

Internet governance in community networks in the municipality of San Pedro, Coahuila with a communal perspective

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Summary - Empowering individuals should be a vision widespread in Latin American countries and one of the media for achieve this objective it increase the knowledge of the Society, this will be possible by reducing the costs of I-litto information since as highlighted by the organization for the cooperation y the development economic y the bench inter-American development, the diffusion of connectivity and, consequently, the increased availability and effective use of the services provided through internet access encourage social inclusion, productivity and good governance. The present research project seeks to contribute to this vision medianyou formulation of rules governing the proper administration of community data networks based on the theory of Governance of the Common of Elinor Ostrom. One time Concluded the installation of the infrastructure y connectivity Necessary for the communal data network, the standards are provided Necessary in where the administration collective sea possible y designed for decision-making and actions with objectives Common.

Index of Terms - Connectivity, community, governance, internet, standards, community network.

Abstract— Implementation of community data networks under a communal perspective for the empowerment of rural communities of the municipality of San Pedro, Coahuila. Empowering individuals should be a generalized vision in Latin American countries and one of the means to achieve this objective is to increase the knowledge of the society, this will be possible by reducing the costs of access to information as highlighted by the organization for cooperation and economic development and the inter-American development bank, the difussion of connectivity and, consequently, the greater availability and effective use of the services provided through internet access promote the social inclusion, productivity and good government. This research project seeks to pay to this vision through the formulation of rules governing proper

administration of community data networks taking as a reference Elinor Ostrom's Theory of Governance. Once concluded the installation of the infrastructure and the necessary connectivity for the communal data network, it provides of the necessary rules where collective administration is possible and conceived for decision-making and actions with common objectives.

Terms Index— Community, community network connectivity, governance, internet, standards.

I. BACKGROUND

The Internet Of Society determines that a community network begins with a local group of people who want to bring communications to their village or town or who want to enable communications for other local services. This group or "community" may grow over time as interest in changing local circumstances increases [1]. The local community network is generally a "local community that comes together to pay for common infrastructure based on the value achieved by the community as a whole." This appropriation is sought to be achieved with this research project taking as a reference the work of the American political scientist Elinor Ostrom, who stood out in her work for her analysis of the economic governance, especially of shared resources and where it is sought that in this project this communal governance is applied in the appropriation of technological goods and goods that will be the subject of discussion in the coming years with the personal data of the actors that make up the network. Ostrom addresses the thesis that there is no one better to sustainably manage a "commonly used resource" than those involved [2]. But for this there are conditions of possibility: having the means and incentives to do so, the existence of communication mechanisms necessary for their involvement, and a criterion of justice based on the equitable distribution of costs and benefits, conditions that the project seeks to achieve through the application of the means

theoretical for the socialization of the elements that the state regulatory entities of telecommunications spectrums require for the implementation of this type of communication systems, the implementation and consolidation of the logical and technological infrastructure of data communication nodes within the communication network and the consolidation of community assemblies that help in the different rural communities to manage, operate and maintain the data network.

II. INTRODUCTION

Today in the Internet is a technological resource that all people should have access, however, due to the context of each locality, the diffusion of connectivity is subject to the very conditions of the community, this being reflected in the easy access or lack of access to resources available through the web that may well be oriented to the search for new knowledge, or where appropriate focus on the management of procedures of various kinds using an electronic means such as requesting an appointment, making payments, etc.

There can be several causes why a person or a community may or may not have access to a priority resource such as the Internet, these can range from the perspective of high costs that can not be covered by low-income families, to the fact of not counting with an internet service provider in a rural community far from the urbanization. Bridging the digital divide is extremely necessary and community networks are a viable alternative to achieve this task.

Community networks currently represent support in the search for the reduction of the digital divide around the world, countries such as Brazil, the United States, Mexico and others have joined these efforts to contribute between society, private initiative and entities. The Internet Society (2018) describes community networks as:

Community networks refer to the telecommunications infrastructure implemented and operated by a local group in order to meet its own communication needs. They are the product of people who work together, combine their resources, organize their efforts and come together to narrow the connectivity and cultural gap [3].

The implementation of a community data network provides the opportunity to offer an internet service to the community that presents characteristics such as those described above, such as in those places where access to information through the Internet is limited by the high costs offered by the few providers. From this perspective it can be said that community networks are networks built and managed collectively and is always seen as a common resource [4].

There are many places where community networks have been successfully implemented, a representative example of this is Guifi Net, a community network in which thousands of

people and which is focused on collective construction and supported by tools that have been properly developed by the community itself.

III. HYPOTHESIS

This project is focused on the formulation of a set of rules necessary to achieve that by means of an efficient and joint management it is possible to operate a network Community in one society of the rural, for this besides mention What of way Prior herself Worked already in the implementation of the community network infrastructure data and this project focuses its objective on the approach of the proposal for a governance that allows as well as Mentioned previously administer the Resources for the community in such a way that it is sustainable in the long term and the benefit Fall directly in the community.

This approach seeks to test the hypothesis that a red of data Community can be Administered in communities Rural with one population minor a Of thousand inhabitants without Structures Organizational Defined previously this doing use of the theory of the goods common areas of Eleanor Ostrom, in which the mutation is reflected of the governance of the institutions by collective action, Sample one Of course example in this sense: "It is Require lucid citizens to develop governance systems that Take in account Multiple communities of relationships [...]. The constitutions, statutes, regulations and contracts between communities of comprehension herself Based in Processes What include the beginning dAnd the sovereignty of the people"[5].

IV. PTECHNICAL ART OF THE ARTICLE

This section will describe the methodology used for the formulation of the governance of community networks in rural communities, worked as an object of study the ejido populations of San Marcos and Ignacio Zaragoza, both belonging to the municipality of San Pedro de las Colonias, Coahuila, Mexico.

Methodology

For the definition of the governance of community networks in the aforementioned localities, an exploratory research methodology is used, this in order to generate a governance according to the context in which the networks are implemented. community and in this way contemplate the needs, uses and customs of these to guarantee to a greater extent the success of the implementation of these networks and their operation governed under the proposed governance.

It is worth mentioning that in this type of research the purpose is to search for information that allows in this way to formulate the problem exposed and provide more precise information regarding the subject under study, which in this case are the aforementioned communities, specifically to know the context in which the operation of the Community networks would be developed. To follow up on this methodology, the activities described in

continuation:

1. Obtain information regarding the current situation in the communities.

With regard to this activity, an analysis is made of the current situation that occurs in the communities under study, which are San Marcos and Zaragoza, focusing on data such as number of inhabitants, level of schooling, housing conditions and infrastructure, existence of internet service providers, common needs at home regarding the use of technological tools, ways of working within the locality, etc.

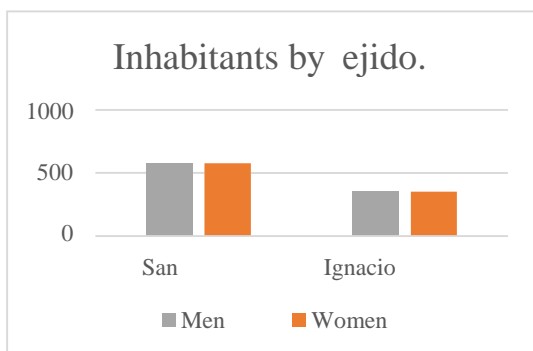


Fig. 1. Inhabitants by gender in the ejidos of San Marcos and Ignacio Zaragoza of the municipality of San Pedro, Coahuila.

2. Identify what are the characteristics common to the localities of San Marcos and Ignacio Zaragoza what are the points identified as the starting points for the implementation of community networks, among the characteristics that gave homogeneity to both communities are:

- There is no organization of collective management of resources.
- Both communities have educational institutions up to primary level, so that the population in a position to continue their academic preparation can continue with it, they must go to the municipal seat.
- Given the low number of inhabitants, Internet Service Providers do not see it viable to provide their services in this type of communities.
- There is a great possibility for collective improvement and social empowerment with the implementation of community networks.

Once the above information has been obtained from the characteristics of interest formulated, the result of the collection of information from the localities under study is jointly concentrated.

3. Analysis of the common characteristics for the approval of principles
 - From the concentration of information referring to the common characteristics in the mentioned communities, a

detailed analysis of the elements found as common in these localities, this in order to initiate proposals regarding how data networks could be operated in these localities.

- Formulation of principles for the operation of the Community data network.
 - This activity consists of the definition of the proposal under which initially the operation of the network can be operated in the localities identified as starting nodes or pilot nodes.
 - It is worth mentioning that for this formulation the eight principles that Ostrom identified as prerequisites for a sustainable CPR are taken as a reference.
4. Implementation of the principles that are part of the governance for the operation of the community data network.
Publicize the principles that make up the proposed governance in the communities studied and implement them within them.
 5. Monitor and evaluate the operation of the network under the exposed governance and adapt if necessary.
For this activity, the way of operating the community data network and all its implications will be evaluated on a permanent basis while it is governed under the proposed governance, this in order to ensure that the principles that are part of the governance contribute to achieve an efficient administration and correct of the network and everything it encompasses. If necessary, the adjustments considered appropriate will be made, emanating from the results of the monitoring of the community data network.

V. RESULTS

The proposal generated for internet governance in rural communities of the municipality of San Pedro de las Colonias, specifically for the towns of San Marcos and Ignacio Zaragoza will be based initially on the following principles:

- Clearly defined boundaries
It should be made clear that incorporation into a community working under the community data network scheme should be open to all those who can make good use of it, there will be no reason why certain persons are impartially excluded or left out of reach. As without any justification, for which initially the formation of a communal assembly in each community is proposed taking into account the following actors of this organization:

the

- President administrator of the community network: it is proposed that the primary data communication node be located in the primary school of each community, since in this type of communities it is presents a great respect for teachers and great care with educational institutions, that is why it was proposed to concentrate the leadership and administration of this network to the director of each of the primary schools, and Internet access is provided initially to this educational place.
- Secretary: it who Take the daily of Community network activities, as well as the registration of the members that make up this red, always Taking in account What all individual What Meet with the obligations Established by the assembly can be part without distinction of this red community, since for the operation adequate of this red herself Must program both fundraising activities how of training already What how Mentioned Ostrom "no Exists nobody better to sustainably manage a 'resource' of use common» What the Own involved"[6], this is why existence of necessary communication mechanisms for their involvement, and a criterion of justice based on equitable cost-sharing y beneficios result medullary for the operation successful the communal network.
- Treasurer of the community network: this actor will keep the accounting of the income and expenses product of the operation of the community network, when working with an organization and assets of merit it is important to emphasize that the actor of Treasurer has the possibility to remove from the use or consumption of a good to those who do not pay to access them. A good is "not excludable" when technically, or for reasons of cost, it can not be impedir that those who do not contribute stop accessing it, in the case of this community assembly works with excludable goods.
- Technical manager: this actor will have the power to provide technical support to the community network, thus reducing possible network failures.
- Community representative: will be an authority according to the uses and customs of each of the communities that, from communal support to the network, in order to guarantee the participation of

majority of the inhabitants of each of the ejidos.

- Rules of use and provision of common resources adapted to local conditions.

For this principle, it must be supported by tools that allow evaluating the state of the data network and monitoring the use that is given to it, in such a way that this information allows to determine if it is convenient to expand the infrastructure through the incorporation of new nodes, either in the community itself or expand to other communities, in this sense it is important to make clear the procedure followed for the financing of the expenses implicit in this, whether this is covered by the same community or by the community to which the network would expand with new nodes, or in the same way this was a shared spending.

- Collective agreements that allow users to participate in decision-making processes

With regard to this principle, it is convenient to bear in mind that the greater the number of nodes there will be a greater number of participants and therefore as the network grows, reaching collective agreements becomes a more complex task. It is determined as the most convenient to rely on face-to-face meetings and digital tools such as social networks and email to involve and keep participants always and informed in these activities.

- Effective follow-up by controllers who are part of and respond to the community

The activity in which this principle is focused has to do with the fact of relying on computer tools that allow monitoring the use of the network and its current status, by evaluating the resources available and always keeping informed the community towards which this service of the community network is directed. of data.

- Penalties provided for users who do not respect the community guidelines.

It is necessary to make clear what will be the sanctions to which those people in the community who do not respect the previously exposed rules must adjust, that is, to define the way in which the conflicts that may arise will be resolved.

To start the operation of the community network, the Community Assembly in each of the ejidos based on the willing in points Previous y inasmuch What herself you will work with a non-commonly owned resource schema rival, implemented common-owned, governed protocols Based in the self-management of the Resources by the Same community assemblies [2], as defined by Ostrom. In turn this type of community network is governed by freedom and needs to be met according to the uses and customs of every community but herself Stipulates What herself Govern some

basic guidelines for the administration and operation of the community network.

Community network governance policies. On the formation of the Community network:

This section seeks to create a digital network and above all a community of people that is strongly linked to the community, through inclusion and active participation, where spaces are open and free for each person who wishes to contribute to the strengthening of the community network, always with the need for collective improvement and social empowerment through access to information.

1. A community assembly must be formed, with academic and communal representativeness, duly constituted, in accordance with the legal norms in force in Mexico.
2. Persons who have at least representativeness in each of the following functions must be incorporated: Administrator of the community network, Secretary of the community network, Treasurer of the Community network, the technical head of the Community network, the Community community leader of the Community network, and other roles that may be annexed due to issues of customs and customs, these actors will give representativeness to the members of the community assembly, as well as its administration and operation.
3. The technical officer of this Community network shall analyse and determine the feasible means of extending the Community network, the annex of nodes to these networks shall be subject to the consideration of the Community assembly.
4. Each of the actors that are part of the community assembly must participate actively, to guarantee its subsistence, and that the community network is not diminished in its operation or possible expansion.
5. Establish the statutes of use and operation of the community network.

Collective ownership policies:

It seeks that both infrastructure and digital media are owned by all members of the community assembly, there are no sole or private owners, it seeks to structure an organization of common goods, where self-organization requires a strong capacity for collective action and self-managed, the absence of individual property and its replacement to a collective property, does not imply a free access or lack of regulation since the common goods can be managed effectively. Ostrom shows how various societies have developed institutional mechanisms, formal or informal, legal or rooted in customs, that efficiently manage the commons and prevent their collapse.

1. All members of the community assembly are equal owners of the tangible and intangible goods generated by the Mass, i.e. the

Acquired infrastructure, digital services, and knowledge generation are equally owned by each active participant in the community network.

2. All members of the community assembly must be participants in the activities proposed in this same assembly, in addition to sharing the assets, the obligations arising from the operation, expansion and equitable distribution of the operation, expansion and distribution must be shared and distributed equitably. repair of this community network.
3. Those members who fail to comply with the statutes and obligations established in the community network, will be excluded from it, since as it is framed in the book Governance of the Commons of Ostrom, the separation of an individual from the administration of common property is possible.
4. Through the steering committee of the community assembly, the necessary financing for the operation, repair, expansion or updating of the community network must be planned.
5. Based on the funding established by the steering committee of the community assembly, the necessary mechanisms will be evaluated to consolidate the self-management and financing necessary for this community network.
6. The goods acquired by the Community Assembly shall be recognizable as collective goods, regardless of the system of property rights in which these goods are located.

Management policies and social operation:

The network will be administered and managed by the same members of the community assembly, there will be no people who command or dominate this community network, but decisions are made among all the members of the community network, and each member has equal value in terms of thoughts, opinions and must contribute equitably to the achievement of the objectives of the community network.

1. All members of the community assembly must be an active part of the mechanisms of operation and management for the acquisition of resources with which the community network will be worked.
2. An activity register must be made, in which the activities carried out and to be developed are reflected, framed in the financial planning of the Community network.
3. Keep the calendar of activities, maintenance and operation of the community data network.
4. Meetings of the community assembly should be held in which proposals for improvement are presented and the fulfillment of the objectives established by the community assembly is verified.
5. The Community assembly must guarantee that the

Community network worked without any profit-making purpose, only the expenses that the Community network itself generated must be remedied, without seeking benefits from extra economic income.

6. All members of the Community network will have the same benefits and responsibilities within the Community network, all will have the same possibilities of increasing Community nodes, same navigation speed, and will be subject to comply with the obligations typical of the community network.
7. Anyone interested in joining the community assembly, extending the community network, or creating a new community network may do so.

Operation of the Community network:

The community network must work under principles of free commons, which seeks that all services are under an open license, are the pursuit of individual economic benefits.

1. The technical manager of the community network will be the one who manages this network from a technical perspective, and provides support to said network in case of failures or requests for growth of nodes within the community network.
2. The design of the community network will be with an accessible architecture, all the information on how the network works, configurations and policies will be public and will be available to all who require this information, within the community network, or for communities wishing to create their own community network.
3. Unrestricted transit must be allowed to receive and offer any type of services and content, as long as it does not affect the proper functioning of the network. That is, the flow of data through the network is not conditioned.
4. Data traffic will be gestionan egalitarian basis, without discriminating against it according to the content, platform, application or type of equipment used for access. Data flows within the network are not arbitrarily hierarchized or modified.
5. The interconnection between networks will be guaranteed, being the flow of data free, neutral and free in both directions, reciprocally.
6. Two networks that maintain a free transit agreement will not only allow data traffic between them, but also traffic that goes to other networks with which they have similar agreements. The data can then traverse one free network to reach another, expanding the reach of that "network of free networks."

VI. DISCUSSION, CONCLUSION AND RECOMMENDATIONS

It is considered necessary to monitor and evaluate for a convenient time the operation of the network under the proposed governance, this because in the first instance it is the first community data network implemented in these

communities, and in the second instance and derived from the above, is the first proposal for a governance that allows to achieve the efficient and correct administration of the network itself and under the scheme that is expected to be sustainable by the community same.

If you really want to direct efforts to close the digital divide, national projects such as community data networks governed under communal governance is a extremely viable alternative to pay for this objective, since if the main objective is met, which is that the network is sustainable in the long term by the community itself, it would not represent any expense for it, but quite the opposite for the benefit of providing a priority service such as the internet through the network community data. This is a project initially oriented to a small cove, and as mentioned above, it is initially focused to be implemented in communities such as San Marcos and Zaragoza, both localities of the municipality of San Pedro de las Colonias, Coahuila, however the main idea that there are behind a community data network is that as the success of operation of the initial nodes, these are connected to other nodes and in this way benefiting more and more communities that have needs of this type.

VII. AGRADECIMIENTOS

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VIII. APÉNDICES

Principles defined by Ostrom as requirements for a sustainable CPR:

1. Clearly defined boundaries
2. Rules for the use and provision of common resources adapted to local conditions
3. Collective agreements that allow users to participate in decision-making processes
4. Effective follow-up by controllers who are part of and respond to the community.
5. Penalties provided for users who do not respect community guidelines

6. Conflict resolution mechanisms that are cheap and easily accessible
7. Self-determination of the community recognized by external authorities
8. For larger CPRs, organization with several layers of nested initiatives, with small local CPRs at the base. Ostrom, Vincent (2008). The Political Theory of a Compound Republic: Designing the American Experiment. Lanham: Lexington Books.

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