

Application of Sustainable Livelihood Approach in assessing the impact of ICT use in microenterprises in developing countries.

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Abstract:

This paper discusses the application of Sustainable Livelihood Approach in assessing the impact of using Information and Communication Technologies (ICT) in microenterprises in developing countries. Microenterprises contribute mainly towards socio-economic development by acting as a source of income and employment. The effectiveness of microenterprises is often curtailed by a range of challenges arising from lack of resources. ICT has the potential to mitigate some of the challenges facing the micro organisations. However, beyond the general belief in the role of ICT in microbusinesses, there is less empirical evidence on the actual impact of these. This paper proposes that such an assessment can be done using the Sustainable Livelihood Approach as theoretical lens. The discussion concludes that the Sustainable Livelihood Approach can be used to assess impact, with a broader view beyond technological and financial benefits, to include social dimensions.

Key words: Sustainable Livelihood Approach, Microenterprises, ICT.

1. Introduction.

Microenterprises make a significant contribution towards socio-economic development of many developing countries (Qureshi, 2005; Ritchie & Brindley, 2005). The role of microenterprises in an economy includes income generation, source of employment and improving social conditions of disadvantaged communities through empowerment (Duncombe & Heeks, 2005; Chacko & Harris, 2006). The role of microenterprises is especially significant because they serve the most vulnerable members of the society. However, microenterprises are beset by a myriad of challenges, rendering them unlikely to be competitive and sustainable. One potential avenue for increasing the survival chances of microenterprises is the use of Information and Communication Technologies (ICT).

Like most categories of business, microenterprises are often defined by the magnitude of their turnover and their number of employees; these figures vary from country to country. In South Africa, microenterprises are defined as enterprises with less than ten employees, with a turnover of less than R0.2 Million (US\$26,500) and net asset value of less than R0.1 Million (US\$13,300) (Esselaar, Stork, Ndawalana & Deen-Swarray, 2006). Furthermore, microenterprises are characterised as being survivalist, having no separation between business and personal finances, and low revenue. They are also known to not keep business records while the majority of them are not registered and operate in the informal sector of the economy (Duncombe, 2006; Esselaar et al., 2006).

There is a paucity of literature on microenterprises' use of ICTs (Duncombe & Heeks, 2002; Donner, 2006; Kamal & Qureshi, 2009) and, consequently, there is limited knowledge and understanding of the challenges microenterprises face in their use of ICT (Mutula & van Brakel, 2006; Qureshi, Kamal & Wolcott, 2008; Thomson & Walsham, 2010). Although the nature of ICTs used by microenterprises is somehow known i.e. they are often limited to less sophisticated technologies (Duncombe & Heeks, 2002; Duncombe, 2006), little is known about the impact of ICT use in the livelihood of microenterprises (McNamara & Gunasekara, 2008). Studies on the impact of ICT use in Small Medium and Micro Enterprises (SMMEs) in South Africa have focused mainly on labour productivity, organisation formation and technology (Wolf, 2001; Herselman, 2003; Esselaar et al., 2006). There is limited focus on social issues relating to livelihood of the microenterprises.

This paper is part of a larger study aiming at assessing the impact of ICT use in microenterprises in a developing country context. Recognising that physical provision of ICTs does not guarantee usage and the intended impact (Warschauer, 2003), the study aims to go beyond the simplistic notion of physical provision of technology to look at the interplay between the technology and social factors. We are proposing Sustainable Livelihood Approach (SLA) as a potential theoretical lens for such a study. SLA can be used to assess impact of ICT use by analysing the context of microenterprises in terms of their vulnerabilities, access to assets (human, social, financial and physical assets), the value gained from structures and processes and the expected outcomes (Ellis, 2000; Pearson, 2005). The aim of this paper is to propose how the SLA can be operationalised for such a study and suggests the research method for the study.

2. Microenterprises in the South African context

2.1. Definition of Microenterprise

Definitions for microenterprise vary according to country and context. Liedholm and Mead (1999) define microenterprise as “businesses with five or fewer employees, which support the livelihood of households in developing nations and are vital in the economic development”. Donner (2006) also defines microenterprise as “a small business with fewer than five employees”. Good and Qureshi (2009) define microenterprises as “businesses with low revenues and composed of 1 to 5 employees”. From these definitions it can be observed that microenterprises can be defined based on the main goals of their activities and the number of employees. Other definitions in literature describe microenterprise as a sub-category for Small and Medium Enterprises (SMEs) (ILO 2002; EU, 2005; Esselaar et al., 2006). The distinction is qualitatively based on the number of employees, turnover and value of assets owned by the business. In South Africa the definition is based on the amended National Small Business Act of 2003 which defines SMMEs as:

“A separate and distinct entity including cooperative enterprise and non-governmental organisations managed by the owner or more which include its branches and subsidiaries, if any sector or sub-sector of the economy” (National Small Business Amendment Bill Gazette, 2003).

The Act further categorises SMMEs into medium, small, very small and micro. These categories are sector-based (i.e. sectors are agriculture, mining and quarrying, manufacturing, electricity, gas and water, construction, retail and motor trade and repair services, catering, accommodation and other trades). In this paper we will focus on microenterprises based on this definition as the study is based on the context of South African microenterprises.

2.2. Characteristics of microenterprises

In order to fully understand the context of microenterprises and how they function, this section analyses their characteristics and features. Characteristics of microenterprises are based on how the enterprises are formed, their objectives, the activities they are involved in, the number of employees, the assets they own, the amount of revenue generated over a period of time, legal status and management style (Heeks, 2008). Their characteristics are well documented in the literature. Table 1 summarises the characteristics of microenterprises.

Microenterprise Characteristics	Reference
They have less than five employees.	Mead, 1994; Donner, 2006
There is less income generated from their business activities.	Duncombe, 2006; Esselaar et al., 2006
There is less separation between personal and business finances.	Esselaar et al., 2006
They have a short life-span and they are disbanded when the owner finds permanent employment.	Liedholm & Mead, 1999; Rolfe et al., 2010
The majority are not registered to any authority and operate in the informal sector of the economy.	Esselaar et al., 2006
They are survivalist (conduct business activities due to unemployment and close when permanently employed).	Mead, 1994; ILO, 2002; Esselaar et al. 2006; Duncombe, 2006

Table 1: Summary of characteristics of microenterprises.

Stork and Esselaar (2006) suggest that in South Africa there is more unskilled labour which does not meet the needs of industry. Households and individuals are motivated to engage in microbusiness as a means of livelihood. The majority of microenterprises operate in the informal sector and understanding of their formalisation may help to understand why they do not meet the legal requirements needed to be classified as formal.

2.3. Categories of microenterprises

Duncombe and Heeks (2005) suggest that SMMEs in developing countries can be categorised into two types, namely growth and livelihood enterprises. Growth enterprises are SMMEs that focus on growing business, while livelihood enterprises are SMMEs located in urban and rural areas which gain their means of living from assets. The assumption in this discussion is that SMEs are formal, stable and productive (Donner, 2006).

There are different ways of categorising microenterprises (Mead, 1994; Heeks, 2008). Classifying microenterprises helps to understand the nature of activities for the microenterprises and the interventions that are aimed at supporting microenterprises. The following are examples of ways to categorise microenterprises:

- *Motivation and context* – grouping microenterprises based on their background and circumstances for engaging in business activities (Mead, 1994);
- *Life-cycle of microenterprise* – grouping microenterprises based on their existence from creation, growth, to death (Heeks, 2008);
- *Form of production* – grouping the microenterprises based on the types of products they produce, for example subsistence products or commodity products;
- *Formalisation* – grouping microenterprises based on the way they are formed, for example registered to authority which requires certain regulatory compliance (Esselaar et al., 2006).

From the list, our focus is on motivation and context and formalisation. The categories of microenterprises based on formalisation and motivation and context are discussed in subsequent paragraphs.

The driving force in growth of micro-business is the creation of self-employment (Mead,1994). There are three characteristics which can be used to describe microenterprises based on entrepreneurship, motivation and context (Heeks, 2008). The characteristics are:

- *Survivalists* take up income-generating activities as they have no other means for livelihood. Households and individuals engage in microbusiness until other employment opportunities become available.
- *Trundlers* have a static turnover with no intention to expand their business activities as their basic needs are satisfied.
- *Flyers* engage in income-generating activities as they recognise the potential for growth and may proceed to medium scale enterprises (Mead, 1994).

Formalisation of microenterprises can be based on a combination of a number of factors such as ownership of the business, registration of the business, the number of employees on contract, keeping of financial records and separation of personal and business finances. Based on formalisation, microenterprises can be categorised into three types, namely survivalist, Macro and Micro (Esselaar et al., 2006). Table 2 summarises the categories of microenterprises based on formalisation.

Types	Characteristics (not hard rules!)
Informal Operator / Survivalist	<ul style="list-style-type: none"> • has no employees • no distinction between business and personal finances • does not keep records • does not pay taxes • is not registered with any authority • engages in business activities to pay for daily expenses
Informal Operator/ Macro or Small Business	<ul style="list-style-type: none"> • has less than 10 employees • does not distinguish between business and personal finances • may not keep records • may not pay taxes • may not be registered with any authority • has physical address and contact details
Formal Micro or Small Business	<ul style="list-style-type: none"> • has between 10 and 49 employees • keeps records • has separate bank account • pays taxes • is registered with all required authorities • has physical address and contact details

Table 2 : SMMEs characteristics (Esselaar et al., 2006)

2.4. Importance of microenterprises to social economic development

Microenterprises form the large part of the SME sector in most developing countries. Their roles are seen in a number of areas such as contribution towards Gross Domestic Product (GDP), source of employment, development of skills and knowledge, empowerment of marginalised members of society and supporting livelihood for households.

In South Africa, the SME sector plays a significant role in social and economic development. This is demonstrated in the Department of Trade and Industry (DTI) Their report of 2008 indicates that 98% of the SMEs were composed of SMMEs and their contribution towards GDP was between 27% - 36% (Swanepoel, Strydom & Nieuwenhuizen, 2010). Berry et al. (2002) argues that the role of microenterprises in contribution towards economic development is not clear, as the majority are survivalist and do not register with authorities. One of the problems is lack of data to provide statistical evidence on the contribution of microenterprises to the economy. However, it is generally agreed that, collectively, microenterprises make a positive contribution to the economy (Duncombe & Heeks, 2005).

Employment creation is one of the major contributions of SMMEs in developing countries (Duncombe & Heeks, 2002). In terms of economic production, labour is an important factor which is combined with capital to produce a service or product. The degree of productivity in relation to labour is partly influenced by skills levels. Due to social and political factors, there is an abundance of poorly-skilled workers in the South African economy. This partly explains the high levels of unemployment in the country. Therefore microenterprises provide opportunities for self-employment, since they require fewer resources such as capital and simple technologies to be able to start (Berry et al., 2002; Duncombe, 2006).

Microenterprises provide opportunities for people to develop knowledge about products and services which help them to gain competitive advantage and more income (Qureshi, 2005). They provide an environment where people are able to participate in economic activities at a small scale which later become large organisations (Wolcott et al., 2008). Marginalised members of the society are empowered through microbusiness activities e.g. women entrepreneurs help increase gender equality and generate income to support their livelihood (Kotelnikov, 2007).

3. ICT and microenterprises

The terms Information and Communication Technologies (ICT) and Information Technology (IT) are often used interchangeably in IS literature (Qureshi, 2005). To clarify this, ICT is defined based on the definition by Duncombe and Heeks (1999) which defines ICT as “technologies for capturing, processing, storing and disseminating information”. ICT as a technology takes many views, as suggested by Orlikowski and Iacono (2001). ICT as a technology can be viewed as a tool for information processing, productivity, a diffusion, a capital, a structure, a development project and an embedded system. In the context of microenterprises, ICT is viewed as a tool used for accessing and using information. Actual usage includes technologies such as computers, radio, mobile phones, fax machines, photocopiers, written words in form of manuals, books and newspaper (Duncombe, 2006).

3.1. Benefits of using ICT in microenterprises

The potential benefits that may be realised from using ICT in microenterprises include increased productivity, better access to information, reduced administrative costs, operation efficiencies and better communication with customers and suppliers (Kamal & Qureshi, 2009; Moyi, 2003; Esselaar et al., 2006; Qureshi, 2005). However, microenterprises also face many challenges in adopting and using ICTs, such as limited resources, inadequate skills, poor ICT infrastructure, cultural factors and lack of operational support (Wolcott, Kamal & Qureshi, 2008). One of the solutions to these problems is to utilise the services provided by the intermediaries (Heeks, 2002).

3.2. Assessing impact of ICT use

ICT as a technology can be regarded as a tool or feature in the context of microenterprises (Orlikowski & Iacono, 2001). Technology as an innovation has consequences of different dimensions (Rogers, 2003). The dimensions are desirable or undesirable, consequences, direct or indirect consequences, and anticipated or unanticipated consequences. To fully understand the concept of impact, reference is made to the “results chain”, which is commonly applied in the results-based management studies (OECD/DCA, 2000). The results chain consists of the following elements:

- *Inputs*: the resources that are used in an intervention i.e. financial and human resources;
- *Activities*: action taken using inputs and resources to achieve objectives;
- *Outputs*: short term and medium term results of completion of activities;
- *Results*: change of state or condition as causal effect of activities;
- *Impact*: can be positive or negative effect of the output of activities in an intervention.

Assessing the impact of ICTs can also be applied at many levels. We adopt the levels of application in ICT4D theories by Heeks (2006) which suggest levels such as meta level (global), macro level (national), meso level (sector), micro level (organisation) and individual levels. Microenterprises falls under the micro and individual levels, while the focus of assessing the impact of ICT use in this case is at the lower end.

We argue that the impact of ICT use has not been fully studied in the Information Systems (IS) research as the majority of the theories and frameworks focus on meso and macro levels of the society. Examples of theories at these levels are ICT diffusion index (United Nations, 2005) which focuses national indicators on ICT in terms of access, connectivity and policy, as well as Input-Output-Outcome (ITU, 2006) which is based on the millennium development goals and also focuses on issues at national level.

Physical provision of ICT by governments and development agents does not guarantee usage and consequently impact (Warschauer, 2003). ICT4D interventions in developing countries have not been successful and one of the reasons for the failure is lack of evaluation (Heeks, 2002). Therefore, accessing the impact of ICT use is one way towards understanding problems associated with technology use and impact, by considering a wider dimension to include social factors (Walsham et al., 2007).

4. Theoretical background

Theoretical frameworks, models and techniques that can be used to assess impact of ICT use in the context of microenterprises include the onion ring model (Heeks, 2005), Washington State University model (Mitchell and Gillis, 2002) and the SLA (Duncombe, 2006). The onion ring model takes a firm stand on the role of information to understand the role of ICT in development, by taking into consideration all the information handling technologies to ensure that the context of information systems is understood. The context includes political, economic, cultural and organisational factors. The Washington State University model focuses on stakeholders in ICT development projects at micro level to ensure that development is defined by the stakeholders themselves. The model include social issues such as community education, health and civic interaction through support for infrastructure development, policy and regulatory development. SLA is considered for assessing the impact of ICT use for microenterprises because it provides a wider perspective analysing social factors beyond technology (Parkinson and Ramirez, 2006). SLA is discussed in detail in the next sub-section.

4.1. The Sustainable Livelihood Approach

SLA is used as a tool for evaluation, monitoring and analysing policies or interventions that affect people in low-income households. SLA emerged from the Development discipline in the late 1980s. The conceptualisation of understanding poverty and its causes led to the concept of livelihood which is defined as follows:

“A livelihood is a means of gaining a living including livelihood capabilities, tangible assets and intangible assets” (Chambers & Conway, 1991).

“A livelihood comprise of the assets (natural, physical, human, financial and social), activities, access to these (mediated by institutions and social relations) that together determine the living gained by the individual or household” (Ellis, 2000).

From these definitions it is noted that a livelihood is a means to living and a livelihood is deemed sustainable when it can deal with events or conditions that lead to hardships that affect the individuals, households and communities. A sustainable livelihood, therefore, should be able to recover from vulnerabilities and continue to support utilisation of assets and strategies (Chambers & Conway, 1991; Ellis, 2000).

4.2. Elements of the Sustainable Livelihood Approach

A sustainable livelihood encompasses a wider perspective to development beyond technical issues and focuses on objectives, priorities and scope for development of marginalised communities (Carney, 1999). The Sustainable Livelihood Approach consists of a number of elements which are used to holistically analyse the link between issues and activities within the livelihood. The elements are vulnerabilities, assets and capabilities, structures and processes and outcomes. Figure 1 illustrates the interactions between the various elements of the framework.

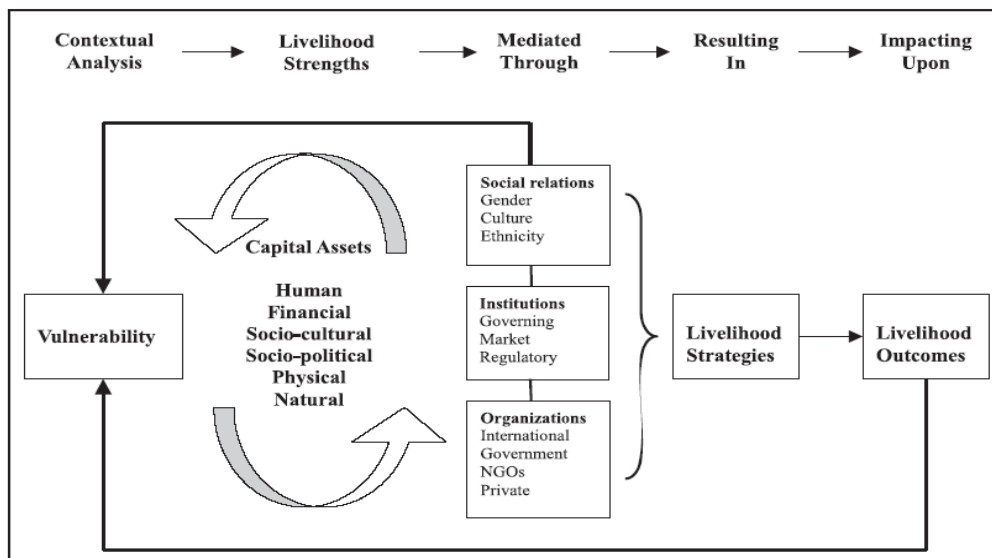


Figure 1 : Sustainable Livelihood Approach (Duncombe, 2006).

Vulnerabilities are external factors, affecting people’s livelihood, which lead to hardship. Vulnerabilities take three forms, namely stress, shocks and seasonality. Stress represents long-term trends that affect people, such as conflicts, declining natural resources, climate change and social exclusion. Shocks are conditions or events that are sudden and unpredictable, such

as epidemics and natural disasters. Seasonalities are changes in commodity prices and shifting of employment opportunities (Chambers & Conway, 1991).

Assets are resources that households have access to and use to produce goods or services as a means of sustaining their well-being. Increased access to assets may lead to a more sustainable livelihood (Ellis, 2000). There are various forms of assets and they include:

- *Human capital*: the knowledge and skills that people have and use to achieve a sustainable livelihood;
- *Social capital*: social relations, membership to organisations;
- *Natural capital*: land, water, wildlife and biodiversity;
- *Financial capital*: financial resources that can be used to establish livelihood activities such as savings, cash and access to loans;
- *Physical capital*: resources created through the economic production process e.g. roads, power lines and supplies (DFID, 1999; Chapman & Slaymaker, 2002).

Social relations, organisations and institutions facilitate the attainment and use of assets. They can also help households to identify and mitigate vulnerabilities by providing information and awareness. Organisations and institutions implement policies, implement legislation and deliver services that affect livelihood (DFID, 1999). Examples of organisations and institutions are Government Departments, Non-governmental Organisations (NGOs) and Community Based Organizations (CBOs) that deliver services for livelihood to communities and microenterprises.

Strategies are activities that generate a means to sustainable livelihood. Strategies can be implemented by the household in the form of economic activities, or by the institution implementing the intervention which affects the livelihood of households. Strategies may change all the time to respond to the factors affecting livelihood (Ellis, 2000). *Outcomes* are the result of applying livelihood strategies and use of assets. They include increased wellbeing, reduced vulnerability, improved food security, recovered human dignity and more sustainable use of resources (DFID, 1999).

SLA has been used by researchers and practitioners in different disciplines, including government departments and NGOs. The early version of the framework emphasised the importance of citizen participation, self-reliance, sustainability and ecology constraints in the disadvantaged communities. Later the approach included other concepts such as Sen's (1999) capability, equity and sustainability. The Capability Approach focuses on analysing the standard of living in areas of social arrangements, inequality, poverty, justice and wellbeing. These are incorporated into human development and include functioning, capabilities and freedoms (Carney, 1999). Consequently, the approach applies a broader perspective in evaluation of livelihood to include the social dimension of interventions.

4.3. Role of information and ICT in the approach

Information and ICT may be perceived as a commodity that may help people on what they are able to do as capabilities. ICT capabilities may support people in achieving long-term entitlements such as social infrastructure, health, education, social relations and power, leading to functioning that influences choices, e.g. preferences and social norms. Short-term entitlements can be gained from social capital such as social relations and organisations providing livelihood support (Heeks & Molla, 2008).

Information within the SLA supports two roles, namely analytical and functional roles. The analytical role focuses on how information is accessed, analysed and used to develop strategies. For example, a CBO may collect information about women entrepreneurs and analyse the data to establish their vulnerabilities. The functional role focuses on information used to ensure achievement of successful outcomes and then influences action to be taken,

e.g. information on business skills training for women being provided by a local NGO, accessed by women in rural communities and women taking action by participation in the training (Duncombe, 2006).

ICT also supports communication and information for short-term and long-term decisions about the people's livelihood. Information for long-term use is provided by the institutions, e.g. information about markets (for agricultural products). For short-term information, social networks play an important part in aiding decisions for maximising the potential of a particular livelihood element in response to immediate needs, e.g. banking information being accessed using a mobile phone.

Information, knowledge and communication are important in people's ability to formulate strategies that are appropriate for sustainable livelihood. ICT facilitates different modes of communication, acquisition of information and sharing of knowledge. Information must be communicated at all levels throughout the framework in order to achieve the desired livelihood. Information generated as a result of iterations and feedback should lead to learning for stakeholders involved in the livelihood (Pasteur, 2001).

5. Application of the Sustainable Livelihood Approach

A number of empirical studies in the field of IS and ICT4D have used SLA as a theoretical lens to assess the impact of using ICT on the livelihood of microenterprises and disadvantaged communities. SLA is commonly used in the analysis of poverty and development (Carney, 1999). This section discusses studies that have employed the SLA and related frameworks.

Duncombe (2006) suggests that digital divide among microenterprises can be reinforced by gender and location as vulnerabilities. The study used SLA to analyse the impact of ICT application for poverty reduction in microenterprises. The results indicated that ICTs can strengthen delivery of strategies among the poor for their livelihood.

Parkinson and Ramirez (2006) used SLA to assess the impact of a telecenter. Using two case studies conducted in Canada and Colombia, the study found that telecenter users used the internet for activities not related to their livelihood. For example, the unemployed users did not use the internet to seek work and regarded its use for this purpose as inappropriate. Telecenters were linked to secondary economic strategies, e.g. learning new skills that could be used to find formal employment and make contact with relatives. The study did not consider all the elements of the SLA, e.g. outcomes. A similar study by Molla and Al-Joghoub (2007), involving three telecenters supported by the Government of Jordan, focused on individuals and development outcomes. The study analysed the impact of access to government funds and social links. The study found that ICT was mainly used in three areas, education and empowerment of women, access to government funding supporting entrepreneurs, and skills development for women.

In a study in China, Soriano (2007) analysed the role and impact of telecenters in enhancing livelihood strategies for communities. The findings indicated that telecenters played an important role in reduction of poverty through enhancement of rural livelihood, by providing access to information and knowledge using ICTs. Utilisation of the telecenters by the community required leadership commitment and motivation of the people to overcome fear of technology.

Table 3 summarises the studies that have employed SLA and related theories for assessing the impact of using ICTs.

Study	Domain	Key findings
Duncombe (2006)	Microenterprises	<ul style="list-style-type: none"> • Vulnerabilities such as gender and operating location can affect microenterprises in achieving sustainable livelihood. • ICT initiatives should support information and communication needs of the microenterprises.
Parkinson and Ramirez (2006)	Telecenter	<ul style="list-style-type: none"> • Telecenter users did not fully utilise the facilities for business purposes. • ICTs were used in secondary economic activities for their livelihood.
Soriano (2007)	Telecenter	<ul style="list-style-type: none"> • The telecenter helped to improve the livelihood of people living in rural communities. • Fear of technologies by users can be reduced by capacity building activities.
Ngcobo and Herselman (2007)	Rural Communities	<ul style="list-style-type: none"> • Impediments to utilisation of ICT in rural communities include lack of resources, skills and knowledge, and lack of local language content. • The identified problems can be resolved in consideration of technological, institutional and policy strands.
Fourie and McNamara (2008).	Rural Communities	<ul style="list-style-type: none"> • ICTs in rural communities should be provided in consideration of needs of the stakeholders. • A participatory approach, appropriate technologies, capacity building, skills training and support should be considered to achieve sustainable livelihood.
Singh, Molla and Sargent (2008)	Rural Communities	<ul style="list-style-type: none"> • The outcomes of the impact of ICT in e-learning and e-government are influenced by livelihood assets, e.g. financial, physical and human capital.

Table 3: Summary of studies that have used the Sustainable Livelihood Approach.

6. Justification for selecting SLA

There is a substantial number of studies in IS that have applied SLA. The approach facilitates understanding of poverty in relationship to social factors (e.g. population, local economies and migration) and analyses the conditions of people living in disadvantaged communities (Chambers and Conway, 1991). This is achieved by looking at the activities of people and how they enhance their livelihood through the use of assets and empowerment using information and ICT. Among the strengths of SLA is the broader focus on social structures and processes rather than technical issues (Heeks & Molla, 2008).

Carney (1999) also acknowledges that the approach changes the focus on development from looking at the needs and resources to people and their ability to make changes to their livelihood that are sustainable. In the context of microenterprises, these include their social relations and the use of technologies that support information for making decisions regarding their livelihood.

Additionally, SLA strives to provide a logical thinking through the complex issues in the livelihood of the poor. This involves looking at key features in the framework to understand the portfolios of people applying a bottom-up approach rather than a top-down analysis. The approach is suitable for analysing social, political and economic relations and the use of ICT,

focusing on non-business perspective. Therefore, while microenterprises are encouraged to use ICT to reduce poverty, there is a need to also consider social factors (Duncombe, 2006).

The approach has core principles which allow a wider perspective in the analysis of livelihood. Adapted from Arun, Heeks and Morgan (2004) and Chapman and Slymaker (2005), it is suggested that, in incorporating core principles, design and analysis of development, interventions should be:

- *People centered*: They should promote participation of people or households in livelihood projects by looking at their needs, opportunities and priorities to come up with feasible responses.
- *Holistic*: The implementation of projects should link the perspectives of, on the one hand, lower level actions and higher level policies and processes and, on the other hand, the support of multiple influences of livelihood of people and their impact. Therefore, stakeholders and actors should be involved in determining livelihood outcomes.
- *Dynamic*: Changes within the livelihood should be considered and learned from this process, to help mitigate the negative outcomes.
- *Micro-macro linked*: Using the approach should lead to closing the gap between policy context and peoples' experiences through micro-macro linkages, using a bottom-up approach.
- *Sustainable*: Development interventions should foster innovation partnership between all stakeholders and ensure that the livelihood is sustainable enough to face shock and stress by maintaining long-term productivity of resources. Therefore, consideration of the initiatives is taken to address the on-going needs of people without compromising future needs.

7. Discussion

It is observed that past studies and IS research on South African SMMEs have largely focused and brought clarity to SMEs (Esselaar et al., 2006; Wolf, 2001). Microenterprises are regarded as a sub-category within the SMEs. As a result, IS research literature on microenterprises is scarce, in spite of its significant role in socio-economic development in developing countries (Donner, 2006; Kamal & Qureshi, 2009). As a result, it is difficult generalise about IS theories and frameworks in the context of microenterprises. Another point is that there is less IS research that has focused on the impact of ICT as an innovation at micro level. Rogers (2003) suggests intended and unintended consequences of innovation, including technology. Unfortunately, the majority of studies on impact assessment have focused on macro organisation. For example, studies on ICT use in SMEs focus business in areas of formalisation, productivity and technology (Wolf, 2001; Herselman, 2003; Esselaar et al., 2006). There is less focus on the lower levels of analysis and social factors (Heeks, 2008). Therefore, SLA is considered suitable for such a study.

SLA can be applied in assessing the impact of ICT use in the context of microenterprises. Apart from looking at factors affecting the livelihood of microenterprises and how ICT use affects their motivation to utilise assets and strategies, the focus may also include the role played by structures (social relations, institutions and organisations) in enhancing livelihood outcomes. Previous studies employed SLA (Duncombe, 2006; Molla & Al-Jaghoub, 2007; Parkinson & Ramirez, 2006). However, application of the approach of the elements has been different, depending on the goals of the impact assessment, i.e. assessing the impact of ICT use focusing on processes or assessing the impact of ICT use focusing on the outcomes. This paper adopts the revised SLA (Duncombe, 2006) as a theoretical lens that can be used to assess impact of

ICT use of microenterprises focusing on the outcomes. Table 4 illustrates the conceptual model. Arrows represent the flow of information between various elements of the model.

Vulnerability Context	Livelihood Assets	Structures	Livelihood Strategies	Livelihood Outcomes
<ul style="list-style-type: none"> • Shock • Stress 	<ul style="list-style-type: none"> • Human Capital • Financial Capital • Social Capital • Physical Capital • Natural Capital 	<ul style="list-style-type: none"> • Social relations • Institutions • Organisations 		<ul style="list-style-type: none"> • More income • Increased well-being • Reduced vulnerability • Sustainable use of capital.
Contextual Analysis →	Livelihood strengths →	Mediated through →	Resulting in →	Impacting on

Table 4: Proposed conceptual model for Sustainable Livelihood Approach

In the studies that have been analysed, the Case study approach was commonly used in assessing the impact of ICT use in microenterprises, telecenters and rural communities. Yin (2003) defines case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident”. Case studies are commonly employed in studies that relate to real-life situations and help the researchers to understand the context where the boundary is not clear (Woodside & Wilson, 2003). Researchers are able to apply multiple data collection techniques such as interviews, observations and use of questionnaires. This approach makes it possible for researchers to have an in-depth understanding of the context and the problem being investigated (Baxter & Jack, 2008). Another advantage of using case studies is that they can be applied to studies involving an analysis event, a person, a policy and an organisation (Yin, 2003). The SLA and Case Study Approach support collaboration between researchers or practitioners and participants or subjects. In the SLA one of the core principles is people-centred. There is collaboration between the organisations supporting initiatives for livelihood and the participants in the livelihood (Chapman & Slaymaker, 2002; Duncombe, 2006). In case studies, there is also collaboration between researchers and the participants. Participants are able to express their views to allow the researcher to understand their behaviour and actions.

8. Conclusion

This paper has looked at the application of SLA in assessing the impact of using ICT in microenterprises in developing countries. The first part looked at the background for microenterprises and the background of SLA and the reasons why the approach is appropriate in assessing the impact of ICT use. Additionally, the discussion also looked at studies that have applied this approach and the reasons why this approach is appropriate for assessing the impact of ICT use.

The Sustainable Livelihood Approach, as demonstrated in the discussion, can be used to assess the impact of ICT use in poverty reduction initiatives. The framework supports assessment beyond financial benefits, by extending the scope to include social dimensions such as empowerment to cope with vulnerabilities, utilisation of human and social capitals and achievement of livelihood objectives.

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