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Stimulation of Local Content Generation in Rural Africa

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Abstract: New developments in website functionalities, the web 2.0, have lead to opportunities for stimulation of the creation of content in rural Africa. Implementation of new ICTs in developing regions is not always successful, because of a lack of consideration for the impact of social and cultural factors on the adoption of technology. This paper gives a framework for sustainable project design in the case of designing web 2.0 applications for use in developing regions. This is based on the combination of theories of adoption of ICTs, user research on User Generated Content platforms, and the principles of the Base of the Pyramid theory.

Keywords: User Generated Content, Web 2.0, social and cultural factors, Local content, adoption of ICTs, rural Africa

1. Introduction

In an attempt to empower the local populations of developing regions in southern Africa, and to reduce the so called 'digital divide' between the digitally skilled and the less digitally skilled in the world, a multitude of initiatives are being deployed to bring internet to the more rural communities in Africa. Following the findings of the case study described by Van Hoorik and Mweetwa [1] and the subsequent outcomes of discussions at the IST Africa conference 2008, the observation arises that there is a lack of content available on the internet focussed on the local situation in rural Africa, inhibiting the use of internet access by the community to its full potential. Inhabitants of rural communities in Africa, when introduced to the internet, do not find a representation of their daily lives and culture on the internet, like western internet users. Instead they are confronted with a lack of content, websites and platforms dedicated to the situation of rural African internet users [1].

The potential benefits of the generation of more local content in rural Africa are twofold. Firstly the introduction to internet often acts as a catalyst for economic and social development. The mere availability of internet access points often increases the economic activity in the community as is documented in several studies [2, 3, 4]. For example local farmers checking the up-to-date corn prices and new businesses developing through the internet [1]. Technology thus becomes an enabler for development, and no longer solely a consequence of it [2]. The key notions in this process are empowerment and autonomy. By producing en consuming local content, local users are able to share knowledge that is specifically applicable to their local daily lives and occupations. Users can share their concerns, ideas, stories and information [5]. The internet offers a complementary option for communication and interaction between people in an environment where alternative

facilities such as telephone lines, libraries, newspapers, roads in good condition and public transport are often limited [1].

The second benefit of the generation of local content is the possibility to contribute to the documentation and the preservation of local African culture and knowledge. African internet users should be able find a representation of their daily lives and cultures on the internet for the medium to become useful to its full potential. This aspect of the development of internet facilities in developing regions is directly aimed at the empowerment of local users. The importance of taking into account the specific qualities of the culture addressed, when introducing applications is also recognised by other studies [6].

In summary, one could argue that the introduction of internet facilities stimulates economical and social development in Africa, but the success of new technology will depend on the level of sustainability and adoption of the initiative, in the context of the communities at which it is aimed.

In recent years the development of the internet has seen the introduction of a new generation of websites that enable internet users to contribute with their own content, the so called "Web 2.0". These websites offer functionalities that enable users to engage in a rich way with other users on the internet. It is our view that this development could pose interesting opportunities in tackling the issue of a lack of local content, and thereby potentially become a new leapfrog technology [7].

This paper will focus on the opportunities offered by Web 2.0 technologies for internet adoption in an African context and the potential pitfalls in the adoption of this technology. We investigate the opportunities presented by Web 2.0 technology to realise content creation projects following the principles of the Base of the Pyramid (BoP), as formulated in the Base of the Pyramid protocol [8]. This business incubation process emphasizes the importance of involvement en commitment from the targeted community. The guidelines presented in the 2nd BoP protocol released in 2008 [9] show some significant alignment with the characteristics of Web 2.0 technologies, which suggests that this technology is very suitable for local content generation projects in developing regions.

The selection of appropriate technology or application can be difficult, as a direct translation of successful western initiatives is often impossible. The technology must fit the local context, including cultural and social factors, to be successfully introduced and sustained. A lack of consideration for these contextual factors was often at the root of the problems with past ICT introduction in development regions. [10] The level of adoption of a new technology, by the targeted population is one of the main factors in determining the success of it [11]. In this article we will explicitly include social and cultural factors that impact adoption, in addition to the contextual technological factors in play.

To come to this we aim to adapt some of the often used models in literature on technology adoption to the African context, in order to come to a theoretical framework for successful introduction of Web 2.0 in an African context. Finally we propose an outline of a viable project based on these insights.

2. Objectives

The involvement of the Web 2.0 dynamics in ICT for development (ICT4D), and the models of User Generated Content that describe this, are a relatively new angle of research that can create important opportunities. Thus, this is the central question that is investigated in this paper:

What are the conditions required for projects aimed at the generation of local content by the local population to be successful?

3. Methodology

This paper is aimed as a preliminary study into existing theory, in preparation of further practical (field) research. Through interviews and desk research an analysis has been made of existing theory and experiences. After combining knowledge from several areas ranging from psychology of technology and user behaviour, to ICT4D and Web 2.0 adoption, we have adapted the theoretical framework for a western situation to the African context, in order to frame the requirements for a project aimed at local content generation in such a way as to maximise its potential.

As an introduction section IV explains the Web 2.0 phenomenon. Section V shows the parallels of Web 2.0 dynamics with the principles of BoP, and elaborates on the social and cultural factors that influence successful introduction of a Web 2.0 project. These concern the perception of usefulness and the perceived ease of use by potential users in the local context. At the end of section V the model is presented that incorporates the different insights on adoption of technology. In section VI this model is applied in the context of developing regions and concludes with a proposal for a project designed according to the presented principles, to be conducted in the near future. In section VII the conclusions and recommendations are discussed.

4. Technology Description

Web 2.0 is a widely used but vaguely defined term that describes a collection of functionalities on the internet that enables users to engage in a rich way with other internet users [12]. Blogs, wikis and social communities are examples of functionalities provided to the end-user. Since the introduction of the notion the variety and amount of Web 2.0 platforms have exploded, adopting all kinds of media in all kinds of domains. The central connecting element of Web 2.0 websites is that they provide platforms for internet users to create their own content, rather than present a static content collection. Users do not require knowledge of website development or programming skills to contribute. The contribution that end-users make to Web 2.0 platforms is called User Generated Content (UGC).

As the phenomena of Web 2.0 and User Generated Content are still research areas in development, there are multiple models that try to define the process and the particularities. The OECD defines user generated content as: “Content made publicly available on the internet, which reflects a certain amount of creative effort and which is created outside of professional routines and practices.”[5]. In order to understand the process of creation in more detail we additionally use the UGC value chain [6], which puts the focus on the possible roles users can take up in the production cycle of UGC. This is shown is figure 1.

This model mirrors the process of value creation in content delivery by users, to the professional value chain. In each of the steps users can add value by contributing information in that step.

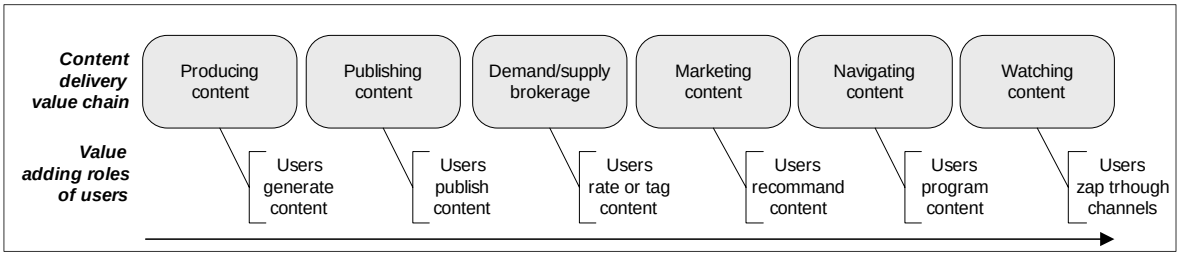

Figure 1: UGC Value Chain [8].

The above-mentioned definition of UGC defines the process of creation and the roles of the users involved, but does not take into account the local aspect of content production and consumption. In an African context the local relevance and recognisability of content is

significant to the success of a UGC platform and can improve the usefulness of internet availability. The term Locally Generated Content (LGC) presented in this paper is defined as: content, created by local, non-professional or non-institutional users, that is available for all users through a public medium. Ideally this content is related to local subjects and is presented in the locally dominant language, but this is not a requirement. In large parts of Africa the oral language differs from the written or formal language, which might be used to communicate on the internet.

5. Developments

For any new project or platform to be successful in developing regions it needs to be carefully designed and implemented. In this section we will elaborate on the critical non technical factors involved in the successful implementation of an ICT project.

The 2nd BoP protocol, mentioned in the introduction, formulates a set of guidelines and principles to follow for successful and sustainable project development in developing regions. Among these guidelines is the notion that populations at the base of the pyramid should be approached as business partners rather then simply as consumers of a service. The protocol encourages a 'deep dialogue' and a 'marrying of capabilities' between the parties involved. This open exchange of information and ideas between parties and between individual users is exactly in line with the functionality of a LGC platform aimed at the exchange of knowledge and stories between community members.

Involving local users in other roles in the value chain besides consumers, such as producers, distributors and co-developers creates 'mutual value' [9]. Mutual value means that each stage of the development process, not simply the new business, creates value for all partners in terms important to each.

On technology BoP guidelines suggest to try to connect technological innovations to locally existing technological principles, systems or infrastructures, in order to facilitate the adoption and to increase the stability of the new system.

The BoP guidelines show a number of parallels with the dynamics involved in developing UGC platforms at the centre of which is user involvement. It suggests that Web 2.0 initiatives can be very interesting for the African context, enabling local people to create and enrich local content, and using that content to create businesses, collaborative initiatives, dialogue and awareness.

To clarify the notion of value for contributors to participate in UGC platforms it is useful to investigate the factors involved in the perception of value by contributors and the adoption of new technologies and applications. What makes people adopt a new technological application?

The main factor in determining the success of any new technology, and in this case an application, is described by the level of adoption of the technology by the users [11]. One of the most accepted models for the investigation of the acceptance of Information and Communication Technologies (ICT) by end users is the Technology Acceptance Model (TAM) [13], as shown in Figure 2.

According to TAM acceptance of a new technology or application is influenced by the factors "Perceived Ease of Use" and "Perceived Usefulness" of the technology or application. Both determinants influence the attitude towards use and consequentially, through the intention of the user to use the technology, the actual use of it [13].

Although there are other models of technology acceptance, like the UTAUT (Unified Theory of Acceptance and Use of Technology) model [14], this literature research starts at TAM. Acceptance models usually choose to include either social or cultural factors, as in this article both should be included. In this section the conditions needed for the generation and stimulation of local content by the local population will be discussed further in the light of the different factors of TAM.

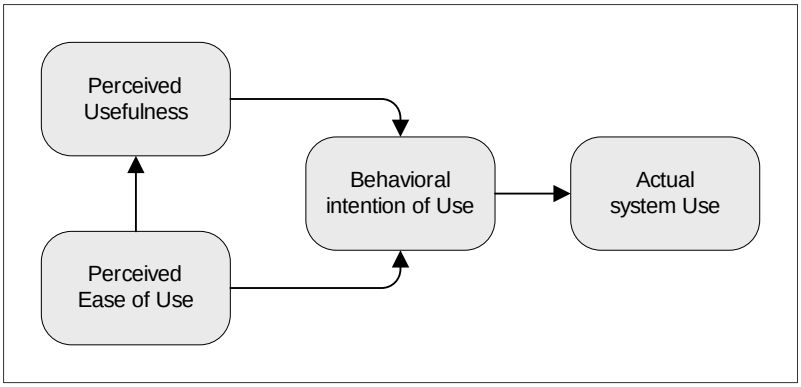

Figure 2: Technology Acceptance Model (TAM) [12].

5.1 Perceived Usefulness

Perceived usefulness is defined by Davis as the extent to which a person believes that a certain technology will improve his (working) performance [13]. The usefulness of UGC and the motives for people to contribute to these kinds of platforms is not always clear. It is often produced without expectation of benefit. The main motives for the production are connection with peers, self-acknowledgement and the achievement of personal status [5]. These arguments seem to be most relevant for general purpose platforms, and might arguably not be as relevant to an initiative in African context. In order to maximise the usefulness of any LGC initiative, contribution to such a platform (by creating, modifying, compiling, distributing, rating, tagging or consuming) should lead to an evident increase in effectiveness of its contributors, ideally beyond entertainment and social connection.

Research has shown that reward systems can act as stimuli for participation in internet communities. Rewards can take non material forms, like personal status or an enjoyable pastime. This form of personal reward is identified as a key driver for contribution by several authors [15].

Next to the TAM Davis presents the Motivational Model (MM) for the explanation of behaviour in relation to the adoption of new technology, in which he states the factor of the Extrinsic Motivation, similar to Perceived Usefulness. Extrinsic Motivation is the notion that users will want to perform an activity “because it is perceived to be instrumental in achieving valued outcomes that are distinct from the activity itself, such as improved job performance, pay, or promotions” [16]. It is therefore important to implicate the daily occupations and encounters of users into the design of a new application, in order to comply with the human needs of users. The success of an innovation can partly be attributed to the quality of the match with the social and cultural context in which it is to be used [11]. An example for this is the apparent popularity of social networking platforms in Brazil. In daily life social expression and peer consultation of occupations and tastes play an important role in social communication [6].

Limonard and Esmeijer [8] present “togetherness” as one of the motivational drivers for creating content in a UGC environment. They identify two important enticing triggers in the process: conversation starters and presence information. The latter is the knowledge that someone in your community is ‘online’, active or available at a certain moment. Recent research by Ofcom [17] on social networking shows that interpersonal communication is one of the most popular activities on social networking websites. Most of this communication takes place between people who are in some way related. A smaller part of the population of social networking websites takes part in discussions on political or social issues. Social networking websites offer large quantities of information for users to browse through and to learn from [17].

Recognition from others, communication with others in order to maintain interpersonal relationships form part of the basic human needs as described by Maslow [18]. This identification of universal humans needs supports the assumption that there is legitimacy for the stimulation of Local Content Generation. People have a need to express themselves and to share this with others.

The population that takes part in social networking sites can be divided into several groups, each with a typical motive for use. The largest part of the population, characterized as 'Followers' and 'Faithfuls' uses social networking sites to stay in touch with peers or to revive old relations. A smaller part of the population characterized as Attention Seekers contribute to get attention and feedback from the community. The remaining fraction has very specific and diverse reasons to contribute [17].

5.2 Perceived Ease of Use

Perceived ease of use is defined by Davis as the extent to which a person believes that the use of a certain technology will be free of effort [13]. This factor has a direct influence on perceived usefulness in a way that technologies that are perceived as difficult to use often do not entirely reveal their usefulness. As will be discussed below, in general the ease of use of UGC is very important. The growing availability of technology and the development of simple and straightforward software tools for creating, revising and mixing content is an important driver of user created content projects [5].

A lack of experience with or insecurity about a certain technology can be a reason not to use this technology [17]. Van Hoorik and Mweetwa [1] also emphasize the importance of easy access for the introduction of Internet in African communities. But the creation of awareness (sensitisation) and training should take precedence over easy access. This also goes for more technological and practical issues, such as access to the power grid.

Another model that tries to explain behaviour is the Triade-model [19]. This model uses three equally important factors to predict and explain behaviour; motivation, capacity and opportunity. The first factor relates to the perceived usefulness as explained before, while the second relates to perceived ease of. The last factor 'opportunity' is concerned with to what extend the environment makes certain behaviour possible. It forms part of the external environment in which the behaviour takes place..

Motivation is defined as the extent to which a person is interested in the behaviour itself or the result of it. Important factors are for example motives, interests, advantages, priorities, ambitions or concerns. Motivation is considered the most important factor in the model, because the allocation of capacity and means will depend on it. Capacity is defined as the extent to which a person has the physical or mental possibilities and resources (means) to display the behaviour. Important are not only knowledge, experience and skills, but also money, information and other means. These sorts of preconditions are also mentioned by other authors as factor for the individual adoption of technology and are particularly relevant in an Africa context. [11] [14].

Study shows that the number of users involved in content creation diminishes drastically down the mentioned UGC value chain. In other words many people consume the content, of this group a small part navigates through the content, an even smaller group markets the content and so on. Only a fraction of the visiting population of a UGC platform is involved in the creation of new content [6]. This suggests a connection between Perceived ease of use and the UGC value chain, as shown in figure 3 below.

The observation on the number of contributors must be viewed in the context of two factors. Firstly, most platforms under study lie in the domains of entertainment (YouTube, Flickr) and personal profiling (facebook, MySpace). For applications in particular domains where additional motives are involved such as economics, education, healthcare or politics,

contribution by users can be significantly higher because the perceived usefulness will be higher. Secondly, a substantial part of the value lies in the steps following the actual creation of the content. After the creation, much significance is added by people adding to it, so that others can better evaluate and search through the content. [6].

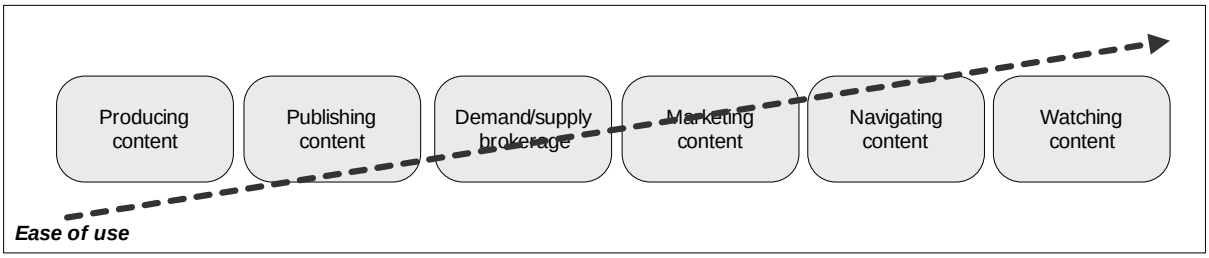

Figure 3: The Link between Perceived Ease of Use and the UGC Value Chain.

It is also easier to build on work of others than to start from scratch. According to Arnoldus and Matteman [20] improving and building on the work of others is the most important driver of ´open´ projects, like content generation. It stimulates users, but it can also create great advantages or innovations by knowledge sharing. Looking back at the guidelines of BoP mentioned earlier, there are significant similarities. BoP encourages the involvement of users as producers, collaborators, distributors and co-developers. An open and evolving exchange of information and adaptation to the capabilities of each involved, with opportunities to create mutual value is another recommendation. An important reason for this way of project definition is to create a sense of ownership amongst all who participate and contribute. This greatly improves the serenity of a project [9].

5.3 Social Influences

The Technology Acceptance Model of Davis is often completed or extended with other factors, some more relevant than others. An interesting addition is the factor Social Influences. The original TAM leaves external influences on attitude towards using a technology out of consideration, but many different acceptance models, such as TAM2, acknowledge social influence as a direct determinant of behavioural intention [14].

Social Influence is described by Mathotra & Galletta [21] as three processes which influence individual acceptation; *internalization, identification and compliance* [21]. Translated freely *compliance* means that an individual adopts certain behaviour, because he/she expects to gain a reward or avoid punishment. During *identification* behaviour or influence is accepted because the individual wants to maintain or build a good relationship with a certain group or person. Finally, *internalization* arises when an individual accepts behaviour or influence because they match his own (internal) values [21].

5.4 Cultural Influences

Next to social aspects cultural elements can also have an impact on technology adoption. The success of an innovation can partly be attributed to the quality of the match with cultural context in which it is to be used [11]. In the way recent Web 2.0 technologies have been adopted we can observe some striking examples of this. In general we see that adoption of Web 2.0 technologies - which are mainly aimed at social communication - mimics the way people maintain social relations in the physical world. The example of the popularity of social communication platforms in Brazil [6] illustrates the importance of taking into account the specific qualities of the culture addressed, when introducing a Web 2.0 application. Evaluation of social and cultural aspects can help optimise this match [11].

The best known culture model is from Hofstede [22]. The model aims to give an understanding of cultural differences. The assumption that culture has an impact on

technology use is not new. Multiple studies show that there is indeed a relation between culture and adoption of technology. An impact on the factors of TAM is established for four of the dimensions mentioned in the Hofstede model: Power Distance, Collectivity, Uncertainty Avoidance and Short Term Thinking [23].

Freely translated, power distance is the extent to which social inequality and hierarchy is valued within a culture. In cultures with little power distance, people feel free to make their own choices about using certain technology. Social influences have less impact [23].

In individual cultures individuals see themselves as independent actors. These cultures value personal performance and autonomy. In the opposite collective cultures someone's identity is defined by the group they belong to. Individuals seek confirmation, status and support [22]. In this case technology has to be interesting for the entire group [23].

The extent of uncertainty avoidance defines the extent to which individuals are inclined to act calculating. In cultures with a low score, uncertainty is accepted and individuals are open for new ideas and change [22]. In the opposite culture people are less eager to learn new IT skills which results in a lower perceived ease of use. On the other hand, proving the great usefulness of a technology can increase the adoption [23].

In short-term cultures the link between new technology and direct results is important. Furthermore a clear match with the current activities will count as well. In long-term cultures the stress falls on future benefits, but a match with valued traditions and customs is also important [23].

5.5 The Model

The above mentioned research and observations have lead to the construction of a general acceptance model for ICT application design (Figure 4). It consists of the factors extracted from the TAM and UTAUT model, complemented with additional factors described by other authors. This model explicitly takes into account the social and cultural influences and the context of the population at which it is aimed and shows the relations between the different factors as stated above. The factor context has impact on all of the other factors.

Incorporating this model at the start of application design for developing regions will give a clear insight in application requirements and project design, thus maximising the impact and success of the initiative.

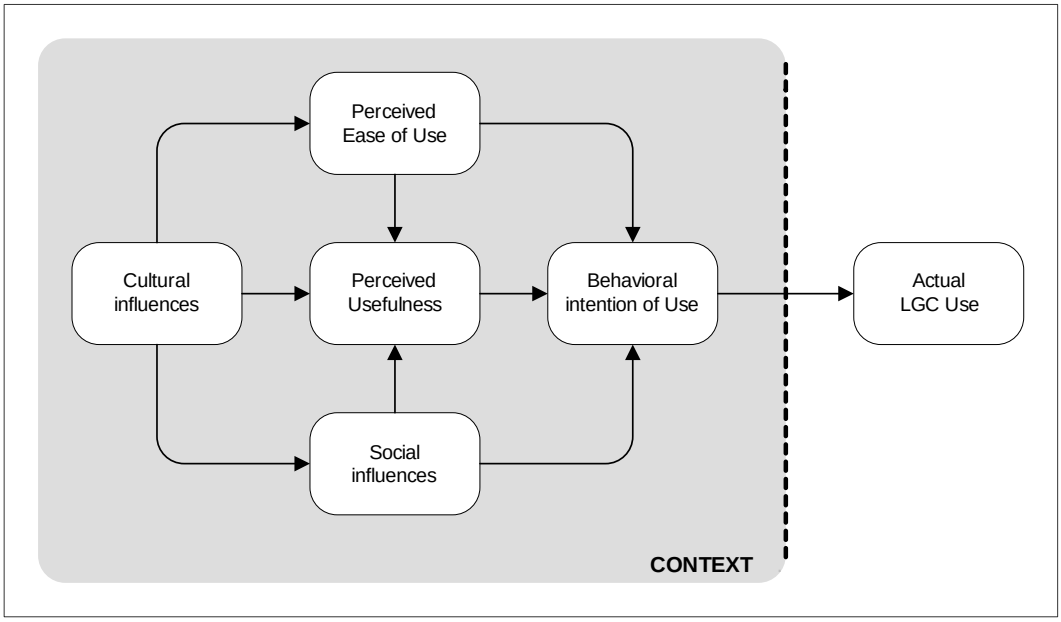

Figure 4: Acceptance model for Locally Generated Content applications.

6. Results

As we focus on the African context in this paper, we can fill in these aspects in the model in more detail in order to identify opportunities for the introduction of a LGC application. This will show eminent project and technology requirements to take into account.

6.1 Cultural factors

The first aspect that should be considered when developing LGC applications is the influence of local culture on acceptance. The cultural specifics of the target population can obviously be determined only once possible project locations are being defined, since these aspects vary greatly throughout the African continent. In table 1 the different dimensions of culture characterization are listed, along with general strategies that should be used to improve the success of implementation of web 2.0 initiatives in these cultures.

Table 1: Impact of Cultural Factors

	SCORES	
CULTURAL FACTORS	**High**	**Low**
Power distance	Focus on top-down strategy	Focus on bottom-up strategy
Individualism	Focus on individual	Focus on group
Uncertainty avoidance	Focus on training en support	Focus on new ideas
Short-term thinking	Focus on direct results	Focus on future benefits

Power distance. - In cultures with high scores on power distance the project designer should focus on a top down strategy in the design of the project, the implementation and the user involvement activities. This means for example finding and collaborating with some key individuals in the local population and communicating about the project through them, or involving these individuals in the initial project launch. When there is low power distance the project should adopt a bottom-up strategy, where users are involved through peers, or where topics can function as focal points for online communities.

The score on power distance also has an impact on the social influence where high power distance will increase hierarchical social pressure on behaviour.

Individualism. - In collective cultures – which score low on individualism - it is important to stress the usefulness for the entire group in the design of the platform, or the training and communication activities of the project, where in individual cultures the usefulness to the individual is more important. In collective cultures the ties between individuals are very strong and the family or community is given much more weight. In such societies members lean towards collective responsibility. People in individualistic societies tend to form relationships with larger numbers of people, but with the relationships being weak [22]. These characteristics need to be taken into account when designing the project, by adapting the platform and/or the processes to it. Obviously individualism has influence on the social factors. In collective cultures compliance and identification processes arise stronger resulting is social pressure. .

Uncertainty avoidance. - In cultures which are uncertainty avoidant the element of training, support and education becomes important. Enough attention should be given to define and explain clear project rules and definitions. In cultures which score low on uncertainty avoidance there can be more emphasis on improvisation, exploration of new ideas and co-creation. Uncertainty avoidance influences perceived usefulness.

Short term thinking. - Short-term thinking mainly impacts the perceived usefulness.

The impact of culture on the success of ICT introduction is clear. for the opposite influence, that ICTs, and especially web 2.0 technologies have an impact on cultural factors of an entire population in the way that Hofstede describes them, there is less structural evidence, yet there are many examples which suggest that these technologies are

able to influence the general cultural traits of a population [23]. The way current youths communicate and relate to each other in northern Europe is for example clearly impacted by their massive adoption of online communication channels such as online chatting, social community platforms and mobile telephony [24].

6.2 Social Factors

Next to cultural factors, social factors can also influence behaviour. Social factors are influenced by the cultural factors as illustrated above. Especially in collective cultures with high power distance compliance and identifications processes are likely to occur. In individual cultures with low power distance internalization processes tend to arise. The impact is shown in Table 2.

Table 2: Impact of Social Factors

SOCIAL FACTORS	
High Compliance	Focus on rewards or punishments
High Identification	Focus on group behaviour
High Internalization	Focus on individual values

When compliance processes are likely to occur, people will react strongly to promised rewards or punishments. The perceived usefulness of (or rewards for using) new applications should be clear to convince potential users.

6.3 Perceived Ease of Use

Perceived ease of use is also influenced by the cultural specifics of the population. In general, it is important for the introduction of internet in African communities to create awareness (sensitisation) and training, especially in cultures with a high score on the cultural factor of uncertainty avoidance. For users to be able to use a LGC application, this application should obviously fit the capacity of the users. Before developing any initiative, the capacity of the potential users should be analysed.

6.4 Perceived Usefulness

Perceived usefulness is a difficult factor, as it is influenced by all other factors as well. In general it is very important to consider the contribution of the new application to potential users carefully, as stated earlier. When potential users do not see the benefit for them or their group in any way, they will certainly not use the application. In order to increase the perceived usefulness, the platform or project design could be aligned with needs other then self expression. This has the potential to benefit both the adoption of the technology and the domain at which it is aimed

6.5 Context

Context, also referred to as ‘facilitating conditions’ [14] in certain models, is a collection of external elements that influence adoption. The notion of opportunity as used in the Triade model [19] is also included in this factor. The factor context has impact on all of the other factors in the model. Context is defined as the extent to which the environment makes the behaviour (im)possible, for example lack of working conditions, infrastructure, political and economical stability or lack of availability of technology. Such economical, technological and political factors can limit or accelerate the development of ICT

initiatives. The technology development part of a project design is often largely focussed on this factor of technology adoption.

All of these factors form part of the context in which the project operates. However multiform in nature, all have to be carefully identified and taken into account, in order to minimise such implementation problems as stated in the introduction.

6.6 Field Test Example

We have used the LGC model to identify the frameworks for an appropriate field research project to be executed in 2009. It should be noted that these ideas are merely meant as a preliminary suggestion for further research, meant to illustrate the use and application of the described project design framework.

The project would be to develop and implement a platform for multimedia content creation in collaboration with community centres or schools. This way the usefulness will be connected to education, and the ownership and commitment will be easier to establish, through the framing in a school project. Preferably there will be parallel projects in several places. For example students from different schools could create an item about a story, custom or tradition by interviewing someone senior or influential around them, with more knowledge of traditions and cultural heritage. The students place the content on the platform through a mobile application. The interviews or stories are available to listen to at your request through an application on mobile phones, and people can rate or comment on the different stories. In order to maximise accessibility and avoid bottlenecks of limited connectivity or bandwidth, we aim to make use of standard connectivity features of modern mobile phones, such as Bluetooth and WLAN to organise a meshed network through which content can be shared and accessed from the server.

Preferably there would be collaboration with local radio station(s). These stations can broadcast the most interesting or best valued stories. Radios are widespread in Africa, as well as mobile phones, and can fulfil a role in the reach out to potential new users. It is also a medium for the achievement of the personal status component of value creation, by exposure of content of contributors to a community.

People can provide feedback (changes, ratings, additions) on the stories by mobile phone (through a dedicated (web) interface, or with standard functionalities such a SMS or calls to the radio station). The stories are also available on internet, and promoted in internet cafes. People who want to collaborate in making interviews or recordings can come to the project to make a recording or record it by phone (doing the interview with a phone present, it gets recorded on the other side).

When sharing content over different platforms, such as internet, radio and mobile phone, people can use it easily and gradually expand their contributions. Scalability is an important part of successful BoP innovation. Be able to start with a small experimental scale, and be easy to expand when the concept is proven. The verbal/oral broadcasting makes it possible for people with no education to contribute as well. Hybrid solutions, marrying old and new technology is identified as one of the building stones of BoP development.

6.7 Cultural Factors

East Africa (Ethiopia, Kenya, Tanzania and Zambia) scores relatively high on power distance and low on individualism and long-term thinking. This suggests that social influences, for example from individuals with high intellectual standing such as teachers, community leaders, elderly and local chiefs, can play an important role in adoption of technology. This is incorporated in the field test example. Furthermore the link between

new technology and direct results is important, as well as a clear match with the current activities. This motivates the choice for alignment with school and community centre. for the selection of initial topics one should keep in mind the argument of alignment with current activities.

6.8 Social factors

In East Africa the focus on group behaviour could convince people to use a new application. In the field test example this is made use of in the element of collective creation and sharing of results through broadcast comes into play.

6.9 Context

Relevant context factors in rural Africa are for example the low internet penetration, poor broadband internet infrastructure and consequential high prices and slow internet speeds. It is estimated that there were some 50 million internet users in Africa in 2007, translating into around one person among 20. Over half of the continents internet users are estimated to be located in North African countries and South Africa. In sub-Saharan Africa, only three percent of the population is able to go online [25]. On the other hand the mobile telephone market in Africa has been the fastest-growing market of all regions, growing at twice the rate of the global mobile telephone market. The number of subscribers leaped from 16 million in 2000 to a staggering 250 million last year, on a population of 900 million in the entire continent, according to the latest available figures, although it may not be evenly spread across the large continent [26]. A second ICT success in Africa is the FM broadcast radio. Well known as a primary source of information for many in Africa, this is a communication channel that also offers opportunities in this context. The combination of old and new technologies by including mobile telephone recordings, radio as media in the project can thus improve ease of use and awareness of the LGC application. As mentioned this type of combinations is also in line with BoP guidelines [9].

6.10 Perceived Ease of Use

In rural Africa most people have little experience with ICT and there is a relatively high level of illiteracy. Furthermore, most people have limited resources, such as money. These are contextual factors that greatly influence the perceived ease of use [14]. By making use of sound recordings, oral explanations and the integration in local education these factors are taken into account. The content presented in the project can also incorporate explanations on how to use the application, and contribute to it. Another way to influence the ease of use is to carefully design the business model behind the initiative in accordance with the local situation. Lack of financial means is an important element of the capacities of people that inhibits the use of many initiatives.

6.11 Perceived Usefulness

By many people internet is not seen as a main priority in Africa, as long as problems around basic human needs such as health, food and peace are not solved sustainably. However ICT is playing an increasingly important role as a catalyst in these areas. The possibilities of Web 2.0 to express yourself and to share this with others is a functionality that is also relevant in Africa as it supports a basic human need of self expression, communication and social recognition. The perceived usefulness will be increased by giving attention to the other factors in the model. Next to that it is increased by the open character of the platform,

the attention to training and education of contributors , and the dissemination of successful contributions (best practices) over broadcast.

Similar initiatives have been deployed in Kenya [27], which proved to have significant impact on local community, by providing with a low tech platform for sharing information in a 2 way direction. However, this project depended on specifically designed recording devices to collect and transmit the data to a central broadcasting radio station.

The concept proposed here is to design a project based on technology that is mainstream, available and adaptable by the community, and installing a process of contribution and involvement adapted to the local social context and needs. In other words: Expand the roles of the participants form mere producers and consumers to co-creators and business partners by providing an easy to access platform for information sharing and modification. Shift moderation and control of the content to the local contributors.

7. Conclusions

When developing an application to stimulate local content generation in rural Africa, one should maximise the usefulness and the ease of use for potential users, for the implementation to be successful. These two aspects are influenced by the specific social and cultural traits of the targeted community, as well as by the context in which the application is to be implemented. By assessing the social, cultural and contextual factors in detail one can better adapt the project design and application design to the local situation and achieve optimal perception of ease of use and usefulness. Thereby improving the adoption of the application and increasing the sustainability of the project.

Social factors describe the way individuals are influenced by a community. Cultural factors focus at the specific cultural traits of a community as defined by Hofstede et al [22]. The context incorporates all external elements makig the desired behaviour (im)possible.

Web 2.0 technologies such as forums, social networking platforms, consumer to consumer e-commerce and blogs incorporate a lot of the requirements presented in the adoption model and could therefore pose interesting opportunities in tackling the issue of a lack of local content in Africa.

The framework presented in this paper is a construct of various theoretical insights. We suggest that further research should be done to validate this model by applying it to specific projects like we proposed in our example for future field-testing. But it is clear that for people to adopt internet initiatives, the project needs to reflect the people.

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