainable ICT4D up-scaling and replication.

Previous Studies:

In Sri Lanka the Shilpa Sayura project has provided content in local languages which is extensively used and appreciated. (Critical Issues for e-Learning Telecentres in Sri Lanka and India: Gaiani, S., Hansson, H., Meegammana, N., Mozelius. P., M-2009)

"Nenasala Telecenters are quite common in infrastructure but unique by location, served community, leadership and skills. (Impact Monitoring & Evaluation for

Developing of Sustainable Telecenter Networks, Meegammana, N., Sampath, R. Sri Lanka Telecenter Community, 2009)

National Curriculum available in local language improved Nenasala position in education, increased usage and improved economy. (E3 - Framework for Telecenter Network Sustainability Development, Meegammana, N., e-India 2009)

Untapped opportunities exist to multiply and scale up successful pilot projects and approaches …Up-scaling may also imply increasing benefits … A participative ICT approach, involving people from the needs and assessment to monitoring, makes a difference when scaling (Up-scaling pro-poor ict-policies and practices: Gerster, R., Zimmermannm S.,2005)

…ICTs may be of use to enhance education of the poor. Informal education, developing functional skills, matters as much if not more than formal education.. (Towards Universal Primary Education, special issue of Mainstreaming ICTs, OWSA, Vol. I/no. 2, 2004)

One of the fundamental hindrances to the decision to adopt the participation strategy is that it threatens existing hierarchies. (Scale-up, Presentation at the GKP South Asia Regional Meeting: Wijayananda, J., 2004)

Lack of Teachers was the main problem. Many remote schools didn't have electricity, libraries or laboratories. Although we found talented students, poverty prevented them accessing quality education. (Shilpa Sayura - Localized Self and Group e-Learning System for Marginalized Students in Remote, Rural communities of Sri Lanka : Meegammana, N., e-India 2007)

3.0 Material and Methods:

The methodology used in this paper is to be classified as case study research (Benbasat et al. 1987, Yin 1994). Research data collected at Nenasala Telecenters and discussions held with key members of Shilpa Sayura project and a survey was done among students to asses the impact.

4.0 Case Study: Shilpa Sayura pilot, up-scaling and replication

Shilpa Sayura ("Sea of Knowledge") is a local language e learning initiative by e fusion private ltd implemented with the funding of ICTA e-Society Development Initiative (e-SDI). In Uva province 60.02% of the candidates failing G.C.E O/L examination in 2006 and 12.6% failing all subjects, shows the critical state of secondary education in rural Sri Lanka. Shilpa Sayura facilitates rural students to e learn National Curriculum at Telecenters to improve knowledge and pass examinations.

Shilpa Sayura piloted in 20 Telecenters in 2006, quickly encountered success with the impact created among rural youth. By 2009, Shilpa Sayura content base was increased by 200%; and implemented in 150 Telecenters in a three stage replication process,. The first 20 locations implemented through Shilpa Sayura pilot project (figure 1.0). The second stage implemented Shilpa Sayura in 50 Telecenters (figure 2.0) in 2008 through ICTA Regional Impact Team (RIT) M & E assignment carried out by e fusion private ltd. In 2009, the third stage replicated Shilpa Sayura in 100 Telecenters with the funding of ICTA e-SDI Replication Assistance Partnerships (RAP) grant. Shilpa Sayura currently serves over 9000 students in 150 Nenasala Telecenters located in Uva, Sabaragamuwa, Southen, Central, Wayamba, North Central and Eastern provinces of Sri Lanka (figure 3.0);

The stakeholders of Shilpa Sayura forming "Shilpa Sayura Foundation" in 2009, proposed "e School" project to up-scale Shilpa Sayura; and won Lien I3 Challenge in Singapore to secure funding to include primary and senior secondary education, Tamil language curriculum, sustainable agriculture and community health in Shilpa Sayura.

Shilpa Sayura is considered as one of the high impact ICT4D projects implemented in Telecenters of Sri Lanka and recognized as a Global ICT4D example with 7 international awards of i4D 2007 in India, GKP 2007 in Malaysia, Stockholm Challenge 2008 in Sweden, Diskobolos 2008 in Belgrade, WYSA 2009 in Mexico, e-India 2009 and Lien I3 Challenge 2009 in Singapore.

4.2 : Shilpa Sayura Impact

Shilpa Sayura innovations in development of local language technologies; facilitation of local e learning without internet access; catering for National Curriculum; serving of rural communities and the impact created a new social education model to deliver knowledge outside classrooms. Shilpa Sayura improved Telecenter usability, increased their revenue and created new jobs. The closed Telecenters started operating with Shilpa Sayura. Siyambalanduwa, Talakumbura, Thanamalwila, Narangala, Vijithapura, Girandurukotte, Kapuliyadda Nenasala best examples of Shilpa Sayura impact.

Shilpa Sayura helped rural youth to improve their knowledge and examination results. Dhammika Madumadhini of Padalangala passed Dancing without a help of a teacher using Shilpa Sayura. Shilpa Sayura helped five young priests of Thalakumbura to pass National Examination without attending a formal school. Shilpa Sayura created a knowledge network among Telecenters. The sub authors of this paper are Telecenter operators emerged through Shilpa Sayura. Shilpa Sayura creating first local language e learning experiences resulted expansion of local content space in Sri Lanka, and initiation of many local content projects. (i.e. Dhaham Sayura, Navagoviya and Ginumpathi)

4.3 The challenges

Shilpa Sayura assumed that Telecenters have adequate technical and management skills; but inadequate ICT resources and limited technology skills of the Telecenters, constrained realization of project goals. Transforming youth to e learning, frequent leaving of trained operators, equipment problems at Telecenters and poverty of the local communities were local challenges.

Retaining of the project team and keeping the motivation, increased demand for content and support, replication in a larger geographic area, capacity building, local promotion assistance required to finding additional public and private resources. The diverse climate, geographic and environment conditions created health hazards to the project team who were not used to adverse rural conditions. New local support partners had to be trained due to leaving of trained partners.

4.4 Solutions adopted by Shilpa Sayura

Shilpa Sayura dynamically changing project strategies, reallocating of resources and negotiations for volunteering, mobilization of private and shared resources, continues content creation and delivering of updates helped maintaining of the motivation and project momentum. Establishment of a regional support network helped sharing of responsibilities of local support, content deployment, monitoring and evaluation in replication process.

Forming of Shilpa Sayura Foundation provided an open participatory plat form for participation and collaboration and increased individual commitment. Monitoring, evaluation and feedback loops; formation of local support networks, developing of local leadership, increasing benefits, promotions done in local communities helped successful implementation of Shilpa Sayura in 150 Nenasala Telecenters.

4.5 Lessons Learned

There is a gap of ICT4D project designs and implementation; hence projects require dynamic re-design to meet unexpected ground conditions; in which local adaptation, innovative partnerships, creating local support structures and creating benefits to participants matters.

Leadership and commitment of individuals, operational flexibility and advocacy at multiple levels, monitoring, evaluation and feedback help improve up-scaling and replication. It's possible that social arrangements made with local partners could be withdrawn unexpectedly due to gaps in partnerships; hence planning for fallback and formal agreements are important.

Shilpa Sayura learning from Panamure Nenasala, invented an e-card system to create micro revenue for Telecenters, is an example how we can learn from grass root practitioners.

Creating an institutional base for up-scaling and replication enables participation and collaboration; increases social acceptance and sustainability of the project, in which Openness and ownership sharing is a key strategy for motivation for volunteering,

mobilization of shared resources to operate in low resource conditions to maintain project momentum.

4.6 Future of Shilpa Sayura

Shilpa Sayura will continue innovating Shilpa Sayura, to develop rural education of Sri Lanka through 600 Telecenters island wide. It's possible that global minority language communities can also be benefitted with this new social educational model researched and developed in rural Sri Lanka.

5.0 Discussion

5.1. Purpose of ICT4D Pilot Projects

ICT4D Pilot projects are aimed at testing an idea to develop a hypothesis though experimentation; and to learn and understand of the worthiness of implementing at a larger scale. Pilot projects include risks factors due to the experimentation aspect assumed in design. The learned lessons of pilot projects can help test and improve project designs to replicate elsewhere locally nationally or globally.

The systematic documentation and un-biased evaluation will help pilot project implementers to know if something works, how and why it works or why it does not work to design up-scaling and replication. Successful pilots are good learning objects, in which the whole or parts (i.e. technologies, methods, content and best practices) can be replicated, re-used or best practices applied in similar projects. Shilpa Sayura technology was used in Navagoviya e-Agriculture project. Shilpa Sayura pilot project has become an innovation through the emergence, not from the design.

5.2 Up-scaling of ICT4D pilot projects

ICT4D Up-scaling generally refers to increasing of the size, outreach and deepening of the impact, which either be vertical or horizontal; or mix of both. (Figure 4.0) Vertical up-scaling aims at increasing of the impact. Shilpa Sayura increased the volume of content; added new subjects, enhanced the software and interfaces, improved content quality and usability to deepen the learning impact and catering for more user groups.

Horizontal scaling mainly deals with increasing of the outreach to increase the number of people or social groups benefited; which also overlaps with increasing of geographic coverage through replication; but differs when looked from a single locality where horizontal up-scaling increases number of people using an existing system. The local promotional activities in Nagala Nenasala increased Shilpa Sayura users by 30 students; Balagolla Nenasala increased revenue Rs 1500.00 to Rs 4000.00 per month. The increasing of number of users and usage are outcomes of horizontal up-scaling. Increasing of subjects and content base in Shilpa Sayura increased the number of users from different groups. Hence both vertical and horizontal up-scaling are parallel processes equally important to increase usage and number of people benefited which help improve ing impact and sustainability of the project.

5.3 Replication of successful ICT4D projects

Replication is a process in which an object, an idea or an activity may be copied in similar (Wikipedia). ICT4D replication is more meaningful with the increasing of number of different communities benefitted, and the average cost per location reduces significantly as much of the development of pilot project is re-used.

The replication of an ICT4D project can either be vertical or horizontal; or mix of both. (Figure 5.0) Horizontal replication increases number of geographic locations, in which a pilot experiences are repeated to reproduce the impact in a different community. The difference between a pilot project and its horizontal replication is the local adaptation; which is important as every community is unique like every person.

Vertical replication aims at reproducing the system in another platform or medium; such as different languages or technology platform like mobile or other operating systems--, as well as reusing of technology in another area like Agriculture and Health. Shilpa Sayura e School project will translate Shilpa Sayura to Tamil language; and the technology was re-used in Nava Goviya e Agriculture project. Shilpa Sayura pilot (20 Telecenters), second stage (50 Telecenters) and third stage (150 Telecenters) deployed different approaches influenced by factors of time,

resources, community, and geography to create 150 different experiences in up-scaling and replication.

5.4 The period between a pilot project and up-scaling

There exists a time gap between implementation of a pilot project and the time taken to display impact to demonstrate the worthiness of up-scaling and replication. The impact created by Shilpa Sayura like rural education development projects are improved knowledge and skills, resulting better examination results, increased higher education entrants and creation of employment; which are long term effects. However successful ICT4D projects can demonstrate that anticipated impact is happening initially with feedback, Monitoring and Evaluation (M & E), case studies and through empirical research. This vital survival period of no funding, tests project organization and individual commitment, requiring self evolution and innovation resulting change of project culture also help higher learning to direct the project for sustainability. Shilpa Sayura went through a period over 2 years with no extra funding; however maintained a minimum level of physical and human resources to foster up-scaling and replication.

5.5 The transition from a pilot to a program

The transition from a successful pilot to an up-scaling and replication program faces multi-dimensional challenges requiring development of a sustainable project model which defines the level of internal and external support needing collaborative action and advocacy at all levels. During this phase, communication of results and creation of a wider institutional base, improving on the lessons learned, creating partnerships and integrating with other projects and working on the critical success factors of demand, content, cost, capacities and people involved are important.

5.6 Increasing of the project value as a strategy

The continuous emergence of project needs continuous research and development, which increases project value and demand for up-scaling and replication. Continues monitoring, evaluation and feedback loops help this process. Introduction of new

subjects i.e. English, ICT and Digital photography, increasing of content depth and wining of 7 international awards increased value of Shilpa Sayura significantly.

5.7 People factor in up-scaling and replication

Socio-cultural and economic limitations at the grassroots and national levels constrain up-scaling and replication; hence involvement of grassroots practitioners makes a significant difference. Shilpa Sayura developing a shared understanding with the stake holders involved at all levels, developed community structures and enhanced them ongoing basis to help improve relationships with participating academic, professional, developer and beneficiary communities to secure voluntarily assistance and sharing of resources to facilitate a more responsive approach to meet operational challenges.

5.8 Establishing an enabling environment for up-scaling

Committed individuals significantly increases potential for ICT4D success and wider institutional base help inclusion in long term basis and become project acceptable to partners, beneficiaries and donors. Shilpa Sayura Foundation was formed adopting a community-based approach including representatives of the participating community of Teachers, Developers, Telecenter operators, and Students at director board level to sustain the partnerships in the long run.

5.9 Sustainable Up-scaling and replication

ICT4D projects which up-scale and replicate undertakes enlarged social responsibility to continue delivering of benefits in the long term, in which sustainability is not an isolated process but a continued evolution in an integrated environment influenced by collateral social, economic and technology developments, hence sustainable up-scaling and replication requires maintaining of quality, even using a slow and rigid process.

5.9.3 Forming new forms of Partnerships

Creating new forms of Partnerships give all actors a stronger voice at all levels of decision making and create opportunities to take up bigger roles in the process.

Murali Krishna, a Telecenter operator who supported Shilpa Sayura from the inception, Srimal Iresh, one of the first students benefitted with Shilpa Sayura and Yamuna Ratnayake, an ICT & English teacher who managed the teacher coordination and content review process joined the board of directors of Shilpa Sayura Foundation are examples of sharing of ownership for sustainability.

6.0 Future research

Among the new questions arising from this research are that;

6.1 Social innovation or social entrepreneurship?

Is change oriented social innovation, a better approach than market based social entrepreneurship to provide rural societies with universal general education? And if so, how successful social innovations can be supported, up-scaled and replicated nationwide?

6.2 Bridging the gaps in knowledge and policy?

Is there a gap in national policy in utilizing the knowledge gained from pilots in national planning? And if so, what changes in policy environments will make it possible to utilize such knowledge in planning for up-scaling replication?

6.3 Openness and Ownership Sharing?

Does openness and ownership sharing improve sustainability? Or does it make project drift away from focus and possibly dilute and loose control? And if not so, is "open" the way ahead for ICT4D projects?

7.0 Conclusions:

Up-scaling and replication is not an isolated process; includes multi dimensional challenges in social, economic, policy and geographic space that challenge project strategies demanding changes and use of experiences gained in the pilot project

Creating local support structures are important in up-scaling and replication and require formal arrangements rather than social arrangements to ensure

understanding of mutual responsibilities.

Pilot projects undergo a survival and transition phase before up-scaling and replication begins and requires collaborative action and advocacy at all levels.

The efficient monitoring, evaluation, feedback loops and research help dynamic re-designing of ICT4D projects for sustainable up-scaling and replication.

Sustainable up-scaling and replication requires mobilization of additional public and private resources, investment in human resources and networking; where stage wise approach can help continues learning to improve sustainability.

Leadership and commitment of individuals make pilot projects successful and wider institutional base is required for up-scaling and replication in which open participatory approach ensures inclusion, transparency, accountability and increases intercultural understanding.

Ownership sharing is vital strategy to create an enabling environment for participation and collaboration for successful up-scaling and replication of ICT4D projects leading to long term sustainability.

Acknowledgements:

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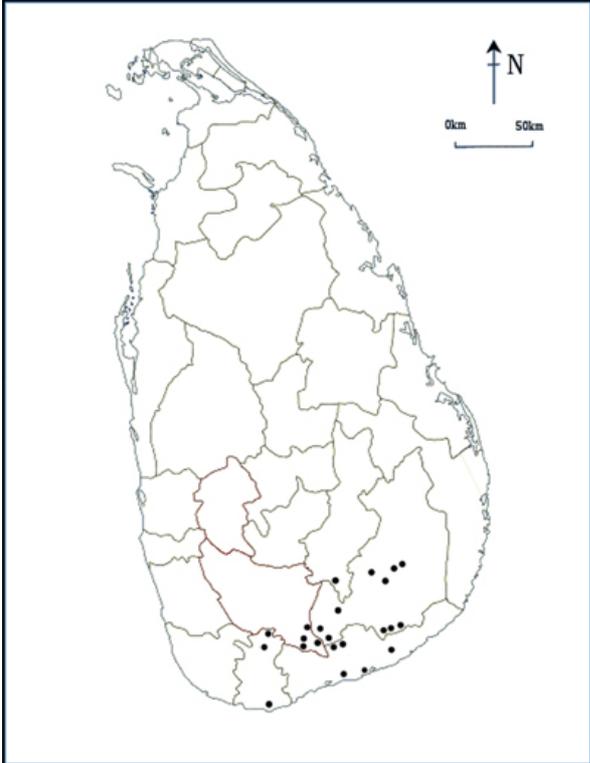
Figures and tables:

Shilpa Sayura Pilot Project Locations

Figure 1.0

Shilpa Sayura Replication Stage 2 Locations
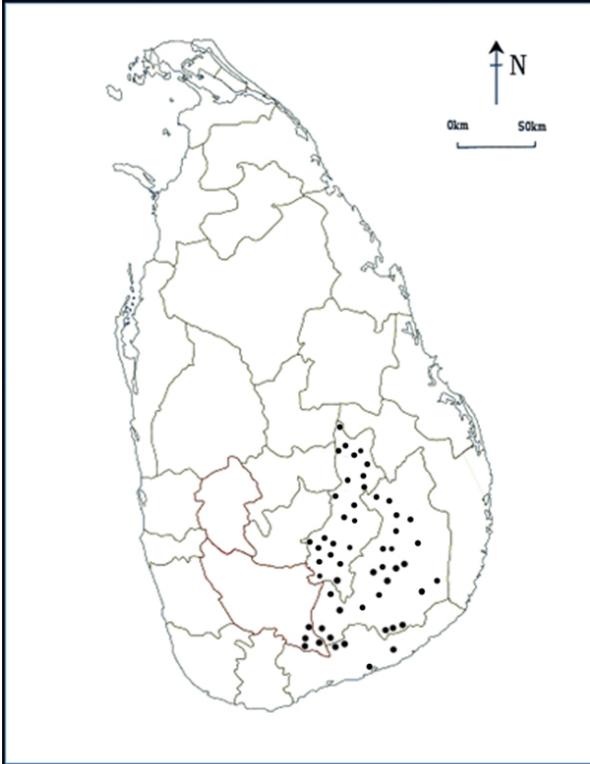
Figure 2.0

Shilpa Sayura Replication Stage 3 Locations
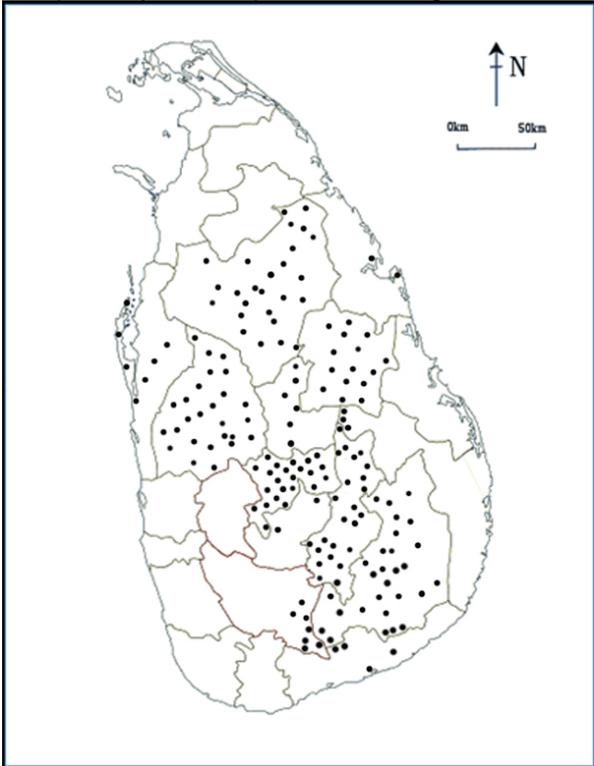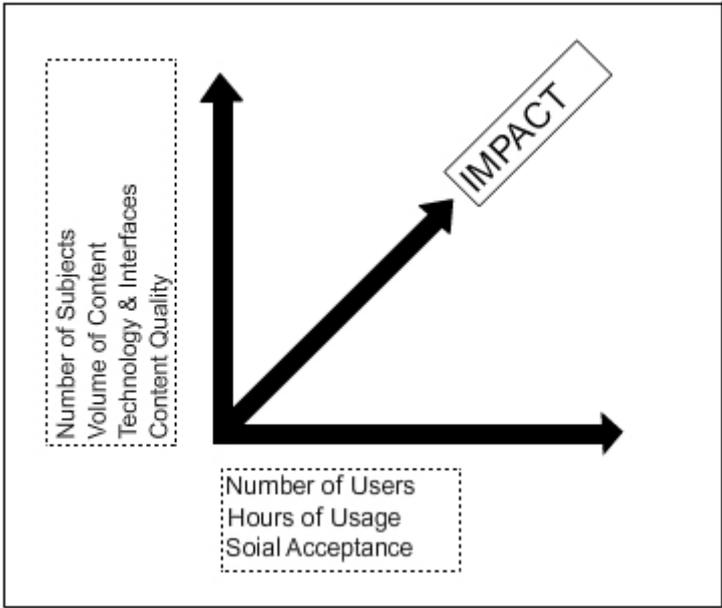

Figure 3.0

Up-Scaling Model of Shilpa Sayura

Figure 4.0
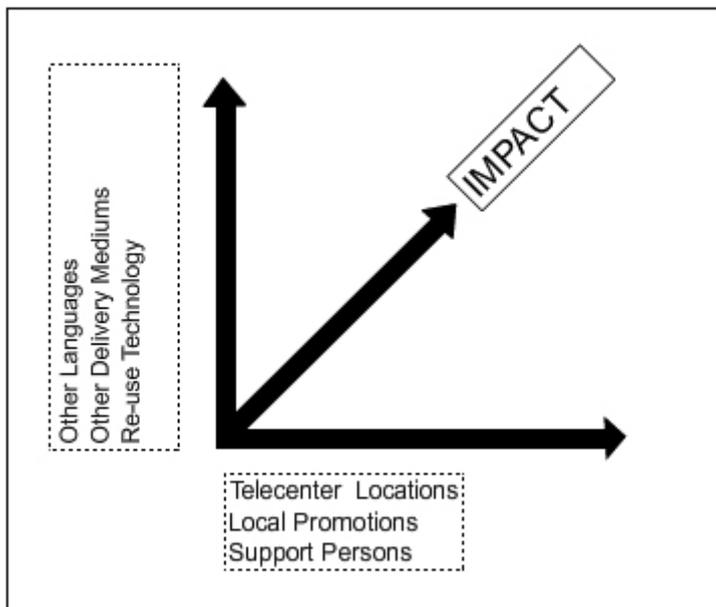
Replication Model of Shilpa Sayura

Figure 5.0

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