Methodology for Oversight of Digital Inclusion Programs with a Focus on the Independent Evaluation of their Results

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ABSTRACT

This paper presents a tool for evaluation of government actions and programs for digital inclusion, in order to enable independent verification of the quality of their design. It also seeks to demonstrate whether such State action tools were built with objective criteria and well-established foundations. Furthermore, it produces a document that may be used broadly by any entity interested in evaluating a digital inclusion program. Thus, by applying this model to various digital inclusion actions over time, it will be possible to establish a comparison of the actions and programs developed. This will contribute directly to the identification of good practices and to decision-making processes concerning the definition of a more effective strategy to achieve the objectives of digital inclusion public policies.

Keywords: Digital Inclusion. Public Policy Design. Public Policies Evaluation. Infrastructure. Digital Content. Digital Literacy. Management. Sustainable Development Goals. Sustainability.

1. INTRODUCTION

It took 30 years for radio to reach 30 million listeners. Television took 15 years to attract the same number of viewers. The web, in just ten years, reached 600 million users (KESTENBAUM, 2008). In May 2015, the International Telecommunications Union (ITU) announced that the internet had reached the milestone of 3.2 billion connected users. It has become clear that the growth of the internet is a reflex of a unique social and economic phenomenon that needs to be studied in its most diverse dimensions.

At the same time, one should not forget that such fast and sudden movement brought on the emergence of a new excluded social class: the digital one. This class corresponds to millions of people who have never used the internet or even a computer, and thus, stay away from new job opportunities, new cultural content, as well as new forms of exercising their own citizenship. In Brazil, according to research carried out by the Brazilian Internet Steering Committee (CGI.br) in 2014, about 50% of the population do not have access to the internet. According to ITU this figure totals billion people worldwide.

Given this reality, it is natural that the national states develop new public policies that can directly contribute to the economic, cultural and social development of the population, in particular by encouraging the use of Information Communications Technologies (ICTs) and by seeking digital inclusion of people.

At government level, a model for monitoring the results achieved and for constant reevaluation of the actions taken should be set up. In addition, institutions external to government, such as the Supreme Audit Institutions, may play an important role in the oversight of the regularity and effectiveness of governmental programs, assuring accountability to society regarding the application of the resources allocated to the expansion of digital inclusion, as well as the formulation of its strategy.

Noteworthy is the importance given to this issue by the United Nations (UN) itself, which during a meeting held on December 16, 2015, stated that the member countries were committed to the use of ICT as an essential tool to achieve the targets of the Sustainable Development Goals (SDGs). The UN believes that the digital inclusion public policies are the foundation of the objectives of the 2030 Agenda for Sustainable Development, and therefore, should be treated as a priority by national governments. As a result, it inserted in goal nine – Innovation and Infrastructure – the third sub item: "Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020" (UNITED NATIONS ORGANIZATION, 2012).

Therefore, the aim of this paper is to present a tool capable of evaluating the effectiveness of the digital inclusion actions – whether they were built with objective criteria and well-established foundations – and that can be broadly used by any independent oversight entity interested in carrying out an evaluation of the policy or program for digital inclusion.

2. METHODOLOGY USED TO DEVELOP THE EVALUATION TOOL

To develop the present study, we used as guiding elements the provisions related to the performance auditing techniques, applied within the scope of the Federal Court of Accounts (TCU, 2010). Specially those based mainly on the international standards of the International Organization of Supreme Audit Institutions (INTOSAI) and on the Basic Governance Reference Guide for the Evaluation of Public Policies (TCU, 2014), a tool employed by TCU to evaluate government public policies.

We also used the Report of Digital Inclusion Policies Survey designed by TCU (2015). This report defines, from the perspective of a Supreme Audit Institution in charge of overseeing the regularity and effectiveness of public policies implementation, the basic strategies for the deve-

lopment of the government actions and programs for digital inclusion. One should highlight that, in order to define the mentioned basic premises, this survey used as an anchor the Digital Inclusion Strategy developed by the UK government (UNITED KINGDOM, 2014). The proposed evaluation model sought to be broad, taking into account the necessary strategies to establish a digital inclusion policy, including the aspects related to public policy, infrastructure, digital literacy and content management. This model was developed in independent modules to allow for adjustments when one or more aspects are not addressed in the concrete case.

As for the hypothesis, it was has been established that the effectiveness of any action and public policy necessarily depends on good planning. In this context, the formulation phase should follow at least some essential requirements to ensure effectiveness or, at best, efficiency of the defined actions. According to Stoner (in TYSZLER; BARBERO, 2003), without planning, managers cannot efficiently organize people, control results or even run, in general, an institution. In the same way, Chiavenato states that

> Planning is the first administrative function because it is the basis for the other functions. [...] predetermines what goals should be achieved and what to do to reach them. [...] it starts by determining the goals and specifies the necessary plans to achieve them as best as possible. (CHIAVENATO, 2000. p.126).

Therefore, the success of an action intrinsically depends on good design and planning. Thus, the evaluation tool included as object of analysis the minimum necessary requirements for good planning, since the hypothesis establishes that without adequate design, the actions and programs for digital inclusion will not be effective.

3. STRATEGIES FOR DIGITAL INCLUSION

The actions to reduce the digital divide only prove effective when the technological means, usability resources, support tools, institutional and social support, as well as the skills and qualifications are provided to the digitally excluded,

so that they can overcome all kinds of barriers and, then, tread their path towards the participatory center of the information society (ÁVILA; HOLANDA, 2006)

In the same vein, within a broader view of digital inclusion, Bonilla (2001) states that "inclusion [...] means that those included are able to participate, question, produce, decide, transform, and are part of the social dynamics in all instances".

Based on this more comprehensive framework, digital exclusion should be regarded as a relative condition, which changes over time, is affected by several factors and, therefore, does not refer to the dichotomous notion of being excluded or not. Rather it refers to a notion of gradation resulting from a series of barriers to equitable access: infrastructure deficiencies; educational needs; low income; inadequate content; behavior barriers; in addition to physical, sensory and motor disabilities.

As a result, given the relevance of the ICTs in economy and in everyday life, it is a duty of the modern State, which seeks economic and social progress and the reduction of inequalities, to guarantee access to them.

For that reason, based on the sources previously mentioned, mainly the Digital Inclusion Strategy developed by the UK government, one could presume that the public policy for digital inclusion should be based on three basic strategies:

1. Promotion of literacy of individuals for the use of the ICTs;

2. Infrastructure to guarantee accessibility; and

3. Adequate content according to users' needs;

In addition, the managers in charge of public policies should be concerned about the four main challenges faced by the digitally excluded citizen:

1. **Access** – refers to the ability to be actually online and to connect to the internet. Access relates to several factors, such as price policies, overall population household income and infrastructure limitations.

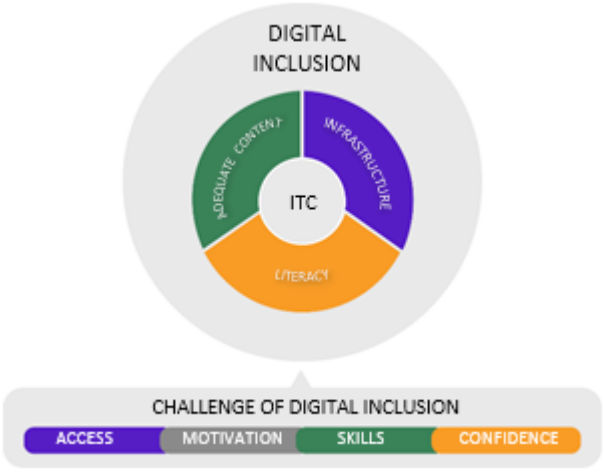
2. **Skills** – related to the aspects of the individuals' training and competence, but that goes beyond the simple specific competence to use the ICTs. It includes issues such as the population educational level, which affects their ability to use information and communication technologies.

3. **Motivation** – related to the dimensions of literacy and content. This challenge refers to the individual's motivation to use ICTs, in other words, the person being aware of the benefits and potentiality of such new technologies for their personal development.

4. **Trust** – obstacle that refers to the aspects of information security – for example, fear of having personal data and information violated – including even psychological issues – such as fear of making mistakes, of not knowing how to begin or of their individual inabilities.

Below there is a graphic representation of the basic structure for the success of the digital inclusion public policy.

Figure 1:
Strategies for a digital inclusion public policy



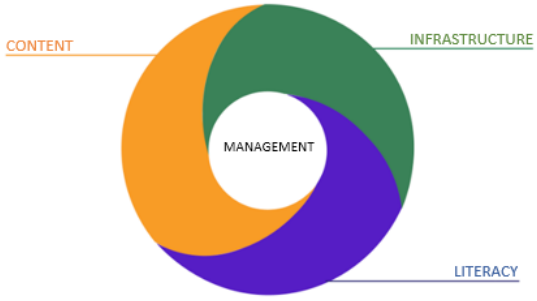
Source: Designed by the authors of the article

In addition to the three strategies previously mentioned, one should not forget the aspects related to the management of actions and programs aimed at the digital inclusion of people. In this regard, it is important to consider the PDCA cycle (DAYCHOUM, 2016), an essential management tool, which focuses on promoting the continuous improvement of the work processes by means of a four-step model: plan, do, check and act.

The aim is to highlight management as the "mastermind" of public policy. A management system that is unable to establish a certain level of monitoring and coordination of the necessary strategies for development of the digital inclu-

sion policy will not achieve the desired goals. Below we see a diagram representing the basic premises to be followed when developing the evaluation tools.

Figure 2:
Basic premises for the evaluation tool



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4. EVALUATION TOOL

In light of the premises and strategies presented, the conclusion is that a good evaluation tool - which should be able to determine whether the evaluated policy is in line with the above-mentioned arguments - must contain four basic dimensions. 1) infrastructure that ensures access availability; 2) promotion of literacy of individuals to use ICTs; 3) adequate content according to users' needs; and 4) management.

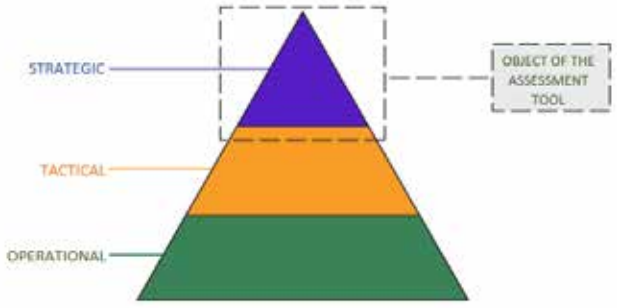
It is worth stressing that the model developed should include the strategic and marginally tactical levels of the actions and programs, not covering the operational level, given that the specificity would not allow for comparison among the various actions and programs.

The four basic evaluation dimensions are developed below:

4.1 INFRASTRUCTURE

The first dimension to be evaluated relates to the infrastructure necessary to ensure access of the individual to the digital world. This aspect should be evaluated from a detailed analysis of the

Figure 3:
Evaluation level of the developed model



The four basic evaluation dimensions are developed below:

demand study, as well as of the existing supply study of internet services. In this respect, it is necessary to evaluate the suitability of the technology to meet supply and demand needs. Any digital inclusion action should first take into account the demand study, which will be the indicator of all the dimensions related to the success of the digital inclusion actions and programs. In summary, the items that are a part of the evaluation tool related to the "infrastructure" dimension are:

1. **Technology**: identify the selected technology to install the infrastructure.

2. **Motivation**: verify whether the choice of technology comprised technical and economic parameters.

3. **Difficulties**: verify whether a study of technical feasibility was developed taking into account the difficulties for the installation of technology, that is, whether a risk management plan was designed for the installation.

4. **Owner/ Third parties**: evaluate the concerns of the actions and programs with cost sharing and development of partnerships.

5. **Scale of operations and traffic rate**: evaluate whether the infrastructure supports the goal set by the actions and programs for digital inclusion.

6. **Technical responsibility for installation and maintenance**: evaluate the concerns with cost division, development of partnerships and economic sustainability of actions and programs.

7. **Cost**: evaluate whether the target population can absorb the estimated costs of the digital inclusion actions and programs.

8. **Access Policy**: in case the service provided is not affordable by the target population, check the existence of possible strategies to overcome difficulty of access.

9. **Devices**: identify the devices employed and evaluate the alignment between devices, content, training and purchasing power of the target audience.

10. **Communications Service Providers**: evaluate the possibility of possible partnerships.

Infrastructure is the essential dimension to effectively ensure implementation of digital inclusion public policies.

4.2 LITERACY

The second dimension to be evaluated, defined as "literacy of the individual", seeks to understand how the actions and programs of digital inclusion tackle the issues related to whether the user's capability is within the available technological resources.

Acknowledging the individual's level of training and education to use technology is basic to define the most adequate strategy for digital inclusion. It is useless to invest on infrastructure if the user does not have the minimum capacity required to use the provided technology. The items that comprise the evaluation tool related to the "literacy" dimension are:

1. **Training**: check whether the actions and programs work directly on the target audience training. It is necessary to identify whether the action for digital inclusion estimates, in some way, the "literacy" dimension.

2. **Partnership**: check the existence of partnerships regarding the target audience training.

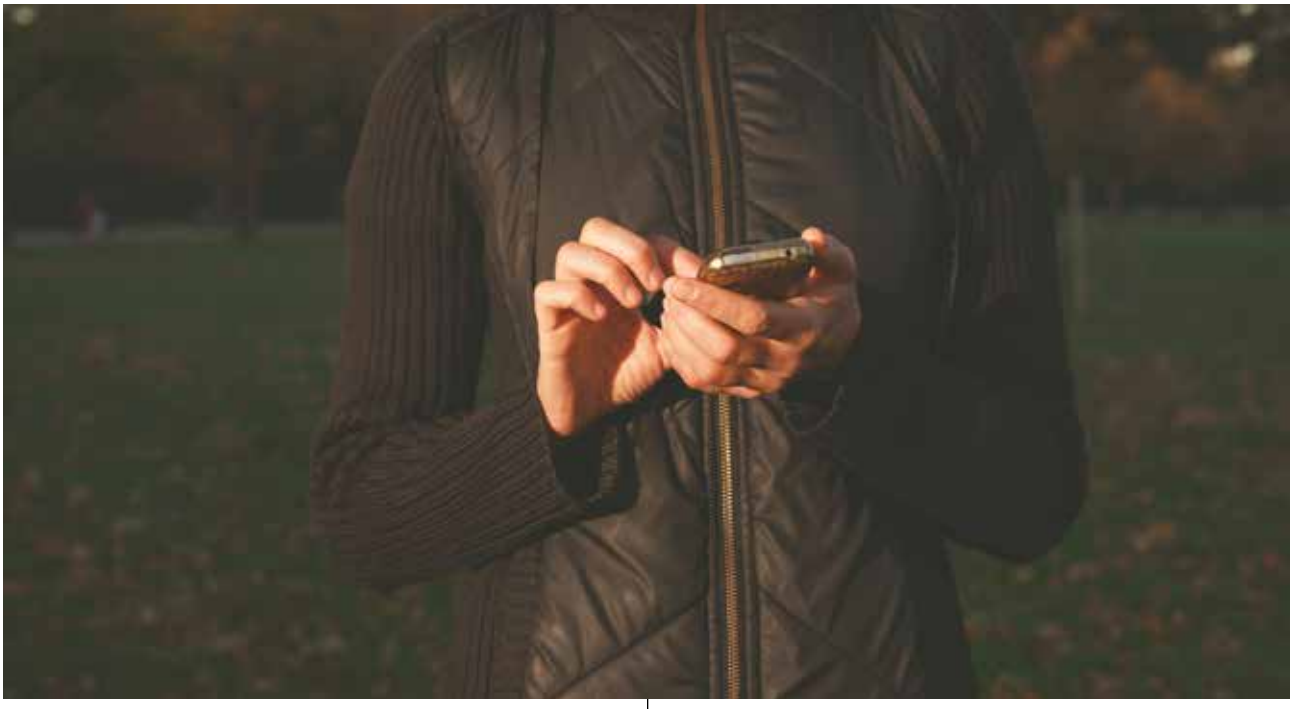
3. **Strategy**: identify what strategy actions employed in the literacy of the target audience are. For example, Community Call centers, educational seminars etc.

4. **Capability**: evaluate the capability to provide service in line with the strategy defined by the actions and programs for digital inclusion.

5. **Evaluation**: identify whether the actions and programs evaluate the selected training strategy and whether the cycle PDCA is comprehensive for the literacy dimension.

4.3 CONTENT

The third dimension to be considered in the evaluation is content that is appropriate for users' needs. This dimension should be addressed according to two perspectives: the first, related to the demand study and its needs; the second, related to the development of solutions that meet the needs of such demand. The items that constitute the evaluation tool related to the "content" dimension are:



1. **Content**: check whether the actions and programs directly affect the development of the solutions that will reach the target audience. It is necessary to identify whether the digital inclusion actions anticipate, in any way, the dimension "content".

2. **Partnership**: check for partnerships in the development of solutions that can serve the target audience of the digital inclusion action.

3. **Solution**: identify the thematic areas of the developed content and what devices were used. Evaluate the relationship between the devices used and the content developed, as well as the relationship between the solution developed and the needs identified by the demand study.

4. **Evaluation**: check whether the actions and programs evaluate the development and impact of the contents available on the target audience and whether the PDCA cycle is comprehensive for the dimension "content".

4.4 MANAGEMENT

As for management, the last dimension to be assessed, the evaluation tool seeks to identify whether the formulation of actions and programs of digital inclusion are in line with the basic aspects of government policies, for example: goals, demand, coordination, financial resources, economic sustainability and evaluation.

These aspects are fundamental to ensure that the planning of actions and programs for digital inclusion is effectively and broadly accomplished, creating a favorable environment for the achievement of the expected results. The "management" dimension, regarding formulation, will be evaluated according to the following items:

1. **Goals**: evaluate whether the goals of the actions and programs were defined in a clear, objective, and participative manner.

2. **Coordination**: identify the form of action (individualized or in partnership), as well as evaluate whether the responsibilities have properly been delegated.

3. **Financial resources**: check whether the resources needed to develop the work have

been provided and made available to carry out the actions and programs.

4. **Economic sustainability**: identify whether the digital inclusion programs and actions have developed the economic sustainability study for each estimated dimension.

5. **Demand**: identify whether the demand study for the actions and programs planning for digital inclusion has been carried out.

6. **Evaluation**: identify the portfolio of indicators and the evaluation system of actions and programs for digital inclusion, as well as the quality of the indicators used.

5. CONCLUSION

The aim of creating an evaluation tool for the formulation of actions, programs and policies for digital inclusion is to seek to correct the course of such actions before their full development occurs, as well as to help in the choice of the most appropriate action for digital inclusion.

The evaluation of actions, programs, and public policies for digital inclusion must necessarily consider the four dimensions shown. Formulating an action, program or public policy for digital inclusion without considering such actions means inefficiency in the planning and formulating process, and, hence, a waste of invested resources, especially the ones related to infrastructure.

Therefore, it is expected that the digital inclusion actions, if carried out broadly and considering the four dimensions presented, may constitute a decisive factor for the social and economic development of society, definitely contributing for the implementation and success of the SDGs listed by the UN.

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