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Literature Review of how Telecentres operate and have an Impact on eInclusion

Exploratory study on explanations and theories of how Telecentres and other community-based e-Inclusion actors operate and have an impact on digital and social inclusion policy goals

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PREFACE

The Information Society Unit of Institute for Prospective Technological Studies (IPTS) carries out prospective analyses to support the Commission services and Community institutions in the process of policy formulation by interpreting and alerting its clients to the socio-economic implications of emerging Information and Communications Technologies (http://is.jrc.ec.europa.eu).

In order to support the European Commission's e-Inclusion policies, IPTS is carrying out a research project entitled "Measuring the impact of e-Inclusion Actors on Digital Literacy, Skills and Inclusion goals of the Digital Agenda for Europe¨ (MIREIA) on behalf of the Directorate General for Communications Networks, Content and Technology (DG CONNECT).

The MIREIA project aims to address:

a)   the need to understand and characterize the diverse set of actors (from the public, private and third sectors) involved in implementing e-Inclusion policies;

b)   the lack of methodologies and practice in measuring the impact of ICT for socio-economic inclusion, repeatedly reported in several studies since the e-Inclusion policy was established in 2006.

In order to prepare for the MIREIA project, IPTS commissioned the Technology and Social Change Group at the University of Washington Information School to carry out the study on which this report is based. It provides a literature review and analysis of existing theories and explanations about eInclusion actors and their impacts and develops recommendations on the theoretical pillars that could inform the future research for the MIREIA project.

Project information and related deliverables can be found on the website of the MIREIA project: http://is.jrc.ec.europa.eu/pages/EAP/eInclusion/MIREIA.html

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EXECUTIVE SUMMARY

Over the last few decades, governments, non-governmental organizations, and business entrepreneurs have invested significant amounts of human and financial resources in telecenters, public libraries and other community-based e-Inclusion initiatives. These investments have however not yielded dramatic digital and social inclusion outcomes as anticipated, leading to questions about the continued relevance of these ventures as well as calls for evidence of impacts to justify further resources and to inform design of e-Inclusion programs. Consequently, alongside e-Inclusion initiatives, a body of research has also emerged to assess the outcomes of specific projects or general trends.

Research on the role of information and communication technologies in advancing social and economic inclusion goals has a long standing tradition in academia. Although the theoretical origins of this research lay at the intersection between two academic disciplines – communications and development — the last decade has seen an emergence of research not only in academia but also among policy and action-oriented research institutes and international organizations. The research emerging from these different spaces is theoretically diverse and multidisciplinary in nature. The literature review presented in this report was designed to capture the theories and explanations represented in the existing body of research. The three main objectives were to:

- Provide a comprehensive and multidisciplinary landscape on theories and analytical frameworks aimed at explaining how, why, and under which conditions public access to ICTs through telecenters, and to a lesser extent through libraries and cybercafés, contribute to advance social and economic inclusion goals among marginalized communities.
- Analyze the value of these theories and analytical frameworks based on predefined criteria that includes: academic discipline, availability of empirical evidence, target groups, geographic relevance, contextual factors, research methods, impact areas, etc. All this effort must be geared towards solidifying the theoretical underpinnings of the future research "Measuring the impact of eInclusion actors on Digital Literacy, Skills and Inclusion goals of the Digital Agenda for Europe."
- Develop recommendations on the most promising theoretical pillars that could inform the future research mentioned above.

Methodology

The range of theoretical frameworks and conceptual explanations to understand the role of eInclusion actors is broad and multidisciplinary. In order to navigate the available literature and research we designed a two-phase research approach that included:

- An extended mapping of the literature from the last ten years. This phase allowed the team to identify the most dominant and/or common explanations in relation to the work of e-Inclusion actors; and
- A selection, categorization, and in-depth coding of these explanations vis-à-vis different impact areas (Digital Inclusion, Social Inclusion, Economic Inclusion, Youth Development, Lifelong Learning, and E-Government), as well as in relation to institutional capacity. Institutional capacity is an important addition because it covers analytical elements at the organizational level that can potentially expand or limit the ability of e-Inclusion actors to advance social and economic goals for the people they serve.

Over 100 articles, reports and books were reviewed and coded. The coding results were grouped around the different areas of impact and further examined for the following overarching trends:

- Dominant theories/frameworks and less used theories/frameworks with potential.

- Existing critiques of the theories/frameworks (strengths and limitations).

- Research teams' additional critique of the theories/frameworks in context of their particular use in the reviewed materials (e.g., does the theory support the findings?).

- Patterns of application of the theories/frameworks (e.g., are they applied holistically, superficially, rigorously, in combination with other frameworks, etc.).

- Apparent linkages between theories/frameworks and the resulting research conclusions.

This approach to the analysis allowed the researchers to identify relationships between explanations and to provide evidence on what is currently known about the relationship between e-Inclusion actors' initiatives and socio-economic impact Table 1 outlines the range of theories and explanations identified in the review. The analysis for each impact area was organized by:

1. Theory/explanation group definition and main analytical building blocks behind.
2. E-Inclusion actors impacts (providing evidence from the findings in our in-depth coding).
3. Strengths of theory or explanation group.
4. Weaknesses of theory or explanation group.
5. External factors that affect impact as identified by the literature.

Table 1: Final list of theories and conceptual explanations grouped by different types of impact

Impact Area	Explanations
How e-Inclusion actors work Expected impacts: Achievement of program goals/e-Inclusion goals, increase opportunities for multi-stakeholder partnerships, improve organizational capacity to achieve financial, social, and cultural sustainability.	• Institutional theory • Asset-based community development • Stakeholder theory • Business Model Analysis • Principal Agent Model • Sustainability Failure Model • Program design and implementation • Cost-Benefit Analysis
Digital Inclusion Expected Impacts: Internet access and adoption, development of digital literacy and skills, ability to use and benefit from using ICTs, production as well as consumption of digital media.	• Digital Literacy Framework • Digital Literacy: Effective use • Technology Acceptance Model • Diffusion of innovation • Technology Appropriation
Social Inclusion Expected Impacts: Access to education/training, community participation, labour markets, health services, social services, social networks, facilitated by use of ICTs.	• Community-building • Sustainable-Livelihoods Framework • Social capita/Social connections
Employment/Economic Inclusion Expected Impacts: Helping people acquire new skills for employability and ability to adapt to changing labour market; reducing unemployment, raising productivity	• ICT skills and Employability Framework • Amartya Sen's Capabilities Approach • Aspiration
Lifelong Learning Lifelong learning refers to the empowerment as a baseline for either improvement of knowledge, skills and competences, or for improving the different aspect of a person's life. The lifelong learning discourse sees e-Inclusion actors as a space for empowerment.	• Empowerment as lifelong learning • Intergenerational learning: the e-born as generational bridge • Asset-based approach – Social constructionism • Self-education through intermediary institutions
Youth Development Expected impacts: Provide quality education, training, and successful market integration and open mobility opportunities for young people.	• Empowerment for disadvantaged youth • Safe space for youth development • Youth the savvy – the e-born and intergenerational learning
E-government/Civic Engagement Expected Impacts: Delivery of better, more diverse public services and encouraging increased civic engagement through use of ICTs.	• Democratic and participatory approach to communication • E-Government: The new public management • Active Citizenship • Structuration Theory

Summary of the theories and explanations and their application at the micro, exo, meso, and micro levels.

Using the social ecology approach, the work has been categorized into the groups of micro, meso, exo, and macro. The theories in and of themselves are not limited to these levels. Rather, this categorization reflects the trends observed in the literature as to how the theories have been applied to explain and operationalize impact and impact factors at these levels of analysis. The four levels represent the spheres of influence that e-Inclusion actors might seek or have, depending on their goals (See Figure 1 for the map of theories and explanations categorized based on these four levels)

Theories and explanations at Micro level

The micro level research analyzed in this report focuses on the impact that e-Inclusion actors have on individuals. Broadly, this work examines whether e-Inclusion intermediaries' activities enhance individuals' access to digital technologies, the extent to which this access builds human capacity (in a wide range of areas, from technology and employability skills development to civic participation impacts), as well as how clients respond to initiatives introduced by e-Inclusion intermediaries .

Thus, the theories and explanations applied at this level focus on patterns of adoption, use or appropriation of e-Inclusion intermediaries' work; ICT adoption levels; and impact in terms of how users are empowered to pursue social inclusion goals, either directly through building relevant skills or more indirectly by fostering the motivation and inspiration to pursue those goals.

Theories and explanations at the Meso level

The meso level research analyzed in this report examines how eInclusion actors organize their operations in order to achieve eInclusion goals. Most of the analytical frameworks originate in theories of organizational change, business management, public policy, sociology and information science. Broadly, this work emphasizes how e-Inclusion actors can develop (or fail to develop) sustainability; what makes them successful or unsuccessful in the short- and long-term; and the external factors that influence achievement of their goals.

Theories and explanations at the Exo level

The exo level research covered in this report looks at the impacts of e-Inclusion actors at the group or community level. It addresses most of the same issues as the micro level research, but attempts to assess outcomes in terms of aggregate changes experienced by particular populations or entire communities. The analytical frameworks applied here generally focus on explaining the role of the e-Inclusion intermediary within a community or how it is organized to serve a population of interest such as the youth or disabled.

Theories and explanations at the Macro level

The macro level research analyzed in this report focuses on how eInclusion actors, through their contribution of telecenters, libraries, cybercafés and the like, impact high-level social, economic, political, and cultural systems. Generally work in this area concentrates on how ICT use builds human and social capital, and how this in turn leads to the achievement of social, political and economic goals. The concentration is on large-level impacts such as the creation of social capital; how innovations are diffused over large populations; and

citizenship at an abstract level, i.e. not so much the individual's experience of citizenship but rather how citizenship positively shapes society.At the macro level the unit of analysis is the social, economic, political, and/or cultural system. Impact is generally assessed based on what changes occur at these levels, as well as how these changes take place over time.

Most of the theories analyzed in this report can be used at the micro-, meso-, exo- or macro level. Indeed, considering the interdisciplinary nature of much eInclusion scholarship, there is a significant amount of overlap and merging of approaches and foci. Furthermore, individual reports and research projects tend to combine several perspectives. It seems clear that the theories and frameworks at each level have their own value. Choosing to focus on one level or the other likely will depend on the objective of the evaluation exercise. In the end, the more holism required, the greater the number of approaches that will need to be integrated.

Recommendations

The last chapter presents a basic conceptual framework outlining some analytical elements understand how e-Inclusion actors work and the different kinds of impacts that their work can be linked to given the appropriate environmental conditions exist. It is in the context of this conceptual framework that we provide some recommendation on potential theories and explanations reviewed in this report as possible theoretical foundations for the MIREIA project.

The framework is divided into the following elements:

1. How e-Inclusion actors work: mission, programs and services, type of organization, ownership and business models.
2. Types of impact: Institutional capacity, digital inclusion, social inclusion, and employability
3. Factors under which impact may or may not occur: Organizational, personal, social, and economic.
4. Evidence in the literature that demonstrates certain relationships to types of impact.

These four elements constitute the proposed framework for analyzing the relationship between how e-Inclusion actors work and the impacts they have (See Graph 1). Instead of identifying impacts based on the specific type of e-Inclusion actor it is based on the types of facilities and services they provide. This approach has the benefit of identifying a variety of possible impacts as well as the ability to target a wider range of impacts by providing access to a wider range of services, assuming all other requirements are in place. How e-Inclusion actors choose (or are able) to configure the elements delivers different impact potentialities.

Recommendation of theories and explanations to understand how e-Inclusion actors work

The most relevant theories and explanations to understand how e-Inclusion actors work are found in the meso level of Figure 2. As we mentioned before, most of the body of literature in this group finds its theoretical origins in theories of organizational change, business management, public policy among others. The scholarly work at the meso level emphasizes the institutional, organizational, and environmental factors that influence the possibility of e-Inclusion actors to achieve expected or desired goals. Two in particular seem to cover a broader set of analytical elements: Institutional theory and Effective Use.

Institutional theory is used for examining organizations (in this case, e-Inclusion actors), and their structures, operations, and efficacy. The analytical elements outlined in this theory allow the researcher to understand the distinct qualities at the organizational or institutional level in terms of how it functions, what role it plays in the community it serves, the resources available for the organization, and how the organization manages change and adaptability to new circumstances. In addition, looking to organizational dynamics of e-Inclusion actors through the lens of institutional theory integrates into the analysis the dynamic nature of the interaction between an institution and its social, political and economic environment, as well as, the active roles of its members in shaping this interaction.

Similar to institutional theory, *Effective Use* also highlights the importance of the dynamics between an organization and its environment but places the emphasis of the analysis on understanding how these dynamics address the need for conditions that enable active and effective use of ICTs. Based on this approach, ensuring effective use of ICTs requires attention to different factors – from quality of ICT infrastructure, content services available, to the intermediaries as social facilitators. The theory of institutional change, as well as the Effective Use approach, both acknowledge that there are a variety of organizational and environmental contexts that need to be in place in order to translate organizational effectiveness in delivering services into broader impacts.

Recommendation of theories and explanations to assess Digital Inclusion impacts

The theories and explanations to understand the digital inclusion impacts of e-Inclusion actors are commonly analyzed at the micro or individual level. Within this level, there are three thematic groups which broadly compartmentalized the body of work reviewed for this report (See Figure 2):

- Theories and explanations devoted to the role of e-Inclusion actors in promoting skill development
- Theories and explanations that address ICT access, use, and adoption
- Theories and explanations that emphasize an individual's motivation and aspiration in relationship to technology use.

The Digital Literacy Framework is a very comprehensive approach that brings the analysis of how e-Inclusion actors advance digital inclusion impacts a step beyond simple access to ICTs. Although the framework recognizes that ICT access is a necessary condition to facilitate digital literacy, further development of additional foundational skills are necessary for effective use in the pursuit of socio-economic goals. The framework identifies technological, social, and cognitive skills that are required for critical and effective use of ICT. The digital literacy framework provides a clear structure and elements for measuring digital literacy skills. In addition, the framework has been empirically tested. It also provides a useful way conceptualizing how access to ICTs at telecenters can lead to enhanced digital skills. It addresses the one of the most basic benefits that telecenters can provide, by virtue of their mandate to make ICTs more accessible.

ICT skills and Employability Framework identifies the main elements to understand how basic ICT skills training provided by e-Inclusion actors can contribute to expand employability outcomes and economic opportunities for different disadvantaged groups. The framework outlines three levels of analysis for understanding this relationship: 1) eInclusion actors' program design and organizational capacity; 2) characteristics of individual job seekers or trainees; and 3) the environmental dynamics that influence

employment outcomes and often are outside the control of eInclusion actors. The framework provides a lens through which it is possible to assess the role of eInclusion actors in skill development with the goal of advancing employability outcomes. Even though the framework has been most commonly applied at the micro or individual level, there are some current efforts to use it at the exo level. We consider it a valuable theoretical foundation for the MIREIA project because it has been empirically tested in multiple countries with a variety of target groups. In addition, the use of employability as a conceptual building block instead of employment is a plus. The contribution of eInclusion actors towards advancing employability is more evident than actually placing people in jobs since these actors have no control over labour dynamics.

Technology Appropriation is a very interesting concept that can guide the MIREIA project as it tries to measure how eInclusion actors advance ICT use and adoption, the second thematic group under micro level. The concept of technology appropriation deals with the process through which technologies become integrated into users' lives, and how people make technology "their own." It is a contextual approach to understanding how technology is spread, adopted, and utilized. Technology appropriation calls for attention to the quality, diversity and intensity of ICT use, which can moderate impacts. Several concepts and models can be associated with this idea. One of the most interesting contributions of this perspective is that it conceives users as active participants in the process of technology development and diffusion and accounts for the diversity of users and contexts in this very same process.

Recommendation of theories and explanations to assess Social and Employability impacts

The Capabilities Approach (Described in section 6.2) is more a philosophy or epistemological approach than a theory. This approach challenges dominant conceptions of wellbeing that have permeated political as well as academic circles in the last decades placing a unique emphasis on the agential role of the individual – agency as in empowerment, not agency as in economic actor – in the pursuit of social and economic goals. This epistemological approach is being increasingly praised among policy-decision makers and international organizations as they attempt to find alternative measures of wellbeing that go beyond the common macroeconomic indicators – on which many policies and programs are currently based. The relevance of this approach is not limited to economic or employability related impacts of eInclusion programs. This approach is cross-cutting and as such it is relevant to all the different types of impacts we have identified in this report. We consider this approach to be highly valuable for the MIREIA project because through its lens it is possible to identify nuanced impacts in a clear and more tangible manner. In addition, the approach aligns with current efforts of the European Union to design alternative indicators to social and economic wellbeing. In the operationalization of this approach it is also possible to include other theories and explanations such as social connections (social capital). This approach is better suit for analysis at the macro or exo level.

At the exo level, we recommend *Community infrastructure theory* and the *Asset based community development* approach as two possible theoretical foundations for the MIREIA project. *The Community Infrastructure Theory* (Described in section 5.1) emphasizes the role of information and the generation of narratives in relationship to community spaces or facilities. Within this theory, community development is dependent upon the accessibility of spaces and tools that create an enabling environment for community-building activities. From an e-Inclusion actor perspective, this theory enables the research to assess the extent

to which it is viewed as an integral and critical part of the community's infrastructure and the role it can play in advancing community building and social mobility outcomes. The emphasis of this theory is not on the technology per se but on the space where the technology is embedded and the capacity-building tools that facilitate and nourish human interaction.

The Asset-based community development (ABCD) (Described in section 7.3) approach follows a similar philosophical line like the Capabilities approach but its application is most appropriate at the exo or community level. The ABCD approach recognizes the skills, talents and fits of local community members before assessing a particular intervention. This approach considers community members and other community stakeholders (associations, neighbourhood organizations, shops, etc.) as active agents in the process of community development rather than passive beneficiaries. From this perspective, an e-inclusion actor is not an implanted technology but a socio-technical venue defined according to the needs and resources of the community. This approach relies on deep, nuanced understandings of local context and enables individuals to address problems of social isolation and lack of access to information through a broadened range of social contacts. It encourages development of stronger and more extensive social networks that underpin increased engagement, participation and the growth of community social capital.

Conclusion

It has been noted that although a lot of the research on public access ICTs sets out to measure impacts, in reality studies often end up with some measures of usage (which could be considered impacts depending on the research goal) and analysis of why expected impacts were not achieved (Sey & Fellows, 2009). Thus we continue to know more about the factors that seem to inhibit impact attainment, but not necessarily whether impacts would happen if all those factors were addressed (assuming that were even possible). The ideal scenario would distinguish between those impacts for which there appears to be some measure of reliable evidence (although we do not expressly judge the quality of individual studies) from those for which the conversation is still in the realm of potential.

Another consideration is the extent to which empirical evidence has been generated to support the expectations that are associated with eInclusion actors. It is an unfortunate fact that a large proportion of available commentary on telecenters and other such eInclusion actors is based more on perceived potential than on demonstrated fact. While the general value of having meaningful access to ICTs is generally undisputed, the idea that particular methods of providing such access are superior to others is still up for debate, and the ability to make judgments is limited by the dearth of solid evidence based on a preponderance of research and observation. This is not to say there is no data to support claims on the impacts of eInclusion actors; rather that the data tends to be based on disparate, isolated, often small-scale, and highly contextualized studies, making it difficult to identify valid or reliable trends. In some cases the evidence is strong and backed by multiple similar findings; in others the evidence may be inconclusive, with different studies reporting contradictory findings. In other cases, there may simply be limited or no evidence.

1. INTRODUCTION

Information and communication technologies (ICTs) are widely acknowledged as important resources for socio-economic advancement in both developed and developing countries. This is doubly so against the backdrop of the global economy which is driven by the "information age". Leaders in both developing and developed countries, however, face enormous challenges in their ability to utilize these resources for socio-economic growth agendas, particularly for marginalized populations. Limitations range from infrastructural constraints to an individual's ability to convert access to ICTs into tangible benefits in light of other environmental constraints.

In this context, shared forms of access such as telecenters, libraries and Internet cafés are important means of making ICTs broadly available. Along with other types of organizations, they fall into the category of eInclusion actors: initiatives that not only bring the technology closer (physically and financially) to people who would otherwise have limited or no access, but may also provide additional value by offering unique training facilities, learning environments and additional services that have the potential to impact broader social and economic goals. Thus governments, non-governmental organizations, and business entrepreneurs have invested significant amounts of human and financial resources in telecenters, public libraries and other community-based initiatives.

Decades of investment have however not yielded dramatic developmental outcomes as anticipated, leading to questions about the continued relevance of these ventures as well as calls for evidence of impacts to justify further resources and to inform design of eInclusion programs. Consequently, alongside eInclusion initiatives, a body of research has emerged to assess the outcomes of specific projects or general trends. Research on the role of information and communication technologies in advancing social and economic inclusion goals has a long-standing tradition in academia. Although the theoretical origins of this research lay at the intersection between two academic disciplines – communications and development – the last decade has seen an emergence of research not only in academia but also among policy and action-oriented research institutes and international organizations.

Galvanized within the broad field of ICT for development (ICTD), research emerging from these different spaces is theoretically diverse and multidisciplinary in nature. Theories and analytical frameworks emerging from computer science, political science, economics, information science, transnational studies, and many others continue to enrich our understanding on the role public access to ICT in promoting social change. While each contributes a unique lens through which to explore and understand the role of eInclusion actors in the pursuit of public policy goals, there are overlaps in their approaches, perspectives and findings that could enable firm conclusions about when and how eInclusion actors are meaningful in advancing social and economic goals. It is precisely the literature within this multidisciplinary field that serves as the stepping stone to draw a map of the variety of theories and analytical frameworks that have emerged in the last decade to understand *how, why, and under which conditions* eInclusion actors have the potential to foster social and economic inclusion.

The extent to which the programs and services eInclusion actors impact the communities they work for is dependent on many factors ranging from organizational resources, mission, the way this mission is implemented through its programs, and contextual factors that may

limit or extend the type of impacts it generates. Additionally, the complexity of deciding what constitutes impact or even reaching a common definition of "impact" eludes practitioners, researchers, and policymakers alike. On one end of the spectrum, increased usage and the attraction of new population groups to public access ICTs signal impact. On the other end is the higher bar of measurable changes in people's lives (e.g. acquiring a new job). In between are behavioural changes (e.g. changes in one's nutritional habits). Using one set of common terms, the range is from outcomes (e.g. uses and usage) to short-term impacts (e.g. behavioural changes), to long-term impacts (e.g. changes of status in such areas as social inclusion, income, civic participation, and education).

1.1   Objectives of the research

Against this background, the research was designed to achieve the following objectives based on a review of literature on telecenters and other eInclusion actors:

- Provide a comprehensive and multidisciplinary landscape on theories and analytical frameworks aimed at explaining how, why, and under which conditions public access to ICTs through telecenters, and to a lesser extent through libraries and cybercafés, contribute to advance social and economic inclusion goals among marginalized communities.

- Analyze the value of these theories and analytical frameworks based on predefined criteria that includes: academic discipline, availability of empirical evidence, target groups, geographic relevance, contextual factors, research methods, impact areas, etc. All this effort must be geared towards solidifying the theoretical underpinnings of the future research "Measuring the impact of eInclusion actors on Digital Literacy, Skills and Inclusion goals of the Digital Agenda for Europe."

- Develop recommendations on the most promising theoretical pillars that could inform the future research mentioned above.

The results of the review are presented in this report.

1.2   Structure of the report

The report is organized in the following way: Chapter 2 describes the methodology including the research strategy to build the landscape of the literature, the criteria for selecting a body of theories and conceptual explanations for in-depth coding, and the approach to the analysis grouped by different types of impact. Chapters 3 to 9 elaborate on each of the theories and conceptual explanations providing a brief description, identifying their strengths, weaknesses, and the evidence from the literature that illustrates how these explanations have been operationalized to explain different types of impact. Chapter 10 presents an analytical framework demonstrating the connections between how eInclusion actors work and how they have impacts, pulling together explanations identified in chapters 3-9.

2. METHODOLOGY

The range of theoretical frameworks and conceptual explanations to understand the role of eInclusion actors is broad and multidisciplinary. In order to navigate the available literature and research we designed a two-phase research approach that included:

1. An extended mapping of the literature from the last ten years. This phase allowed the team to identify the most dominant and/or common explanations in relation to the work of eInclusion actors; and

2. A selection, categorization, and in-depth coding of these explanations vis-à-vis different impact areas (Digital Inclusion, Social Inclusion, Economic Inclusion, Youth Development, Lifelong Learning, and E-Government).

In addition, we included the area of institutional capacity because it covers analytical elements at the organizational level that can potentially expand or limit the ability of eInclusion actors to advance social and economic goals for the people they serve.

2.1 Phase 1: Landscape of the literature

The objective of the landscape is to provide a comprehensive and multidisciplinary overview of key theories and analytical frameworks that explain how, why, and under which conditions public access to ICTs through eInclusion actors (telecenters and, to a lesser extent, libraries and cybercafés) helps to advance social and economic inclusion goals, especially among marginalized communities.

2.1.1 Boundaries of the research

In this section of the report we explain how we searched for, located, and catalogued literature on theories and analytical frameworks that explain how, why, and under which conditions public access to ICTs through eInclusion actors (telecenters and related venues such as libraries and cybercafés) advances social and economic inclusion goals. Specifically, we will explain how we bounded our search, how we executed our search, what results our search generated, and the challenges we faced in producing this work.

The first step was to clarify the types of materials that would be included in the landscape. The following principles guided this initial phase:

Type of Literature: Only academic (works produced by scholars and others in the higher education industry) and grey literature sources (academic works that had not been formally published, such as reports and working papers from researchers or internationally recognized research groups) were included.

Publication Date: The date range of January 1, 2000 to February 1, 2012 was used to limit the search. By focusing on this 12-year period the landscape offers an overview that is both longitudinal and comprehensive. Although research on telecenters predates the year 2000, the strong interest in more current types of eInclusion actors rendered the search more fruitful by concentrating only on the last decade.

Language: Although the research team is multilingual, the search was limited to English-language texts only. We do, however, acknowledge that interesting and important literature on public access to ICTs through telecenters, libraries, and cybercafés exists in other languages.

Type of eInclusion actor: eInclusion actors included but were not limited to telecenters, libraries and cybercafés. By this definition, any literature on sites providing technology access to the general public was included. The sites could be non-profit, for-profit, government- or industry-run, and they could provide any combination of hardware, software, instruction, Internet access, etc. The literature did not include research treating ICT access in primary, secondary, or tertiary schools, for example, since these locales are off-limits to non-members. With this limitation in place, materials that treated the socioeconomic impact of ICTs in general without making any links to eInclusion actors were excluded.

2.1.2 Research process for developing literature landscape

The process for reviewing the literature included (1) composing a list of key search terms, (2) identifying the major resources that would be used to execute the search, and (3) sketching out a method for quickly analyzing and cataloguing the materials.

The approach for identifying, analyzing and cataloguing sources proved to be advantageous in several important ways. First, it allowed for quick and efficient review of a large and representative data set. Second, the groundwork gave the research team members rigor and reliability. Third, the constant communication with one another and the use of a live platform for storing the work meant that complementary searches could be run without duplicating one another's efforts. Finally, the approach is both replicable and expandable, and can allow for further testing and comparison of materials as we proceed.

Ultimately, a total of 120 texts were collected that met the criteria outlined above from approximately 400 that were reviewed. These included works from a wide range of disciplines, including business, communication studies, computer science, economics, ICTD, information science, international studies, political science, and others. The literature collected represented a suitable mixture of theoretical and methodological approaches, as described in subsequent sections of this report. The comprehensive lists of the sources represented by the collected academic and grey literature appear in Appendices 1 & 2 respectively.

2.1.3 Key search terms

To aid the literature search a short list of key search words was composed. The initial list included terms such as "telecenter," "public access," "cybercafé," and "library." As the search progressed and new leads turned up, these were added to this list. (See key search terms list in Appendix 3).

2.1.4 Resources for executing the search

To locate articles a combination of databases; search engines; electronic journal subscriptions; and (to a lesser extent) the individual websites of publishers, journals, and organizations was used. Finally, the research team made use of the bibliographies included in the growing collection of sources.

Databases: Because it is available through the University of Washington library system, the team used EBSCO Host. EBSCO Host is a powerful, web-based portal that provides access to academic and subject-specific databases, and to thousands of peer-reviewed, full-text articles. EBSCO Host was a valuable resource in returning results on academic literature. Its usefulness in identifying grey literature was limited, as discuss in the "Individual websites" section below.

Search engines: While EBSCO Host was the primary resource for locating materials, Google Scholar was also used because it produces international, cross-disciplinary results list of academic and other scholarly literature. We used Google Scholar to both search for our key terms and our key terms in combination with organizations' names (such as "European Union," "UNESCO," "OECD," etc.) In fact, Google Scholar tended to produce the most fruitful combination of both academic and grey literature.

As a final step for triangulating information, we used the standard Google Scholar search engine to search for combinations of our search terms and the names of key organizations and their subdivisions. This turned up documents (such as conference papers and presentations) that did not appear through searches on individual websites. This approach worked on a limited number of nonprofits.

Electronic journal subscriptions: The University of Washington library system offers an extensive collection of electronic academic journals. In preparing this landscape, we made use of these subscriptions, in particular after having identified relevant academic citations through EBSCO Host and/or Google Scholar.

Individual websites: In some cases the individual websites of publishers and journals were also used. For example, the website of Taylor and Francis, an international publishing group specializing in academic literature on a range of subjects, including development studies; economics, finance, business and industry; technology; information science; politics and international relations; and social sciences, was very helpful. Individual websites for journals such as New Media & Society and Information Technologies & International Development were also very useful and tended to result in more complete lists of journal-specific articles than searches on EBSCO Host or Google Scholar.

The individual websites of NGOs and other high-profile organizations were especially important in compiling the collection of grey literature. EBSCO Host tended to produce little in the way of such works. Depending on the organizational website in question, our researchers scoured sections such as "Publications," "Reports," and "Research," employing key search terms such as "telecenter," "public access," and "eInclusion" wherever possible. When search results could be sorted by date, this functionality was also made use of. Since the number of documents produced using these combinations was limited, searches on these sites were broadened to include terms such as "Internet," "digital divide," "inclusion," and "ICT4D."

Bibliographies: The final resource utilized was the bibliographies included in the growing collection of sources. Each bibliography was examined for references to other documents (whether academic or grey literature) that dealt with the impacts of public access to ICTs through telecenters.

2.1.5   Analyzing and coding the materials for the landscape analysis

In order to systematically and rapidly analyze and categorize the breadth of materials collected, coding categories for both academic and grey literature were devised, as outlined in Appendix 4.

As each team member collected materials, they logged the relevant information pertaining to the codes into a central coding spreadsheet, which was stored on Google Documents. This allowed the coding spreadsheet to remain "live" throughout the entire period of searching for, collecting, and cataloguing the materials. Each team member could view the

spreadsheet at any moment and read it in its real time state. This provided a valuable means of providing feedback, making amendments, and tracking the progress of our work. Even more importantly, it helped to avoid duplication of sources, and gave us a channel to quickly and efficiently share information on both promising leads and dead ends.

2.1.6 Challenges in Producing the Landscape

Producing the Landscape was not without its challenges. Generally speaking, the challenges fell into six primary categories: framing; a predominantly pragmatic approach; technological change; lack of a clear disciplinary affiliation; emphasis on the developing world; and language.

Framing: In conducting this search we found a plethora of research on ICTs. The difficulty here, especially in regards to the grey literature, was that the bulk of this work treated ICTs as just one component of much larger policies. This made it laborious to sift through detailed information in search of ICT-specific and eInclusion actor-specific material. To handle this, the searches were broadened to more general terms such as "digital divide" or even "Internet."

A predominantly pragmatic approach: In the grey literature there many examples of ICT initiatives and projects. However, these sources tended not to include any justification for the projects, or any frameworks or theories for assessing the intervention. In fact, it was challenging to find impact evaluations or reports on specific ICT projects. Numerous organizational manuals, handbooks and reports including recommendations for public access initiatives are available through organizational websites (World Bank, Telecenter.org, etc.). Oftentimes these do not describe the frameworks on which they base their recommendations.

This was also true in many of the academic sources, especially the early ones. Much of this literature describes the profiles and functioning of specific telecenter cases without utilizing a theoretically grounded approach for analysis.

This pragmatic approach to understanding public access to ICTs through eInclusion actors, and their various social and economic impacts is, of course an interesting finding in itself. We also acknowledge the possibility that further content analysis could yield a deeper, more theoretical view of the underlying approaches in these case studies.

Technological change: The years 2000-2012 are significant when considering the incredible speed at which information communication technologies have evolved. While early literature focuses on stationary computing (desktops, computer laboratories and centers), later sources delve into mobile computing (mobile phones, WIFI, Web 2.0). This affects how "public access" is defined and makes it challenging to maintain a consistent concept of ICT access over the selected time period. These developments in ICT also influence how researchers understand and deal with the digital divide, eInclusion, and ICTD as a whole.

Lack of a clear disciplinary affiliation: In both the academic and grey literature sources, it was difficult to distinguish the particular disciplines informing the reports. The academic journals as well as the organizations consulted were often interdisciplinary, rather than tightly bound to any one discipline. The authors' home departments were also rarely identified, and even when they were they did not uniformly map onto the literature cited in the work, the theoretical approaches taken, or the recommendations generated by

the research. Oftentimes the materials presented an approach that was more experience-based than discipline-based.

Emphasis on the developing world: In both the academic and the grey literature there is a trend towards documenting and theorizing eInclusion projects in developing countries. In recent years, the concept of the digital divide has been applied to underprivileged groups in developed countries with greater frequency. On the whole, however, the literature dealt predominantly with groups, localities and countries in the developing world.

Language: Intergovernmental organizations regularly produce their websites and their reports in multiple languages. However, information on specific regional experiences tended to be in that region-specific language only. For example, ECLAC had a number of reports written only in Spanish. Even the Gates Foundation, whose website is in English, had reports on public access to the Internet in Chilean libraries; but these reports were only provided in Spanish, with no English translations available.

2.1.7 Landscape results: Identifying theories and conceptual frameworks

Considering the interdisciplinary nature of scholarship on eInclusion, there is a significant amount of overlap and merging of approaches and foci. Furthermore, individual reports and research projects tend to combine several perspectives. For organizational purposes we separate out conceptual areas that could conceivably be collapsed together.

The landscape results can be broadly compartmentalized in two major areas:

1. Theories, analytical frameworks, and conceptual explanations that explain how eInclusion actors work. This area brings together research and assessments that explore or prescribe how operations are organized to achieve eInclusion goals. Most of this work is grounded in organizational change, business management, public policy, sociology and information science. (See Appendix 5 for a summary of the conceptual explanations included in this section.)

2. Theories, analytical frameworks, and conceptual explanations that explain how eInclusion actors impact people's lives. This research encompasses a rich variety of theoretical and analytical lenses. It also represents many disciplines, including development communication, social psychology, social development, business, anthropology, and public policy. The landscape exercise derived theories, frameworks, and conceptual models that can be broadly compartmentalized into three groups:

   a. **ICT adoption, appropriation, and patterns of use among the users of eInclusion actors (telecenters, libraries, cybercafés, etc.)**

   These approaches focus primarily on identifying the factors that influence the adoption, use, and appropriation of ICT by users of eInclusion actors. This area of research aims to understand the conditions that motivate ICT adoption, the patterns of use derived from this adoption, and related behavioural changes. Most of the frameworks within this category build user profiles that are compared against demographic variables (gender, age, educational level, etc.). The unit of analysis is usually the individual user and impact is assessed based on changes in modes of ICT acceptance and use as well as the types of ICT-related activities that users engage in. In many instances, the changes in ICT adoption is analyzed in the context of the characteristics, services offered, and

enabling environment that eInclusion actors offer. (See Appendix 6 for a summary of the conceptual explanations included in this section)

b. **Ways in which eInclusion actors contribute towards building human and social capacity among their target groups, whether through promoting information literacy, building digital competences, and/or strengthening the diversity and composition of their social networks.**

The theories, analytical frameworks, and conceptual explanations identified in this category expand impact beyond ICT adoption and patterns of use to building human and social capacity. This area covers digital competencies, information flows, appropriation, and information behaviour, some elements of social and cultural capital, empowerment, and intergenerational interactions. The unit of analysis centers on individual users but also links changes in human and social capital to broad social and economic goals. Impact is analyzed from a normative perspective contextualized by external factors that play a role in how target groups are impacted by ICT access

c. **Contribution of eInclusion actors (telecenters, libraries, cybercafés, etc.) towards specific social, economic, and cultural goals.**

The theories and frameworks in this category assess the role of eInclusion actors in advancing social goals at a broad community and macro level. Even though these approaches include elements from the two previous sections, they are distinct in that they emphasize the links between ICT adoption, use, and the role of ICTs in building human and social capital towards large level social and economic objectives. The unit of analysis for this group is the community, which is represented in different ways depending on the context and the research questions.

The theories and conceptual explanations in the last two subcategories are also included in Appendix 6.

These three areas are not mutually exclusive. In fact, it is common to find research that includes the ICT profile of the users as a variable to understand how and under which conditions eInclusion actors advance social and economic goals. Another important consideration is that the theories, frameworks, and conceptual models operationalized usually focus on the individual as the unit of analysis. This is particularly true for the first group. The research in group 2 and, to some extent group 3, expands the unit of analysis to assess impact in groups, communities, and at the national level.

Digital media technologies permeate all aspects of life, so eInclusion programs can rarely be implemented without accounting for factors internal and external to the specific eInclusion intermediary and the target population. The conceptual areas outlined above illustrate the diversity and range of theories and explanations applied to assessment of eInclusion initiatives. In brief, the landscape identifies nine broad areas explaining how telecenters and other eInclusion actors work, and three broad areas explaining how they impact their constituencies. During this phase of the research process it became clear that each area has value, depending on the objective of the evaluation exercise. The more holism is required, the greater the number of approaches integrated in a later stage.

2.2 Phase 2: In-depth coding of selected body of theories, analytical frameworks and conceptual explanations

For the second phase of the research, the selected body of theories, frameworks, and conceptual explanations were coded and grouped broadly within seven different types of impact areas: institutional capacity, digital inclusion, social inclusion, employability, youth development, lifelong learning, and civic engagement. The impact areas were outlined very generally following some policy priority areas in the Europe 2020 strategy flagship initiatives.[1]

2.2.1 Criteria for selecting the body of theories and conceptual explanations for in-depth coding

The next step in the research process was the in depth analysis of a selected body of articles, studies, and reports to identify how theories and analytical frameworks have been used. Before this could be done, however, a critical stage was to identify the body of work associated with each of the 12 conceptual areas. While the landscape exercise showed the range of relevant theories and explanations, it did not capture the breadth of research in each area. There is such a diversity of theories and explanations (not to mention high levels of overlap) that a high-level landscape analysis can only cover a few examples of each. A further literature search was therefore required to (a) verify and expand on the representativeness of the literature reviewed so far; and (b) to ensure that seminal pieces were not missed. Rather than proceed on the basis of sources (journals, articles, reports etc.), the identified theories and explanations were used as the starting point. This involved:

1. Literature searches using the 12 areas of theories and explanations as keywords
   a. Sustainability,
   b. Stakeholder theory,
   c. Success/Failure Factors,
   d. Institutional theory,
   e. Power and control,
   f. Project goals,
   g. Diffusion theory,
   h. Innovation,
   i. Cost-benefit analyses,
   j. ICT adoption and patterns of use,
   k. Human and social capital (empowerment, capabilities, and rights-based),
   l. Social, economic, and cultural impacts.

2. Expansion of the coding scheme to include:
   a. Report/article abstract,
   b. Conceptual area (how eInclusion actors work, impact mechanisms),
   c. Specific name of theory/framework/concept,
   d. Originator of theory where applicable,
   e. Primary principles of theory/explanation where applicable,

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[1] http://ec.europa.eu/europe2020/reaching-the-goals/flagship-initiatives/index_en.htm

f. Strengths of theory,

g. Existing critiques of theory,

h. Explanation of impact (was theory used to explain impact or the lack of impact).

2.2.2 Coding Framework and Inter-coder reliability test

Following these criteria, the research team developed a coding framework and performed two inter-coder reliability tests to assess the appropriateness and workability of the coding categories. The inter-coder reliability tests also ensured the consistency of the results derived from the coding process. Four people participated during the in-depth coding phase using the University of Washington's Catalyst Tool WebQ to enter the qualitative data. (See Appendix 7 for the last iteration of the coding framework.)

Additional references were consulted to further assess dominant approaches to explaining impact. These were useful for untangling different elements of the relationship between eInclusion actors and social and economic impact, and helped clarify the theoretical or analytical origins referenced in the studies in the sample.

2.3   Analysis approach

This section outlines the analysis approach of the in-depth coding exercise. The initial analysis outlined in the second phase of the methodology was followed by further examination of the theories and frameworks identified as most promising. Specifically, the theories and frameworks were examined to understand how and why eInclusion actors and their initiatives and programs do or do not work in delivering policy outcomes. In addition, we considered the extent to which the theories and explanations facilitated identification of the conditions under which e- Inclusion initiatives achieved their desired outcomes. This analysis led to recommendations about which perspectives may be appropriate to support the research project on "Measuring the Impact of eInclusion Actors on Digital Literacy, Skills and Inclusion Goals of the DAE" as well which ones have the potential to reveal how these actors advance social and economic goals.

With this objective in mind, the coding results were grouped around the relevant different types of impact (See Table 1) and further examined for the following overarching trends:

- Dominant theories/frameworks and less used theories/frameworks with potential

- Existing critiques of the theories/frameworks (strengths and limitations)

- Research teams' additional critique of the theories/frameworks in context of their particular use in the reviewed materials (e.g., does the theory support the findings?)

- Patterns of application of the theories/frameworks (e.g., are they applied holistically, superficially, rigorously, in combination with other frameworks, etc.)

- Apparent linkages between theories/frameworks and the resulting research conclusions.

This approach to the analysis revealed relationships between explanations and provided evidence on what is currently known about eInclusion actors' initiatives and socio-economic impact. The analysis for each policy priority area was organized by:

- Theory/explanation group definition and main analytical building blocks behind

- E-Inclusion actors impacts (providing evidence from the findings in our in-depth coding)

- Strengths of theory or explanation group

- Weaknesses of theory or explanation group
- External factors that affect impact as identified by the literature

Table 1: Final list of theories and conceptual explanations grouped by different types of impact

EU Policy Priority Area	Explanations
How eInclusion actors work Expected impacts: Achievement of program goals/eInclusion goals, increase opportunities for multi-stakeholder partnerships, improve organizational capacity to achieve financial, social, and cultural sustainability.	• Institutional theory • Asset-based community development • Stakeholder theory • Business Model Analysis • Principal Agent Model • Sustainability Failure Model • Program design and implementation • Cost-Benefit Analysis
Digital Inclusion Expected Impacts: Internet access and adoption, development of digital literacy and skills, ability to use and benefit from using ICTs, production as well as consumption of digital media.	• Digital Literacy Framework • Digital Literacy: Effective use • Technology Acceptance Model • Diffusion of innovation • Technology Appropriation
Social Inclusion Expected Impacts: Access to education/training, community participation, labour markets, health services, social services, social networks, facilitated by use of ICTs.	• Community-building • Sustainable-Livelihoods Framework • Social capita/Social connections
Employment/Economic Inclusion Expected Impacts: Helping people acquire new skills for employability and ability to adapt to changing labour market; reducing unemployment, raising productivity	• ICT skills and Employability Framework • Amartya Sen's Capabilities Approach • Aspiration
Lifelong Learning Expected Impacts: Lifelong learning refers to empowerment as a baseline for improving knowledge, skills and competences, or other aspects of a person's life. The lifelong learning discourse sees eInclusion actors as a space for empowerment.	• Empowerment as lifelong learning • Intergenerational learning: the e-born as generational bridge • Asset-based approach – Social constructionism • Self-education through intermediary institutions
Youth Development Expected impacts: Provide quality education, training, and successful market integration and open mobility opportunities for young people	• Empowerment for disadvantaged youth • Safe space for youth development • Youth the savvy – the e-born and intergenerational learning
E-government/Civic Engagement Expected Impacts: Delivery of better, more diverse public services and encouraging increased civic engagement through use of ICTs.	• Democratic and participatory approach to communication • E-Government: The new public management • Active Citizenship • Structuration Theory

2.3.1 Summary analysis of the body of studies selected for in-depth coding

As it was explained in the methodology section, most of the reviewed literature can be categorized as academic (70.1%). From the total number of sources (97), the highest proportion correspond to journal articles (51.58%), reports of research centres (15.79%); and working and technical papers of governments and international organisms (12.32%).

In terms of methodology, only a small proportion includes only quantitative data (17.65%) or mixed methods (22.06%); the literature related to e-inclusion actors is mostly dominated by qualitative research (64.71%).

The selected studies included e-inclusion actors with different names, mostly 'Telecenters or Telecentres' (53.19%) but also 'Libraries' (6.38%) and 'Cybercafés' (19.15%) ; and a big proportion of other denominations for internet public access venues –community technology centeres, information kiosk, etc .-(52.15%).

Looking at the geographic regions of study, Europe (28.57%); Latin America (25.27%); and Asia (24.18%) were the most researched areas.

Broad conceptual area

4.60%
43.68%
56.32%
45.98%
65.52%

- Institutional capacity | Sustainability
- ICT access, adoption, and use (individual level)
- Impact - capabilities, skills, competences (individual + community)
- Impact - social, economic, political (macro - meso level)
- Other

According to the conceptual area to which the literature focuses on, these are slightly dominated by the ICT access, adoption, and use at an individual level.

Policy area

12.64%
19.54%
10.34%
29.89%
1.15%
45.98%
48.28%
75.86%

- Digital inclusion | Digital access, literacy
- Social inclusion
- Economic inclusion | Employment, income generation
- Immigrant and integration
- Lifelong Learning
- Youth Development
- Civic | Political Engagement
- Other

While most of the literature focused on digital inclusion (75.86%); Social Inclusion (48.28%); and Economic inclusion (45.98%); only a small proportion refers explicitly to one or other more specific target groups, such as immigrants and integration (1.15%) or Youth development (10.34%).

3. HOW eINCLUSION ACTORS WORK: THEORIES AND EXPLANATIONS

3.1 Institutional theory

Institutional theory is used for examining organizations (in this case, eInclusion actors), and their structures, operations, and efficacy. Related terms are institutional analysis, processes of institutionalization, and the institutional perspective. It is a useful theory for studying digital inclusion projects because the ways in which institutions operate bear directly on the "long-term value, sustainability, and scalability of [digital inclusion]." (Madon, Reinhard, Roode, & Walsham, 2009, p. 97)

The primary concept associated with this theory is that of the *institution*. An institution is a stand-alone organization with qualities, resources and artefacts that are already established or (in the case of new or changing organizations) in the process of being established. Institutions are generally stable and enduring, however they can and do shift over time, sometimes with the concerted efforts of their members.

When using institutional theory the object of study is the institute or organization. Specifically, one studies how the institution functions, as well as the roles that its comprising parts (members, rituals, processes, environments, etc.) play in the process. When using institutional theory, a major point of interest is the dynamic role between the institute and the political, cultural, social, and economic, environment in which it is situated.

The institutional perspective has been used to analyze the institution's stability and/or the way in which it changes or adapts to new circumstances (Madon et al., 2009); the concept of trust and the nature of its role in the relationships between organizational members and clients (Gopakumar, 2006); and how the institution's structure affects the impact and long-term sustainability of digital inclusion projects. (Amariles, Paz, Russell, & Johnson, 2006)

Impacts of eInclusion actors

Studies utilizing institutional theory have demonstrated the following:

- Telecenter goals and activities can, over time, complement and advance the missions of their host organizations and communities. In the literature we reviewed, this happened by:
  - Increasing staff commitment to the organization (Amariles et al., 2006)
  - Improving staff people's skills and knowledge (Amariles et al., 2006)
  - Opening new communication channels between the host organization and the community (Amariles et al., 2006)
  - Increasing the host organization's institutional capacity and/or field of action (Amariles et al., 2006)
  - Enhancing the professional reputation of the host organization (Amariles et al., 2006)
- For effective knowledge sharing clients must have a sense of trust in the access point (i.e. the eInclusion actor) as well as the services and the larger information systems that they tap into via the access point. (Gopakumar, 2006)
- For the greatest impact, the process of institutionalization should involve key steps such as: "getting symbolic acceptance by the community" in which the eInclusion project is placed; "stimulating valuable social activity in the relevant social groups;" "generating linkage to viable revenue streams;" and enrolling government support." (Madon et al., 2009, p. 105).

Strengths

Institutional theory helps researchers understand the unique qualities of an organization, and how local norms, rules, opportunities and constraints work to shape its modus operandi. In its early days institutional theory was used to test how effectively the desired qualities of an institution (its management practices, organizational culture, etc.) were developed. These days, however, the dynamic nature of the institution-environment relationships is more widely recognized, as are the active roles that institutional members take in shaping, challenging, or changing institutional make-up. Using institutional theory can be an effective way of revealing these dynamic relationships between the organization, its environment, its members, and its successes and failures.

Weaknesses

There are drawbacks to using institutional theory to understand an eInclusion organization. First, it can be challenging to delineate between institutional boundaries and environments. This is particularly difficult when it comes to the presence of more ambiguous influences or "carriers" such as "mass media, consultants, and the Internet". (Scott, 2004, p. 4) Second, given that one is attempting to understand complex organizational relationships, institutional analysis may take a long time to complete. Third, institutional analysis, at least in the context of the eInclusion literature reviewed, seems to be more descriptive than predictive. Such research is useful for diagnosing problems as well as successes, but not for predicting what will work (or won't) going forward. Finally, with an institutional analysis, the emphasis is on the institution running the facilities (i.e. the eInclusion actor). It does not shed light on the actual end users, their cognitive processes, or what impacts the institution has on their perspectives.

3.2 Asset-based community development

Asset-based community development (ABCD) is an approach to community building and resource procurement and management. Rather than revealing what is missing or needed in an eInclusion project, ABCD is used to determine what resources are locally available (whether individual skills and talents; organizational resources; commercial resources). By doing this, ABCD ensures the long-term development and sustainability of the project. Put differently, rather than doing a traditional type of "needs analysis," the research team using ABCD does a *resources* analysis. When using ABCD the object of interest is the extant and available resources. These could include facilities, technical equipment, knowledge, expertise, connections, etc.

In their research on building community technology centers (CTCs), Pinkett & O'Bryant (2003) identify these three related qualities of ABCD:

- *Focus on assets:* Concentrate on what resources the community already has rather than on what it lacks. Extant resources may be people, companies, businesses, groups, educational or social institutions, etc.

- *Focus on action from within the community*: Get local community members to take charge of the initiatives themselves, rather than bringing in other people to do it.

- *Focus on relationships*: ABCD won't work without constructive relationships between local community members. For this reason, ABCD prioritizes the long-term health of interpersonal, inter-organizational, and person-to-organization exchanges.

Besides simply identifying assets, the ABCD approach advocates their mobilization. In this way, ABCD uses a straightforward two-step approach: identify the resources that are available; and wih the help of community members, mobilize them.

The original scholarly work on ABCD is Kretzmann & McKnight (1993). See also the Asset-Based Community Development Institute website at http://www.abcdinstitute.org/

Impacts of eInclusion actors

The ABCD approach has produced a broad range of impacts at the community level. Some of the more notable impacts were the following, all of which come from Pinkett & O'Bryant (2003):

- ABCD approach raised community members' awareness of available assets in their community, not limited to ICTs.
- Community members developed information seeking and analysis skills relevant to their actual needs, including (but not limited to) the use of the Internet.
- "Participants [in the eInclusion initiative] strengthened and expanded their local ties."
- "Participants' [in the eInclusion initiative] civic engagement, social contact, sense of empowerment and sense of community positively correlated with Internet use."
- "Participants [in the eInclusion initiative] have been inspired through use of the Internet to stay informed locally, nationally and internationally."
- Participants [in the eInclusion initiative] have cultivated the meta-competence of a renewed confidence in themselves and their ability to learn."

Furthermore, "Community ICT initiatives can support the development of bridging ties as they themselves are physically situated in the neighborhood and may lead to serendipitous development of social networks." (Gaved & Anderson, 2006)

Gomez & Ospina (2001) also show that community involvement is key to the long-term sustainability of an eInclusion project.

Strengths

ABCD is a research and implementation framework that rests on positive thinking (i.e. the glass is half full), cooperation, collaboration, resource-sharing both personal and community growth. Another strength is that in using ABCD, a lack of resources is not a barrier to an eInclusion project. ABCD relies on deep, nuanced understandings of local context and conditions, and so fosters a thorough understanding of the settings in which eInclusion actors are located. ABCD emphasizes solutions that are presumably highly organic and sustainable since they grow out of local, extant assets and conditions. It is an inclusive approach very suitable to projects shaped by democratic and civic engagement ideals. It is interesting to note that the ABCD approach is not technology-centric. That is, one could undertake a resource analysis of the location in question with only a partial focus on technological equipment. This is because the ABCD approach places equal value on relationships, knowledge, know-how, skills, etc.

Weaknesses

As described, ABCD depends on productive relationships within the local community, as well as between eInclusion actors and community members. Fostering and maintaining such relationships is no easy task, and there is no blueprint for it. Neither are there simple formulas for interpersonal communication success, which will naturally play out very

differently from one socio-cultural context to another. Furthermore, while ABCD hinges on community participation, it generally assumes that community buy-in and a critical mass of community participation as pre-existing conditions. However, what happens if community members are not interested in participating in the eInclusion project in the ways that the ABCD approach demands? ABCD assumes that there will be some, or even adequate extant resources to proceed, but what if this is simply not the case?

Other challenges include the following, outlined by Macedo, Garcia, & Felix (nd):
 ABCD challenges:
- Endogenous process: The process should be community-driven. What then should be the role of the external agency? The role is as facilitator and as a node in a network of connections the community may have with other actors. The challenge is to avoid the level of involvement that can induce dependency;
- Inclusive participation: The process should be inclusive in which the contributions of all are valued; this may be challenging in communities where social hierarchy excludes some groups. It has to appeal to the higher motive of using power to act in the shared interests of the common good, and to uncover the strengths of those who might otherwise be less valued;
- Community leadership: Leadership is a central issue. It is important to learn about the qualities of leadership both in terms of the individuals involved and the nature of leadership itself. Is it, for example, an individual or a group? Is leadership formalized, or is it a function of individual or group initiative at particular times?
- Enabling environments: The external environment will influence the capacity of communities to realize their potential. The degrees to which regulatory environments are fair and norms of trust extend beyond the associational level are important considerations. In the absence of conducive environments, it is important to explore if the strategy may provide an option for identifying openings in hindering environments;
- Fluidity of associations: Over time, the form of associations and informal networks will change. It's important to understand how these patterns have evolved and the effect of the strategy on social relationships and associations. The implications of associations becoming institutionalized in the strategy needs to be considered;
- Sustainable development: Technological advances in communications provide opportunities for decentralized economic development. Some communities, meanwhile, struggle for survival, stretching their assets to unsustainable levels. In this period of flux, there is a two-fold challenge at the community level: to create and seize opportunities for sustainable development, and to claim and retain the rights of state and global citizenship.
 From (Macedo et al., nd)

3.3. Stakeholder theory

Stakeholder theory has its origins in management research and literature. It holds that it is not only the *shareholders* of an organization who matter. Rather, there are additional *stakeholders* whose interests must be taken into account, whether because it is simply the right thing to do or because it makes sense (financial, practical, competitive) to do so. There is no fixed definition of who or what a stakeholder might be, but stakeholders could include customers, governments, competitors, and/or the public.

In the context of eInclusion projects, a key assumption is that the people being served by the technology must be considered as important stakeholders in order for the project to succeed. (Bailur, 2006; Hosman & Fife, 2008) This particular angle on stakeholder theory

falls more under what Scholl (2001) calls the "Business Ethics" branch of stakeholder theory, which

> "assumes that each stakeholder of the firm has an intrinsic value regardless of her actual power or legal entitlement. It seeks to formulate correct ethical norms for managerial behaviour. By means of narrative accounts it hopes to give evidence for desirable and undesirable managerial practice. Though the economical prosperity of the firm is not completely off the radar screen of Business Ethics-based stakeholder theory, it is clearly a second-order type of circumstance for this research track." (p. 2)

When using stakeholder theory the object of interest is generally the stakeholders themselves, and their relationships with and desires of the organization. To work together effectively using a stakeholder theory approach, eInclusion actors would likely take the following steps, as outlined in Bailur (2006):

- Identify: determine who stakeholders are, what motivates them, what their interests are, etc.
- Plan: think ahead to how stakeholders can work together to achieve their goals. Think about what roles each stakeholder should or could have.
- Determine: build contingency plans in the event of disagreement and/or conflict.

Using stakeholder theory eInclusion researchers can conduct stakeholder analyses to better understand the nature of the relationships and partnerships between organizational actors. Additionally, stakeholder theory addresses the larger aim of testing how effectively stakeholders' interests are represented throughout the project. Finally, stakeholder analysis may be utilized to ensure that the interests of all parties. This is an important consideration, particularly under the (now widespread) philosophy that "interventions such as the establishment of telecentres at the local level in a community should attempt to create a stable network of aligned interests of all the community stakeholders." (Roode, Speight, Pollock, & Webber, 2004)

Impacts of eInclusion actors

In a case study on an Internet kiosk project using a public-private partnership model – the EasySeva project analyzed by Hosman and Fife (2008) – researchers found that bringing on local residents and other stakeholders as equal partners enhanced buy-in and overall participation. They predict that this particular project will enjoy more long-term success than projects that don't take a stakeholder theory approach.

Bailur (2006) used stakeholder theory and analysis as a "template against which actual practice on [an eInclusion] project can be compared." In so doing she showed that stakeholders in a particular eInclusion project (Gyandoot) were consulted only in the initial phases, making the project less successful.

In a stakeholder needs analysis on an e-Government initiative in the United States, researchers were able to identify not only the primary stakeholders, but also the secondary stakeholders who "[had] a capacity to contribute or to impede the project to a various degrees." (Scholl, 2001) The stakeholder needs analysis helped the researchers to pinpoint "the potential for collaboration and threat for the primary stakeholders, and, in more general terms, for the other two stakeholder groups." (Scholl, 2001) In the next stage of the analysis, the needs, requirements, and deficiencies were identified and finally

recommendations for subsequent steps were made. This joint effort seemed to positively impact stakeholder buy-in.

Strengths

To use stakeholder theory presumes the necessity of a well-balanced partnership between players; it makes a strong statement of preference for egalitarian and inclusive power relations between eInclusion actors and their clients. In this sense, to use stakeholder theory is to place eInclusion actors, funders, hosts, clients, etc. on an equal footing with one another. This is a strong point since it is favourable to fostering long-term sustainability. Another strength of stakeholder theory and analysis is its attention to the local setting, as well as the needs and constraints of the local community and clientele. Finally, Scholl (2001) notes that stakeholder theory may have particular appeal for projects involving the public sector because "the public sector manager's self-understanding is shifting from being a public administrator towards the one of a public facilitator." (p. 14)

Weaknesses

When utilized on an ongoing project, stakeholder analysis is time consuming and requires rounds of iteration and recalibration. Stakeholder analysis can be complicated and must necessarily involve research and analysis on multiple players. Finally, there is a certain degree of subjectivity to stakeholder analysis. As Bailur says, "it matters who conducts the analysis and makes the distinction between 'important and/or influential' or 'primary or secondary' [stakeholder]." (2006, p. 75)

3.4   Sustainability

Most of the literature reviewed dealt with the issue of sustainability, i.e. how to establish and run telecenters most effectively, and how to make them viable in the long term. The question of overall sustainability often goes in hand with an examination of *organizational relationships*, including the qualities of the partnerships between players, and how the players work with and relate to one another. In the treatment of organizational relationships, we identified three important clusters of approaches within the pool of sustainability literature. These approaches were: business model analysis, the principal/agent model, and the sustainability failure model.

3.4.1   Business model analysis

One popular method of evaluating the overall sustainability of eInclusion projects was to analyze and compare the business model(s) they employed. A business model is an organization's plan for how to operate, serve, realize its goals, generate profit, succeed, etc.

When using a business model analysis, the object of interest is the business model actually employed by the eInclusion actor. This may include analysis and evaluation of the services provided; the means of generating profit; or the balance between cost and revenue. Business model analysis may be one approach of several used simultaneously in evaluation of eInclusion projects, as in Colle (2007).

Impacts of eInclusion actors

In an analysis of telecenter models, Ariyabandu (2009) found that telecenters are frequently moving away from the traditional model and becoming "more development

oriented knowledge networks." (p. ii) The difference between the traditional telecenter model and the more complex knowledge network/knowledge hub is that:

> "[telecentres] represent community access points where people can have access to conventional ICT tools like a telephone, computer and Internet.… When telecentres are subjected to value addition with knowledge, training, services along with the basic parameters, it represents a 'knowledge hub'. A conventional 'knowledge hub' is a vibrant centre which is accessible to communities to gain, share and organize knowledge depending on their needs and environment. A 'knowledge hub' also acts as an intermediary station between the community and knowledge network. Knowledge hubs can localize knowledge gained from peer ICT access points in other regions and serve the community. They will also contribute to creating knowledge by providing experience gained from the local communities to the benefit of the global networks at large." (Ariyabandu, 2009, p. 4)

In a case study on Drishtee, a franchise-based eInclusion initiative in India, it was shown that the model employed – which emphasized "low cost of operation, self-sustainability, and local entrepreneurial ownership" (Bhatnagar, Dewan, Torres, & Kanungo, 2003, p. 2) – was generally successful in both netting kiosk owners a small profit and in providing relevant content to its users. What's more, "the availability of customized information in many rural areas has increased the knowledge base of many villagers, who gain easy access to information on government plans, market-related data, and education and health services." (Bhatnagar et al., 2003, p. 4)

In another examination of entrepreneurship in an eInclusion initiative in India (the Akshaya project), it was found that "entrepreneurs thus face a trade off between social development and financial sustainability, [leading] to a variety of development and financial outcomes. We categorize these entrepreneurs into three broad types: socially-driven, business-driven and balance-driven.…" (Kuriyan, Toyama, & Ray, 2006, p. 126) Socially-driven entrepreneurs are primarily concerned with the "social development aspects" of their eInclusion actors; business-driven entrepreneurs focus on the business side (making a profit); and balance-driven entrepreneurs attempt "to combine the two goals of social development and financial sustainability." (Kuriyan et al., 2006, p. 127) This analysis illustrates how "implementation difficulties lie in trying to serve both the population who need basic assistance and the population who can contribute to making the kiosks profitable." (Kuriyan et al., 2006, p. 127)

Another study on Internet cafes in India challenges the widespread belief that "(1) information and communication technologies (ICTs) by nature require immense technological infrastructure and relatively sophisticated user skills, and thus create barriers to adoption by the poor in all social contexts; and (2) donor-driven spaces like telecenters are singularly privileged arenas for meeting community ICT goals for digital inclusion." (Rangaswamy, 2008, p. 367) Bolstering support for alternative, innovative, and entrepreneurial models, the researcher found that "Internet cafés are the only access points in urban regions with no donor or state underwriting and yet they are increasingly able to meet a growing demand for Internet and computing experiences. As such, demand-driven commercial settings such as Internet cafés show significant potential for expanding ICT adoption." (Rangaswamy, 2008, p. 376)

In a study on telecenters in India, researchers found that overall sustainability was enhanced by the provision of a range of integrated services, particularly embedded

government-to-citizens services. (Naik, Joshi, & Basavaraj, 2012) This study is part of the larger movement to explore the impacts of a "development-through-entrepreneurship" model of eInclusion, whereby the "private sector target[s] the vast, growing and largely untapped rural markets in developing countries with low-cost services and appropriate business models… increasing the well-being of the poor while enlarging the opportunity for the private sector." (Naik et al., 2012, p. S82)

A successful non-profit model was examined by Figueiredo, Camara, & Sabin (2006). They found that "The low cost of maintenance of the non-profit model, which is largely based in volunteer work, associated with the low cost of persistence of an Internet based organization makes the Gems of the Earth [the eInclusion project studied] a candidate for successful self-sustainability…. Today, the only dependence on external agents of the project is the funding of the satellite Internet access of the five pilot telecenters [paid for by the national government]." (Figueiredo et al., 2006, p. 336)

Finally, the literature we reviewed emphasized how important the human factor of any business model is. For example, Huh's (2008) research on e-villages emphasizes that it is not simply access to technologies but also knowledge, know-how, and business acumen that count towards long-term sustainability.

Strengths

As demonstrated above, a business model analysis is a straightforward means of analyzing strengths and weaknesses in the structure and modus operandi of an eInclusion actor. It is a useful approach for describing the current status of an eInclusion project, diagnosing its strengths and flaws, and evaluating its potential for long-term sustainability.

Weaknesses

While a business-model analysis can reveal flaws in how an eInclusion project is set up and run, it does not reveal the best corrective measures for such flaws.

- The entrepreneurial spirit of kiosk owners and their ability to meet customer needs and find innovative ways of netting customers and generating profit (Rangaswamy, 2006, 2008).
- Leader competency (Bashir et al., 2011).
- Location of the telecenter (Bashir et al., 2011).
- Provision of a range of services to the public (Ariyabandu, 2009; Rangaswamy, 2006, 2008).

3.4.2 Principal Agent Model

The Principal-Agent Model provides a way of examining the give and take between the *principal*, which is the group/organization commissioning a task, and the *agent*, which is the organization or individual charged with completing the task. The motives and desired outcomes of the principal and the agent are often in tension. For example, the principal may want to maximize production while also keeping costs down. The agent, on the other hand, may be interested in maximizing their own profit, which increases costs for the principal. The principal may use different strategies to keep the agent in line with its targets, like "piece rates/commissions, profit sharing, efficiency wages, performance measurement (including financial statements), the agent posting a bond, or fear of firing."

(Scherf, 2006a, 2006b) The Principal-Agent Model focuses on the relationship between these two players, and can help analysts understand what is working and what is not.

One of the key concepts underlying the Principal Agent Model is that of *accountability*. Specifically,

> "Principals delegate authority to agents, who are expected to act on the principals' behalf. In democracies the people (or voters) are the principals, and government officials (politicians and civil servants) are the agents. The central problem of principal-agent theory is to make sure that agents do what principals have empowered them to do, which is to promote public welfare. Agents have a tendency to promote their own interests instead, often in collusion with a specific segment of the public." (Jenkins, 2007, p. 137)

The Principal Agent Model may be employed to examine what functions and what does not function vis-à-vis the organizational relationships between principal and agent. Such an analysis wouldn't necessarily presume that what works in one setting would work elsewhere.

Impacts of eInclusion actors

The use of the Principal Agent Model was very limited in the literature reviewed, and only appeared in supplementary texts about policy at a general level. For example, the Principal Agent Model has been used to study corruption. (Garcia-Murillo & Ortega, 2010) Cases in which "corruption emerges when the principal, due to asymmetric information, is unable to perfectly monitor the activities of the agent. The agent takes advantage of this information problem and, having made a cost-benefit calculation, finds it profitable to engage in corruption." (Garcia-Murillo & Ortega, 2010, p. 4) The Principal Agent model has been used in research dealing with e-Democracy measures in the area of public service broadcasting. (Wenzel, 2011)

Strengths

The Principal-Agent model places power in the principal. That is, the principal has the power to make changes in the incentives it offers its agent, thereby improving the outcomes (mostly financial) of the venture. This is useful in the sense that control rests in the hands of the principal, presumably the party in whose interests the analysis is carried out.

Weaknesses

The Principal-Agent Model assumes that principal and agent groups can be easily delineated, although in some cases this might be complex. The principals or agents might be groups of organizations, for example. Furthermore, there might be more than one principal, or more than one agent. Another weakness of the model is that it "applies to static situations but not dynamic ones." (Jenkins, 2007, p. 138) Finally, the findings produced by analyzing an eInclusion project with the Principal Agent model will not necessarily shed light on other eInclusion projects operating in different circumstances and settings. Other factors that affect impact that should be factor into the analysis are:

- Desire for profit. Both the principal and the agent will experience this desire, but generally this situation is incompatible because the agent's profit means the principal's loss.
- The type of incentives offered to the agent for completion of the work.
- Knowledge gaps, such as the agent having more advanced knowledge than the principal of what is happening in the field.

3.4.3 Sustainability Failure Model

The Sustainability Failure Model from Kumar & Best (2006) was grounded on work done by Heeks and Bhatnagar (1999) on "critical success" and "critical failure" factors (CSF and CFF, respectively) of eInclusion interventions. The ten critical factors that Heeks and Bhatnagar identify are: information, technical, people, management, process, culture, structure, strategy, politics, and environment. The idea here is that if a project is able to foster conditions for the critical success factors, then it will work.

Kumar & Best expand on CSF/CFF research with their Sustainability Failure Model, which is "a simple taxonomy for sustainability failures that more explicitly codes for on-going or long-term survivability." The Sustainability Failure Model seeks to capture the main 5 areas in which e-projects fail. These 5 areas are:

- Financial/economic sustainability failure. For example, a donor supported program loses its funding after some fixed period of operation and has to shut down.
- Cultural/social sustainability failure. For example, some social group within the community gains a benefit from the intervention but some others are hurt. This tension is not tenable over time and results in the subsequent sustainability failure.
- Technological sustainability failure. For example, the field hardware and software fail to upgrade and, over time, networks degrade and fail.
- Political/institutional sustainability failure. For example, the relevant local institutional leaders leave the organization and the project fails.
- Environmental sustainability failure. For example, a project that sources PCs without plans for their eventual disposal or reuse. (Kumar & Best, 2006).

When using Sustainability Failure Model, the objects of interest are the *failed aspects* of a project. That is, one examines the failure points using the 5 areas (cited above) as a guideline for identifying where and why things went wrong.

Impacts of eInclusion actors

Although frequently cited, we found few studies that actually used the Sustainability Failure Model. For this reason the section on impact is limited.

- In a study on Internet kiosks in India, it was found that the following factors contributed to sustainability failure: "failure of institutional partnerships with the partner organizations to sustain themselves in the long-run, failure of the e-government services at the kiosks after a relatively successful start, lack of technical and institutional support for these kiosks, and lack of new and relevant content." (Kumar, 2007, p. 13) The implication here is that "the effectiveness of the local and the regional innovation system was the key to the success and sustainability [in this case]." (Kumar, 2007, p. 15)

- In their seminal work on the Internet kiosks launched as part of the Sustainable Access in Rural India (SARI) project in Tamil Nadu, India, Kumar and Best found that the failure factors hindering long-term sustainability were: lack of adequate trained personnel; lack of sustained public leadership, commitment, and institutionalization; lack of consistent evaluation and monitoring; lack of involvement of all stakeholders; and a shift in existing power relationships due to the kiosks. (Kumar & Best, 2006, pp. 9-11) The implications are that in order to create a viable eInclusion actor, "public managers should clearly understand the importance of leadership, strong and sustained commitment, adequate training of the staff, consistent evaluation and monitoring of the performance, and institutionalization of the initiative. Private partners need to work consistently with the government and respond to the changing environment within the government. Both sides should attempt to involve all the relevant stakeholders." (Kumar & Best, 2006, p. 12)

- In an extension of the financial/economic sustainability failure area, it was found that inadequate services were a key failure factor. (Naik, Joshi, & Basavaraj, 2010) To remedy this, the researchers suggest "the private partners in the [telecenters using the public-private partnership model] need to offer a cluster of integrated and complete services so that they have a wider customer base. Depending only on G2C [government to citizen] services as sources of revenue is not sufficient to make telecenters financially viable. Second, the government also needs to go beyond using telecenters to provide only G2C services." (Naik et al., 2010, p. 9)

- On the plus side, research showed the following beneficial impacts of telecenter services: "providing e-government services through kiosks in rural communities is associated with increases in the applications submitted by citizens for certain e-government services." (Kumar & Best, 2006, p. 12) What's more, kiosk services can potentially save clients time, money, and energy; and being able to access government services at Internet kiosks helps communities to "[reduce] opportunities for corruption in government offices in the delivery of these services." (Kumar & Best, 2006, p. 12).

Strengths

The Sustainability Failure Model is intended to help analysts pinpoint critical factors that bear upon a project's long-term sustainability. It is also designed to cover all of the major areas which jeopardize long-term sustainability. Because of this, the model has great potential for predictive value, i.e. it holds that if an eInclusion project is careful to account for these areas of potential weakness, it is more likely to be sustainable over time. The Sustainability Failure Model could also be used as a diagnostic tool to pinpoint extant weaknesses in an ongoing project.

Weaknesses

The Sustainability Failure Model seems to be used primarily when failure factors are occurring or after they have occurred. For this reason we cannot ascertain whether or not this model would be useful in analyzing the strengths of a successful project. Furthermore, while very useful for analyzing sustainability issues, the model does not help identify the actual impacts of a telecenter project on the users themselves, i.e. on the knowledge or skills that they acquire, or the opportunities they gain. This is important to bear in mind because it is conceivable that a telecenter project could be successful in terms of its sustainability, but unsuccessful in terms of bringing benefits to its users.

3.4.4 Programme design and implementation

The approach we term "program design and implementation" focuses on strategies for successfully implementing an eInclusion program or telecenter. Here, the process of implementation is the focus of analysis. Examining an eInclusion project from the perspective of implementation is important because "implementation of ICTs for development is not simply a technical process of delivering services to the poor, but is a highly political process that involves tradeoffs and prioritization of particular goals to attain sustainability." (Kuriyan et al., 2006, p. 122) For a detailed account of the implementation of a non-profit NGO-type eInclusion project, see Figueiredo et al (2006).

Some of the studies included in this report added a additional layer to their analyses: that of sociocultural context. These studies, which used what they termed a society-centric (Mwesige, 2004) or a holistic cultural approach (Antin, 2006), reveal the ways in which local conditions (socio-cultural, historical, etc.) impacted the eInclusion measures enacted there. Taking socio-cultural context seriously involves understanding the meaning and significance of the eInclusion project and its accompanying resources within that local setting. (Antin, 2006) In this sense, the society-centric/holistic cultural approach adds an extra degree of customization to an eInclusion analysis, which is something that many of the articles and reports exhort researchers to do even as they call for greater degrees of localization of these projects.

Mwesige (2004), for example, includes a background on the "sociopolitical context" of Uganda, its telecommunications landscape, and a short summary of the historical trends pertaining to the implementation ICTs across Africa. Antin (2006) provides a framework for doing this kind of close cultural assessment. Hunt (2001) precedes implementation with the collection of local "stories" as a means of understanding who the key players are and what work they are already doing. These stories reveal "a host of problems faced by [local] communities which explicitly informed the design and conception of telecentre services." (Hunt, 2001, p. 6)

Impacts of eInclusion actors

As indicated above, there will be greater chances of long-term sustainability when a bottom-up approach is taken, rather than a top-down one. The implementation of eInclusion programs should be tailored to the unique circumstances, conditions, and socio-cultural contexts of the communities that they serve. (Antin, 2006; Gomez & Ospina, 2001) This involves not only knowing but also understanding these settings. "Designing culturally appropriate programs requires that researchers learn about the local context of the communities in which they work. Cultural assessment is not simply the gathering of cultural information, but also the acceptance of and respect for local cultural knowledge." (Antin, 2006, p. 180)

This observation about the need to tailor projects to their local circumstances was borne out by many of the research articles reviewed, including one by Gomez & Ospina, who show that "the experience of Latin American Telecentres demonstrates that a single model of implementation can't be applied uniformly across the region. On the contrary, successful stories have been those based on participatory process through which the community has a participatory involvement in the dynamics of the Telecentres." (2001, p. 6) Furthermore, "telecentres are not enough to reduce the digital divide or to guarantee greater participation of those communities involved. Efforts still have to be directed towards training and infrastructure, towards public policies that support favourable legislation,

increased community involvement and participation, towards more alliances between the private, public and civil society sectors in order to guarantee sustainability, towards the involvement of women, and all social actors that can contribute to and benefit from this initiatives." (Gomez & Ospina, 2001, pp. 7-8)

In a recent study by Park, Roman, Lee & Chung (2009), it was found that the key variables of perceived usefulness and perceived ease of use impacted clients' intentions to use a digital library system launched in various developing countries in Africa, Asia, and Central/Latin America. "In particular, both individual attributes that ease and motivate users to seek for library systems (experience in computer use, domain knowledge, language, and interest) and system characteristics that assist these activities (accessibility, library assistance, and relevance) were critical to increasing users' behavioural intention to use. In other words, the results emphasize the importance of users and their environments over and beyond the implementation of information systems itself." (Park et al., 2009, p. 206) The implications for implementation here are that "in order to achieve the effectiveness of library assistance, library authorities need to develop a manual with tailored instructions or station librarians with knowledge of the digital library system so that users of the system can easily solve any technical or instructional problems they encounter. At the same time, it is necessary for local library authorities to actively communicate with system designers and to participate in the deployment process of digital library systems." (Park et al., 2009, p. 205) "Moreover, it is necessary to continuously update and incorporate relevant materials into the systems." (Park et al., 2009, p. 205)

Part of the work conducted by Strover, Chapman and Waters (2004) was to examine the "organizational and institutional practices [used in implementing]" of a community network program in the United States. They produced numerous findings on how various aspects of implementation (the function of the sites, the site locations, language, services, etc.) impacted usage of and satisfaction with the eInclusion actors. Some of these findings include:

- The most well-liked types of sites were those at "community centers, schools and libraries, with ongoing programs and activities that attract people." (Strover et al., 2004, p. 473) These sites were good ones because "both schools and libraries were logical, open-to-all institutions with more staff, infrastructure, and resources to manage this equipment than other types of locations.

- The availability of technical and financial staff alone significantly lessened some of the aggravations faced by agencies or sites without these resources." (Strover et al., 2004, p. 475) The drawback of schools and libraries, however, was limited opening hours in the evenings and outside of the academic year. Strover et al suggest that "This pattern of access site placement raises an essential question: do facilities placed in schools and libraries meet the goals of reaching new constituencies, as opposed to the people accustomed to those institutions from the outset? This fieldwork, as well as the authors' familiarity with other community access studies, suggests that certain social groups, in fact, do not feel comfortable in school libraries, and do not view these as inviting sites.… For some localities, schools are absolutely central institutions; for other communities, they are distant and even oppressive places." (2004, p. 476).

- The eInclusion project also tested "mobile computer-equipped vans, laptop loan programs, and establishing videoconferencing facilities" but these generally drew fewer users. (Strover et al., 2004, p. 473) The laptop loan program was very

popular in a few communities, although they "introduced new problems and administrative concerns, such as security and enforcement of acceptable use policies and mostly kept the use of their machines very limited. In several communities, thefts had been reported." (Strover et al., 2004, p. 474).

- There were cases of clients using the technologies and services in innovative, unexpected ways. "For example, local ranchers in Haskell used the CN's digital cameras and access site computers to send photos of horses that were suspected of having contracted an equine version of "mad cow disease" to veterinary specialists at Texas Tech University in Lubbock. In Clifton, people used the project's digital cameras to photograph objects they planned to sell on E-Bay. The high-quality printer in Sanderson allowed one individual to print his photographs as postcards. In Bryan a local resident put together a community newspaper in the youth center public access site." (Strover et al., 2004, pp. 473-474).

- One problem in selecting and deploying sites was that "computers that were 'dropped in' to locations where they were unexpected or inconsistent with the other activities and services offered at that place were not well utilized…. In some cases, site personnel actually resisted receiving equipment for public access because of anticipated problems with security, assistance, and space." (Strover et al., 2004, p. 477) On the other hand, "computers that were integrated into facilities with existing activities and services seemed to be very well utilized." (Strover et al., 2004, p. 477)

- Another series of factors impacting access and usage is linked with location, and that is "factors that influence the culture and accessibility of locations…[such as] proximity to transportation, availability of childcare, staff support, and language spoken at the site all affect use by community members." (Strover et al., 2004, p. 479) Well-trained and motivated staff who were prepared to assist clients were also vital, as was a good bank of technology & equipment.

- Marketing and promoting the sites was a critical factor in implementing the projects successfully. (Strover et al., 2004).

In a study on the implementation of family technology resources centers in the United States, it was found that the two major obstacles to successful implementation were that not all stakeholders supported implementation, and the fact that some funding conflicts arose. (O'Neil & Baker, 2003) Key implementation points that contributed to success were: keeping the costs of running the eInclusion project low; having sufficient support mechanisms in place; making sufficient use of resources in the community, and ensuring that the actual needs of the community being served are met. (O'Neil & Baker, 2003)

Finally, when adequate technical and training support is provided to the sponsors of the eInclusion project (in this particular case, this was both government and NGOs) there is likely to be a greater show of support for the overarching goals of the project and their implementation. (McCall, 2009)

Strengths

Depending on whether or not a society-centric or a holistic cultural approach is incorporated into the program implementation, this type of analysis could potentially support a grassroots, bottom-up approach to establishing eInclusion measures. In this way it could lead to telecenters that better fit local needs, constraints, opportunities, etc.

Weaknesses

The analysis and formulation of program implementation approaches only covers a limited time in the lifespan of a telecenter project.

3.5   Development-supported communication (DSC)

The development support communication (DSC) approach falls under the larger branch of development communication (devcom) theory.   Briefly, development communication is a broad field of study and practice focused on designing messages (for speech, film, text, etc.) to promote social change in specific local/cultural contexts, often (but not exclusively) in rural and/or developing areas.   Similarly, DSC is about effecting change (Barker, 2001), but specifically involves the practice of using various media (film, print, radio, etc.) to produce and disseminate messages for social change.   However, in utilizing DSC the emphasis is on closely involving the local community in fashioning, producing, and sharing these messages.   In this way, community members benefit not only from the development communication and its direct outcomes, but also from taking an active role in its production.

Other important elements of DSC are that it "applies to micro or local entities, is goal-oriented and concerned with effects…[and] uses a whole range of culture-based media.... DSC is communication that is specifically designed to support a particular development programme.   It can therefore work effectively…even in the absence of [development communication] throughout the rest of society." (van der Merwe, 2001, p. 8)

In other words, DSC fosters "horizontal knowledge-sharing between participants; [a] participatory paradigm of an endogenously directed quest to maintain control over basic needs; grassroots/local/small media; video/film and traditional media; group and interpersonal communication; and the creation of a climate of mutual understanding between participants." (Dralega, 2009, p. 27).   It also serves to localize communication through the use of both messaging and channels that are appropriate to the specific context in which they are developed and deployed.

There are four main stages in utilizing a DSC approach, as outlined in Servaes (2002):

1. Needs Assessment / Information Gathering
Determine key development priorities through field surveys, community consensus, interviews with field specialists and subject matter specialists; assess media channels available to potential target groups; ascertain whether technology transfer inputs are readily available.

2. Decision Making / Strategy Development
Prioritize needs, select the most important and establish development or project objectives to be addressed; identify target groups, carry out baseline knowledge, attitudes, practices (KAP) survey, conduct focus group sessions, determine multi-media mix and message design strategies.

3. Implementation
Draw up an action plan, produce and field test samples of media materials, revise and finalize materials, train field staff in content and use of materials, distribute materials, and monitor campaign as it unfolds.

4. Evaluation
Carry out small-scale field evaluations at strategic points during campaign to suggest where "in course" changes may be warranted; conduct full-scale post-campaign impact

evaluation survey and use as feed-forward for future campaigns. (Servaes, 2002, p. 10)

Cadiz (2005) includes the additional step of "planning for continuity." (p. 152) For related material on DSC, see the OECD website on Communication for Development (C4D).

Impacts of eInclusion actors

DSC studies have demonstrated impacts such as:

- Enhanced innovation of modern (i.e. non-traditional) communication that is integrative and holistic, as all community members contribute to messaging. (Dralega, 2009)
- A shift in relational dynamics, because communication is no longer monopolized by those who are characterized as experts. (Dralega, 2009)
- A resurgence of traditional media such as storytelling, folk songs, proverbs, etc. as well as their innovative integration into the technology-mediated channels supported by the eInclusion initiatives. (Dralega, 2009)
- A DSC project in the Philippines achieved a promising degree of sustainability through empowering community members and project beneficiaries with the skills to maintain the project themselves. What's more, political backing and the support of key community members gave the project a strong start. (Malicsi & Apolinar, n.d.)
- To better apply the DSC approach, several major changes must be made at national levels. These are: expanding and improving communication infrastructures; ensuring that national authorities understand the DSC approach; and training teams in the use of the media employed in DSC initiatives. (Colle, 2007)

Strengths

DSC provides added benefit to local communities since they are involved in the production and dissemination of communication. It is arguably a more sustainable approach since you are empowering the local community and addressing the issues directly relevant to them. DSC is an approach designed to reach masses of people; since it involves messaging for social change it has the potential to impact groups and/or communities at a broad level.

Weaknesses

The DSC approach, which depends on strong cooperation and partnership with community members, may be incompatible with the goal of creating and disseminating messages that directly contradict local knowledge and practice. Furthermore, it is challenging -- if not impossible – to ensure that a truly representative and complete group of participants engages in the message creation and dissemination.

3.6   Cost-benefit analysis

A cost–benefit analysis is a way of calculating how the costs (generally monetary) measure out against the benefits of a venture. Conducting a cost-benefit analysis is one way of determining whether or not an eInclusion project is viable or sustainable in the long- or short-term.

Impacts of eInclusion actors

One of the most typical elements of telecenter cost-benefit analyses is that of service price. Many evaluations of telecenters are concerned with the balance between the cost of providing telecenter services to the public, particularly underserved and resource-

challenged public, and the costs recovered by charging the clientele. On the one hand, eInclusion projects are designed to provide equal access to those who, if unassisted, would be less likely to have it. To recoup the costs of this service, it makes sense to charge the client. If however, the clients are charged, or charged too much, they may be less likely to access eInclusion services, thereby defeating the purpose of the projects. When state-run projects turn to the private sector for management of eInclusion projects, they may be harshly criticized for pandering to the private sector (Kuriyan et al., 2006).

Furthermore, "promoting a more entrepreneur driven model of success could result in the perception that the project doesn't address the development needs of the 'masses'. But without financially successful entrepreneurs, the project cannot go to scale without incurring huge and continuing costs for the state." (Kuriyan et al., 2006, p. 124)

Strengths

A cost-benefit analysis is a relatively straightforward analysis to run. It can quickly and easily help evaluate whether or not an eInclusion project is financially viable.

Weaknesses

While a cost-benefit analysis can produce substantial information on the financial health of an eInclusion project, it does not necessarily reveal non-cost-related benefits in a project's favour. For example, it is conceivable that an eInclusion project might be expensive to maintain, and might not recoup its costs financially, but is in fact successful in bringing new knowledge, skills and opportunities to the people it serves.

Appendix 8 provides a summary of the theories and conceptual explanations included in this chapter.

4. DIGITAL INCLUSION IMPACTS: THEORIES AND EXPLANATIONS

4.1 Effective use

The concept of effective use proposed by Gurstein (2003) addresses the need for conditions that enable active and effective use of ICTs. The mere availability of technology does not guarantee that target populations will be able to use it in the required or expected manner. Ensuring effective use requires attention to:

1. Carriage facilities: appropriate telecommunications infrastructure capacity (type of infrastructure, bandwidth etc.) for the project goals.

2. Input/output devices: devices that are appropriate for particular services or goals (e.g. computers versus mobile phones for a health alert service).

3. Tools and support: depending on the initiative and service goals, this may be software, physical supports, protocols, service support, etc.

4. Content services: content should be accessible (e.g. language), credible and relevant to users' needs and wants.

5. Service access/provision: access to related organizational and social infrastructures (e.g. existence and accessibility of healthcare providers for e-health programs in remote areas).

6. Social facilitation: coordination with related local agencies in areas such as training.

7. Governance: this relates to the local or national governance regime within which the initiative is implemented. Effective use requires enabling financial, political, regulatory environments that do not inhibit the ability to implement particular objectives (e.g. existence of financial systems for electronic health services that require prepayment).

Impacts of eInclusion actors

The literature indicates that the digital inclusion impacts of eInclusion actors include the following:

- Populations that were previously underserved or not served at all are able to gain access to computers and the Internet. Even those who have access to ICTs elsewhere benefit from more convenient access in terms of available equipment, quality of connections, hours of operation. (Haseloff, 2005; London, Pastor, Servon, Rosner,Wallace, 2006; Sullivan, Vander Leest & Gordon, 2008;)

- Users become producers as well as consumers of content (Sullivan, Vander Leest & Gordon, 2008)

- Outcomes are not uniform across all contexts. Although ICT access may increase, true digital inclusion may be slow in coming where other social and economic barriers limit meaningful use and appropriation (Codagnone, 2009; Roman & Colle, 2002). Furthermore, individual-level variables such as innovativeness can also affect the extent to which eInclusion initiatives translate into achievement of digital inclusion objectives within particular timeframes.

Strengths

- Thinking about technology access in terms of effectiveness acknowledges that a variety of organizational and environmental contexts need to be in place in order to translate access into broader impacts.

- This approach focuses solely on organizational and institutional requirements, and doesn't address individual user factors that can affect patterns of use.

4.2   Diffusion of innovations

Diffusion of innovation theory (Rogers, 1995) describes how innovations spread after being introduced into a social system. There are four main elements in the process – the innovation, communication channels, time and a social system. Typically adoption over time takes the form of an S-curve – a slow uptake by a few risk-takers (innovators), followed by more rapid growth as more people (early adopters and early majority) adopt the innovation, and then a leveling out of the adoption rate when there are fewer remaining potential adopters (late majority and laggards). In addition to user characteristics that predispose them to be early or late adopters, the theory also outlines factors that affect the rate of adoption. These are advantage, compatibility, trialability, observability, and complexity of the innovation. Others have added the factors of voluntariness, image and visibility.

The role of change agents and local opinion leaders is an important component of diffusion theory. In essence, change agents (those charged with implementing an innovation) can best achieve their aims by identifying local opinion leaders and soliciting their support for the new technology. However this also requires that change agents facilitate information sharing pathways that reach different groups in the target population.

Impacts of eInclusion actors

Research indicates that ease of use, relative advantage, and compatibility are the most important variables impacting adoption. The relevance of diffusion theory for telecenters is two-fold. First, for newly introduced eInclusion initiatives adoption is likely to follow the S-curve trend; second, by adequately addressing the issues that affect adoption rates, telecenters can play a central role (as intermediaries) in speeding up the rate of adoption of their own initiatives as well as the ICT adoption process overall (Lagos, 2008). This may happen by providing ICT facilities through existing establishments, rather than setting up new venues (Salvador, Sherry & Alvaro, 2005).

Strengths

- Diffusion of innovation is an established and tested framework.
- There is a clear structure with identified elements to guide use of the approach.
- The approach examines innovation adoption at both micro- and macro levels, thus providing a way to connect individual behaviour to aggregated, community level outcomes.
- The approach acknowledges that innovations can have positive and negative impacts, and that it is not possible to design interventions so as to obtain the positive impacts without experiencing the negative as well.

Limitations

- Diffusion theory has been criticized as having a marketing orientation, being primarily concerned with understanding why a technology is or is not successful (Rissola & Centeno, 2010).

- There is evidence that the process of innovation diffusion widens socio-economic gaps instead of narrowing them because early adopters get a head start on the benefits of new technology. Additional factors such as the social structure may perpetuate existing inequalities (Rogers, 1995).
- There is a tendency to blame individual characteristics for slowness in adoption rates, whereas a wealth of exogenous factors could be inhibiting uptake.
- Diffusion theory tends to have a pro-innovation bias; i.e. it is assumed that the innovation is good for society and should be adopted by all.

External factors: social structure

4.3. Technology acceptance model

Technology acceptance models such as the theory of reasoned action, the theory of planned behaviour (Fishbein and Ajzen, 1975) and the technology acceptance model (Davis, 1988), focus on cognitive aspects of technology adoption. They attempt to predict technology adoption by examining attitudinal factors believed to guide consumer behaviour. Davis' (1989) Technology Acceptance Model (TAM) maps the relationship between perceived ease of use (the degree to which a person believes that using the system will be free of effort) and perceived usefulness of a technology (extent to which a person believes that using a system will increase his or her job performance), and intention to use the technology. This model has been upgraded by Venkatesh (Furuholt & Kristiansen, 2007) into a unified theory of acceptance and use of technology (UTAUT). UTAUT identifies four factors that determine the rate of technology adoption: performance expectancy, effort expectancy, social influence and facilitating conditions. This model also accounts for the influence of demographic factors.

Technology Acceptance Model (Davis, 1989).

Impacts of eInclusion actors

Park, Roman, Lee and Chung's (2009) study of data from a survey of 16 institutions showed that perceived ease of use had a significant impact on perceived usefulness and consequently on intention to use digital library systems. Intention to use is influenced by individual characteristics of users (such as prior experience with computers), system characteristics (such as provision of assistance) as well as social and organizational contexts.

Harris (2001), in an analysis using several theoretical approaches including technology diffusion and acceptance concepts, found that community characteristics were the most important determinants of telecenter success, while noting that these characteristics are also the most difficult to manage.

Others have found that factors such as performance expectancy; social influence, management effectiveness, program effectiveness and facilitating conditions were good predictors of user acceptance of telecenters (Abdulwahal & Dahalin, 2011). In Abdulwahal and Dahalin's (2011) study of telecenters in Nigeria, social influence was the most important predictor, while effort expectancy was not a significant influence on behaviour intention.

Strengths

- This is a well-established framework extensively used in the information systems field.
- The approach enables identification of the attributes of users and eInclusion initiatives that determine whether or not technology will be adopted.

Limitations

- It provides a measure of people's intention to use a new technology, not their actual use. Various factors could limit people's ability to act on their intentions.
- Technology acceptance models imply that potential users are a homogeneous mass approaching technology from the same perspective with the same set of evaluation criteria. However people generally interpret, respond to and use the same technology in different ways (Salovaaraa & Tamminen, 2009).
- This approach suggests a linear model of human behaviour. However the passage of time (Salovaaraa & Tamminen, 2009) as well as other demographic (Furuholt & Kristiansen, 2007) and socio-cultural factors (Bonadia, Avila, Ogushi & Holanda, 2007) can lead to variations in attitudes and behavioural intentions towards technology.

External factors: different use contexts, changes in contexts of use over time, social dynamics.

4.4 Technology appropriation

The concept of technology appropriation deals with the process through which technologies become integrated into users' lives, and how people make technology "their own." It is a contextual approach to understanding how technology is spread, adopted, and utilized. Technology appropriation calls for attention to the quality, diversity and intensity of ICT use, which can moderate impacts. Several concepts and models can be associated with this idea.

Domestication studies, for instance, examine how people incorporate ICTs into their daily lives and, in the process, develop new practices and attach new meanings to the technology. The process involves adopting the technology, adapting it to daily practices, and changing routines and contexts, all of which feed into the on-going technology development process at the industry level.

From the perspective of eInclusion initiatives, the technology appropriation argument is that unless users incorporate eInclusion initiatives into their everyday lives, lasting impacts are

unlikely to occur. Thus the policy recommendation for eInclusion actors is that "the focus on access or on improvement of skills is not enough to promote socio-economic inclusion. It is also necessary to know how ICT is experienced in the context of people's everyday life in order to define adequate policy strategies." (eInclusion revisited, 2005, p.16-17; also Codagnone, 2009). Faulkner and Stewart (2012) identify four key inclusion needs that are important to facilitate the domestication process: access to technology, motivation to use, capability to use, and technical and emotional support. E-Inclusion actors can be a useful resource as local experts to meet these inclusion needs.

Strengths

- The technology appropriation perspective conceives of users as active participants in the technology development and diffusion process.
- It accounts for the heterogeneity of users and contexts, as well as the potential flexibility of technology to be amended to different purposes.
- It focuses on actual user behaviour, thus revealing the reality of how technology gets used. This means it has the potential to capture unexpected, unpredictable and negative consequences more fully than other approaches.

Limitations

- The concept of appropriation remains relatively undefined, with views ranging from those who see it as part of the technology adoption process, to those who only consider appropriation to have occurred when technology is used in unexpected ways.
- Technology appropriation approaches tend to be more descriptive than prescriptive. That is, they describe what has already happened following the introduction of a technology. Although some scholars have tried to outline recommendations to "design for appropriation," the inherently unpredictable nature of technology use recognized by this approach also means that it is difficult to make strong and meaningful prescriptions.
- It is not clear whether user appropriation can be manipulated in a particular direction. Thus it would be difficult to target an eInclusion initiative towards specific impacts within this framework. This approach would be most suitable for initiatives that have highly generalized goals or can accommodate the unpredictability of outcomes.

4.5   Digital literacy framework

Telecenters can have an impact on digital inclusion by facilitating digital literacy, and also the ability to utilize digital technology to pursue a variety of information and communication goals. Rissola and Centeno, (2010) note that simple access to technology is necessary but not sufficient. Rather, certain foundational skills are needed for effective ICT use in the pursuit of socio-economic goals. They conceptualize digital competencies as encompassing "critical and confident use of ICT, including: ability to participate in social networking applications and in collaborative environments, awareness of security threats and risks, and also ability to use ICT for creative and innovative purposes, irrespectively of the context (business, social, etc.)" (p.18). It is also recognized that digital literacy initiatives need to be customized to specific populations since personality, culture, and other contextual factors influence the digital literacy needs and outcomes for different groups.

The digital literacy framework (Eshet-Alkai, 2004) "is a comprehensive framework describing the social and cognitive skills required in the current digital environment" (Huerta & Sandoval-Almaz´an, 2007, p.220). The framework identifies five skills required for digital literacy: photovisual, reproduction, branching, information, and socio-emotional.

1. Photovisual skill – the ability to use graphical user interfaces and understand information from different sensory channels.
2. Reproduction skill – the ability to synthesize and analyze the information gathered to create an original piece of work.
3. Branching skill – the ability to navigate and find information in a nonlinear (hyperlinked) environment.
4. Information skill – the ability to assess the quality of the information retrieved.
5. Socio-emotional skill – the ability to interact with other people on the Internet, including understanding online codes of conduct.

Impacts of eInclusion actors

Using this framework, Huerta and Sandoval-Almaz´an (2007) found that not only did telecenters users lack branching, reproduction and information skills, but they were generally unaware of this deficiency, especially with information skills. Significantly, Huerta and Sandoval-Almaz´an also note that telecenters cannot be held responsible for providing users with training in these aspects of digital literacy, suggesting instead that this should be incorporated into the formal educational system. This is because the need for information and reproduction abilities is not unique to the digital environment and therefore training should be within a broader context. Nevertheless, telecenters (acting as intermediaries) can contribute to development of these skills by promoting training in related topics, for instance through access to online tutorials. Telecenters can also be instrumental in bridging access barriers for people with language limitations.

On a more general level, researchers have found that telecenters users acquire or improve technical and non-technical computer and internet skills (e.g. Sullivan, Vander Leest & Gordon, 2008; London, Pastor, Servon, Rosner, Wallace, 2006). Conversely, low language and digital literacy skills inhibits use of telecenters services (Blattman & Jensen, 2008; Huerta & Sandoval-Almaz´an, 2007)

Strengths

- The digital literacy framework provides a clear structure and elements for measuring digital literacy skills. In addition, the framework has been empirically tested[2]
- This is a useful way of conceptualizing how access to ICTs at telecenters can lead to enhanced digital skills. It addresses the one of the most basic benefits that telecenters can provide, by virtue of their mandate to make ICTs more accessible.

Limitations:

- This framework does not necessarily link development of digital literacy skills to actions by the telecenters. Rather, it proposes that existing digital literacy skills will

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[2] E.g. Aviram, Gurion, Eshet-Alkalai (2006).

affect the extent to which people can use and gain impact from telecenters (the relationship is in the opposite direction).

- It could be a rather mechanical way of approaching and identifying skill development by implying that people should have the same set of digital skills to be considered competent. For example, the indicators used by Eshet-Alkalai include the ability to plan a trip to an unknown country using hyperlinks (branching literacy) or to critically evaluate a news story (digital literacy).

Appendix 9 provides a summary of the theories and conceptual explanations included in this chapter.

5. SOCIAL INCLUSION IMPACTS: THEORIES AND EXPLANATIONS

5.1 Community infrastructure theory

Communication infrastructure theory (Hayden & Ball-Rokeach, 2007) and similar frameworks propose that community development, civic engagement and empowerment require community members to have spaces and tools for community-building activities. The communication infrastructure theory is "concerned with how information and narrativization of community facilitates the maintenance of communities both subjectively and objectively by the residents and community actors" (Hayden & Ball-Rokeach, 2007, p.240). A community's communication infrastructure has two main components:

1. The neighbourhood storytelling network: residents, community and non-profit organizations, and local media.

2. The communication action context: the communication environment in which storytelling takes place — including cultural context, safety and security conditions, transportation networks, availability of public spaces such as library and parks, etc. The communication action context may facilitate or constrain storytelling.

Communication infrastructure theory framework. http://www.metamorph.org/research/theory/

Impacts of eInclusion actors

In this context, community technology centers (CTC) are viewed as an integral part of a community's communication infrastructure — knowledge hubs where learning communities can develop, intergenerational exchanges occur and users participate in interpersonal and community story-telling. Storytelling is conceived as the basic way in which communities are created: "the act of storytelling amidst a network of community residents, organizations and media actively constructs the sense of community identity and collective efficacy." (Hayden & Ball-Rokeach, 2007, 239)

CTCs serve a dual role as "digital hubs." They provide residents with information/stories about their community (storytelling access), and they offer residents, local media and community organizations the ability to tell their own stories (storytelling capacity). Essentially they enhance the capacity of community residents to be both consumers and producers of content in a local storytelling network, where capacity ranges from technology

use skills to storytelling skills. The process of both having access to information about the identities, experiences and goals of one's neighbours, and being able to contribute to that pool of information, generate meaning and communicate those interpretations creates a stronger community. Thus the existence of a strong communications infrastructure makes it easier for community building to occur.

Strengths

- This framework offers a way of connecting community technology interventions to local community building and social mobility outcomes. The focus is not so much on the technology provided as on what happens in the spaces and capacity-building tools provided for human interaction and story-telling.
- It also links processes at the interpersonal level to social outcomes.
- Empirical observations of community practice are the starting point for application of this theory. Thus it avoids the tendency to evaluate eInclusion interventions in terms of potential rather than actuality; it outlines "how the practice of everyday communication and connectedness to media technology serve to construct the social environment" (Hayden & Ball-Rokeach, 2007, p.238)

Limitations:

- It can be difficult to implement, requiring multiple methods and levels of analysis.

External factors: all elements in the communication action context affect the effectiveness of storytelling and the related outcomes.

5.2 Sustainable livelihoods framework

Livelihoods approaches to development put eInclusion initiatives in the context of people's efforts to make a living, and the resources they have access to for that purpose. It is expected that telecenters can help support livelihoods in a variety of ways – access to information, computer skills development, access to government and other social services, access to business-related training, and provision of business enterprise services.

The sustainable livelihoods approach originating in the work of Chambers and Conway, and promoted by DFID in its most popular form, defines a livelihood as "the capabilities, assets and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base" (Chambers & Conway, 1991, p6). The principles underlying the framework are that development activities should be (Hussein, 2002, p.15):

- People-centred: beginning by understanding peoples' priorities and livelihood strategies.
- Responsive and participatory: responding to the expressed priorities of poor people.
- Multi-level: ensuring micro-level realities inform macro-level institutions and processes.
- Conducted in partnership: working with public, private and civil society actors.
- Sustainable: environmentally, economically, institutionally, and socially.
- Dynamic: ensuring support is flexible and process-oriented, responding to changing livelihoods
- Holistic: Taking into account the broader context in which livelihood activities occur

- Building on strengths (assets) while addressing vulnerabilities

In the sustainable livelihoods framework poor people are viewed as operating within an environment that is subject to changes over which they have limited control but which can fundamentally affect their ability to make a living (the *vulnerability context)*. It operates under the assumption that poor people are more susceptible than wealthy people to stresses and shocks that diminish their livelihoods. *Livelihood assets* highlight human, social, natural, physical and financial capital available to the poor. Institutions, policies and regulations (*transforming structures and processes*) influence people's ability to engage in activities and make choices (*livelihood strategies*) in order to achieve certain *livelihood outcomes.*

Impacts of eInclusion actors

The results from research are generally mixed but point to a complex interaction of ICTs with the livelihoods objective.

- Capacity-building: Using a general livelihoods approach, Soriano (2007) found that the community telecenters studied in a Chinese province did not have a dramatically transformative impact on rural poverty but nevertheless made contributions to building capacity in all the livelihoods capitals (human, financial, natural, physical and social).
- Computer skills development for employability: Parkinson and Ramirez (2006) in a study of telecenters users in Colombia found the main livelihood strategy signaled by users' behaviour was that of increasing long term financial capital (specifically improving employment prospects in the formal sector by enhancing their computer skills). This was in contrast to the objectives of the telecenter project, which was to enhance the economic wellbeing of community members by linking them to economic opportunities such as trading partners and potential employers.
- Business development services and related training: to a limited extent, some telecenters provide access to training that is linked to users' livelihood activities (UNCTAD, 2008).
- Promotion of government services: a study in Chile found that while telecenters played a significant role in promoting government services, and successfully collaborated with partners to facilitate activities such as online filing of taxes, observable broader socio-economic impact was limited (UNCTAD, 2008).
- Social equity: a study by Parkinson and Lauzon (2008) found that the telecenter they studied did not improve social equity in the community.

Strengths

- This is one of the few approaches from the development field that has made its way into ICTD research. It is uniquely appropriate for this purpose because it focuses on the one thing that poor people spend significant proportions of their time doing – trying to make a living with available, accessible resources.
- The sustainable livelihoods framework identifies the main elements that comprise or have implications for people's livelihoods. As an analytical tool it offers useful concepts such as the distinction of livelihood assets and the issue of sustainability. It also helps to pinpoint vulnerabilities that not only need attention for livelihood

sustainability, but which could also undercut development efforts. It takes a holistic view of the condition of poverty.

- This approach has an empowering orientation because its starting point is the existing asset base of the target population. In this way it seeks to leverage and enhance what poor people already have, rather than assume absolute levels of deprivation.
- This approach is useful because it can unearth unexpected results, due to the focus on what people actually do with the resources at their disposal.
- It can serve both as an approach to interventions as well as an evaluation tool or simply a development objective (Farrington, 2001; Duncombe, 2006).

Limitations

- The holistic nature of the livelihood approach can make it difficult and costly to operationalize or implement fully. There are concerns about issues such as the cost of implementing SL approaches because of the following: numerous variables that need to be accounted for; difficulty monitoring and measuring progress especially with regards to non-income livelihood outcomes; the inability to analyze livelihoods at the national level, especially with highly heterogeneous populations; and the fact that macro and meso level components are not as deconstructed as household level components (Ashley & Carney, 1999; Farrington, Carney, Ashley & Turton, 1999).
- It is argued that trying to operationalize the framework often detracts from the critical tasks of addressing and understanding the environmental issues that are at the root of poverty, thereby causing the model to lose its power (Toner, 2003).
- This approach may overemphasize the assets or strengths of poor people and assume that they are deliberately strategic in their exploitation of assets, whereas they may be relatively helpless in the choices they make. Related to this is the critique that this approach neglects or downplays a number of important issues including the influence of power relations and gender, as well as market and private sector behaviour that have a constraining effect (Ashley & Carney, 1999; Farrington, Carney, Ashley & Turton, 1999).
- Despite the centrality of sustainability to the approach, in practice, sustainability issues get overlooked or their complexity is not acknowledged (Ashley & Carney, 1999). The few applications in ICTS work focus more on how people make a living and less on how that living can be made sustainable.
- It has been suggested that proponents of the approach assume that poverty reduction will result from its implementation, without clearly establishing the link between livelihood sustainability and poverty reduction (Ashley & Carney, 1999).
- Causality is difficult to establish.

External factors: The sustainable livelihoods approach is inherently one that takes into account the entire ecology of poverty. Therefore all outcomes are considered in relation to the external environment ranging from access to particular assets, appropriate livelihoods related content, the quality of existing infrastructure, and regulatory institutions. All of these impact how livelihoods are pursued.

5.3   Social capital: social connections

The value of social networks in advancing social and employment goals for individuals has long been recognized. Social networks or social connections have a profound impact in the

quality of live. People who have diverse social connections "report higher life-evaluations, as many of the most pleasurable personal activities involve socializing. The benefits of social connections extend to people's health and to the probability of finding a job, as well as to several characteristics of the neighbourhood where people live (e.g. the prevalence of crime and the performance of local schools)." (Stiglitz, Sen & Fitussi, 2010: 51).

The extent to which an individual is able to establish diverse social connections can be an important factor in her successful incorporation into the labour market and her upward mobility (Drever & Hoffmeister, 2008). Numerous field studies indicate that a large portion of workers find jobs through their social networks. In Europe and the United States it is estimated that about half of all jobs are obtained through social contacts (Armengol, 2006). Online professional networks such as LinkedIn, Xing, and their like are accessed job seekers and enterprises around the world. In a similar vein, understanding people's civic and political engagement, their voluntary work in social organizations, the type of relationships they have with neighbours and family members, and the different ways in which they get their information and news (Stiglitz et al., 2010) provides crucial information on the different roles eInclusion actors play for advancing social and economic goals.

Impacts of eInclusion actors

- Participation in ICT skills training and other activities or programs provided by eInclusion actors helps individuals expand and diversify their social connections through the interactions and peer-to-peer learning promoted at the organizations.

- E-inclusion actors are often cited among the three most important channels for finding employment opportunities, and allow individuals to build bridging networks that are positively associated with both employment and income (Lancee, 2010). This is particularly relevant for groups that remain limited in their social interactions because they navigate embedded networks (for example, immigrant women usually find employment and opportunities through other migrants of their same country of origin) or simply don't have the possibility of that social interaction.

- The social spaces created by many eInclusion actors allow for the development of bonding networks. These networks, although not always important for advancing employment outcomes, often provide additional support, assistance, resources, and the opportunities to socialize with people who come from a different gender, age, and/or cultural background.

- These social spaces can have a positive impact on promoting civic engagement and volunteer work, and engaging in community development activities.

Appendix 10 provides a summary of the theories and conceptual explanations included in this chapter.

6. EMPLOYABILITY OR ECONOMIC IMPACTS: THEORIES AND EXPLANATIONS

6.1 ICT and employability framework

The diffusion of information and communication technologies (ICTs) across all economic sectors is placing new demands on workers' skills. The changing skill set is both expanding employment opportunities and imposing new demands on disadvantaged groups. In today's job market, basic ICT skills are considered essential for people entering the workforce and for those trying to find a better job. "Governments consider an ICT-skilled workforce a strategic asset that spurs economic growth, promote competitiveness, and improves business productivity" (Garrido et al., forthcoming).

This analytical framework identifies the main elements to understand how basic ICT skills training provided by eInclusion actors can contribute to expand employability outcomes and economic opportunities for different disadvantaged groups. The framework outlines three levels of analysis for understanding this relationship: 1) eInclusion actors' program design and organizational capacity; 2) characteristics of individual job seekers or trainees; and 3) the environmental dynamics that influence employment outcomes and often are outside the control of eInclusion actors.

Two conceptual underpinnings guide the analytical structure of this framework: 1. Employability which authors define as the combination of factors and processes that enable people to progress toward or find employment, to remain employed, and/or to advance in the workplace (Brown, Hesketh, & Williams, 2003; Fugate, Kinicki, & Ashforth, 2004; Houston, 2005); and 2. The concept of "skills-based organizational and technological change" (de Grip & Zwick, 2005; Green, 2009; Machin, 2001), which implies that the diffusion of ICT across different industrial sectors, in addition to changes in business models, requires today's workers to incorporate ICT into their jobs (Green, 2009). These changes increase the complexity of skills required by today's workforce and threaten the position of low-skilled workers "when they do not succeed in adjusting their skills according to the shifts in the skills demanded in their job or sector of industry" (de Grip & Zwick, 2005, p. 6).

Against this backdrop, it is argued that eInclusion actors are uniquely positioned to provide training and job-seeking assistance to people who face higher barriers to employment. These organizations offer access to training programs that are free or affordable in an environment that promotes lifelong learning, as well as being generally able to adjust more easily to diverse groups and learning styles. ICT skills training is a key component of employability programs throughout the world. For analytic and programmatic purposes, it is important to recognize the many ways that basic ICT skills training is delivered and the multitude of factors that interact with training to influence desired employability outcomes, especially for disadvantaged populations.

Impacts of eInclusion actors

- ICT skills training allows lower skilled workers to develop their technical skills, thus increasing their competitive position in the labour market (Garrido et. al, 2010)
- E-inclusion actors that combine ICT skills training with other employment-related services (job interview skills, connection to employers, internships, etc.) have a higher success rate in job placement for their program beneficiaries (Khan & Ghadially, 2010; Garrido et al., 2010; Garrido et. al, 2009)

- ICT skills training can function as a catalyst to develop other critical skills that are highly valued in the labour market. For example, in a study of immigrant women in the European Union (Garrido, 2009) it was found that ICT skills training, in addition to improving women's technical skills, also allowed them to develop social and cultural skills through their interaction with participants. Often times, eInclusion actors are used to directly promote social skills, such as in language courses.

- Participants of ICT skills training programs often develop close relationships when they participate in these courses. They also use technology to communicate with friends and family, which directly contributes to maintaining their relationships and expanding their social networks, both of which are often critical to finding a job.

- ICT skill level after training correlates with positive employment outcomes, when other factors such as location and age are controlled for. In a group of unemployed and low-skilled workers who participated in ICT skills training and employment-related services in Washington State (Garrido et al., 2009) the researchers found that trainees who found a job generally had higher ICT skills after the training than those who remained unemployed.

- Basic ICT skills training often functions as a lure for participants to engage in either additional ICT skills courses or in other types of training provided by eInclusion actors. This motivation can potentially impact lifelong learning objectives while improving technical or other skills.

Strengths

- The major strength of this analytical framework is that it was built inductively from research conducted with over seventy types of eInclusion actors in a variety of countries. This inductive process favours replicability in different contexts.

- The use of employability as a conceptual building block instead of employment is a plus. The contribution of eInclusion actors towards advancing employability is more evident than actually placing people in jobs since these actors have no control over labour dynamics.

Weaknesses

- Many of the analytical elements that this framework includes are based on perception of the trainees, for example perceived ICT skills level or motivation to find a job.

- The framework simply outlines some of the most common elements that explain the relationship between ICT skills training and employability but it is not comprehensive and there may be elements of the framework that are more or less relevant depending on the context.

6.2 Amartya Sen's capabilities approach

The Capabilities Approach was developed by Amartya Sen in the late 90s. Under this approach, Sen defines development as: "a process of expanding the real freedoms that people enjoy. Development requires the removal of major sources of economic unfreedom: poverty as well as tyranny, poor economic opportunities as well as systematic social deprivation, neglect of public facilities as well as intolerance of over activity of repressive states." (Sen, 1999:1)

The Capabilities Approach challenges the dominant conceptions of development that have permeated the field and interventions in the last sixty years. The most important contribution of Sen's work is that of the agential role of the individual – agency as in empowerment, not agency as in economic actor – as "a member of the public and as a participant in economic, social, and political actions (varying from taking part in the market to being involved, directly or indirectly, in individual or joint activities in political and other spheres)." This conceptualization of development and the role of the individuals and their communities is a dramatic departure from the commonly assumed understanding of development as a process where "the poor or marginalized" need the help of "the expert" in order to overcome poverty and exclusion. It makes the individual the principal and most important actor in this process and focuses on understanding the sources of "unfreedom and deprivation" that constrain the capabilities of this actor to have a fulfilling life.

Sen's alternative theoretical lens helps us to understand the conditions of poverty and social and economic exclusion while giving agency to those living in a disadvantaged position. It is increasingly being used to understand the contribution of eInclusion actors in advancing policy goals (See for example, Garrido et al., 2010; Codagnone & Kluzer, 2011; Alampay, 2006). Although the way the Capabilities Approach is operationalized differs from study to study, this approach can potentially help us to reconceptualize what it means to be excluded while providing agency and voice to those groups that we consider disadvantaged.

For example, applying Sen's definition of development and agency to understand the role of ICT skills training for immigrant women in the European Union (Garrido et al., 2010), one could claim that despite the fact that many of them are de facto excluded from the labour market there are many ways in which immigrant women "participate daily in shaping their spaces of residence in ways in which, enrich their lives". Looking at the "capabilities" of immigrant women from the perspective of their employment status or income level eclipses and limits our understanding of the different roles they have in their communities, their homes, their diasporas, etc. The sources of unfreedom or deprivation, as conceptualized by Sen, would be in this case the discrimination in the labour market, the lack of educational opportunities for immigrant women, cultural traditions that may limit their "agency" and participation in different levels of society, etc. Although it is very difficult to map all these sources of unfreedom and deprivation, it is possible to identify the main sources and how they affect immigrant women's capabilities for having a fulfilling life (however fulfillment and happiness may be defined).

The relevance of this approach is not limited to economic or employability related impacts of eInclusion programs. This approach is cross-cutting and as such it is relevant to all the different types of impacts we have identified in this report. The summary below provides some examples that highlight the cross-cutting potential of this approach.

Impacts of eInclusion actors

- Participation in ICT skills training improves the capabilities of trainees to extend their adoption and critical use. The condition of "disadvantage" that many participants are often assigned underscores the high motivation for learning and using technology and the perception of its usefulness to improve social and economic conditions (Codagnone & Kluzer, 2011).

- Participants of ICT skills training usually show higher motivation to engage in additional training than users of other programs and services provided by eInclusion actors. This

motivation for additional training translates itself into participation in higher-level ICT skills training, language training, entrepreneurial skills, etc. (Garrido et al., 2010).

- The different capabilities of eInclusion programs beneficiaries affects the different types of use, the frequency, and the purpose for that use. For example, Garrido et al (2010) found that immigrant women who had participated in ICT skills training used technology in a more diverse way (measured by the types of use) than those women who had not participated in the training.

- In terms of types of use, training participants are often more skilled at using ICTs to look for and apply for jobs. This impact, however small, should not be underestimated since the capabilities of people who face higher barriers to employment can be exponentially enhanced by access to ICT training and other employment-related services (Garrido et al., 2010; Garrido et al., 2009).

- E-Inclusion actors are often the most valuable channel for finding employment after family and friends. The effectiveness of eInclusion actors as a channel for employment manifests itself either by acting as a "greenhouse" by employment trainees directly, or by facilitating employment through a network of links (Garrido, et al., 2010)

Strengths

The major strength of the Capabilities Approach is that provides a way to challenge concepts such as marginalized, disadvantaged, excluded, etc. In addition, the approach allows researchers to focus on agency and the voice of those groups studied.

This approach is highly valuable in understanding how and under which conditions eInclusion actors advance social and economic goals, since nuanced impacts surface in a clear and more tangible manner.

The thinking behind this approach is informing the efforts of the European Union to design alternative indicators to social and economic wellbeing. Any efforts to use this approach to understand the role of eInclusion actors align clearly with the EU current thinking of what constitutes or should constitute social and economic impacts.

Weaknesses

- The approach is all-encompassing in nature and it is very difficult to operationalize the full scope of it. Many of the studies included in this analysis use the Capabilities Approach as a lens through which the relationship between eInclusion actors and social and economic impacts can be assessed. Only a few studies attempted to operationalize the approach.

6.3   Aspiration

It is not uncommon in employability research to place a major emphasis on statistics to understand the different factors, skills, and other elements that improve employment opportunities. However, behind the numbers and percentages there is a human story that is seldom told; the story that provides a venue for the voices of people seeking to improve their chances to find a dignifying job that allows them to support themselves and their families. This story, or multiple stories, humanize those numbers and percentages and put in perspective the importance of: bettering oneself; feeling motivated to learn new things; sharing of the process with others in a similar situation; and strengthening a 'capacity to aspire' (Appadurai, 2004) for a better future.

This human side of employability is critical and understanding this side from the perspective of eInclusion actors takes a high level of importance. Through the voices of individuals who face higher barriers to employment, it is possible to understand their motivations to join a training program; the perceived usefulness of the training and employment services; the value of ICT skills for improving employment opportunities; the potential for improving self-esteem; and the skills aspired to.

The perception of the value of ICT training and learning, plus an increase in self-esteem and self-confidence are perhaps just as important as the actual employment or wage outcome itself. For individuals who face high barriers to employment – the long-term unemployed, the low-skilled, older workers – learning new skills makes them feel 'modern', 'relevant', and motivates them to keep learning to improve their overall social and economic situation.

Impacts of eInclusion actors

Participants perceive the contribution of ICT training as very valuable in advancing their employment situation. This perception is shared by participants regardless of their individual employment outcomes after training (whether they find a job or not) (Garrido, et al., 2008.)

This positive perception of the contribution of the training and employment services goes not only across employment status, but also across gender, educational levels and wage levels for those who find a job after the training. (ibid)

In relation to motivation for participating in ICT skills training, participants often cite aspirations related to employment as major benefits. Participants feel that ICT training can expand their employment horizons into areas that may have been previously considered out of reach.

Across different groups there is a shared perception that ICT skills are very important to get better jobs, improve income, and learn more advanced technology skills or other kinds of skills.

Training provided by eInclusion actors not only builds human capital by improving an individual's skill set but also shapes and reshapes the perception of ICT skills usefulness in improving employment situations. This contributes to building the "capacity to aspire" and potentially expands professional horizons, self-esteem, motivation, etc.

Strengths

- The capacity to aspire provides a useful tool for assessing self-esteem, motivation for participating in training, types of jobs that individuals wish to obtain, etc. It brings a human face to the employability equation.

Weaknesses

- It is based on the individual's perception of self and her/his capabilities to aspire. It is difficult to assess the extent to which improving the capacity to aspire leads to specific outcomes. Even when it is possible to establish this connection, it is difficult to draw generalizable statements or findings.

Appendix 11 provides a summary of the theories and conceptual explanations included in this chapter.

7. LIFELONG LEARNING IMPACTS: THEORIES AND EXPLANATIONS

7.1 Empowerment as lifelong learning

Lifelong learning refers to either improvement of knowledge, skills and competences, or improving other aspects of a person's life. Ultimately, lifelong learning discourse sees eInclusion actors as Internet-facilitated spaces for empowerment (Hand, 2010). Here, "empowerment is conceptualized as participation in various activities aimed at changing the nature and direction of systematic forces which foster marginalization. It is associated with greater control over one's own actions as well as the environment and entails redistribution of power—whether between nations, classes, castes, races, genders or individuals—thus enabling participation of members of these groups in the mainstream development process" (Farida, K. and Ghadially, 2010 p. 660).

In relation to eInclusion actors is that internal psychological mechanisms must be transformed together with the e-skills acquisition to produce a 'development' outcome (Bradley and Poppen 2003 in Neff, P., Pal, J., & Frix, M.2009). These resources are acquired or learned at telecenters through the multiple activities that take place in social interactions there, and are not strictly limited to ICT skills or training. Learning is a constant process tied to "performativity' (Hand, 2010) and many occasions can become an opportunity for learning.

This framework is mostly based on theoretical assumptions, with anecdotal evidence rather than systematic research.

Impacts of eInclusion actors

Impact here is conceptualized as feelings of empowerment. There is qualitative evidence that correlates Internet use with enhanced feelings of empowerment (Farida and Ghadially, 2010; London et al, 2010; Neff, P., Pal, J., & Frix, M.2009). The impact of telecenters on skills and/or employability has been more difficult to prove in quantitative research. Some benefits associated with the ICT public access are a strengthened sense of community and a positive impact on self-esteem (Neff, P., Pal, J., & Frix, M.2009).

These impacts are important because improved self-esteem, motivation and confidence may also have individual employability impacts. Additionally, eInclusion clients may better withstand the psychological stresses of interviewing for jobs, of rejection, or of prejudiced views of disability encountered during the job search. (Neff, P., Pal, J., & Frix, M.2009).

It has also been found that technology centres enhance feelings of empowerment especially for people with disabilities, religious minorities, youth and women (Farida, K. and Ghadially, 2010; Freistadt, J., Pal, J., & Alves da Silva, R. 2009) by offering safe spaces and for establishing social networks. While the role of technology here may be marginal, the establishment of wider social networks could enhance employability through references and communication of job opportunities (Neff, P., Pal, J., & Frix, M.2009).

An important impact of empowerment through learning is that strategies focusing on individual skills and self-esteem may compensate in part for larger social exclusion (Neff & Frix, 2009).

Strengths

- This approach goes beyond the technological deterministic way of thinking about Internet access. As with other frameworks, the impacts of the telecenters occur through the interactions that happen among users and staff, and through the establishment of social norms.

- It recognizes the multiple skills and resources necessary to overcome exclusion. It does not attribute all the benefit or all the responsibility to Internet-based technologies. Technical training, while not sufficient, is necessary to propitiate the social interactions that strengthen individual skills.

- People empowered by social interactions at eInclusion venues, besides receiving e-training, increase their expectations and explore alternative paths to those offered in their communities.

Limitations

- Critics of the rhetoric of lifelong learning note that this view actually classifies multifarious everyday activities as 'learning' (Hand, 2010). Thus it is difficult to identify and operationalize what is learning and what is not.

- Here empowerment is the only type of impact, and there are no systematic data sets or longitudinal studies that prove other outcomes.

- Finally, the approach relies on the development of skills and competences for individual improvement. It doesn't suggest any alternatives for improving the circumstances that initially placed clients in the state of exclusion.

7.2   Intergenerational learning: the e-born as generational bridge

Intergenerational Learning (IL) describes the way that people of all ages can learn together from each other. IL is an important part of Lifelong Learning, where the generations work together to gain skills, values and knowledge. Beyond the transfer of knowledge, IL fosters reciprocal learning relationships between different generations and helps to develop social capital and social cohesion (European Map of intergenerational learning).

New media is ubiquitous: technology affects everyone everywhere even if they don't use it directly (Lievrouw, Leah, and Sonia Livingstone, 2002). Even as large part of our population is excluded from participating actively in the information society, another group has been privileged simply by being born in societies and under circumstances that make them especially knowledgeable about new technologies (Dralega & Skogerbø, 2010). Even in those places where access is limited and the digital divide is more evident, younger generations are more knowledgeable about technologies than their parents are. For young people at community telecenters, individual identities are partially built on their interactions with technology. (Dralega & Skogerbø, 2010, p. 71). The young are especially motivated to engage in activities that involve Internet-based technologies (London et al, 2010; Freistad and Alves da Silva, 2009).

Intergenerational Learning leverages youth as a bridge to connect to the e-excluded via new technologies. With intergenerational interaction, more is better, since with each interaction there are potential benefits to the community. The older generation gains access to information while youth are engaged in civic activities.

There is not much systematic evidence to support this framework; however this is a promising field to explore.

Impacts of eInclusion actors

Intergenerational interactions at telecenters impact community development. Baily and Ngwenyama (2010) found that older people and youth shared knowledge and assisted one another to further develop their ICT related capabilities, skills, and competencies as well as basic literacy and personal psychological-social assets. Older and younger users intermingled and cooperated at the telecenters and developed community spirit; increased their participation; and showed a general improvement in their present and future welfare.

Access to ICTs among youth, especially in peripheral communities, is assumed to contribute to democratic and distributive justice, even for family members who do not access the resources directly. This is because the elderly and infirm, who cannot reach the telecenters themselves, send in relatives as proxies to procure information (Baily and Ngwenyama, 2010). The young also contribute by working as an informational intermediaries to those who cannot have direct access to the venues. Older generations in turn can help revitalize collapsing levels of interest in political and civic engagement. (Dralega & Skogerbø, 2010).

Strengths

- Youth are seen as a source of development and not just an object to apply development strategies to.
- What with a shifting demographic and an ageing society, there is an urgent need for dialogue between generations.
- This framework promotes the integration of those excluded by the dissolution of traditional family structures, single households, and social isolation.
- Societal and professional resources, both tacit and explicit, are shared among generations

Limitations

This framework faces the difficulty of making distinct cultural groups compatible. Older generations are accustomed to being taught by adults. In this relationship adults must to learn how to interact with youth in a field that may be very strange for them. Life worlds, identities, pedagogies, and different values become potential pitfalls in the intergenerational learning initiatives. Finally, perception and cognitive process in the age groups is different (Schlimbach & Fischer, 2007).

7.3 Asset-based approach

Rather than a needs-based paradigm, which focuses on a community's deficiencies and problems, a capacity-focused paradigm recognizes the skills, talents and gifts of local community members before any kind of intervention. This approach is bottom-up, beginning with what is present in the neighborhood. It relies heavily on the efforts of internal agents, such as residents, associations, and institutions (Turner, N., & Pinkett, R. 2002).

Asset-based community development (Kretzmann & McKnight, 1993) assumes that social and economic revitalization start with what is already present within a community – not only the capacities of residents as individuals– but also the existing commercial, associational and institutional foundation. An asset-based approach to community building perceives local residents and other community stakeholders as active change agents rather

than passive beneficiaries or clients. The inclusion actor is not an implanted technology but a socio-technical venue defined according to the needs and resources of the community.

Impacts of eInclusion actors

For an eInclusion project to have an impact, it has to meet the needs of the community; be integrated into community building activities; leverage existing resources in the community; and be empowering to the people it serves. Technology can play a significant role in promoting community building by facilitating communication, and information and resource exchange. (Pinkett, 2003).

Early results have enhanced the involvement of participants as active agents of changes, rather than passive beneficiaries of information and content (Pinkett, 2003, p.192). Also, "participants have a heightened awareness of community resources," (Pinkett, 2003, 202) and "participants have cultivated the meta-competence of a renewed confidence in themselves and their ability to learn." (203)

In Australia this approach has been used in a program for rural online access centers (OACs). These community-based facilities deliver public access to the Internet, provide a local venue for ICT training, and play a significant role in the social and economic life of communities (Wood et al, 2005)

Strengths

- This approach relies on deep, nuanced understandings of local context. The model also enables individuals to address problems of social isolation and lack of access to information through a broadened range of social contacts. It encourages development of stronger and more extensive social networks that underpin increased engagement, participation and the growth of community social capital.

Limitations

- These interventions depend on productive relationships within the local community, as well as between eInclusion actors and community members. Fostering and maintaining such relationships is no easy task, and there is no blueprint for it. Neither are there simple formulas for interpersonal communication success, which will naturally play out very differently from socio-cultural context to another.

- One of the problems found in the implementation of these approaches is that communities are not a single body. Participation may be limited to the people who are more interested, which does not necessarily benefit those who need it most.

- In terms of evidence, the initiatives tend to show a successful process of implementation with detailed description of steps taken. However, it is not clear that the outcomes of these interventions are systematically compared with other types.

7.4   Self-education through intermediary institutions

With self-education citizens are expected to engage in learning throughout life, passing through a range of networked sites in order to engage in retraining, re-education, re-evaluation, and reassessment (Hand, 2010). This approach complements the ideas of the 'immediacy' of information (different from the elitist authoritarian traditional knowledge that new media offers); and the governmental idea that learning can be performed within a

wider variety of cultural spaces, and not only schools, libraries and universities (Hand, 2010).

Cultural institutions (museums, galleries, libraries) are well positioned as forums for 'empowerment' and 'active citizenship'. They historically have embodied ideals of citizenship through provision of 'techniques of self-improvement'. Today they provide interactive exhibits and subsidized electronic services besides the support of field staff.

In a global information culture citizens are thought to require continual information access, empowering them in making informed decisions and engaging with governmental institutions in a more interactive relationship. The public library becomes an intermediary or information interface. It can provide toolkits for personal growth as well as access to shared value system; and it can confer civility through citizenship and sharing (Hand, 2010).

Learning and self-improvement are seen as the most appropriate ways to leverage ICTs, and eInclusion actors with skilled staff can contribute to learning at any stage in clients' lives.

Impacts of eInclusion actors

The impact of the institution on individuals' self-learning is determined by the resources offered at the venue as a "field" of instruction. The advantage of eInclusion actors is that they have experienced staff who can guide learning. However, to show evidence about self-learning in an eInclusion actor is a difficult task. While users manifest the importance of using the Internet for learning there is "little evidence that this is what they are actually using the facilities for." (Hand, 2011)

Some qualitative data informs this. For example, in the Hand (2010) study on public libraries in UK, it was reported that "we've got people who come in and start using computers for one reason and another, and we might refer them on to an agency for training and education, and at some point, we might decide to follow that up and see whether that person has taken up an education opportunity and moved from there" (Hand, 2010, 375). We do know that the concept of life-long learning, flexible re-skilling and continual self-improvement is appealing to younger population, and it is recognized by users. (Hand, 2010 p.379)

Strengths

- A competent staff can forward people's learning by assisting in the search for information, especially when users are not aware of the services or knowledge required for the task. They may even help reduce anxiety over potential information overload.

Limitations

- It is assumed that information is a prerequisite in allowing individuals to move from dependency to empowerment (Loader, 1998 in Hand, 2010). However, there are social groups that do not recognize the need. Thus, this approach may be limited to those who are already "empowered" in the information technology.

- Despite the enthusiasm of making eInclusion actors centers for lifelong learning, there are very few studies on the impact of these venues.

- The approach categorizes users more as an "audience" looking for information rather than considering them as engaging in communication activities.

Appendix 12 provides a summary of the theories and conceptual explanations included in this chapter.

8. YOUTH DEVELOPMENT IMPACTS: THEORIES AND EXPLANATIONS

8.1 Youth development literature: the telecenter as a safe space for development

Youth development literature sets a special emphasis on access in safe social places (London et all, 2006; Freistadt, J., Pal, J., & Alves da Silva, R. 2009). These spaces contribute to youths' physical development; intellectual development (including life skills, vocational skills); psychological and emotional development; and social development (Eccless & Gootman, 2004 in London et all, 2006). What it is important about these spaces is their physical and psychological safety. This is what shapes the way that programs are implemented and utilized when they focus on youth (Sullivan, J., Vander Leest T., and A. Gordon, 2008).

Eight attributes of these settings promote positive youth development (London et al, 2006):

- Physical and psychological safety—healthy and safe peer interactions
- Appropriate structure—clear rules and expectations, continuity and predictability, and age-appropriate monitoring
- Supportive relationships—good communication, closeness, support and guidance, and responsiveness
- Opportunities for belonging—inclusion regardless of gender/ethnicity and opportunities for socio-cultural identify formation
- Positive social norms—expectations of behaviour, values and morals
- Support for efficacy—practices that support autonomy and responsibility, and the change to engage in meaningful challenges
- Opportunities for skill building—exposure to learning experiences, preparation for employment

Impacts of eInclusion actors

The impact of telecenters is related to how venues promote the necessary environment for positive development, i.e. impact is not simply about access to technology (London, 2006; Limassol eInclusion report, 2009). Opportunities for skill building, relationship building (social capital); and youth voice and civic engagement (London, 2006) are equally important.

A study on Boys & Girls Clubs (BGC) shows that providing computer access for youth who wouldn't have access otherwise, enabled participants to build technical competencies and advance other nontechnical goals (Sullivan, J., Vander Leest T., and A. Gordon, 2008). BGCs nurture a virtuous cycle of leadership, good behaviour and accomplishment. The BGC culture rewards leadership, good behaviour and accomplishment (Sullivan, J., Vander Leest T., and A. Gordon, 2008).

E-Inclusion actors can contribute three primary assets:

- **Access**: In London et al (2006) telecenters offer better access than their alternatives. They are "more convenient than access at schools or home, [have] better equipment, faster connections, longer and more convenient hours of operation, and the presence of experts/mentors to provide assistance" (p.208-209). What's more they are convenient to access, since "most of the immigrant families

living there did not have cars and with no public transportation to bring them back to school, many of the students simply had one option for computer use—their local CTC." (p.217)

- **Skill building**, Participants reported technology-related skill building, and learned how to use different programs and tools, including editing and production (London, 2006). "At TAF (Telecenter), for example, participants in the Technical Teens Internship Program (TTIP) receive 180 hours of training over eight months for each of four years, studying and practicing network engineering, web development, database, and programming. They then compete for paid summer internships at area companies where they apply what they have learned. It is an explicit part of TAF's mission to fill the technology skills gap with people of color." (London, 2006, p. 210) It was found that "the program seems to be making good strides toward this end: 75% of TAF graduates go on to major in college in the science, technology, engineering, and math (STEM) fields, where minorities have traditionally been underrepresented." (p.211)

- **Community building**. Youths built social capital and relationships (London, 2006). Specifically, "youth used their acquired technology skills to give voice to their realities through written word, film, public access television, music, art, and in other ways…. CTCs played a critical role in the community not only by offering opportunities to connect to the outside world through technology and social networks but also by actively encouraging and supporting civic engagement and community development" (p.220)

In the case of London et al (2006) the role of the adults is essential. The same was true in the Boys and Girls Club research where it is shown that technology programs "are staffed with caring adults and volunteers who model positive behaviour, share expertise and develop close relationships with club members" (Sullivan et al, 2008). Communication and expression between peers and adults are promoted through specific activities. Teamwork, compromise, sharing and simply getting along in a diverse group are core BGC values, which shape and are shaped by technology (Sullivan et al, 2008).

Especially in disadvantaged environments, where gangs and violence exist, computer centers are not only seen as a "safe public space" for youth to occupy their time, but also fill a void made by the lack of institutional higher education options (Freistadt, J., Pal, J., & Alves da Silva, R., 2009).

Some factors that contribute to youth development vis-a-vis eInclusion actors are a qualified staff capable of providing support; safe space, both physically and psychologically; norms and values that promote respect and self-expression; and a network between telecenters and external organizations that supports youth development.

Strengths

- This seems to offer a good framework for examining impact (and its success or failure) on an individual level. It captures a range of ways that impact occurs. It offers a holistic view of the individual as a member of society. What's more, it recognizes context and how ICTs can promote change, especially for unprivileged populations.

- The framework recognizes the importance of adults in the safe development of youth. It is not expected that Internet access by itself will result in positive development.

- The understanding of telecenters as safe spaces for youth development is a contribution for policy makers' arguments regarding the economic sustainability of many eInclusion actors. It recognizes that there are as yet unexplored benefits associated with the venues, besides simply the technical skills and access to the Internet.

Limitations

- The framework does not offer evidence about how telecenters address social and economic challenges in the long run. The framework is good at explaining why telecenters are good for youth development. However, the reasons for this impact could be the same for any other community program group in which youth participate (Scout groups, sport teams, churches, etc.).

8.2 Empowerment in disadvantaged youth

The role of telecenters in empowerment is explained by technology's value as a tool for enhancing engagement. Here "empowerment is conceptualized as participation in various activities aimed at changing the nature and direction of systematic forces which foster marginalization. It is associated with greater control over one's own actions as well as the environment and entails redistribution of power—whether between nations, classes, castes, races, genders or individuals—thus enabling participation of members of these groups in the mainstream development process." (Farida, K. and Ghadially, 2010 p. 660) The main idea is that internal psychological mechanisms must be transformed together with the skills acquisition in order to produce a "development' outcome (Bradley and Poppen 2003 in Neff, P., Pal, J., & Frix, M.2009). These resources are acquired/learned at telecenters, through multiple activities that take place in social interactions in the venues, which are not strictly related to ICT skills-training. Learning is a constant process and decentralized yet tied to "performativity" (Hand, 2010).

Aspiration is a core construct of analysis and is especially important as a proxy of empowerment in young populations. A heightened sense of potential for future possibilities is a common way of thinking about empowerment (Appadurai, 2004).

Impacts of eInclusion actors

Tangentially related with youth development literature, some theories focus on the impact of eInclusion initiatives as a safe way to empower youth by offering an escape from their disadvantaged realities. The appropriate provision of public goods and services in disadvantaged populations is a common effort.

"UTEC, for instance, was developed and situated by youth themselves in response to gang violence that plagued the area. Bresee was a safe space—where gang affiliations and other negative behaviours were not welcome—in what was an unsafe neighborhood." (London et al, 2016)

In Brazil, given the lack of licit economic activities, the only institution other than the gang, is religion. Not surprisingly, even churches, especially evangelical groups, have introduced technology training initiatives into their programs in slums. (Freistadt, J., Pal, J., & Alves da Silva, R., 2009)

Youth in this situation have a feeling of "learned helplessness" which limits the possibilities of alternatives paths of development and aspirations. For example, "the immediate benefit of illicit economic activity is attractive, tragically more so given the uncertainty and therefore perceived 'unplannable' nature of the future. This is among the biggest

challenges for computer center managers or NGO staff working with youth in low-income neighborhoods" (Freistadt, J., Pal, J., & Alves da Silva, R., 2009.

The technology becomes an incentive for youths to engage in productive activities. The impact of public access venues in this conceptual approach refers to the possibilities they offer to youth in order to become empowered and shape their own futures. For example, in a research project on telecenters in the United States, "staff reported that some youth were more attached and dedicated to the program because they were able to avoid gang violence and the criminal system as a result of UTEC's intervention" (London, 2006, p. 218).

While the impact on skills and employability is slow, other benefits have been noted, including a strengthened sense of community and a positive impact on self-esteem. Supporting past work on ICTs, technology can increase both external aspirational horizons— for example in the types of jobs or education levels deemed accessible—and interior measures of self-worth and capacity (Neff, P., Pal, J., & Frix, M.2009). For example, "improved self-esteem, motivation and confidence may also have individual employability impacts, allowing those seeking employment to better withstand the psychological stresses of interviewing for jobs, of rejection, or of prejudiced views of disability encountered during the job search" (Neff, P., Pal, J., & Frix, M.2009).

As social spaces telecenters promote community building. Research on telecenters for people with disabilities has found that: "[while some] relationships lasted only as long as course attendance, others maintained contact in the form of friendships, mentor relationships with instructors, and romantic relationships with other students." (Neff, P., Pal, J., & Frix, M.2009)

Impact here is conceptualized as feelings of empowerment, and Internet use correlates with enhanced feelings of empowerment (Farida, K. and Ghadially, 2010). In research on Muslim communities in India, Farida and Ghadially (2010) found that this effect is higher in women than in men.

Telecenters promote the integration of disenfranchised youth into broader social and community networks and at the same time are positioned as community hubs and resource providers. London et al (2006) found in their study that they "linked skills mastery with the creation of social capital in ways that offered youth an opportunity to take their newly acquired empowerment and use it to improve their lives and their communities."

Strengths

Young people need support and opportunities to make a successful transition to adulthood. The focus of the positive youth development approach is to help youth acquire the knowledge and skills they need to become healthy and productive adults. E-inclusion actors offer support in this endeavour.

- The youth development approach recognizes the impact of technologies in capacities that are not traditionally measured.
- Empowered youth increase their expectations, allowing them to take alternatives paths than those offered in their communities.

Limitations

- Empowerment is the only type of impact, and a longitudinal study would be necessary to prove impact on outcomes.

- There is no systematic evidence that demonstrates the impact of empowerment on changed conditions in the lives of youth.

- The framework tends to assume that safe places directly affect youth empowerment. There are challenges, however, and these are:
    - Organizational and cultural resistance to empowering young people.
    - Adults may have difficulty stepping back and letting youth lead.
    - Young people may have doubts that they are being listened to or that their input can influence the system.

Logistical issues such as time, compensation, transportation, and scheduling often do not support youth involvement.

8.3 Savvy youth – e-born and intergenerational learning (detailed in lifelong learning policy area)

New media is ubiquitous: technology affects everyone everywhere even if they don't use it directly (Lievrouw, Leah, and Sonia Livingstone, 2002). Even as large part of our population is excluded from participating actively in the information society, another group has been privileged simply by being born in societies and under circumstances that make them especially knowledgeable about new technologies (Dralega & Skogerbø, 2010). Even in those places where access is limited and the digital divide is more evident, younger generations are more knowledgeable about technologies than their parents are.

In this view intergenerational interactions have value, and benefits the community at large as well as the participating generations. The older generation receives access to information and knowledge, while youth engage in civic activities that help them to challenge the discourse of apathy.

This approach leverages youth as a bridge to connect the e-excluded with new technologies. With intergenerational interaction, more is better, since with each interaction there are potential benefits to the community.

Impacts of eInclusion actors

- Intergenerational interactions at telecenters contribute to community development (Arlene Baily and Ojelanki Ngwenyama, 2010).

- Older and younger users intermingle and cooperate to develop community spirit.

- In some cases the elderly and infirm who can't reach telecenters send in relatives as proxies (to procure information).

- Youth access to ICTs in peripheral communities is assumed to foster democratic and distributive justice.

- Increased participation, and a general improvement in citizens' present and future welfare.

- The move to create local media spaces for youth represents a common vision— to provide an intervention by empowering local communities with communicative platforms and sources of information with which they can combat mainstream discourses that

overlook minority concerns.   What's more, it can help rejuvenate political and civic engagement. (Carol Azungi Dralega Beathe Due Eli Skogerbø, 2010).

Strengths

- Here youth are seen as a source of development and not just a subject to which development strategies are applied. What's more, this perspective focuses on improving whole communities by connecting the ageing society with the workforce. Finally, all participants benefit from societal and professional resources, and the tacit and explicit knowledge shared among generations.

Limitations

- This framework faces the difficulty of making distinct cultural groups compatible. Older generations are accustomed to being taught by adults. In this relationship, however, adults must learn how to interact with younger mentors, in a field that is very strange for them. Life worlds, identities, pedagogies, and different values become potential pitfalls for intergenerational learning initiatives.
- Perception and cognitive process in the two age groups is different (Schlimbach & Fischer, 2007).

Appendix 13 provides a summary of the theories and conceptual explanations included in this chapter.

9. CIVIC ENGAGEMENT AND E-GOVERNMENT IMPACTS: THEORIES AND EXPLANATIONS

9.1 Democratic and participatory approach to communication

The "idea that government-citizen relationships can be embedded within a range of public and a private intermediary has become central to information age policies." (Hand, 2011) Consistent with this, we found significant material to demonstrate eInclusion actors' interests serving as intermediaries in the process of increasing the democratic participation of the people they serve.

The democratic and participatory approach to communication assumes that innovations such as e-government and telecentres will have positive effects on democratic development, understood here as adherence to democratic norms and values; informed opinions on major public issues of the day; engagement in behaviours designed to influence, directly or indirectly, the quality of public life for oneself and others (Kaid, L. L. 2004; Dralega & Skogerbø, 2010).

People are expected to have more information about political life in order to take more responsible decisions and engage in political behaviour. Additionally, access to the Internet becomes a democratic feedback tool for reinvigorating relations between government and citizen. The government can potentially obtain immediate information about citizens' conditions and opinions (Hand, 2005) while eInclusion actors contribute to improved civic life.

Impacts of eInclusion actors

Impact on community life: Telecenters promote the civic engagement of participants through community-building activities (Pinkett & O'Bryant, 2003). Early results from the Camfield Estates—MIT Creating Community Connections project show that participants "strengthened and expanded their local ties" (p.201) and that their "civic engagement, social contact, sense of empowerment and sense of community positively correlated with Internet use." (p. 202)

Similar results were found in the London et al (2006) study on youth oriented telecenters, where eInclusion actors "played a critical role in the community not only by offering opportunities to connect to the outside world through technology and social networks but also by actively encouraging and supporting civic engagement and community development." (p. 42)

Impact on acquisition of information: In a practical sense, clients of eInclusion actors gather to share information about community issues and events, which helps to facilitate organizing and advocacy activities. In the Camfield Estates—MIT Creating Community Connections project, "participants are better informed about what is happening locally and there is improved information and communication flow at the development." (Pinkett & O'Bryant, 2003 p. 202) Furthermore, they "have been inspired through use of the Internet to stay informed locally, nationally and internationally." (Pinkett & O'Bryant, 2003 p. 202)

I**mpact on political or social behaviour:** Telecentres are also a tool for expressing public opinion and interests, although there is contradictory evidence on this point. London et al (2006) have shown a positive impact on giving voice to minorities when they learn how to use the digital media. For example, "Bresee has given me a way to show my story to other

people, give them knowledge of a different way of thinking, viewing the world, viewing indigenous people". (London et al 2006, p. 215)

Other research has found contrary results in Norway and Uganda:

"Most ICT strategies and policies, in Europe and Africa alike, predict improved opportunities for political participation. However, in these two settings (distant from one another socioeconomically and geographically), when the youth used new channels to communicate, or to protest or imply to abuse the political system, the channels were closed down, access restricted, and some types of messages banned altogether." (Dralega & Skogerbø, 2010).

The reasons why eInclusion actors may or may not help people express their political ideas are distinct from context to context, but the output is the same:

"In Norway, because the telecentre administrator wanted to maintain neutrality for the economic consequences; in Uganda was believed to be detrimental to the local government's reputation, thereby causing a loss of credibility." (Dralega & Skogerbø, 2010).

Strengths

- The democratic and participatory approach attributes eInclusion actors with promoting a large-scale impact on democratic representative systems. It is one of the few frameworks that connects behaviour at an individual level with the creation of a public good that benefits society as a whole.

- This approach is especially relevant for underprivileged, underrepresented, and/or rural communities.

- Access to information is a cornerstone for democratic representation in information societies. To consider eInclusion actors as a democratizing force could overcome concerns about financial sustainability and justify their existence.

- E-inclusion, particularly in unprivileged populations, allows people to become visible, express their opinion, and interact with their community and official representatives.

- Finally, the democratic and participatory approach incorporates social justice elements, which are often at the core of digital inclusion initiatives.

Weaknesses

- It is difficult to generalize and objectively to measure the impact of telecenters in civic-engagement. The evidence tends to be anecdotal rather than systematic.

- Rather than allowing an argumentative dialogue that contributes to democracy, there is a risk that more information in excluded communities could overload management capacity. Furthermore, without appropriate guidance it could produce fragmentation within the community or further isolate those who do not have access to the venue.

- If telecentres are used as representative of an entire community's opinion, especially in rural communities or underprivileged urban populations, then governments may obtain an unrealistic picture of that community's reality. Habitual users of telecentres are generally the most skilled people in their communities and younger than the general population. What's more, in some places women or religious minorities may have limited access and won't be able to share their voices. Consequently the feedback mechanism will misrepresent those realities.

- Finally, this approach does not consider the different political systems and cultures of citizen-government relationships. It is rather a very optimistic view that access to information will lead people to use it in expected and predictable ways.

9.2 e-Government: the new public management

The definition of e-Government varies from very generic uses of ICTs to provide information and public/government services to the more specific delivery of government information and services through digital means (Rorissa et al 2011). E-governance is framed here as a means of delivering public services in a more "efficient" way, characteristic of the neoliberal public management literature of the 80s and 90s. This literature promotes the increasing participation of non-state institutions in governance networks. The assumption that ICTs could be harnessed and shaped by business strategy is foundational to this approach. Related literature on value adding supply chains and business process reengineering (Rajaleshmi, 2006) strengthens this idea. General enthusiasm concerning relations between digital technology, governance and citizenship captured in metaphors of 'empowerment' and 'interactivity' is now commonplace in contemporary political discourse (Hand, 2005).

According to this approach, private participation, or a "development-through-entrepreneurship model" would be an effective way for developing countries with low-cost services (armed with a solid business plan) to increase the well-being of the poor while expanding opportunities for the private sector, which is a win–win outcome. Here telecenters are favoured because they subsume concepts like extended service delivery, integration of services, and non-state ownership. The government's role is that of a facilitator of private entrepreneurship, and it is expected to subsidize initiatives, de-regulate the market, and provide public services through private delivery.

Impacts of eInclusion actors

While impact is assumed, it remains difficult to find evidence of e-government initiatives through private providers, and more empirical studies are needed (Yildiz, 2007).

We find that including government services enables telecentres to provide a more integrated and complete range of resources to their clients, and potentially increases the trust of the citizens in the telecentres (Naik, G., Joshi, S., & Basavaraj, K. P. 2012). What's more, they also can provide government services more effectively by leveraging the efficiency of the private sector and thereby strengthen last-mile governance (Naik, G., Joshi, S., & Basavaraj, K. P. 2012).

While most of the research assumes this outcome, we found little evidence supporting the theories. In fact, when evidence shows different trends – such as state provision being more effective in far-flung rural areas – the authors attribute the results to mis-implementation (Naik, G., Joshi, S., & Basavaraj, K. P. 2012).

The impact of telecentres providing e-government services will depend on:

- Adequate technological support: hardware, software, connectivity and assistance
- Market creation: if there are insufficient clients/consumers, the telecentre must increase consumer awareness of and interest in the services.
- Convenience: telecenters must be easily accessible and open at convenient times.

- Reliability: when services and information are provided by local community members and not by private agents, people will trust the information.

- Affordable: Once information becomes available and services are profitable, there will be more private players offering these services. For example, once educational content has been prepared, it will become easier and cheaper for other players to enter the market. Consequently, the cost of providing these services will go down.

- Adequate information: certain services will be easier because of the availability of relevant information. For example, exporters might get information about crops in a particular area and then enter into a forward contract with the farmers there. CSCs could thus create new markets by acting as an interface.

A study about a large-scale telecenter project in India, which involved 630 kiosks that disseminated digital content in the local language about health care, agriculture, education, and legal issues, showed that other non-technical factors are also relevant to e-government initiatives. For example, trust in the entrepreneur/intermediary. This study concluded that "looking specifically at e-governance services…it may be more appropriate to use technology within existing intermediary institutions like local hospitals or agriculture offices" (Rajaleshmi, 2008, p.31).

Strengths

- This model is well suited to explain market creation vis-a-vis economic sustainability in telecentres.

- This model assumes that subsidization and deregulation are effective ways to bring public services to populations far from urban centres.

- The delivery of public services through telecentre networks will contribute to social inclusion on a large scale.

Limitations

- E-government research suffers from definitional vagueness of the e-government concept, and oversimplification of the e-government development processes. More grounded, empirical studies are needed to create new theoretical arguments and provide new concepts and categories so as to enhance our understanding of e-government policy processes and actors (Yildiz, 2007).

- A central theme in e-government is the comparison of the government to the private sector, i.e. that government will improve only if it responds more like the private sector. This theme fails to address the mixed record of private sector organizations on both IT and non-IT issues, and fails to acknowledge how far private sector management practice needs to be improved (Kouroubali, 2002).

- The assessment of e-government initiatives tends to treat how policy and decision making encourage optimal resource allocation rather than the expected outcomes of the initiatives (Rorissa et al 2011).

- Theories in this area are not well supported with evidence. (Naik, G., Joshi, S., & Basavaraj, K. P. 2012).

9.3 Structuration theory

Structuration theory introduces the notion of the interdependency between human actions and organizational structures. Giddens proposes a view of human agents and social structure as a mutually interacting duality instead of independent conflicting agents (Kouroubali, 2002). This approach to civic engagement is a bottom-up approach. It is not about how the eInclusion actors benefit democracy or how they deliver public goods. In this approach, the relationship of telecenters and citizenship is co-created among the individual, communities and the technology.

Structuration takes the approach of a mutual shaping view of technology and society, and has been enormously influential in information systems. This framework is appealing in its intelligibility and adaptability as a social theory for non-specialists to explain institutional dynamics in a non-mechanistic way (Stillman 2010). It has also been particularly helpful at developing a post-positivist and interpretive approach to the study of technology that moves beyond regarding technology as a 'black box' that works upon human agents (Stillman, 2010).

The ICT project in this approach is context specific; i.e. a suitable model for implementing services in one community might be inappropriate for another (McCallum, et al, 2012). The citizens must define the use of technologies. In other words, "citizens rely on individuals at access points to bridge the gap between their limited cognitive capacity to judge the economic, ecological & political risks and contingencies that bear on their lives and the abstract systems of knowledge & power that deal with them in modern society." (Rajaleshmi, 2006)

Impacts of eInclusion actors

The telecenter's importance is not just providing the technical requirements to bridge the digital divide, but rather to address the needs of those who actually use the services (McCallum and Papandrea, 2012). In this approach impact is not a stable variable. Telecenters are indeed evolving institutions, as they are continuously reshaping and remodeling the services they provide and the technologies they use to accommodate the capacities and needs of the communities they serve (Dralega, 2008 in Pinkett and O'Bryant, 2003 p.98)

The impact is context specific in that the design, planning and implementation is longer than in more deterministic approaches. There has been a shift towards developing innovative activities and services to meet specific needs of the targeted groups (Groeneveld and Hache, 2008).

This approach holds that impact is complex: "Successful stories have been those based on participatory process through which the community has a participatory involvement in the dynamics of the telecentres" (McCallum and Papandrea, 2012, p.6).

In the Camfield Estates–MIT Creating Community partnership (Pinkett and O'Bryant, 2003), it was found that mutual support among community and organizations translates to civic engagement. Furthermore, "participants' civic engagement, social contact, sense of empowerment and sense of community positively correlated with Internet use" (202). Finally, "participants are using the Internet to gather information that can help address basic needs." (Pinkett and O'Bryant, 2003, p.203)

Strengths

- Structurational tradition within interpretive information systems has revealed some useful aspects of the organizational implementation and use of ICT (Thompson, 2004). It recognizes human agency and intentions in the interaction with technologies.

- Structuration theory can be used as a meta-theory that accounts for the interactions that occur in public service contexts. It represents the continuous interaction between agency and structure. This theory suggests that the constitution of society is an accomplishment of its members without being wholly intended or wholly comprehended. This realization accounts for the complexity of social environments and implies that generalizations about social phenomena are temporally and spatially bounded (Kouroubali, 2002).

- It includes the actual use of technologies, sometimes in unexpected ways.

Limitations

- This theory explains relationships between use and people, but is not well suited to explaining the sustainability of the venues.

- Structuration theory favours achievement at the expense of an intuitively convincing account of human motivation, which does not necessarily reflect complete views of social interaction or organizational reality (Thompson, 2004). Not all people or communities want to participate in these planning and implementation processes.

- In terms of policymaking, a general policy that needs constant negotiation and long term planning is not very efficient for expanding government in places with limited governance.

9.4   Active citizenship

The policy of active citizenship "implies a certain method of governance" where the public authorities stimulate a number of initiatives but they do not act instead of the citizens" (Herve, 2001, p.7). It's a network model of citizenship that is different from the autocratic model (representative democracy, or democracy of the majority), and the consultative model (participating democracy) (Herve, 1997). With this model the citizens should create and produce -- rather than just consume -- information and technology (Herve, 2001). Technology access is transformative – it mediates human relationships between the government and the governed (Herve, 2001).

Citizen appropriation of the proposed communication infrastructure is the cornerstone of the approach. These policies are usually articulated at the level of local democracy: local councils, ward committees, local elections, and so on (Hand, 2011). The town authorities prompt appropriation by providing expertise, human resources or material, and by connecting actors, or simply by opening the doors to other institutions when it comes to finding extra funds (Herve, 1997). The community decides the path to follow with the initiative.

In terms of citizenship the idea is that eInclusion actors are intermediaries who '(re)connect' citizens and political processes. This involves 'wiring up' national, regional and local governmental agencies and leveraging the interactivity of the Internet. It can lead to interactive and participatory relations between citizens and government (Hand, 2011).

Implicit in these initiatives is a specific rhetoric of community and identity, valorizing participatory and responsible forms of governance and citizenship mainly through the continual supply of information as feedback (Hand, 2011).

Impacts of eInclusion actors

Impact in the active citizen policy is demonstrated by the appropriation and management of services by the community, with the government playing the role of catalyst.

In Parthenay, a French town, researchers examined citizens' willingness to appropriate new technologies, and their capacity to reorganize social relationships (Herve, 2001). While the mayor negotiated with organizations (Microsoft, Siemens, France Telecom) for the provision of resources, the people created places for free access and free training for all citizens.

While there is evidence of successful appropriation in Parthenay, the specific conditions in which it occurred means that the experience cannot necessarily transfer to other communities, "because the success story is too much linked to the social, cultural and historical identity of the town" (Herve, 2001, p.14).

In the "People's Network" initiative of public libraries in the UK, none of the interviewees used the Internet regularly to access local information of any kind (Hand, 2011, p.380). This finding could be explained by the nature of libraries as more hierarchical institutions that do not allow plain citizen appropriation. According to Herve (2001) "where the culture of exchange is based on trust – associative movements and connected communicates such as the scientific community– technologies are more easily appropriated than in hierarchical organizations such as the traditional work place" (p.14).

Strengths

- Success of digital access centers depends on more than money and technology –– it depends on complex social, pedagogical, and political philosophies and relationships.
- This is different from structuralist approaches, where almost all the responsibility is given to citizens. In the policy of active citizenship, the government plays an important role at the beginning of the initiative. It has a more active role in capacity building in order to support the citizens' appropriation and use of technologies, and in creating networks that support the sustainability of the venues.

Limitations

- The evidence raises doubts about the efficacy of assumptions concerning improved take up of e-government services via intermediaries (Hand, 2011). As with structuration theory, the policy rests on notions of citizen motivation for participation, something that would be seriously hindered if not enough individuals participate. In fact, inadequate participation could risk serving only specific interest groups.
- The policy of active citizenship is strictly context specific, and is difficult to transfer from one place to another.
- While this research is good at describing processes, it is not very good at providing comparative evidence.

Appendix 14 provides a summary of the theories and conceptual explanations included in this chapter.

10. CONCLUSION

This chapter brings together the body of literature analyzed for this project and provides a set of recommendations in terms of the most feasible theories and explanations that can be used to inform and guide the MIREIA project. As a first step, the chapter begins with a brief historical overview of the theoretical foundations that have guided the research on the role of information and communication technologies, e-Inclusion actors, and their impact in advancing social and economic goals. Placed in the context of this historical background the following section provides a summary of the theories and explanations highlighted in the report and that during the last decade researchers have used in their attempts to explain and measure the impacts of e-Inclusion intermediaries. Inspired by the social ecology approach, the summary presented in this section has been categorized into groups denoting their application at the macro, meso, exo, and micro levels. It is important to clarify that this categorization simply provides a lens through which the myriad of theories and explanations about the role of e-Inclusion actors in promoting social and economic development can be viewed rather than exclusive categories. To finalize the report, the last chapter presents a basic conceptual framework outlining some analytical elements to understand how e-Inclusion actors work and the different kinds of impacts that their work can be linked to given the appropriate environmental conditions exist. It is in the context of this conceptual framework that we discuss the potential of some of the theories and explanations reviewed in this report as possible theoretical foundations for the MIREIA project.

10.1 Information and communication technologies, e-Inclusion actors and their contribution to social and economic development: A brief historical overview

Since the end of the Second World War, the field of development communication guided the theories, analytical frameworks, and explanations on the role of information and communication technologies (ICTs) in advancing social and economic growth. Under the long scholarly tradition of this discipline, ICTs have always been considered critical agents, indices, and catalysts for social change. Tracing briefly the theoretical trajectory of the field of development communication is critical for understanding not only the place that policy makers, international organizations, and other stakeholders gave to ICTs in the process of social and economic development but also the changing roles of different intermediaries – until recently, mostly NGOs and community organizations – in this very same process.

Since its origins development communication has built its theoretical foundations on three successive paradigms: First and foremost, the modernization paradigm which sustained that the only way for developing countries to follow the path towards modernization was by following and adopting the Western model. Second, the dependency paradigm, that grew as a criticism towards the modernization approach, and conceived development and underdevelopment as an interrelated process that was a product of the structure of the world system itself. Inspired by the work of Paulo Freire (1970) "The Pedagogy of the Oppressed" a new approach started to emerge. Participatory development grew out of the frustration with past decades of theory and practice in development and development communication and directed scholars to look for answers at the community or grassroots level. This paradigm equated development with the empowerment of people at the community level embracing cultural diversity and recognizing the capacity of local people to organize collectively. It makes people key agents for social change.

Under the modernization paradigm, development was considered a linear and evolutionary process and modernization was equated to the spread of ideas and cultural values from the West (Hettne, 1995). The scholars under this school of thought assumed that the only way for developing countries to follow the path towards modernization was by following the Western model. This paradigm built upon top down approaches to development and focused on the internal causes that deterred developing countries to achieve a higher standard of living. Along these lines, the theories and approaches in development communication emphasized individual psychological factors that could deter or foster the transition from a traditional to a modern society. Communication technologies were conceived as an engine that would help achieve economic growth and as the conduit to help individuals feed their self-spirit of modernity. The modernization paradigm never questioned that communication technologies embraced the values that western societies thrive for – rationality, efficiency, systematic organization, individualism, etc., - and that could disrupt local cultures and social practices in developing countries. This paradigm was highly criticized for its ethnocentric bias, technological determinism and because it considered development as an endogenous process that was separated from the cultural and social contexts, and most importantly, from the structures and dynamics of the global system.

The dependency paradigm grew as a criticism towards the modernization approach and considered development and underdevelopment an interrelated process that was a product of the capitalist system itself. This approach was unique in the sense that was conceived in Third World Countries, particularly in Latin America with the economists at the Economic Commission for Latin America and the Caribbean (ECLAC). Contrary to the modernization view which searched for the sources of underdevelopment at the internal, individual level, dependency scholars focused on the external causes of development which they found in the structure of the world system. Communication technologies under this view were considered an engine through which developing countries could influence the balance of power within the world system. This view led to the famous New World Information and Communication Order (NWICO) debate in the United Nations Educational and Scientific and Cultural Organization (UNESCO) where countries from the developing world pushed the agenda for a restructuring of the international communications system. This paradigm came under severe criticisms as well because it concentrated mainly on economic indicators, as did the modernization approach, and the external causes of underdevelopment ignoring the internal power structures in societies that heavily affected the process of development.

Inspired by the work of the Brazilian Paulo Freire (1970) "Pedagogy of the Oppressed" a new approach in development communication started to develop. The frustration with past decades of theory and practice of development and development communications directed scholars to look for answers for social change at the community level. The participatory development paradigm, generated approaches to development that were aimed at empowering people at the community level to become participants in the process of development. Embracing cultural diversity, or as Servaes elegantly put it "One World, Different Cultures" (1999), the scholars under this view supported the capacity of local people to decide on the path they would like to follow towards the future. Participation under this view was equated with empowerment, and in turn, empowerment would create the social scenario for generating collective action and social change. Based on this premise, communication technologies became a catalyst for social change, not an agent or and index, but a conduit through which information that empower people could be

disseminated enabling them to become key agents and participants of social change. Technology was not considered a neutral object; rather it was conceived as a social, cultural, political and economic phenomenon.

10.1.1 The last ten years

In terms of technological advancements, the years 2000-2012 are significant for the incredible speed at which information communication technologies have evolved. These changes affect both how ICTs are defined, and how "public access" to ICTs is understood. They are also reflected in the trends on research about the digital divide, eInclusion, and ICTD impact as a whole. While early literature about internet technologies, at the end of the 90s and begin of 2000s, focuses on stationary computing (desktops, computer laboratories and centers) with an optimistic deterministic approach, later sources delve into more mobile computing (mobile phones, WIFI, Web 2.0) or stationary facilities with a more constructivist view of technology.

A decade ago, issues of technology access were at the forefront of discussions; thus the telecenter (and other such initiatives) was seen as a venue almost exclusively for facilitating access to information and communication technologies (Bailur, 2008). The mere facility for access to internet was expected to result in promotion of positive change within communities (Roman & Colle, 2002). Consequently, the research from this period is focused on developing countries or at the most, on digital divide issues in developed countries. In this period, scholars tried to document and theorize about the potential of ICTs, drawing on anecdotal evidence of successstories (Hunt & Somos@telecentros, 2001; Roman and Colle, 2002). Following this period of optimism, the main concerns were related to the general inability of telecenters to achieve financial, social, and political sustainability (Whyte, 2000; Heek, 2001; Hudson, 2001; Stoll, 2003; Bailur, 2008); complemented with the critiques about the neo-dependency view of development (Escobar, 1995), which posited a new form of domination by aid for development.

Sustainability concerns motivated researchers to address the problem by proposing market-based models of management (Radwan, 2006); multi-sector partnership – public, privates, non-profit (Proenza, 2005; Bailur, 2008); s for community participation (Whyte, 2000; Roman and Colle, 2002; Caspary and O'Connor, 2003); and the incorporation of new services in the 'telecentres' , which will provide access to information and knowledge tied to specific social goals such as improvements in education, employment, medication and health and access to government services for the user community (Ariyabandu, 2009). This role transformation has increased the capacity of telecenters and was expected to also strengthen their sustainability.

Besides sustainability, as with any other project pursuing social goals, researchers subsequently started to question whether telecenters actually address problems of poverty, inclusion and the other socioeconomic issues that they were created for (Best et al, 2010; Gomez and Baron-Porras, 2011). With the beginning of the decade, more moderated views about public access to ICTs started to appear (Gómez and Ospina, 2001), contrasting the overoptimistic ideas of previous years. Some literature also started to contextualize the impact of ICTs, still bringing different benefits to all parts of a population, but depending on the capabilities of each particular individual, rather than a general recipe of impact for all the initiatives (Gómez and Ospina, 2001). The telecenters are understood in this respect, as a multivariable phenomenon which includes individual and communitarian perspectives (Ariyabandu, 2009; Teles and Joia, 2011). In these approaches, the way in which the

technology is adopted in each place becomes more relevant (Madon et al, 2009) than the technology in itself. To the end of the decade, a more constructivist- interpretive view of the telecenters prevails, that relies on identity construction and social interactions, represents the other extreme of this continuum between determinism and totally dependent approaches (Salvador et al, 2005; Bailur, 2008; Bailur and Masiero, 2011).

During the period covered by this study, e-governance became an issue of increased interest. Especially research about telecenters, as venues for delivering public services for rural areas (Salvador et al, 2005; Radwan, 2006; Gopakumar, 2006; Kumar and Best, 2006). Also International organizations considered e-inclusion actors as part of their researches for producing policy recommendations for development. "The World Bank", "OECD", and "Eclac" mainly focus on papers that are sets of market-based policy tools, aimed to distribute ICTs. These mechanisms can be summarized as subsidies in those areas where the market is not enough; create the market - increasing the services offered on the venue- where there is a potential market; or deregulate in order to increase private participation, where there is already market. All the mechanisms imply the subsidizing role of the state and the private provision of the services. It is difficult to identify in these actors' papers, the impact indicators related to the "social" impact, and the impact tends to be assumed as access and sustainability (Radwan, 2006). A different approach is taken from other international organizations, such as the European Union, which also focuses on ethical dimensions for ICTs inclusion initiatives; with "UNESCO" the focus is on the communitarian level of ICT access; and "The Inter-American Development Bank" that started to mention the potentials of wireless connectivity – rather than stationary internet (Raghunathan, 2005)

10.1.2 Trends in the current research

Current research and scholarly work, regarding eInclusion actors, still oscillates between the more "sustainable-access" approaches on the one hand, and the constructivist-interpretive approaches on the other hand. The sustainability views still try to improve the implementation of telecenters as business-models, even including governmental services in the venue in order to make the enterprise financially sustainable (Gopal et al 2012). The tendency in this approach is to move the measurement of e-inclusion impacts towards more multi-focal, multilevel, and multi-perspective of measurement (Bentivegna & Guerrieri, 2010). Some gaps in this approach are the assumption that a business model is appropriate for these initiatives –considering that most businesses fail, and we only know the successful stories; and the lack of linkages between individual and community or national levels. Research and evidence tend to focus in one or other level of analysis – micro, meso, or macro- rather than in the integration of the different layers that could allow sustaining their claims.

The more constructivist-interpretive view focuses on individuals' or community impact in a specific context. The venue or technology in itself is less relevant, a mere intermediary (Ariyabandu, 2009), than the networks in which the venue –and the individual- is integrated: for example, actor-network-theory (Teles & Joia, 2011). Some critiques of this approach are related to the over-contextualization of their claims which become an obstacle if trying to operationalize indicators of success, for example making "friendship or entertainment" an impact measurement (Gomez & Baron-Porras, 2011). They challenge the production of policy recommendations beyond the locality.

Future developments are expected to move from single-level analysis to a more holistic view integrating micro-meso and macro levels at the same time transiting from the 1.0.

ideas of ICTs towards an interactive tendency, where consumers also become producers of technology and marginalized communities appropriate the internet and develop applications according to their own necessities (Heeks, 2009; Heeks, 2010).

As it was seen in this research, problems of sustainability are fairly well-documented and theorized during the period. However, the impact (and the measurement and evaluation of such impact) is less conclusive. It is still the goal of research to propose more parsimonious recommendation that could inform policy-makers about ICTs' public access impacts in different levels of analysis, and overcome the problem of a "forever pilot syndrome"(Fillip & Foote, 2007 in Best et al, 2010).

10.2 Summary of the theories and explanations in this report

This section summarizes the theories, research, and explanations presented in this report, highlighting how they are used to explain and measure the impacts of e-Inclusion intermediaries. As a further analytical step inspired by the social ecology approach, the work has been categorized into the groups of micro, meso, exo, and macro. The theories in and of themselves are not limited to these levels. Rather, this categorization reflects the trends observed in the literature as to how the theories have been applied to explain and operationalize impact and impact factors at these levels of analysis. The four levels represent the spheres of influence that e-Inclusion actors might seek or have, depending on their goals (See Figure 1 for the map of theories and explanations categorized based on these four levels)

10.2.1 Theories and explanations at micro level

The micro level research analyzed in this report focuses on the impact that e-Inclusion actors have on individuals. Broadly, this work examines whether e-Inclusion intermediaries' activities enhance individuals' access to digital technologies, the extent to which this access builds human capacity (in a wide range of areas, from technology and employability skills development to civic participation impacts), as well as how clients respond to initiatives introduced by e-Inclusion intermediaries .

Thus, the theories and explanations applied at this level focus on patterns of adoption, use or appropriation of e-Inclusion intermediaries' work; ICT adoption levels; and impact in terms of how users are empowered to pursue social inclusion goals, either directly through building relevant skills or more indirectly by fostering the motivation and inspiration to pursue those goals. The approaches in this category are useful for analyzing issues such as:

- The availability of e-Inclusion actor services in practice
- Actual patterns of use and how these line up with service offerings and/or the stated goals of e-Inclusion intermediaries
- The best and/or most effective uses of technologies in local settings
- Potential barriers to ICT usage faced by clients
- Challenges faced by e-Inclusion actors in local settings, particularly low-resource settings
- Differences and progressions in users' digital skills, as well as influencing factors;
- The process through which the social and cognitive skills required for optimal ICT usage are developed;

- Factors influencing how clients access and/or search for information
- Employability or how ICT skills improve employment opportunities.

10.2.2.   Theories and explanations at the meso level

The meso level research analyzed in this report examines how eInclusion actors organize their operations in order to achieve eInclusion goals. Most of the analytical frameworks originate in theories of organizational change, business management, public policy, sociology and information science. Broadly, this work emphasizes how e-Inclusion actors can develop (or fail to develop) sustainability; what makes them successful or unsuccessful in the short- and long-term; and the external factors that influence achievement of their goals.

- The approaches in this category are useful for analyzing issues such as:
- Factors that impinge on the success or failure of eInclusion initiatives, including quality of information provided, technologies used, people, management, process, culture, structure, strategy, politics, and environment.
- Institutional structures, norms and practices that guide social behaviour and the institutionalization process.
- How eInclusion actors can achieve sustainability (financial, social, cultural, technological, or political); and how they can be effective and relevant over time.
- Financial performance and cost-effectiveness of eInclusion actors
- The role of partnerships, including stakeholder relationships, in promoting desired outcomes.
- Organizational management practices.
- Best practices for eInclusion actors.
- Strategies for meeting users' needs.

The unit of analysis is the eInclusion actor or organization, and impact is generally assessed based on the organization's success or failure in sustaining operations and achieving the goals of the initiative.

10.2.3 Theories and explanations at the exo level

The exo level research covered in this report looks at the impacts of e-Inclusion actors at the group or community level. It addresses most of the same issues as the micro level research, but attempts to assess outcomes in terms of aggregate changes experienced by particular populations or entire communities. The analytical frameworks applied here generally focus on explaining the role of the e-Inclusion intermediary within a community or how it is organized to serve a population of interest such as the youth or disabled.

- The approaches in this category are useful for analyzing issues such as:
- Impact of e-Inclusion intermediaries' provision of physical and/or virtual social spaces on community development.
- How differences in social gathering places (telecenters, libraries, cybercafés, etc.) and the dynamics embedded in them foster the spread and adoption of technology innovations.
- Empowerment and personal development outcomes (physical, intellectual, psychological, emotional, and social) for user groups, e.g. youth.

- Structural enablers or constraints to effective use of e-Inclusion facilities, and the impact of e-Inclusion intermediaries on these structures.
- Community involvement in ICT projects, and how this positively impacts sustainability.

10.2.4 Theories and explanations at the macro level

The macro level research analyzed in this report focuses on how eInclusion actors, through their contribution of telecenters, libraries, cybercafés and the like, impact high-level social, economic, political, and cultural systems.

Generally work in this area concentrates on how ICT use builds human and social capital, and how this in turn leads to the achievement of social, political and economic goals. The concentration is on large-level impacts such as the creation of social capital; how innovations are diffused over large populations; and citizenship at an abstract level, i.e. not so much the individual's experience of citizenship but rather how citizenship positively shapes society.

- The body of theories and frameworks represented in this category assesses the role of e-Inclusion actors in advancing social goals at a city, state, or national level.
- The approaches in this category are useful for analyzing points such as:
- Power and control, including underlying power structures that affect or are affected by the adoption of ICTs.
- How to avoid reproducing existing structures of inequality or discrimination against specific social groups.
- How innovations are introduced and adopted throughout a social system.
- How to identify early adopters and opinion leaders; understand perceptions of new technologies; and design products or services to overcome barriers to adoption.
- Social, economic and political constraints that people face in the process of change.
- The interplay of structure and agency in shaping the outcomes of e-Inclusion intermediaries.

At the macro level the unit of analysis is the social, economic, political, and/or cultural system. Impact is generally assessed based on what changes occur at these levels, as well as how these changes take place over time.

Most of the theories analyzed in this report can be used at the micro-, meso-, exo- or macro level. Indeed, considering the interdisciplinary nature of much eInclusion scholarship, there is a significant amount of overlap and merging of approaches and foci. Furthermore, individual reports and research projects tend to combine several perspectives. It seems clear that the theories and frameworks at each level have their own value. Choosing to focus on one level or the other likely will depend on the objective of the evaluation exercise. In the end, the more holism required, the greater the number of approaches that will need to be integrated.

The last chapter of this report presents a basic conceptual framework outlining some analytical elements to understand how e-Inclusion actors work and the different kinds of impacts that their work can be linked to – given the appropriate environmental conditions exist. It is in the context of this conceptual framework we provide a set of

recommendations for potential theories and explanations reviewed in this report that can become the theoretical foundation for the MIREIA project.

11. RECOMMENDATIONS

This last section presents a basic conceptual framework outlining some analytical elements to understand how e-Inclusion actors work and the different kinds of impacts that their work can be linked to given the appropriate environmental conditions exist. It is in the context of this conceptual framework that we provide some recommendation on potential theories and explanations reviewed in this report as possible theoretical foundations for the MIREIA project. For this purpose, the section brings together the elements of how eInclusion actors work and assesses the extent to which these elements can be linked to particular types of impact. Considering that the eInclusion arena includes several different types of actors with varying goals, facilities and services; a range of target populations with different backgrounds, needs, and motivations; numerous contextual influences; and a multitude of potential impacts; it is impractical to try to develop an impact formula or model that accounts for the intricacies of each variation of factors. Identifying all these elements and establishing connections between them would be a futile exercise. This discussion therefore aims for simplification by abstracting to the highest level of factors that can be applied to analyzing eInclusion actors and their impacts, while being flexible enough to accommodate a variety of situations.

11.1 The Conceptual Framework explained

This section describes the different elements that come into play when assessing the relationship between how eInclusion actors work and the different kinds of impact their programs and services have on the communities they serve. For this purpose, the framework is divided into the following elements:

- How eInclusion actors work: mission, programs and services, type of organization, ownership and business models.
- Types of impact: Institutional capacity, digital inclusion, social inclusion, and employability
- Evidence in the literature that links relationships to types of impact.
- Factors under which impact may or may not occur: Organizational, personal, social, and economic.

These four elements constitute the proposed framework for analyzing the relationship between how eInclusion actors work and the impacts they have (See Figure 1 and Table 2) . Instead of identifying impacts based on the specific type of eInclusion actor it is based on the types of facilities and services they provide. This approach has the benefit of identifying a variety of possible impacts as well as the ability to target a wider range of impacts by providing access to a wider range of services, assuming all other requirements are in place. How eInclusion actors choose (or are able) to configure the elements delivers different impact potentialities. The framework is described in more detail below.

Figure 1 Elements of the Conceptual Framework

HOW eINCLUSION ACTORS WORK	TYPES OF IMPACT				FACTORS UNDER WHICH IMPACT MAY OCCUR
	INSTITUTIONAL CAPACITY	DIGITAL INCLUSION	SOCIAL INCLUSION	EMPLOYABILITY	
MISSION		DIGITAL ACCESS	LIFELONG LEARNING		ORGANIZATIONAL
PROGRAMS SERVICES		INFO ACCESS	SOCIAL CONNECTIONS		PERSONAL
TYPE OF ORGANIZATION		DIGITAL LITERACY	WELL-BEING		SOCIAL
OWNERSHIP MODES			CIVIC ENGAGEMENT		ECONOMIC
BUSINESS MODES					

11.2   How e-Inclusion actors work

There are a variety of e-Inclusion actors with a diversity of missions that influence the programs and services offered and the outcomes their programs bring to the communities served. The ways in which an organization's mission is operationalized in the actual programs and services are varied, ranging from providing ICT access, training and employment-related services, to offering comprehensive programs that also include access to social services such as health care, transportation, and child care. Also diverse are the impacts that these programs may provide for the organization's target groups given the right conditions.

This is divided into five categories. The first three categories are strongly implicated in the institutional capacity of the eInclusion actor; that is, they can affect the ability to exist as an institution and carry out planned activities (and subsequently to have impacts). The last two categories are more directly related to impacts on target populations; they can shape the types of impacts that are experienced by different populations. All however represent the ways in which eInclusion actors can organize their activities. They may choose to have a broad or narrow scope in terms of how they organize and what they aim to achieve. The breakdown provided in this section enables us to indicate what (according to the literature) would be expected of an organization depending on whether it is focused on a single element or a combination of different ways of working.

Characteristics affecting institutional capacity of eInclusion actor:

    A. Ownership model of eInclusion actor
    B. Business model of eInclusion actor
    C. Type of eInclusion actor

Characteristics influencing eInclusion actor's impact on target populations:

    D. Central mission of eInclusion actor
    E. Type of program, facilities and services provided by eInclusion actor

11.2.1 Characteristics of eInclusion actors that affect institutional capacity

On a separate level from the impact eInclusion actors have on policy goals at the user level, attention should also go to considering how eInclusion actors' organizational setup and modes of operation affect their ability to function in the long term as strong partners in development efforts. The most critical element of this is arguably the organization's sustainability since this indirectly affects user impacts. Sustainability can have multiple dimensions – e.g. financial, social, human, technological, political, or environmental. The most relevant dimensions for examining telecenters and other eInclusion actors are financial and social sustainability. These two dimensions are also more readily associated with the institutional structure of eInclusion actors.

A. *Ownership model:*

The ownership model covers the identities of the actors providing the service. The question here is whether it makes a difference if an eInclusion actor exists as a private enterprise, public enterprise, social enterprise or a partnership across the three types. Private enterprises would be expected to have higher financial sustainability, while public and social organizations might have higher social sustainability. The preference in the literature is for partnerships between public/social and private organizations. These are seen as having the greatest potential to achieve both financial and social sustainability by leveraging the benefits of each model for digital and social inclusion goals. This recommendation appears intuitive, for example a private organization partnering with a local public office would probably have better access to the resources needed to integrate appropriating with the local community (e.g., building trust). However there is not a preponderance of empirical data indicating whether any particular model is superior to others in relation to eInclusion activities. The strength of local institutions and management practices/styles of different institutions can constrain the effectiveness of a public-private partnership.

B. *Business model:*

The business model element relates to how the eInclusion actor obtains the resources required to run its operations. There is a general perception that commercial entities are more financially sustainable than non-commercial or not-for-profit organizations that have a primarily social mission. Inclusion initiatives tend to be charged with the goal of ultimately becoming financially independent, even if they start out with financial support from the public sector or donor agencies. There are three main types of business models – the for-profit model, where there is a charge for services and the aim is to generate profits

for investors; the not-for-profit model where there is no charge for services and the organization has a social goal; and a mixed model, often referred to as social entrepreneurship, that seeks to both pursue social goals while generating revenue and becoming sustainable. The evidence from the literature is that for-profit enterprises have a greater capacity to be financially sustainable because they are demand-driven and responsive to the needs of their target markets. However, the high levels of churn in the cybercafé industry in developing countries gives some pause for thought – the trend suggests that even individual cybercafés have financial sustainability challenges, although as an industry it appears to be fairly resilient. Factors unrelated to the business model per se, have been implicated in the long-term sustainability (financial and social) of eInclusion actors – for example, the existence and use of relevant partnerships, lack of adequately trained staff, inadequacy of services offered (Kumar & Best, 2006), entrepreneurial spirit/business acumen of private actors (Huh, 2008; Rangaswamy, 2006), and location of the venue (Bashir et al, 2011).

Socially oriented or non-profit agencies have more critical financial sustainability challenges because they are dependent on external resources for their continued existence. This is particularly the case with initiatives that begin as pilot projects, with no guarantee of continued support after the pilot phase. Some researchers have found that non-profit models that are able operate on a low-cost basis (e.g. using volunteers rather than paid staff) can achieve financial sustainability (Figueiredo, Camara & Sabin, 2006). However, other observations also indicate that the low-cost model can face other sustainability challenges – e.g. high volunteer turnover. Having a social goal does not guarantee social sustainability either, as the initiative needs to be accepted by the relevant community and achieve some equity in its delivery of services in order for social sustainability to be gained. Examples abound of social eInclusion initiatives that became white elephants because they were not a good fit with the community.

The third model attempts to achieve the best of both worlds. This may take the form of commercial enterprises adding some social element to their operations, or development-oriented actors such as telecenters, adding a commercial element. While there is a lot of interest in pursuing this model, the evidence indicates that trying to serve the social needs of disadvantaged populations simultaneously with pursuing the profit motive is extremely challenging (Kuriyan et al, 2006).

C. Type of eInclusion actor:

For the purposes of this report, the type of eInclusion actor narrows the focus to identifiable institutions, in particular those that are perceived as especially well-placed to contribute to eInclusion goals. Social organizations, government agencies, public libraries and schools tend to top the list, although other institutions could be included. The argument is that these types of organizations either already exist and have an established infrastructure, or have particular operating structures/models that are suited to achieving socio-economic outcomes. Thus rather than creating new and/or ICT-focused organizations, efforts should go towards enhancing the capacity of these existing agencies to provide access to digital technologies and related services. Again these recommendations are intuitive; however the research evidence does not lie solidly in any particular direction. For example, public libraries are considered good locations for eInclusion efforts because they have formal, trained knowledge workers. Nevertheless, other types of venues could provide similarly trained staff depending on the needs of users in the community. Furthermore the

issue of formal assistance is not as straight-forward as it might seem – there is emerging evidence that the skill of a formal knowledge worker might be not so much that they provide help to users, but that they can read when users need help and when they want to be left to their own devices (unpublished early findings from the Global Impact Study).

In summary, based on available evidence, the critical issue for achieving digital and social inclusion goals through eInclusion actors is less about the specific identity of the actor, or a particular model of service provision, and more about what types of services are provided, appropriate targeting of services to populations, and the ability of actors to garner the human, financial and social resources important for providing value to the target community. While some organizational structures may be have strengths in one area or the other, so far it seems that no organizational model has a monopoly on being able to achieve any particular outcomes.

11.2.2 Characteristics influencing eInclusion actor's impact on target populations

D. Central mission of the eInclusion actor

The analysis of the literature broadly identifies seven different kinds of mission that guide eInclusion actors' program design and services. In this instance, central mission refers to the actor's main goal in being established. A cybercafé is intended to provide access to computer technology, whereas a training institute provides access to training, and a social services organization provides access to social services. One can expect that on the basis of these central goals, the three facilities will be organized differently, will provide different types of services and will probably be assessed differently. If a cybercafé owner decides to add training services, or a social services organization decides to add computer access, the result is an expansion of the organization's goals and resultant need to restructure its operations somehow, (including acquisition of new resources) depending on how extensive or central the new training component is expected to be. The list below is by no means comprehensive but it provides an accurate portrayal of the range of missions organizations can have and a useful guide to how these missions are translated into different programs and services, and the different kinds of impacts they can have.

1. **Provide ICT access** (e.g. a cybercafé): this mission refers to the simple provision of access to computers and Internet.

2. **Provide information access** (e.g. a library): this mission refers to providing access to information resources of different kinds that are usually provided or facilitated by an infomediary (librarian, telecenter staff, etc.).

3. **Provide ICT training (e.g., ICT training institute)**: this mission refers to the provision of ICT skills courses at different levels to advance digital literacy.

4. **Provide social services** (e.g. health care, legal services, migrant services): this mission refers to the provision of social services that focus on advancing or improving individuals' wellbeing.

5. **Advance employability** (e.g. job placement center, vocational training): this mission refers to the provision of different training and employment-related services that enable people to progress towards or find employment, remain employed, and/or to advance in the workplace.

6. **Community engagement** (e.g. community center): this mission refers to the provision of facilities and space to promote community interaction and well-being of residents. It is similar to social services but more at the community level.

7. **Government services**: this mission refers to the provision of government information and services on or offline.

E. Programs and Services eInclusion actors offer

The range of programs and services articulate an organization's mission. The ability of an organization to provide services not only depends on how successful it is in articulating this vision but also in the availability of resources – financial, human, social – the organization has at a given point in time as well as the efficient use of these resources to fulfill the needs of the people it serves. These services in turn can have direct and indirect impacts in the community given the right combination of factors. The list included in the framework is not intended to be overarching or comprehensive. It includes the most common services cited in the literature that have surfaced in our research.

- ICT access: basic access to computers and the Internet
- Basic ICT skills training: Training in elemental aspects of computer and Internet use delivered through different mechanisms and strategies – personal tutoring, group training, peer-to-peer training, self-learning using organization's resources, online learning, etc.
- Advanced ICT skills training: Training in web development, software design and development, ICT system administration, support, and maintenance, e-commerce, etc.
- Information access: Access to on and off-line information resources as well as support in using those resources.
- Job/Livelihood-related training: Training focused on improving an individual's skills set to improve her/his position in the labour market. This can include vocational training, interview skills, CV preparation, strategies for online job search, entrepreneurial skills, among others.
- Job/Livelihood-related services: Services such as connection to employers (e.g. job matching, internships, job fairs, recommendations, etc.); job placement services (e.g. job search, job hunting strategies)
- Social services such as:
    - Psychological counselling
    - Legal counselling
    - Health care
    - Transportation
    - Child Day care
    - Migrant services
    - Language training
- Government services
- Community space

Disaggregating different kinds of services allows for a more accurate assessment of the direct and indirect impacts the organization's programs have on the communities they work in.

11.2.3 Recommendation of theories and explanations to understand how e-Inclusion actors work

The most relevant theories and explanations to understand how e-Inclusion actors work are found in the meso level of Figure 2 above. As we mentioned before, most of the body of literature in this group finds its theoretical origins in theories of organizational change, business management, public policy among others. The scholarly work at the meso level emphasizes the institutional, organizational, and environmental factors that influence the possibility of e-Inclusion actors to achieve expected or desired goals. Two in particular seem to cover a broader set of analytical elements: Institutional theory and Effective Use.

As thoroughly elaborated on Section 3.1 of the report, *institutional theory* is used for examining organizations (in this case, e-Inclusion actors), and their structures, operations, and efficacy. The analytical elements outlined in this theory allow the researcher to understand the distinct qualities at the organizational or institutional level in terms of how it functions, what role it plays in the community it serves, the resources available for the organization, and how the organization manages change and adaptability to new circumstances. In addition, looking to organizational dynamics of e-Inclusion actors through the lens of institutional theory integrates into the analysis the dynamic nature of the interaction between an institution and its social, political and economic environment, as well as, the active roles of its members in shaping this interaction.

Similar to institutional theory, *Effective Use* (elaborated on Section 4.1) also highlights the importance of the dynamics between an organization and its environment but places the emphasis of the analysis on understanding how these dynamics address the need for conditions that enable active and effective use of ICTs. Based on this approach, ensuring effective use of ICTs requires attention to different factors – from quality of ICT infrastructure, content services available, to the intermediaries as social facilitators. Both the theory of institutional change and the Effective Use approach both acknowledge that there are a variety of organizational and environmental contexts that need to be in place in order to translate organizational effectiveness in delivering services into broader impacts.

11.3   Types of impact: digital inclusion, social inclusion, and employability

Out of the numerous possible impacts that could be generated by e-Inclusion actors, three main ones are identified: digital inclusion, social inclusion and employability impacts. The path from inputs to impacts is a complex one, with the potential for diverse and meandering routes from a single point of action. For simplicity's sake, impacts are classified as direct or indirect, depending on the activities of e-Inclusion actors. An impact is considered direct if the connection between action and outcome can be reasonably assumed. The impact is considered indirect if it is a possible outcome but cannot be assumed. For example, an institution that exists solely to provide access to computers and the internet can be expected to directly advance digital access, but further outcomes of digital literacy or social inclusion may be indirect (though not guaranteed) results of this digital access. Note that although employment-related impacts may be considered a component of social inclusion, employability is identified as a distinct impact area to highlight the importance of livelihood capacity-building in poverty reduction.

The theories and explanations to understand the relationship between how e-Inclusion actors work and their contribution for advancing digital inclusion impacts is commonly implemented at the micro or individual level. For social inclusion and employability impacts the most appropriate theoretical lenses and analytical approaches are implemented at the exo level, and less frequently, at the macro level.

11.3.1 Digital inclusion impacts

This category includes impact on Internet access and adoption, development of digital literacy and skills, ability to use and benefit from using ICTs, production as well as consumption of digital media. The research evidence indicates that e-Inclusion actors focused on providing digital access have a direct impact in the area of digital inclusion. Among the most cited types of impact in this group are: 1) Technology Access; 2) Digital Literacy (basic ICT skills, ICT practitioner skills, and e-Business skills); and 3) Information Appropriation.

The theories and explanations to understand the digital inclusion impacts of e-Inclusion actors are commonly analyzed at the micro or individual level. Within this level, there are three thematic groups which broadly compartmentalized the body of work reviewed for this report (See Figure 2):

- Theories and explanations devoted to the role of e-Inclusion actors in promoting skill development
- Theories and explanations that address ICT access, use, and adoption
- Theories and explanations that emphasize an individual's motivation and aspiration in relationship to technology use.

For the first group, we recommend the Digital Literacy Framework and the ICT Skills and Employability Framework as theoretical and analytical underpinnings for the MIREIA project. For the second and third group, we recommend Technology Appropriation as an approach to understand the technology features, as well as, the broader technological environment that influence how individuals use and adopt ICTs.

11.3.2 Recommendation of theories and explanations to assess digital inclusion impacts

The Digital Literacy Framework (Described in Section 4.6)is a very comprehensive approach that brings the analysis of how e-Inclusion actors advance digital inclusion impacts a step beyond simple access to ICTs. Although the framework recognizes that ICT access is a necessary condition to facilitate digital literacy, further development of additional foundational skills are necessary for effective use in the pursuit of socio-economic goals. The framework identifies technological, social, and cognitive skills that are required for critical and effective use of ICT. The digital literacy framework provides a clear structure and elements for measuring digital literacy skills. In addition, the framework has been empirically tested. It also provides a useful way conceptualizing how access to ICTs at telecenters can lead to enhanced digital skills. It addresses the one of the most basic benefits that telecenters can provide, by virtue of their mandate to make ICTs more accessible.

ICT skills and Employability Framework (Described in Section 6.1) identifies the main elements to understand how basic ICT skills training provided by e-Inclusion actors can contribute to expand employability outcomes and economic opportunities for different disadvantaged groups. The framework outlines three levels of analysis for understanding

this relationship: 1) eInclusion actors' program design and organizational capacity; 2) characteristics of individual job seekers or trainees; and 3) the environmental dynamics that influence employment outcomes and often are outside the control of eInclusion actors. The framework provides a lens through which it is possible to assess the role of eInclusion actors in skill development with the goal of advancing employability outcomes. Even though the framework has been most commonly applied at the micro or individual level, there are some current efforts to use it at the exo level. We consider it a valuable theoretical foundation for the MIREIA project because it has been empirically tested in multiple countries with a variety of target groups. In addition, the use of employability as a conceptual building block instead of employment is a plus. The contribution of eInclusion actors towards advancing employability is more evident than actually placing people in jobs since these actors have no control over labour dynamics.

Technology Appropriation (Discussed in section 4.5) is a very interesting concept that can guide the MIREIA project as it tries to measure how eInclusion actors advance ICT use and adoption, the second thematic group under micro level. The concept of technology appropriation deals with the process through which technologies become integrated into users' lives, and how people make technology "their own." It is a contextual approach to understanding how technology is spread, adopted, and utilized. Technology appropriation calls for attention to the quality, diversity and intensity of ICT use, which can moderate impacts. Several concepts and models can be associated with this idea. One of the most interesting contributions of this perspective is that it conceives users as active participants in the process of technology development and diffusion and accounts for the diversity of users and contexts in this very same process.

11.3.3 Social inclusion impacts

This category includes impact on access to education/training, community participation, health services, social services, social networks or social connections, and general issues around wellbeing. Social inclusion has a material and non-material component and the framework is designed to accommodate for both types of components. Within this group there are four subcategories of social inclusion impacts: 1) Lifelong Learning; 2) Social connections; 3) Civic Engagement; and 4) Wellbeing. Evidence from the analysis indicates that the following types of impact are among the most common:

- Sense of belonging to the community
- Increased civic engagement (for example, volunteering)
- Extended social ties/connections/diversifying social spaces
- Opportunities for leisure and entertainment
- Capacity to aspire

11.3.4 Employability impacts

Employability refers to the combination of factors and processes that enable people to progress towards or find employment, to remain employed, and/or to advance in the workplace. This category includes impacts on people acquiring new skills, access to jobs and training opportunities, and contact with employers. The most commonly cited impacts in this group are:

- Increased job-related skill set
- Increased job opportunities

- Better income
- Opportunities for lifelong learning

11.3.5 Recommendation of theories and explanations to assess social and employability impacts

The Capabilities Approach (Described in section 6.2) is more a philosophy or epistemological approach than a theory. This approach challenges dominant conceptions of wellbeing that have permeated political as well as academic circles in the last decades placing a unique emphasis on the agential role of the individual – agency as in empowerment, not agency as in economic actor – in the pursuit of social and economic goals. This epistemological approach is being increasingly praised among policy-decision makers and international organizations as they attempt to find alternative measures of wellbeing that go beyond the common macroeconomic indicators – on which many policies and programs are currently based. The relevance of this approach is not limited to economic or employability related impacts of eInclusion programs. This approach is cross-cutting and as such it is relevant to all the different types of impacts we have identified in this report. We consider this approach to be highly valuable for the MIREIA project because through its lens it is possible to identify nuanced impacts in a clear and more tangible manner. In addition, the approach aligns with current efforts of the European Union to design alternative indicators to social and economic wellbeing. In the operationalization of this approach it is also possible to include other theories and explanations such as social connections (social capital). This approach is better suit for analysis at the macro or exo level.

At the exo level, we recommend *Community infrastructure theory* and the *Asset based community development* approach as two possible theoretical foundations for the MIREIA project. *The Community Infrastructure Theory* (Described in section 5.1) emphasizes the role of information and the generation of narratives in relationship to community spaces or facilities. Within this theory, community development is dependent upon the accessibility of spaces and tools that create an enabling environment for community-building activities. From an e-Inclusion actor perspective, this theory enables the research to assess the extent to which it is viewed as an integral and critical part of the community's infrastructure and the role it can play in advancing community building and social mobility outcomes. The emphasis of this theory is not on the technology per se but on the space where the technology is embedded and the capacity-building tools that facilitate and nourish human interaction.

The Asset-based community development (ABCD) (Described in section 7.3) approach follows a similar philosophical line like the Capabilities approach but its application is most appropriate at the exo or community level. The ABCD approach recognizes the skills, talents and fits of local community members before assessing a particular intervention. This approach considers community members and other community stakeholders (associations, neighborhood organizations, shops, etc.) as active agents in the process of community development rather than passive beneficiaries. From this perspective, an e-inclusion actor is not an implanted technology but a socio-technical venue defined according to the needs and resources of the community. This approach relies on deep, nuanced understandings of local context and enables individuals to address problems of social isolation and lack of access to information through a broadened range of social contacts. It encourages development of stronger and more extensive social networks that underpin increased engagement, participation and the growth of community social capital.

11.4   External factors under which impacts may or may not occur

Finally, the conceptual framework accounts for external factors that can shape whether or not desired impacts are achieved. These factors can be viewed from the perspective of the eInclusion actor, that is factors that affect their actual operations (e.g. availability of local agencies to partner with); or from the perspective of users, that is factors that affect their ability to use and experience impacts (e.g. gender dynamics). As success factors, these external issues may sometimes be more critical than anything the eInclusion actor does.

Factors at the organization level

- Relevance of training design and training strategy for users
- Organizational relations: kind of partnerships and resources derived from partnership
- Availability of financial and human resources
- Community buy-in | Community level of trust for the organization
- State of technological infrastructure

Factors at the personal/individual level

- Perceived ease of use of the ICT
- Perceived usefulness of the ICT
- Motivation and aspiration
- Diversity of networks
- Workplace readiness
- Social influence

Factors at the social level

- Demographic characteristics
- Social connections
- Bonding ties
- Bridging ties
- Availability of affordable health care
- Availability of affordable housing

Factors at the economic level

- Labour dynamics
- Skill set relevant to labour demands
- Discrimination level in the job process
- Quality of jobs available (wages, experience in the work place)
- Adequacy of income for pursuing life goals
- Social networks.

11.5   Evidence in the literature that demonstrates certain relationships to types of impact.

Another consideration is the extent to which empirical evidence has been generated to support the expectations that are associated with eInclusion actors. It is an unfortunate fact that a large proportion of available commentary on telecenters and other such eInclusion actors is based more on perceived potential than on demonstrated fact. While the general value of having meaningful access to ICTs is generally undisputed, the idea that particular methods of providing such access are superior to others is still up for debate, and the ability to make judgments is limited by the dearth of solid evidence based on a preponderance of research and observation. This is not to say there is no data to support claims on the impacts of eInclusion actors; rather that the data tends to be based on disparate, isolated, often small-scale, and highly contextualized studies, making it difficult to identify valid or reliable trends. In some cases the evidence is strong and backed by multiple similar findings; in others the evidence may be inconclusive, with different studies reporting contradictory findings. In other cases, there may simply be limited or no evidence.

It has been noted that although a lot of the research on public access ICTs sets out to measure impacts, in reality studies often end up with some measures of usage (which could be considered impacts depending on the research goal) and analysis of why expected impacts were not achieved (Sey & Fellows, 2009). Thus we continue to know more about the factors that seem to inhibit impact attainment, but not necessarily whether impacts would happen if all those factors were addressed (assuming that were even possible). The ideal scenario would distinguish between those impacts for which there appears to be some measure of reliable evidence (although we do not expressly judge the quality of individual studies) from those for which the conversation is still in the realm of potential. In short, the search for the most appropriate frameworks and measures of the impacts of e-Inclusion intermediaries continues.

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APPENDIX 1: ACADEMIC SOURCES

Academic Journals
Ecquid Novi: African Journalism Studies
Electronic Journal on Information Systems in Developing Countries
Government Information Quarterly
ICTD conference (selected papers)
Information Technologies and International Development
Information Technology for Development
Information, Communication, and Society
International Journal of Education and Development using ICT
International Journal of Information management
International Journal of Media and Cultural Politics
Journal of Community Informatics
Journal of Development Communication
Journal of International Development
Journal of Science and Technology
Journal of the Korean Geographical Society
New Media and Society
Performance Measurement and Metrics
Technology & Social Change Group Research Series, University of Washington
Telecommunications Policy
Telematics and Informatics
The Information Society
Youth and Society

Grey Literature Sources	
Source	**Type**
United Nations	Intergovernmental Organization
UNESCO	Intergovernmental Organization
World Bank	Latin-America Intergovernmental Organization
ECLAC (Economic Commission Latin-America and Caribbean)	Intergovernmental Organization
Inter-American Development Bank	Pan-American Intergovernmental Organization
Organization for Economic Cooperation and Development (OECD)	Intergovernmental Organization
European Commission	European Intergovernmental Organization
European Commission (Institute for Prospective Technological Studies)	European Intergovernmental Organization
European Commission (Information Society and Media)	European Intergovernmental Organization
International Development research Center (IDRC)	Research Institute
GTZ, Germany	Governmental
Association for Progressive Communication	Non-governmental
The Communication Initiative Network	Non-governmental
www.telecenter.org	Non-governmental
Gates Foundation	Non-governmental
OXFAM	Non-governmental

APPENDIX 3: KEY SEARCH TERMS

Search terms
Cabinas Publicas
Centros Comunitarios de Aprendizaje (CCA)
Community access points
Community learning center
Community multimedia centers
Community technology centers (CTC)
Community teleservice center
Computer kiosk
Computers on Wheels
Cyber café
Cyber center
eInclusion
Educational centers
eInclusion actors
Family Technology Resource Centers
Free-Nets
Internet kiosks
Internet public access centers
Internet public access points
Libraries
Multi-purpose community centers
New knowledge centers
Public access
Public libraries
Social organizations
Technology Resource Centers
Telecenters
Telecentre
Universal access
Village kiosk
Village knowledge center

Academic Literature	
Coding Field	**Coding Categories**
Author, year, title	
Type of publication	Journal; report; working paper; technical paper; book; book chapter
Discipline	Communication; Sociology; Psychology; Informatics; Economy; Public Administration; Public Policy; Business; Development; International Relations
Geographic Region	Europe, USA, Latin America, Africa, Asia, country specific; global; none
Analytical approach	Theory; analytical model; framework
Name of the approach, if applicable	
Research questions	Research questions; goals; objectives
Research method	Quantitative, qualitative; mixed methods
Impact Areas	Development; public services; public health; eInclusion; social inclusion; rural development; literacy; digital divide; employability; digital competencies, etc.
Type of public access venue	Library, telecenter, cybercafé, etc.
Availability of empirical evidence	Y/N; type
Comments	
Abstract	
Grey Literature	
Coding Field	**Coding Categories**
Author, year, title	
Organization Name	
Type of publication	Article; report; working paper; technical paper; manual; handbook; policy document
Abstract	Europe, USA, Latin America, Africa, Asia, country specific; global; none
Geographic region	
Approach	Theory; Analytical model; Framework
Name of the approach	
Research questions	Research questions; goals; objectives
Impact areas	Development; public services; public health; eInclusion; social inclusion; rural development; literacy; digital divide; employability; other
Type of public access venue	Library, telecenter, cybercafé, other
Availability of empirical evidence	Y/N; type
Comments	

Conceptual areas	Theories, analytical frameworks, and explanations
1. **Sustainability**	o sustainability failure model o financing structures o best practice case studies o financial sustainability assessment frameworks
2. **Stakeholder theory**	o actor-network theory o stakeholder involvement model o public-private partnership models
3. **Success/Failure Factors**	o critical success factors model o design-actuality gaps o ICT4D Process Approach Wheel o case studies or overviews of program implementation
4. **Institutional theory**	o trust o local relevance of institutions and content o sensitivity to socio-cultural norms o institutional dualism o cultural perceptions of ICTs
5. **Power and control**	o political economy o Bourdieu's theory of reproduction o gender analysis
6. **Project Goals**	o value chain o theory of change o outcome mapping models
7. **Diffusion theory**	o identify early adopters and opinion leaders o understanding perceptions of new technologies o designing products or services to overcome barriers to adoption and widening social exclusion
8. **Innovation**	o social entrepreneurship o services which extend beyond provision of ICT facilities o Responsiveness to new technological developments. o policy environment
9. **Cost-benefit analysis**	o cost-benefit ratio o break-even point o consumer surplus o program-related, user-related or community-related

APPENDIX 6: CONCEPTUAL EXPLANATIONS ON HOW eINCLUSION ACTORS IMPACT USERS' LIVES

Conceptual areas	Theories, analytical frameworks, and explanations
1. **ICT adoption and patterns of use**	o Normative theory of media performance o Optimal use approach o Networked diffusion of innovations o Technology Acceptance Model o Technology Appropriation
2. **Building human and social capital through information literacy, digital competences, strengthening of social networks.**	o Digital Literacy framework o Intergenerational interactions framework (social representations) o Institutional Theory o Psychological Empowerment from a Gender approach o Information flows and needs Information appropriation o Actor Network Theory o Bourdieu's theory of reproduction o Knowledge flows and technical and allocative efficiency o Van Dijk four levels of access: mental, material, usage, skills combined with social networks o Diffusion of innovations combined with social capital o Sociology of place and space
3. **Connecting to social, economic, cultural and other eInclusion goals**	o Communication infrastructure theory (social mobility) o Youth Development Framework o Sociocultural constructionism and Asset Based community Development model o Network model of active democracy o Holistic cultural assessment o Amartya Sen's Capabilities approach o Development supported communication (based on development communication theories) o Principal Agent Model o Communication as power (Castells) o ICT Skills and Employability Framework

APPENDIX 7: FRAMEWORK FOR IN-DEPTH CODING OF THEORIES AND CONCEPTUAL EXPLANATIONS

Coding Framework ICTD theories	
Coding field	**Coding categories**
Type of source:	Academic Grey literature
Title	
Author(s)	
Age of publication	
Type of publication	Journal Report Working paper Technical paper Book chapter Other (describe)
Abstract	
Geographic region:	Europe USA Latin America Asia Africa Middle East None Other (describe)
2. Theory/Analytical Framework/Conceptual Explanation	
Is it a?	Theory Analytical Framework Model Conceptual explanation Other (describe)
Name (if applicable)	
Definition/description of theory or explanations	
Theoretical origins (include name and basic stands if not available in article)	
Broad conceptual areas	Institutional Capacity & Sustainability Impact – ICT profile/access Impact – Capabilities, skills, competences Impact – social, economic, political
EU policy area(s)	Digital Inclusion Social inclusion Employment Lifelong learning Youth development E-Government
3. Methodology	
Research method	Quantitative Qualitative Both
Research tools	Survey Interviews Secondary-data analysis Field observations Focus groups Other (describe)

4. Type of eInclusion actor	
Type of eInclusion actor:	Telecenter (describe it) Library Cybercafe
If telecenter, type:	NGO|Social organization Government Private Sector University International organization (UN, WB) Other (describe):
Target Group	Women Migrants Youth Children Elderly People with physical or mental disabilities Rural population Unemployed General None Other (describe)

5. Critical Analysis
List the most important findings related to impact and: Institutional Capacity | Sustainability
List the most important findings related to impact and: ICT access, adoption and use
List the most important findings related to impact and: ICT capabilities, skills, competences
List the most important findings related to impact: social, economic, political (macro/meso level)
How does the theory or explanation explain impact?
In your view, how effective is impact explained?
If it explains impact, what are the factors defined as contributing to impact? (list factor and how it affects impact)
Additional comments

HOW E-INCLUSION ACTORS WORK		
Theory/Framework	**Institutional theory**	
Explanation	**e-inclusion actors impacts**	
Institutional theory (related terms are institutional analysis, processes of institutionalization, and the institutional perspective) is used for examining organizations (in this case, e-Inclusion actors), and their structures, operations, and efficacy. In applying the institutional perspective to e-Inclusion actors, we may analyze the institution's stability and/or contextual adapting; trust; or structure impact and long-term sustainability. Impact in institutional theory is understood as the organizational accomplishment over time, of goals and activities that can complement and advance the organizational missions and communities' goals.	• Telecenter goals and activities can, over time, complement and advance the missions of their host organizations and communities. • For effective knowledge sharing clients must have a sense of trust in the access point as well as the services and the larger information systems that they tap into through the access point. "getting symbolic acceptance by the community"; "stimulating valuable social activity in the relevant social groups;" "generating linkage to viable revenue streams;" and enrolling government support."	
	Strengths	**Limitations**
	Institutional theory can be an effective way of revealing these dynamic relationships between the organization, its environment, its members, and its successes and failures, and how they are mutually constitutive	• Challenging to delineate institutional boundaries and environments • Given that one is attempting to understand complex organizational relationships through varied types of data, institutional analysis may take a significant amount of time to complete • The framework seems to be more descriptive than predictive • Focus just on mostly on the organization running the facilities rather than impacts

HOW E-INCLUSION ACTORS WORK	
Theory/Framework	**Asset-based community development**
Explanation	**e-inclusion actors impacts**
Asset-based community development is a particular approach to community building that assumes that social and economic revitalization starts with what is already present within a community – not only the capacities of residents as individuals– but also the existing commercial, associational and institutional foundation. An asset-based approach to community building perceives local residents and other community stakeholders as active change agents rather than passive beneficiaries or clients. The inclusion actor –telecenter– becomes not an implanted technology but a socio-technical venue defined and decided according to the necessities and resources of the community.	• ABCD raises community members' awareness of available assets in their community, not limited to ICTs. • Community members developed information seeking and analysis skills relevant, not limited, to the use of the Internet. • Creation of Social networks • Civic engagement, social contact, sense of empowerment and sense of community positively correlated with Internet use • People stay informed locally, nationally and internationally • Participants get renewed confidence in themselves and their ability to learn. • ABCD increases long-term sustainability of an e-Inclusion project.

Strengths	**Limitations**
• ABCD rests on a philosophy of positive thinking: cooperation, collaboration, resource-sharing both personal and community growth. • ABCD assumes that lack of resources is not a barrier to an e-Inclusion project • ABCD relies on understandings of local context and conditions • It is an inclusive approach not techno-centric .	• ABCD depends on productive relationships which are difficult to maintain • ABCD hinges on community participation, it generally assumes that community buy-in and a critical mass of community participation as pre-existing conditions (people could not be willing to participate) • Long term planning and execution

HOW E-INCLUSION ACTORS WORK	
Theory/Framework	**Stakeholder theory**
Explanation	**e-inclusion actors impacts**
Stakeholder theory (and the related stakeholder analysis) has its origins in management research and literature. It holds that it is not only the shareholders of an organization who matter. Rather, there are additional stakeholders whose interests must be taken into account, whether because it is simply the right thing to do or because it makes sense (financial, practical, and competitive) to do so. In the context of e-Inclusion projects, a key assumption of researcher utilizing stakeholder theory is that the people being served by the technology, i.e. the clients or customers, must be considered as important stakeholders in order for the project to succeed.	• The e-inclusion actor will be a longer enterprise by bringing on local residents and other stakeholders as equal partners enhanced buy-in and overall participation • Besides the primary stakeholders, also must be considered the secondary stakeholders who "[had] a capacity to contribute or to impede the project to a various degrees."(Scholl, 2001)

	Strengths	**Limitations**
	• It presumes the necessity of a well-balanced partnership between players; it makes a strong statement of preference for egalitarian and inclusive power relations between e-Inclusion actors and their clients. • It seems favourable to fostering long-term sustainability • The public sector manager's self-understanding is shifting from being a public administrator towards the one of a public facilitator	• When utilized on an ongoing project, stakeholder analysis is time consuming and requires rounds of iteration and recalibration • Stakeholder analysis can be complicated and must necessarily involve research and analysis on multiple players • There is much room for subjectivity in defining important and/or influential' or 'primary or secondary' stakeholders

HOW E-INCLUSION ACTORS WORK	
Theory/Framework	**Business model analysis**
Explanation	**e-inclusion actors impacts**
A business model is essentially an organization's plan for how to operate, serve, realize its goals, generate profit, succeed, etc This is a very popular method, of evaluating the overall sustainability of e-Inclusion projects, used to analyze and compare the business model(s) they employed. Basic concepts are: low cost of operation, self-sustainability, and local entrepreneurial ownership	- The e-inclusion actor must become a center with multiple services (create offer according to the market) - A private model in rural India have shown that the availability of customized information in many rural areas has increased the knowledge base of many villagers, who gain easy access to information on government plans, market-related data, and education and health services - Impact lie in trying to serve both the population who need basic assistance and the population who can contribute to making the kiosks profitable - Research on e-villages emphasizes that it is not simply access to technologies but also knowledge, know-how, and business acumen that count towards long-term sustainability.

	Strengths	**Limitations**
	- Useful approach for both describing the current status of an e-Inclusion project, diagnosing its strengths and flaws, and evaluating its potential for long-term sustainability. - Straightforward predictive model	- Implementation difficulties lie in trying to serve both the population who need basic assistance and the population who can contribute to making the kiosks profitable - Focusing on the profitability risk the outcomes evaluation

HOW E-INCLUSION ACTORS WORK	
Theory/Framework	**Principal Agent Model**
Explanation	**e-inclusion actors impacts**
The Principal-Agent model is a way of examining the give and take between the principal, which is the group/organization commissioning a task, and the agent, which is the organization or individual charged with completing the task. The motives and desired outcomes of the principal and the agent are often in tension. But is usually the agent whom has more information and can risk the implementation. The central problem of principal-agent theory is to make sure that agents do what principals have empowered them to do.	• The principal agent model explains corruption. The agent takes advantage of this information problem and, having made a cost-benefit calculation, finds it profitable to engage in corruption • We also found the Principal Agent model in use on research dealing with e-Democracy measures in the area of public service broadcasting

Strengths	Limitations
• The Principal-Agent model places a great deal of agential power in the principal. That is, the principal has the power to make changes in the incentives it offers its agent, thereby improving the outcomes (mostly financial) of the venture. This is useful in the sense that control rests in the hands of the principal, presumably the party in whose interests the analysis is carried out.	• The Principal-Agent model assumes that principal and agent groups can be easily delineated, whereas in some cases it might be much more complex. • The findings produced by analyzing an e-Inclusion project with the Principal Agent model will not necessarily shed light on other e-Inclusion projects operating in different circumstances and settings.

HOW e-INCLUSION ACTORS work	
Theory/Framework	**Program design and implementation**
Explanation	**e-inclusion actors impacts**
Program design and implementation, focuses on strategies for successfully implementing an e-Inclusion program or telecenter. It becomes important because implementation of ICTs for development is not simply a technical process of delivering services to the poor, but is a highly political process that involves tradeoffs and prioritization of particular goals to attain sustainability.	• There will be greater chances of long-term sustainability when a bottoms-up approach is taken, rather than a top-down one. • Necessity to tailor projects to their local circumstances is a requirement for success. Successful stories have been those based on participatory process through which the community has a participatory involvement in the dynamics of the e-inclusion actors. • The results of researches show the emphasis on the importance of users and their environments over and beyond the implementation of information systems itself • When adequate technical and training support is provided to the sponsor there is likely to be a greater show of support for the overarching goals of the project and their implementation

Strengths	Limitations
• This type of analysis could potentially support a grassroots, bottom-up approach to establishing e-Inclusion measures. In this way it could lead to telecenters that better fit local needs, constraints, opportunities, etc.	• The analysis and formulation of program implementation approaches only covers a limited time in the lifespan of a telecenter project.

HOW e-INCLUSION ACTORS WORK	
Theory/Framework	**Cost-Benefit Analysis**
Explanation	**e-inclusion actors impacts**
A cost–benefit analysis is a way of calculating how the costs (generally monetary) measure out against the benefits of a venture, in this case an e-Inclusion project. Conducting a cost-benefit analysis is one way (perhaps the most straightforward and therefore most popular) of determining whether or not an e-Inclusion project is viable and/or sustainable in the long- or short-term.	- That is, concern about the balance between the cost of providing telecenter services to the public, particularly underserved and resource-challenged public, and the costs recovered by charging the clientele. - When state-run projects turn to the private sector for management of e-Inclusion projects, they may be harshly criticized for pandering to the private sector. - Promoting a more entrepreneur driven model of success could result in the perception that the project doesn't address the development needs of the 'masses'. Without financially successful entrepreneurs, the project cannot go to scale without incurring huge and continuing costs for the state.

Strengths	**Limitations**
A cost-benefit analysis is a relatively straightforward analysis to run. It can quickly and easily help evaluate whether or not an e-Inclusion project is financially viable.	It does not necessarily reveal non-cost-related benefits in a project's favour (it is very difficult to include externalities in the analysis)

DIGITAL INCLUSION	
Theory/Framework	**Technology Acceptance Model**
Explanation	**e-inclusion actors impacts**
Technology acceptance models, such as the theory of reasoned action, theory of planned behaviour and technology acceptance model, dwell on the cognitive aspects of technology adoption. They attempt to predict technology adoption by examining attitudinal factors that are believed to guide consumer behaviour. Technology Acceptance Model (TAM) maps the relationship between perceived ease of use (the degree to which a person believes that using the system will be free of effort) and perceived usefulness of a technology (extent to which a person believes that using a system will increase his or her job performance), and intention to use the technology.	• A study of data from a survey of 16 institutions showed that perceived ease of use had a significant impact on perceived usefulness and consequently on intention to use digital library systems (Park, Roman, Lee and Chung's, 2009) • Intention to use is influenced by individual characteristics of users, system characteristics as well as social and organizational contexts. • Community characteristics were the most important determinants of telecenter success. • Performance expectancy; social influence, management effectiveness, program effectiveness and facilitating conditions were good predictors of user acceptance of telecenters

	Strengths	**Limitations**
	• This is a well-established framework and extensively used in the information systems field. • The approach enables identification of the attributes of users and e-Inclusion initiative that determine whether or not technology will be adopted.	• It provides a measure of people's intention to use a new technology, not their actual use. Various factors could limit people's ability to act on their intentions. • It implies that potential users are a homogeneous mass that approaches technology equally. However people generally interpret, respond to and use the same technology in different ways • The model suggests a linear model of human behaviour. However the passage of time as well as other demographic and socio-cultural factors can lead to variations in attitudes and behavioural intentions towards technology.

DIGITAL INCLUSION	
Theory/Framework	**Diffusion of innovations**
Explanation	**e-inclusion actors impacts**
Diffusion of innovation theory (Rogers, 1995) describes how innovations spread after being introduced into a social system. There are four main elements in the process – the innovation, communication channels, time and a social system. Typically adoption over time takes the form of an S-curve – a slow uptake by a few risk-takers (innovators), followed by more rapid growth as more people (early adopters and early majority) adopt the innovation, and then a leveling out of the adoption rate when there are fewer remaining potential adopters (late majority and laggards). In essence, change agents (those charged with implementing an innovation) can best achieve their aims by identifying local opinion leaders and soliciting their support for the new technology.	• For newly introduced eInclusion initiatives adoption of the initiative is likely to follow the S-curve trend • By adequately addressing the issues that affect adoption rates, telecenters can play a central role (as intermediaries) in speeding up the rate of technology adoption • Ease of use, relative advantage and compatibility are the most important variables impacting adoption.

Strengths	**Limitations**
• Diffusion of innovation is an established and tested framework. • There is a clear structure and identified elements to guide use of this approach. • The approach examines innovation adoption at both micro and macro levels, thus potentially providing a way to connect individual behaviour to aggregated, community level outcomes. • Innovations can have positive and negative impacts, and that it is not possible to design interventions so as to obtain the positive impacts without experiencing the negative as well.	• Diffusion theory has been criticized as having a marketing orientation, being primarily concerned with understanding why a technology is or is not successful • There is evidence that the process of innovation diffusion widens socio-economic gaps instead of narrowing them. The social structure which may perpetuate existing inequalities (Rogers, 1995). • There is a tendency to blame individual characteristics for slowness in adoption rates, whereas a wealth of exogenous factors could be inhibiting uptake. • Diffusion theory tends to have a pro-innovation bias, that is, it is assumed that the innovation is good for the society and should be adopted by all

DIGITAL INCLUSION	
Theory/Framework	**Technology Appropriation**
Explanation	**e-inclusion actors impacts**
The concept of technology appropriation deals with the process through which technologies become integrated into users' lives, how people make technology "their own". It continues the call for attention to the quality, diversity and intensity of ICT use, which can moderate impacts	• From the perspective of eInclusion initiatives, the technology appropriation argument is that unless users incorporate eInclusion initiatives into their everyday lives, lasting impacts are unlikely to occur. • The focus on access or on improvement of skills is not enough to promote socio-economic inclusion. It is also necessary to know how ICT is experienced in the context of people's everyday life in order to define adequate policy strategies • Essentials for technology appropriation are access to technology, motivation to use, capability to use, and technical and emotional support

	Strengths	**Limitations**
	• It conceives of users as active participants in the technology development and diffusion process. • It accounts for the heterogeneity of users and contexts, as well as the potential flexibility of technology to be amended to different purposes. • It focuses on actual user behaviour, thus reveals the reality of how technology gets used. Potentially, capture unexpected, unpredictable and negative consequences more fully than other approaches. • This approach would be most suitable for initiatives that have highly generalized goals or can accommodate unpredictability of outcomes.	• The concept of appropriation remains relatively undefined, • Technology appropriation approaches tend to be more descriptive than prescriptive. Although some scholars have tried to outline recommendations to "design for appropriation", the inherently unpredictable nature of technology use recognized by this approach also means that it is difficult to make strong and meaningful prescriptions. • It is not clear whether user appropriation can be manipulated in a particular direction. Thus it would be difficult to target an eInclusion initiative towards specific impacts within this framework.

DIGITAL INCLUSION	
Theory/Framework	**Digital Literacy Framework**
Explanation	**e-inclusion actors impacts**
The digital literacy framework is a comprehensive framework describing the social and cognitive skills required in the current digital environment Telecenters can have an impact on digital inclusion by facilitating digital literacy, the ability to utilize digital technology to pursue a variety of information and communication goals. However, access is not enough for socio-economic goals. Certain foundational skills are needed. Such as critical and confident use of ICT, including: ability to participate in social networking applications and in collaborative environments, awareness of security threats and risks, and also ability to use ICT for creative and innovative purposes, irrespectively of the context.	• Not only did telecenters users lack digital competences but they were generally unaware of this deficiency especially with information skills (author suggest that these skills should be thought in the formal educational system) • Nevertheless, telecenters (acting as intermediaries) can contribute to development of these skills by promoting training in related topics • On a more general level, researchers have found that telecenters users acquire or improve technical and non-technical computer and internet skills • low language and digital literacy skills inhibits use of telecenters services

	Strengths	**Limitations**
	• It provides a clear structure and elements for measuring digital literacy skills • It has been empirically tested • This is a useful way of conceptualizing how access to ICTs at telecenters can lead to enhanced digital skills. It addresses the one of the most basic benefits that telecenters can provide, by virtue of their mandate to make ICTs more accessible.	• It does not necessarily link development of digital literacy skills to actions by the telecenters. Rather, it proposes that existing digital literacy skills will affect the extent to which people can use and gain impact from telecenters (the relationship is in the opposite direction). • It could be a rather mechanical way of approaching and identifying skill development by implying that people should have the same set of digital skills to be considered competent.

SOCIAL INCLUSION	
Theory/Framework	**Community Building**
Explanation	**Explanation**
These frameworks propose that community development, civic engagement and empowerment require community members to have spaces and tools for community-building activities. The existence of strong communication infrastructure makes easier community-building to occur. A community's communication infrastructure has two main components: 1. The neighborhood storytelling network 2. The communication action context.	These frameworks propose that community development, civic engagement and empowerment require community members to have spaces and tools for community-building activities. The existence of strong communication infrastructure makes easier community-building to occur. A community's communication infrastructure has two main components: 1. The neighborhood storytelling network 2. The communication action context.

Strengths	Limitations
• It connects community technology interventions to local community-building and social mobility outcomes. • It also links processes at the interpersonal level to social outcomes. • Empirical observations guide the application, avoiding in this way the tendency to evaluate eInclusion interventions in terms of potential rather than actuality	• It can be difficult to implement, requiring multiple methods and levels of analysis

SOCIAL INCLUSION	
Theory/Framework	**Sustainable Livelihoods Framework**
Explanation	**e-inclusion actors impacts**
Livelihoods approaches to development put eInclusion initiatives in the context of people's efforts to make a living, and the resources they have access to, for that purpose. It is expected that telecenters can help support livelihoods in a variety of ways – access to information, computer skills development, access to government and other social services, access to business-related training, provision of business enterprise services. The principles that underline the framework are: people-centered; responsive and participation; multi-level; conducted in partnership; sustainable; dynamic; holistic; and building on strengths (assets) while addressing vulnerabilities	• Capacity-building: studies have shown that while has not proved a transformative impact on rural poverty it has made contributions to building capacity in all the livelihoods (human, financial, natural, physical and social). • Computer skills development increases employability • Some telecenters provide access to training that is linked to users' livelihood activities • A study in Chile found that while telecenters played a significant role in promoting government services, and successfully collaborated with partners to facilitate activities such as online filing of taxes. The observable broader socio-economic impact was limited • About social equity has not been found that telecenter improve social equity in the community.

Strengths	Limitations
• It focuses on the one thing that poor people spend significant proportions of their time doing – trying to make a living with the available, accessible resources. • it offers useful concepts such as the distinction of livelihood assets and the issue of sustainability • It is useful because it can unearth unexpected results, due to the focus on what people actually do with the resources at their disposal.	• The holistic nature of the livelihood approach can make it difficult and costly to operationalize or implement fully • Trying to operationalize the framework often detracts from the critical tasks of addressing and understanding the environmental issues that are at the root of poverty, thereby causing the model to lose its power • It may overemphasize the assets or strengths of poor people and assumes that they are deliberately strategic in their exploitation of assets • Despite the centrality of sustainability to the approach, in practice, sustainability issues get overlooked or their complexity is not acknowledged

APPENDIX 11: SUMMARY OF THEORIES AND EXPLANATIONS ON ECONOMIC INCLUSION

EMPLOYABILITY/ECONOMIC IMPACTS		
Theory/Framework	**ICT and Employability Framework**	
Explanation	**e-inclusion actors impacts**	
This analytical framework identifies the main elements to understand how basic ICT skills training provided by e-Inclusion actors can contribute to expand employability outcomes and economic opportunities for different disadvantaged groups. The framework outlines three levels of analysis for understanding this relationship: 1) e-Inclusion actors' program design and organizational capacity; 2) characteristics of individual job seekers or trainees; and 3) the environmental dynamics that influence employment outcomes and often are outside the control of e-Inclusion actors	• ICT skills training allows lower skilled workers to develop their technical skills increasing their competitive position in the labour market • E-inclusion actors that combined ICT skills training with other employment-related services have a higher success rate in job placement for their program beneficiaries • ICT skills training can function as a catalyst to develop other critical skills that are highly valued in the labour market. (i.e. social skills) • Participants of ICT skills training programs often develop relationships and expand their social networks often critical to find a job. Basic ICT skills training often function as a lure for participants to engage in either additional ICT skills courses or in other types of training provided by e-Inclusion actors.	
	Strengths	**Limitations**
	• The major strength of this analytical framework is the fact that it was built inductively from research conducted with over seventy different types of e-Inclusion actors in a variety of countries. This inductive process favours replicability in different contexts. • The use of employability as a conceptual building block instead of employment. The contribution of e-Inclusion actors towards advancing employability is more evident than actually placing people in jobs since these actors have no control over labour dynamics.	• Many of the analytical elements that this framework includes are based on perception of the trainees, for example perceived ICT skills level or motivation to find a job. • The framework simply outlines some of the most common elements that explain the relationship between ICT skills training and employability but it not comprehensive and there may be elements of the framework that are more or less relevant depending on the context.

EMPLOYABILITY/ECONOMIC IMPACTS	
Theory/Framework	**Amartya Sen's Capabilities Appraoch**
Explanation	**e-inclusion actors impacts**
Amartya Sen understand evelopment as: "a process of expanding the real freedoms that people enjoy. Development requires the removal of major sources of economic unfreedom: poverty as well as tyranny, poor economic opportunities as well as systematic social deprivation, neglect of public facilities as well as intolerance of over activity of repressive states. The relevance of this approach is not limited to economic or employability related impacts of e-Inclusion programs. This approach is cross-cutting and as such it is relevant to all the different types of impacts we have identified in this report.	- ICT skills training improves capabilities of trainees to further their adoption and critical use. - Participants of ICT skills training usually show higher motivation to engage in additional training than those users of other programs and services provided by e-Inclusion actors. - The different capabilities of e-Inclusion programs beneficiaries when it comes to ICT use affects the different types of use, the frequency, and the purpose for that use. - In terms of types of use, training participants are often more skilled to use ICT to look and apply for jobs. - E-Inclusion actors are often the most valuable channel for finding employment after family and friends. The effectiveness of e-Inclusion actors as a channel for employment manifests itself either by acting as a "greenhouse" by employment trainees directly, or by facilitating employment through a network of links

	Strengths	**Limitations**
	- It provides a fertile lens through which concepts such as marginalized, disadvantaged, excluded, etc., can be challenged and remap. - It allows researchers to focus on agency and the voice of those groups that it is studying which solidifies the research itself. - It is valuable to understand how and under which conditions e-Inclusion actors advance social and economic goals.	The approach is all-encompassing in nature and it is very difficult to operationalize the full scope of it. Many of the studies included in this analysis use the Capabilities Approach as a lens through which the relationship between e-Inclusion actors and social and economic impacts can be assessed. The vast minority of the studies attempted to operationalize the approach.

EMPLOYABILITY/ECONOMIC IMPACTS	
Theory/Framework	**Aspiration (Appadurai)**
Explanation	**e-inclusion actors impacts**

Explanation	e-inclusion actors impacts
This approach refers to the story, or multiple stories, that humanize employability numbers and percentages and put in perspective the importance of bettering yourself; the importance to feel motivated in the morning to go to training and learn new things and how this learning and the sharing of the process with other people who are in your same situation; the importance to strengthen your 'capacity to aspire'. The perception of value of ICT training , and hence learning, and an increase in self-esteem and self-confidence are perhaps just as important as the actual employment or wage outcome itself. For individuals who face high barriers to employment – the long-term unemployed, the low-skilled, the older workers – learning new skills makes them feel 'modern', 'relevant', and motivates them to keep learning and aspire to improve their overall social and economic situation.	• Participants in ICT skills training perceive the contribution of the training as very valuable to advance their employment situation across gender, educational levels and wage levels for those who find a job after the training. • In relation to motivation participants often cite aspirations related to employment as major draws and benefits to such training.. • Training provided by e-Inclusion actors not only builds human capital by improving an individual's skill set but also help to share and reshape the perception of ICT skills usefulness to improve their employment situation. Shaping or reshaping this perception contributes significantly to build that "capacity to aspire" potentially expanding professional horizons, self-esteem, motivation, etc. for people with high barriers to employment.

	Strengths	**Limitations**
	• The capacity to aspire provides a very useful analytical tool through which aspects such as self-esteem, motivation for participating in training, types of jobs that individuals wish to obtain, etc., can be assessed. It brings a human face to the employability equation	• It is based on the individual's perception of self and her/his capabilities to aspire. It is difficult to assess the extent to which improving the capacity to aspire leads to specific outcomes, and even if it is possible to establish this connection, it is difficult to draw generalizable statements or findings

LIFELONG LEARNING IMPACTS	
Theory/Framework	**Empowerment as lifelong learning**
Explanation	**e-inclusion actors impacts**
Lifelong learning refers to the empowerment as a baseline for either improvement of knowledge, skills and competences, or for improving the different aspect of a person's life. The lifelong learning discourse sees telecenter as Internet-facilitated space for empowerment Main idea in this framework related with e-inclusion actors is the recognition that internal psychological mechanisms must be transformed together with the e-skills acquisition in order to produce a 'development' outcome. These resources are acquired/learned on telecenters, by the multiple activities that take place in the social interactions in the venues, which are not strictly related with "ICT skills-training".	• Impact here is conceptualized as feelings of empowerment, and there is qualitative evidence that correlate internet use with enhanced feelings of empowerment, strengthening sense of community and a positive impact on self-esteem of users. • improved self-esteem, motivation and confidence may also have, among others, individual employability impacts • It has also been found that the technology centers impact in empowerment especially for people with disabilities, religious minorities, youths and women by offering safe spaces and for establishing social networks

	Strengths	Limitations
	• It goes beyond the technological deterministic –messianic- way of thinking about internet access. The impacts are given by the social interactions that happen among users and staff, social norms and just in part, the availability of technology. • It recognizes the multiple skills and resources necessaries to 'succeed' and overcome exclusion • People empowered by the social interactions at the venues, besides the e-training, would increase their expectations, allowing them to take alternatives paths than the offered in their communities.	• Critics against the rhetoric of lifelong learning as empowerment refer to that they actually re-describe multifarious everyday activities as 'learning' • Empowerment is the only type of impact, there is no systematic data or longitudinal study in order to prove their impact on outcomes. • While the approach assumes the development of skills and competences on individuals' as necessaries for their integration –seeing the individual as the problem- rather than suggesting an alternative way for improving the circumstances that initially brought them to the exclusion situation

LIFELONG LEARNING IMPACTS	
Theory/Framework	**Intergenerational Learning: the e-born as generational bridge**
Explanation	**e-inclusion actors impacts**
Intergenerational Learning (IL) describes the way that people of all ages can learn together and from each other. IL is an important part of Lifelong Learning, where the generations work together to gain skills, values and knowledge. The youths could constitute a bridge to connect the e-excluded with the new technologies. If the generations are interacting, there will be greater benefits to the community and both sides are beneficiated. The older generation by having access to the "information" –knowledge – and the youth by being engaged in civic activities that allow them to face the discourse of "apathy" associated with youths and become civic engaged.	• The e-borns –children and youths- by intergenerational interactions at telecenters impact community development • Older people and youths share knowledge and assist one another to further develop their ICT related capabilities, skills, and competencies as well as basic literacy skills and personal psychological-social assets • Older and younger users intermingle and cooperate at the telecenters and develop community spirit; increasing participation, and a general improvement in citizens' present and future welfare • Accessing ICTs among youths especially in peripheral communities is gaining momentum as it is assumed to contribute to democratic and distributive justice, even for the ones that do not access

Strengths	Limitations
• Youth are seen as a source of development and not just a subject over which applied development strategies. • The demographic change, ageing society and workforce justify increase the dialogue among generations. • The framework considers the integration of the excluded by the dissolution of traditional family structures, single households, and social isolations of the elderly. • There are societal and professional resources, tacit and explicit knowledge shared among generation	• This framework faces the difficulty of making compatible two cultural groups their life worlds, identities, pedagogies, and different values become traps for the right application of intergenerational learning initiatives

LIFELONG LEARNING IMPACTS	
Theory/Framework	**Asset based approach- Social Constructionism**
Explanation	**e-inclusion actors impacts**

Asset-based community development is a particular approach to community building that assumes that social and economic revitalization starts with what is already present within a community – not only the capacities of residents as individuals– but also the existing commercial, associational and institutional foundation. An asset-based approach to community building perceives local residents and other community stakeholders as active change agents rather than passive beneficiaries or clients. There is a great deal to be learned regarding how community building and community technology can be mutually supportive, rather than mutually exclusive. The inclusion actor –telecenter– becomes not a implanted technology but a socio-technical venue defined and decided according to the necessities and resources of the community.	• A technology project, it has to meet the needs of the community, it has to be integrated into community building activities, it has to leverage the existing resources in the community, and it has to be empowering to the people it serves • Participants heighten awareness of community resources

Strengths	Limitations
• This approach relies on deep, nuanced understandings of local context, and in this way is a foundation to gain a thorough understanding of the settings in which e-Inclusion actors are located • The model also enables individuals to address problems of social isolation and lack of access to information through a broadened range of social contacts. It encourages development of stronger and more extensive social networks that underpin increased engagement, participation and the growth of community social capital.	• ABCD depends on productive relationships which are difficult to maintain • ABCD hinges on community participation, it generally assumes that community buy-in and a critical mass of community participation as pre-existing conditions (people could not be willing to participate) • Long term planning and execution • In terms of evidence, the initiatives tend to be shown as a successful "process" of implementation with detailed description of steps. However, is not totally clear that the outcome of this kind of intervention, compared with other more externally planned, is greater.

LIFELONG LEARNING IMPACTS	
Theory/Framework	**Self–education through intermediary institutions**
Explanation	**e-inclusion actors impacts**

Explanation	e-inclusion actors impacts
Self-education refers to learning, generally as obtaining information. Citizens are expected to engage in practices of learning throughout the life course, passing through a range of networked sites in order to engage in processes of retraining, re-education, re-evaluation, and reassessment in other words, citizens are "self-educating". Cultural institutions as (museums, galleries, libraries) are well positioned as forums for 'empowerment' and 'active citizenship'. Learning and self-improvement are seeing as the most appropriate uses of what the Net is for and institutions with skilled staff can contribute to orientate the learning of people in any stage of their lives	• The impact of the institution on individuals' self-learning is given by the possibilities the venue offer as a "field" of instruction with staff that can guide the learning in a more productive way, in case the user requires • An institution can monitor and potentiate the self-learning of individuals –and facilitate the setting for the self-learning • The concept of life-long learning of flexible re-skilling and continual self-improvement is especially appealing to younger population, and it is recognized by the users

Strengths	Limitations
• formal institutions, and specially libraries, has competent staff that can facilitate learning • Most of young users understand that to be continually educated is especially important in modern society and consequently are more attracted to participate in online activities that allow them to be informed	• The framework does consider that people do not recognize the existence of a world saturated of information where they have to move on (marginalized, immigrants, retired). • The impact of e-initiatives have not been studied on the traditional "institution" users. • The approach categorizes users more as an "audience" looking for information. Rather than considering them in the more contemporary views of individuals engaging in communication activities

YOUTH DEVELOPMENT IMPACTS	
Theory/Framework	**Empowerment in disadvantaged youth**
Explanation	**e-inclusion actors impacts**
The role of telecenters in empowerment is given by the value that technology offers, as a tool of engagement, to young people in order to become empowered and change the nature and direction of systematic forces which foster marginalization. Main idea in these frameworks is the recognition that internal psychological mechanisms must be transformed together with the skills acquisition in order to produce a "development' outcome. Aspiration, as one of the core constructs of analysis, is especially important as proxy of empowerment in young populations. A heightened sense of potential for future possibilities was among the most recurrent terms used to think about empowerment.	• eInclusion initiatives will be a safe alternative to empower youths, offering an escape way to their disadvantage realities. • The technology, interestingly become an incentive for the youths in order to engage in more "healthy" activities and shape their own futures • While the impact in skills and economic terms –employability - is slow, there have been mentioned other benefits, including a strengthening sense of community and a positive impact on self-esteem that also can translate in changes of aspirations. • The telecenters as social space promotes community-building

Strengths	Limitations
• The framework recognize that all young people need supports and opportunities to make a successful transition to adulthood • It recognizes the impact of technologies in traditionally no measured capacities • Empowered youth would increase their expectations, allowing them to take alternative paths than the offered in their communities.	• Empowerment is the only type of impact, a longitudinal study would be necessary to prove their impact on outcomes. • There is not evidence that demonstrate the impact of telecenter empowerment for the changes on the objectives conditions of life of youngsters • It tends to assume the direct impact of the "safe place" on the empowerment of youth. However, it must be considered the overcoming of challenges that usually determine a good outcome: cultural resistance to youth leadership, learned hopeless, and logistical issues that prevent participation

YOUTH DEVELOPMENT IMPACTS	
Theory/Framework	**Youth Development Literature: A safe space for development**
Explanation	**e-inclusion actors impacts**

Youth development literature set a special emphasis on the youths' possibilities of access to safe places of socialization and development.

What it is important about these spaces is the physically and psychologically safety for the kids. This is what shapes the way that programs, ICTs or not, are implemented and valued when they focus on youths. Eight attributes will characterize a place that promote positive development: physical and psychological safety; appropriate structure; supportive relationships; opportunities to belong; positive social norms support for efficacy and mattering; challenge; and opportunities for skill building

- Impact is not given only by access to the technology, the venues offer also the technology access (internet), an impact in youths' skills building, a positive outcome for relationship building (social capital); and allows youth voice and civic engagement
- The assistance of competent adults is encouraged for accompanying the development of youths at the e-inclusion actor.
- In particular in disadvantaged environments, where gangs and violence are present, research computer centers are not only seen as a "safe public space" for youths but they are also filling a void made by the lack of institutional higher education options

Strengths	**Limitations**
- A good framework for examining impact (and its success or failure) on an individual level - It offers a holistic view of the individual inserted I the society - It recognizes the importance of adults in accompanying the safe development of youths. It is not expected the internet access by itself will improve their possibilities of positive development. - The understanding of telecenters as safe spaces for youth development is a contribution for policy makers' arguments regarding the economic non-sustainability of many e-inclusion actors	- It does not offer evidence about how the telecenters contribute to address social and economic challenges in the long run. - The framework is good in explaining the "why" the telecenters are good for the Youth development. However, the reasons for this impact could be the same for any other "community" program-group in which youth participate

YOUTH DEVELOPMENT IMPACTS	
Theory/Framework	**Youth the savvy – the e-born and intergenerational learning**
Explanation	**e-inclusion actors impacts**
This approach understands the youth as a bridge to connect the e-excluded with the new technologies. Intergenerational interaction assumes that the more is the better, if the generations are interacting, there will be greater benefits to the community and both sides are beneficiated. The older generation by having access to the "information" –knowledge – and the youth by being engaged in civic activities that allow them to face the discourse of "apathy" associated with youths and become civic engaged.	• The younger generations by intergenerational interactions at telecenters contribute to community development. • Accessing ICTs among youths, especially in peripheral communities, is gaining momentum as it is assumed to contribute to democratic and distributive justice. • Increased participation, and a general improvement in citizens' present and future welfare. • Creation of local media spaces for youths in an era of increasing apathy

	Strengths	**Limitations**
	• The youth are seen as a source of development and not just a subject over which to execute development strategies. • The demographic change, ageing society and workforce, justify increased the dialogue among generations. • There are societal and professional resources, tacit and explicit knowledge, shared among generations.	• This framework faces the difficulty of making compatible two different life worlds, identities, pedagogies, and values. The usual traps for the right application of intergenerational learning initiatives

CIVIC ENGAGEMENT AND E-GOVERNMENT		
Theory/Framework	**Democratic and participatory approach to communication**	
Explanation	**e-inclusion actors impacts**	
The "idea that government-citizen relationship can be embedded within a range of public and a private intermediary, has become central to information age policies, e-inclusion actors will become intermediaries that increase democratic participation. The democratic and participatory approach to communication assumes that innovations such as e-government and telecenters will have positive effects on democratic development. On the one side, people is expected to have more information about the political life in order to take more responsible decisions and engage in political behaviour. On the other side, the access to internet becomes a democratic feedback tool for reinvigorating future relations between government and citizen.	• Impact in Community life: Telecenters promote civic engagement of participants through community-building activities • Impact in Information: Members, in a practical sense, gather to share information about community issues and events, facilitating organizing and advocacy activities • Impact in political or social behaviour: Telecenters are also expected to be a tool for people to express public opinion and interests.	
	Strengths	**Limitations**
	• The democratic and participatory approach attributes the telcenters a macro impact in our democratic representative system. • Access to information is a cornerstone for democratic representation in information societies. • E-inclusion, particularly in unprivileged populations, allows them to become visible, express their opinion, and interacts with their immediate community and the official representations improving in this way, their visibility. This view includes social justice concerns that are on the core of digital inclusion initiatives.	• It is difficult to generalize and objectively to measure the impact of telecenters in civic-engagement. The evidence tends to be anecdotic, rather than systematic. • Rather than allowing an argumentative dialogue that contributes to democracy, it does exist the risk that more information in "excluded" communities could overload the capacity of management of this information • Using telecenters users as a praxis a representatives of public opinion –especially in rural communities or underprivileged urban populations, could be biasing the government perception of that reality. • The approach does not consider the different political systems and cultures of relationship citizen-government

CIVIC ENGAGEMENT AND E-GOVERNMENT	
Theory/Framework	**e-government: the new public management**
Explanation	**e-inclusion actors impacts**
E-governance is framed in this conception of delivering public services in a more "efficient" way, characteristic of the –neoliberal- public management literature of the 80' and 90's. This literature promotes the increasing participation of non-state institutions in governance networks. The assumption that ICTs could be harnessed led by a business strategy become as baseline of this approach. Telecenters are trendy because they subsume concepts like extended service delivery, integration of services, non-state ownership, bridging the digital divide. In these ideas there is special concern in the financial sustainability of the e-inclusion actors. The government must be a facilitator of private entrepreneurship by: subsidizing initiatives, de-regulating the market, providing public services through private delivering.	• It is expected that private e-inclusion actors can provide government services more effectively utilizing efficiency of the private sector and thereby strengthen last-mile governance • While impact is assumed, still is difficult to find evidence of e-government initiatives through private providers, It is necessary more grounded, empirical studies

Strengths	Limitations
• The model is pretty well grounded in order to explain market creation (costumers) for (economic) sustainability in telecenters. • This model bet for subsidization and deregulation as effective way to reach with public services the populations that are far from urban centers. • The delivery of provision of public services through networks of telecenters will contribute highly to social inclusion at big scale.	• E-government research suffers from definitional vagueness, oversimplification of the e-government development processes • Government would improve if only it behaves more like the private sector. These ideas often fail to address the mixed record of private sector organizations, or fail to acknowledge how far private sector management practice needs to be improved • Focus on optimal resource allocation rather than the expected outcomes of the initiatives • e-services are good for explaining delivery of "information" as a intangible good. However, most of the public services still deliver tangible goods that need transport and physical space.

CIVIC ENGAGEMENT AND E-GOVERNMENT	
Theory/Framework	**Active citizenship**
Explanation	**e-inclusion actors impacts**

The policy of active citizenship "implies a certain method of governance" where the public authorities stimulate a number of initiatives but they do not act instead of the citizens. Citizen appropriation of the proposed communication infrastructure is the cornerstone of the approach.

In terms of citizenship, the idea is that e-inclusion actors as intermediaries 'reconnect' citizens and political processed through its networks. This would involve the 'wiring up' of national, regional and local governmental agencies and the interactivity of the internet; it can make to embody interactive – participatory- relations between citizens and government.

- The impact in the active citizen policy is given by the appropriation and management of the services by the community with the –local- government playing a role that catalyzes these processes.
- Some evidence suggest that institutions that are already existent –with their own hierarchies and cultures- have do not allow plain citizen appropriation

Strengths	**Limitations**
• Success of digital access centers/points depends on more than money and technology. It depends on complex social, pedagogical, and political philosophies and relationships. • In the policy of active citizen, the town "government" plays an important role at the beginning of the initiative.	• The evidence raises doubts about the efficacy of assumptions concerning improved take up of e-government services via intermediaries • The policy rest on notions of citizen motivation for participation. Something that is not evident. This could even risk the communitarian impact, transforming the project for serving to specific interest groups • The policy of active citizenship is strictly context specific, and is difficult to transfer experiences from one place to another • While these two researches are good in describing processes, they are not very good in providing comparative evidence that active citizenship offers better outcomes than alternative interventions.

Abstract
This report includes the results of the research project 'Exploratory study on explanations and theories of how Telecentres and other community-based e-Inclusion actors operate and have an impact on digital and social inclusion policy goals'. This study was commissioned by IPTS to feed into a forthcoming 2-year research project: Measuring the impact of eInclusion actors on Digital Literacy, Skills and Inclusion goals (MIREIA).

The literature review presented in this report was designed to capture the theories and explanations represented in the existing body of research in order to: provide a comprehensive and multidisciplinary landscape on theories and analytical frameworks; analyze the value of these theories and analytical frameworks based on predefined criteria and; Develop recommendations on the most promising theoretical pillars that could inform the future research mentioned above.
A two-phase research approach was designed: 1) An extended mapping of the literature from the last ten years in which over 100 articles, reports and books were reviewed, coded and identified the most dominant and/or common explanations in relation to the work of e-Inclusion actors; and 2) a selection, categorization, and in-depth coding of these explanations vis-à-vis different impact areas, as well as in relation to institutional capacity.

As a conclusion it has been noted that although a lot of the research on eInclusion is set out to measure impacts, in reality studies often end up with some measures of usage and analysis of why expected impacts were not achieved. In addition, there is a large proportion of available literature on telecenters and other such eInclusion actors which is based more on perceived potential than on demonstrated fact and highly contextualized studies, making it difficult to identify valid or reliable trends. These findings will be taken into account in the development of the different tasks of the MIREIA project.

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