

Full Length Research Paper

The contribution of a Portuguese Angolan wiki for development promotion

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At the present time, it is understood by almost everybody that either the technology or the entrepreneurial decisions are conditioned by the quantity and quality of information available. Angola is a very large country with great amount of natural resources of very good quality, and in the present state of Angola development, the value of the marginal productivity of information is very high in almost all sectors of activity and in that sense crucial to promote development. There is plenty of specific information about Angola from research made in Angola, from the time when it was a Portuguese colony. Although, some of this information is written or recorded in magnetic support, most of them are possessed by private persons. The great part of the information is still in the minds of thousands of persons that used to teach, to research or to live there. In this context, the potential of the so called Web 2.0 or the Social Web and one of its most interesting collaborative platforms, the wiki is particularly relevant, to promote the development of a knowledge management strategy. In fact wikis are receiving growing attention since they are being used at a growing rate to build the most diverse information spaces, gathering people who are interested in a specific subject, building themselves as truly communities. In this way, building a virtual community, in this case, a Portuguese-Angolan wiki, where all the available information could be gathered and stored, through the spontaneous contribution of the community, could have a great impact on Angola development. The aims of this paper are: (1) to emphasize the economic value of information; (2) to show that it is possible to build a platform of information (a wiki), over the internet and stress its potential in the developmental process of Angola.

Key words: Angola development, virtual community, information and knowledge management, wiki.

INTRODUCTION

Up till the middle of last century, production capacity of any nation used to be estimated as a function of the stock of the primary factors of production: labor, land and the man-made factor, capital. There are innumerable works where the production of nations, regions or sectors was estimated, considering those factors as explanatory or exogenous variables, using Cobb-Douglas's productions functions or others. In the past, like in the present, estimation of the elasticity of production and substitution of factors and the optimal capital labour ratio were estimated in order to establish policies to induce the economy following the "golden pass", that is, the growth

pass desired by the decision makers. Later, proxy variables or indicators that catch the technology effects and the entrepreneurial capacity of production were integrated in the production functions. It was clearly understood that equal stocks of capital and number of labor hours did not necessarily produce the same quantity and/or quality of output. The amount and the quality of production depend on the technologies used, the knowledge and capacity of enterprisers to combine the other factors of production and the way and the proportions in which they combine them.

More recently, it was perceived that either the technology or the entrepreneurial decisions are conditioned by the quantity and quality of available information. Presently, it is not enough to know how to produce a given good or service, but is necessary to

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have information about the most efficient technology to use, the markets where it is possible to buy and sell at more convenient prices, how prices will change in the future, and so on. These evidences lead to considering information (or in a more general way, the information technologies, IT) as production factor itself, or factors that exercise influence on the other factors of production.

The greater or lesser difficulty to access information determines its cost, which in turn determines the quantity to be used, as it happens with any other input (fertilizer, water and labour or tractor hours). As it is written above, this is true either if the production of goods like bread or milk, or services like health care, education, insurance or any other is being referred to.

Certainly, the most common characteristics of underdeveloped and developing countries are: great abundance of labor, scarcity of almost all the other production inputs and inequity on resources distribution. There are innumerable examples of countries where the accessibility to land, credit, education, technology and information is a privilege of a small percentage of the population, which are bottle-necks to development.

The creation of value through Internet

Given the huge investment in computers and the adoption of information technologies (IT), several authors tried to obtain answers to questions like: have these technologies been the source of productivity gains? Will the effect of technologies depend on the organization type of the enterprise? Do these technologies affect in the same way each one of the production factor? In specific, will the effect on the labor force differ according to age, sex or expertise of each one? Crépton et al. (2009) <http://www.nber.org/CRIW/papers/crepon.pdf> (last access: 18 April, 2009), in an empirical study in France, arrived at the following conclusions:

1. Amongst the several uses of IT considered in the study (Internet, E.D.I, and Networks) only internet showed to be significantly correlated with productivity gains.
2. No one of the organization types increased the IT effects.
3. The adoption of internet increased the labor force, because it increased its efficiency.
4. The Internet has a strong redistributing effect on the efficiency in the labor force: the internet increase the efficiency of young, women and of those who have some specialization.

According to Retzer (2005), persons generate value working and taking care of each other. The used means are called networks, utilized to collaborate and access the information. The network takes diverse forms: social, transportation, utilities suppliers (water and electricity), economics (financial, supply and distribution of services) and information (telephone, radio and Internet). The

networks multiply the value of human effort by allowing the access and collaboration. The information multiplies the capacities permitting people to do more and learn with the others.

Before using a network, the potential users ask three basic questions: How can I have access; what can I do with it; is it more or less expensive than the alternatives available? Viewing from this perspective, the internet is not different from any other information network. The utility, the accessibility and capacity are fundamental for all economic decision.

Robert Metcalfe, the ethernet inventor, implicitly stated those questions when he wrote the stamen that is known as “Law of Network Effects” or “Metcalfe Law” which says “the value of the network grows with the square of the number of its users” (Metcalfe, 1996). The logic basis for the Metcalfe law is the number of potential single (unique) conversations that can occur in the network. Consider, for example, the value of a telephone system. A telephone system that connects us to our employment is very useful, but one which connects us to any person in the city is much more useful, and if it connects us to the all world it will be even more useful. Mathematically, the number of unique (single) possible conversations, if the call of A to B is considered different from the call of B to A, is equal to the square of the number of users (or telephone lines).

Economic value of information

It is easy to understand that information networks generate economic value because they allow the access to knowledge and services, and permit that persons collaborate more effectively and efficiently. However, it is not easy to measure the benefits of the information networks, because these networks like the majority of infrastructures permit or facilitate the production of goods and services, rather than directly creating economic value. The cities served by large seaports benefit for being navigation centers, but the great part of the benefits are indirect ones. This is because this situation attracts more enterprises and it is cheaper to operate some activities closer to the ports because it makes the costs of transportation less expensive. The same is true for the cities that have access to information networks of very high quality, because it is cheaper to use the facilities provided by those networks and because some more advanced applications work better.

Nowadays, there is no doubt that information networks are crucial infrastructures for the present and future economies, as roads and electrical power were in the past.

Web 2.0

The term Web 2.0 refers to a second generation of web development and design that encourages creativity,

information sharing and collaboration among users (Wikipedia, 2009). This concept gave rise to the development of communities based on the Web and the evolution of supplied services, such as sites for social networking, video-sharing, wikis, blogs and folksonomy. Although, Web 2.0 suggests a new version of the World Wide Web; there was not an evolution in technical specifications but only alterations in the way in which: i) the software is developed and ii) final users utilize the Web. Some technology specialists argue that the term does not make sense, as Web 2.0 just takes advantage of the technological developments and components that already existed, being just another buzzword (Brodin, 2007).

However, there are numerous definitions of this new concept, presented by those who defend the existence of Web 2.0, also known as the Social Web; these definitions share a common point. Users were merely information receivers, in the past; now they perform a more active role, acting as information creators, suppliers and receivers. In this environment, their opinions and points of view can now be presented and shared on a global scale.

According to the term creator, Tim O'Reilly (O'Reilly, 2005), Web 2.0 transforms the internet into a platform and there is a new understanding of the rules on how to achieve success on this new media. The most important rules concern the development of applications to take advantage of networking effects; the more these are used by people, the more they benefit from a collective intelligence. This new paradigm can be observed in Wikipedia website; its business model is based on the facility for all its users to create or edit any entry in this web-based encyclopedia, thus, it benefits from "collective intelligence" and continuous updating. Moreover, the software which supports this platform is open source, offering anyone the possibility to create new low-cost wikis.

Apart from wikis, other examples of Web 2.0 software are YouTube, where anyone can publish their own films and promote their own reports of events, performing the role of cyber-journalist; Digg is a website where one can find pages reviewed by users; Del.icio.us uses a similar system but displays bookmarks from millions of contributors. In a different approach, the community site, MySpace offers the possibility for anyone to have a personal virtual space where they can interact with other users.

Lastly, blogs play an increasing role in shaping public opinion, based on Web 2.0. Through RSS (really simple syndication), these blogs feed numerous information sources in common daily use.

Wikis

As stated above, one of the most significant innovations of Web 2.0 is the wiki. The terms, wiki (pronounced

/u'iki/ or /v'iki/) and wikiwiki are both used to indicate a specific type of document collection in hypertext and also to name the collaborative software used to create them (Wikipedia 2009). The term, "wiki wiki" in Hawaiian dialect means "super-fast".

Historically, the first wiki – the Portland Pattern Repository, was created in 1995, by Ward Cunningham, to document and collaboratively manage information related with the updating of software design standards. It still exists today, as the WikiWikiWeb, and is an important resource for the wiki community. Probably, the best known wiki is the Wikipedia, a multilingual encyclopedia available for online use. By the end of February 2009, this site had more than 2 731 000 articles in the English Language and around 457 000 in Portuguese (Wikipedia, 2009).

A wiki allows documents to be created, edited and shared on a group basis, using a simple Web browser and it has a very easy and efficient markup language. One of the most important characteristics of wiki technology is the ease with which pages are created and edited. Wikis can allow for public or private access; private access limits the wiki's use to a specific group.

The facility for wiki content to be edited by its user's means that its pages and structure form a dynamic entity, in permanent evolution, where users can insert new ideas, supplement previously existing information and correct errors and typos in a document at any time, up to the agreed final version. As a consequence, public wikis may suffer from inaccurate entries, vandalism or outdated information. The lack of clear and complete information regarding author and version is still one of the most serious problems currently found in most of the wiki-based encyclopedias.

Most wiki software includes a function which allows for any vandalism to be repaired, by enabling the reversion of pages to their previous states. Furthermore, any material published without the author's permission can always be erased.

The openness of wikis gave rise to the term "Darwinism" (Wikimedia, 2009), which describes the "Darwinist social process" to which wiki pages are subject. Basically, due to the openness and speed with which pages can be edited, they go through an evolutionary process very similar to Darwinian Natural Selection. While this openness may facilitate vandalism and the publication of incorrect or even false information, the same openness also makes possible correction and improved accuracy of wiki pages. In fact, a recent research compared Wikipedia entries with those of the Encyclopedia Britannica online; in both online information sources, similar amounts of errors were found, which indicate that the quality of entries in Wikipedia is as least as good as that for the Encyclopedia Britannica (Giles, 2005).

A wiki can be useful in several scenarios: content management systems; discussion fora and other forms of

support to collaborative activities (Fuchs-Kittowski and Köhler, 2002; Neto and Pinheiro, 2008). By using a wiki, recently acquired knowledge can be easily integrated with the user's existing knowledge base, provided that it is already in wiki format. According to the above authors, the specific advantage of a wiki approach, when compared with other collaborative forms of knowledge generation and sharing, resides in its focus both on the communication process and product, as it facilitates simultaneously debate and collaborative work, leading to a joint outcome. As we referred the main characteristic of a wiki is the fact that is composed of an interlinked collection of pages that can be edited by anyone. Besides that, it is difficult to generalize their properties. They are used in different contexts and with different purposes, although it is possible to identify some characteristics that wikis have in common, the "Wiki Essences" (Lamb, 2004):

1. Anyone can change anything. Wikis are quick because the processes of reading and editing are combined.
2. Wikis use simplified hypertext markup. Wikis have their own markup language that essentially strips HTML down to its simplest elements.
3. Wiki page titles are mashed together. Wiki page titles often eschew spaces to allow for quick page creation and automatic, markup-free links between pages within (and sometimes across) wiki systems. Linking to related pages is easy.
4. Content is egoless, timeless and never finished. Anonymity, though not required, is commonplace. With open editing, a page can have multiple contributors, and notions of page "authorship" and "ownership" can be radically altered.

Virtual communities of practice

The growing number of social software applications, such as wikis and making available new technological options to promote knowledge sharing, as we can see by the Wikipedia success, shows us the potential of wiki usage to create virtual community of practice (VCoP).

The concept of community of practice (CoP) first appeared in 1991, as proposed by Lave and Wenger (Lave and Wenger 1991). It soon attracted the attention of those interested in knowledge sharing, knowledge transfer management and organizational learning. Brown and Duguid (Brown and Duguid, 1991) showed how CoPs differ from project teams and working groups created by managers to promote the generation of new knowledge within organizations. While formal working groups are generally created in a top-down approach, CoP evolves in an organic manner through the interaction of people involved in similar work practices. Usually, formal team members are drawn from a specific

organization, department or unit within an organization, while CoPs have permeable boundaries. CoP members cross borders; they can originate from both inside and outside the organization or they may work in different departments and units of the same organization. In contrast, formal teams are usually constituted to perform specific tasks or projects; once these are completed, they are disbanded. CoPs are different, they emerge from the common work practices their members perform in their daily activities and they evolve through time, creating new knowledge from shared experiences.

Wenger et al. (2001) proposed the following CoP definition: "Communities of practice are self-organizing, informal groups whose members regularly share knowledge and learn from each other". This definition is important because it highlights two of the main characteristics of a CoP:

1. The coordinating force stems from shared work practices.
 2. Its driving force is learning.
- The literature provides many examples of CoP studies being particularly interesting than those that aim to understand the broader and more flexible CoPs made possible by the latest developments in ICT, the so called virtual communities of practice (VCoPs).

In this context, a way of how a community of individuals and institutions that possess relevant information and knowledge in the context of agricultural development in Angola could actively cooperate in developing a Portuguese-Angolan wiki for development through the building of a Web repository of shared knowledge was described. This is used to promote development by concentrating in one place knowledge that is believe exist, is scattered in many locations and is known only by a very small number of people and institutions.

Wiki Luso-Angolano for Angola development

Having the above so far in mind, the proposal to create a Portuguese-Angolan wiki for development is based on the conviction that there is a community of persons that share a common interest. With this community, it is possible to build a virtual network, where besides sharing and debating ideas it is possible to realize the construction of a wiki with the objective of generating and storing information and knowledge, and aggregating it in a unique virtual place. This would be information resources of unquestionable value for Angola development.

Moreover, if the wiki was created, it is believe that the virtual community of practice would grow in an organic way, feeding this information system, dynamizing it and promoting its long run sustainability, through out the

continuous creation of value, as far as the repository of built knowledge is growing.

In countries which have similar state of development of Angola, even the basic knowledge is crucial for the development of almost all activities. There are innumerable references that point out the lack of information in the areas of health, feeding and production in the diverse sectors of activity. Considering only the agricultural sector, there are lots of articles where the lack of information is indicated as an obstacle to follow the desired policies. For instance, lack of information is indicated, at par with land rights, as obstacles to the cultural systems changes (FAO, 2007). Lack of information about production techniques hampers the farmers to improve their way of living and to cooperate to ameliorate the environment (Dietz and Stern, 2002). Also, the lack of information is indicated as the cause for bad use of natural resources (Feather and Amacher, 1994).

Besides the basic and general information, common to many activities independently, the location where they take place, there are many great specific information. Some of this information is written in paper or recorded in some magnetic or electronic support, but plenty of it is inside the heads of those who lived there, teaching, researching or developing any other activity.

During the last decades, Portugal created several universities and polytechnic institutes, but, unfortunately, none of these institutions was vacationed to follow up the study of subjects that are of the interest of the former Portuguese colonies in Africa. Also, no organization, public or private, collected, in a systematic way, the accumulated knowledge that had been developed and that was brought by hundreds of thousands of people who abandoned those countries in the troubled independence process. The Wiki Luso-Angolano proposed in this paper would, at least in part, minimize this great lacuna.

This approach has a significant set of strong points, as proved above, that it could be successfully accomplished. Among these aspects, it was emphasized that the fact that all the technological solution necessary to its materialization is open source, its utilization to introduce a wiki in the Web has almost null cost; also it is easy to use, that is, there is no need for technical knowledge of informatics for creating and editing pages in a wiki. On the other hand, and probably the most important value-added of the Wiki Luso-Angolano for development presented here, lays on the collaborative logic where its own construction is settled. Effectively, all those that have relevant information and knowledge for Angola development and that are receptive and interested to share it, will find here a technical answer for it to be possible. At the same time, the possibility that someone takes possession of the created knowledge is avoided, provided that the wiki will be property of all their contributors.

Conclusion

To conclude, it can be said that Angola is a very large country, with great amount of natural resources of good quality; it is in a stage of the development process where the marginal value of the information, in all activity sectors, is very high. Therefore, the possibility of building a wiki where all the information gathered with the contributions of the network members could be shared, as well as the (hyper) connections with other resources already existing in the Web, could have a great impact in Angola development.

Finally, it is important to stress that former experiences of the utilization of wikis to promote initiatives of this type have shown how important it is, in the launching moment of the wikis, to guarantee the existence of a minimum repository of knowledge in order to call the attention, provoke the interest and unchain the voluntary contribution of the persons to build the practice network. This paper leaves a challenge to know who is the person or institution that is available to lead this procedure and give the "kick-off" warranting independence, capacity and rigour in the process.

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