

CENÁRIOS PROSPECTIVOS COM BASE NOS PROJETOS DE LEI PARA ACESSIBILIDADE NA WEB NO BRASIL

PROSPECTIVE SCENARIOS BASED ON LAW PROJECTS FOR WEB
ACCESSIBILITY IN BRAZIL

ESCENARIOS PROSPECTIVOS BASADOS EN PROYECTOS DE LEY PARA LA
ACCESIBILIDAD DE LA WEB EN BRASIL

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JITA: FJ. Knowledge management

Submitted on: 23/05/2018

Accepted on: 11/07/2018

Published on: 27/08/2018

RESUMO: Aborda a temática da acessibilidade e tem como objetivo elaborar cenários prospectivos para acessibilidade na web com base nos projetos de lei do Senado Federal e da Câmara dos Deputados. Apresenta um levantamento sobre as principais leis sobre acessibilidade que estão em vigor no Brasil. Para tanto, utiliza-se do método de matrizes de impacto cruzado de Gordon. Foi necessário realizar um levantamento sobre os atuais projetos de lei que estão em tramitação para embasar a projeção de cenários. Deste modo, identificou-se quatro projetos de lei que tratam da acessibilidade na web. A partir dos dados elaborados por meio do método de Gordon, foi possível desenvolver três cenários, a saber: a) pessimista – não ocorrência dos eventos previstos gerando o arquivamento ou não aprovação dos projetos em tramitação; b) realista – cenário mais provável é a ocorrência do desenvolvimento de Centros de Inclusão Digital (CID) por meio da aprovação da Lei da Câmara nº 28, de 2011; c) otimista – além do desenvolvimento do CID é possível que ocorra a implantação de programas de software nas bibliotecas públicas para uso de deficientes visuais, como também a promoção da acessibilidade aos portais públicos na web no médio prazo. Sendo assim, observa-se por meio dos cenários propostos, um panorama sobre o que pode ocorrer em relação aos projetos de lei avaliados.

PALAVRAS-CHAVE: Gestão da informação. Gestão do conhecimento. Cenários. Acesso à informação. Legislação

ABSTRACT: This paper addresses the theme of accessibility and aims to develop prospective scenarios for accessibility on the web based on the bills of the Federal Senate and the Chamber of Deputies. It presents a survey about the main accessibility laws that are in force in Brazil. For this, it was used the cross-impact matrix method of Gordon. It was necessary to carry out a survey on the current bills that are in process to support the projection of scenarios. In this way, four bills have been identified about accessibility on the web. Based on the Gordon method, it was possible to develop three scenarios: a) pessimistic - no occurrence of expected events generating the archiving or non-approval of the projects being processed; b) realistic - occurrence of the development of Digital Inclusion Centers (CID) through the approval of Law no.28, of 2011; c) optimistic - in addition to the development of the CID, it is possible to implement software programs in public libraries for the use of the visually impaired, as well as to promote accessibility to public web portals in the medium term. Thus, we can see through the proposed scenarios a panorama of what can happen without future in relation to the bills projects.

KEYWORDS: Information management. Knowledge management. Scenarios. Access to information. Legislation.

RESUMEN: Aborda la temática de la accesibilidad y tiene como objetivo elaborar escenarios prospectivos para accesibilidad en la web con base en los proyectos de ley del Senado Federal y de la Cámara de Diputados. Presenta un levantamiento sobre las principales leyes sobre accesibilidad que están en vigor en Brasil. Para ello, se utiliza el método de matrices de impacto cruzado de Gordon. Fue necesario realizar un levantamiento sobre los actuales proyectos de ley que están en tramitación para basar la proyección de escenarios. De este modo, se identificaron cuatro proyectos de ley que tratan de la accesibilidad en la web. A partir de los datos elaborados por medio del método de Gordon, fue posible desarrollar tres escenarios, a saber: a) pesimista - no ocurrencia de los eventos previstos generando el archivo o no aprobación de los proyectos en tramitación; b) realista - escenario más probable es la ocurrencia del desarrollo de Centros de Inclusión Digital (CID) por medio de la aprobación de la Ley de la Cámara nº 28, de 2011; c) optimista - además del desarrollo del CID es posible que ocurra la implantación de programas de software en las bibliotecas públicas para uso de deficientes visuales, así como la promoción de la accesibilidad a los portales públicos en la web a medio plazo. Siendo así, se observa por medio de los escenarios propuestos, un panorama sobre lo que puede ocurrir en relación a los proyectos de ley evaluados.

PALABRAS CLAVE: Gestión de la información. Gestión del conocimiento. Escenarios. Acceso a la información. Legislación.

1 INTRODUCTION

It is known that the internet is an environment that provides interaction, exchange of content, experiences and communication. Not surprising is its importance to society, especially in the post-digital era. The point that is discussed in this paper is how it would be possible to provide an accessible digital environment for all types of users. In this sense, the article addresses the theme of accessibility and aims to elaborate prospective scenarios on the topic accessibility on the web based on the bills of the Federal Senate and the Chamber of Deputies.

With the focus of Information Science, this research seeks to integrate strategic information and the prospective study of scenarios to assist in the construction of future scenarios on proposals for accessibility on the Web.

In the country, according to a survey carried out by the last IBGE Census in 2010, through the CENSO 2010 Handbook - people with disabilities (BRASIL, 2012), about 23.9% of the Brazilian population has some disability, be it physical, visual, auditory, motor, mental or intellectual. The number corresponds to more than 45 million people, mostly residents in urban areas. This part of the population has the same needs for communication, access to information, electronic commerce, and all other resources offered by digital media, like any other citizen.

For Henry (2005), bringing accessibility to the digital medium can benefit others, in addition to disabled users. This is because, through accessibility actions, older people or with a certain degree of difficulty will be favored. However, companies and organizations that act on the Web need some motivating elements to offer accessible means to this part of the population, such elements can come by forces of the own market, or by legal regulations.

To understand how this legal perspective is being organized, the following questions were elaborated: what are the current bills on accessibility on the web that are being processed by the Federal Senate and the Chamber of Deputies? What impacts can be generated through eventual approvals of these projects? What kind of scenario can we design for the next few years in relation to accessibility on the web?

Lazzarin (2014) and Guimarães (2016) agree with Henry's (2005) assumption that making a digital environment accessible is fundamental to promoting equal opportunities. The challenge is to involve the parties to act in the development of the actions, in such a way that they will understand the real needs of the disabled users. Such actions can materialize as proposals for draft laws, involve interested companies and institutions, develop technology and make it accessible to these users. Thus, one of the important "actors" in this process is the federal government through its legislative power.

It is considered a bill as "the legislative document that aims to initiate the process of creating an ordinary law or amending an existing ordinary law" (CHAMBER OF DEPUTIES, 2018). In addition, the Federal Senate (2018) defines a bill as "a set of rules that must be submitted to a legislative body for the purpose of effecting it through a law." Therefore, for the purpose of evaluating the present study, the bills in progress were used in the Federal Senate and the Chamber of Deputies.

2 LEGISLATION ON ACCESSIBILITY

In order to deal with the accessibility laws, it is necessary to use the first international framework that originated other discussions on the subject. On December 10, 1948, a General Assembly of the United Nations took place, where the Universal Declaration of Human Rights was proclaimed. From this, resolution 217 A (III) sought to provide equality for all peoples and nations. There are 30 articles that recognize human rights, according to the UN document (1948) "... as the common ideal to be achieved by all peoples and all nations."

From this statement came the validation of the understanding that all human beings deserve to be treated equally. Since then, one of the alternatives to pursue this objective, besides aspects such as education and awareness of people, is to propose laws that provide equal opportunities.

2.1 International Legislation

It is well known that most countries have the autonomy to draft and approve their own laws. It is highlighted in this section only the main international conventions dealing with accessibility, as well as UN resolutions and some international declarations. Chart 1 summarizes the international conventions dealing with accessibility.

Chart 1. International Conventions on Accessibility

International Conventions	Year	Main points
Convention OIT 111	1958	Wage discrimination and admission criteria for workers with disabilities.
Convention OIT 159	1983	Refers to the professional rehabilitation and employment of people with disabilities.
Convention OIT 168	1988	Seeks to promote employment and ensure protection against the unemployment of persons with disabilities.
Convention on the rights of the child	1989	Care for children with disabilities.
Guatemala Convention	1999	Seeks to eliminate all forms of discrimination against

		persons with disabilities.
Convenção sobre os Direitos das Pessoas com Deficiência	2009	Aims to promote, protect and ensure the full and equal enjoyment of all human rights and fundamental freedoms by all persons with disabilities.

Source: Adapted from FADERS (2018)

Among the conventions presented in Table 1, one of the most important was the Convention on the Rights of Persons with Disabilities held in 2009. Another important milestone was the implementation of the Guatemala Convention, which defined the forms of discrimination in relation to the disabled. Both Conventions were relevant to Brazil, as they became Law Decrees, detailed in the following section.

Chart 2. ONU resolutions on accessibility.

Resolutions	Year	Main points
Resolution ONU 2.896	1971	Deals with the rights to medical care and medical treatment required of the mentally disabled.
Resolution ONU 3.447	1975	Deals with the Declaration of the Rights of Persons with Disabilities.
Resolution ONU 37/52	1982	Establishes guidelines for national, international, research and control actions in the evaluation of the World Program of Action for the Disabled.
Resolution ONU 45/91	1990	Addresses the implementation of the World Program of Action for the Disabled and the United Nations Decade of Disabled Persons.
Resolution ONU 46	1991	Addresses the implementation of the World Program of Action for the Disabled and the United Nations Decade of Disabled Persons.
Resolution ONU 47/3	1992	Special Plenary Session on Disability, adopted by the UN General Assembly on 3 December as the International Day of Disabled People.
Resolution ONU 48/96	1993	Addresses standards on the Equalization of Opportunities for Persons with Disabilities.

Source: Adapted from FADERS (2018)

Chart 2 summarizes the main UN resolutions from 1971 to 1993. These resolutions are important because they denote the first international efforts for social inclusion. From basic needs such as health, addressed in UN Resolution 2,896, to the equalization of work opportunities for people with disabilities, as described in UN Resolution 48/96.

International discussions have awakened the need to create specific laws, adapted to the reality of each country. In Brazil, specifically, the regulation is started by law in the late 1980s.

2.2 Current legislation in Brazil

In Brazilian legislation there are standards that address hearing, visual, motor or mental deficiencies. The Brazilian government actions of integration and social insertion policies for the disabled are based on Law No. 7,853 of October 23, 1989 (BRAZIL, 1989), which regulates important aspects to support people with disabilities, their social integration and defines the role of the Coordination (CORDE) and Decree No. 3.298 of December 20, 1999, which consolidates the protection norms related to the National Policy for the Integration of Persons with Disabilities (BRASIL, 1989; BRASIL, 1999).

Before that, however, the 1988 Federal Constitution itself addresses specific issues of accessibility as described in Article 24, XIV, which states: "It is the duty of the Union, the States, and the Federal District to legislate concurrently on: [...] protection and social integration of people with disabilities "(BRAZIL, 1988, online).

Article 55 of Decree 3,298 / 99 describes aspects related to the collection of information about the disabled and the relevance of conducting research that benefits these citizens. Thus, Decree nº 3.298 (BRASIL, 1999, *online*) determines:

Chapter X

From the Integrated Information System

Article 55. The National Disability Information System, under the responsibility of CORDE, is hereby established within the Ministry of Justice's Human Rights Department for the purpose of creating and maintaining databases, gathering and disseminating information on the situation of people with disabilities and to encourage research and study of all aspects affecting their lives.

Since the 2000s, with the beginning of the popularization of information and communication technologies (ICTs), Law 10.0 98/00 has been sanctioned which deals with aspects related to the responsibility of the Public Power to act in the elimination of any communication barriers and information. Article 17 of Law 10.0 98 (Brazil, 2000, online) clarifies:

Art. 17. The Government will promote the elimination of communication barriers and establish mechanisms and technical alternatives that make communication and signaling systems accessible to people with sensory disabilities and communication difficulties, to guarantee them the right of access to information, communication , work, education, transport, culture, sport and leisure.

Access to information and communication, including information and communication technologies, is a major commitment from the federal government's responsibility to identify and eliminate access barriers. Among the main actions that can be carried out by the federal government, we highlight the work together with the legislature with the objective of approving laws that guarantee accessibility in digital information environments. With regard to the websites of public authorities, Decree No. 5,296 (BRASIL, 2004, online), which speaks of:

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ACCESS TO INFORMATION AND COMMUNICATION

Art. 47. Within a period of up to twelve months from the date of publication of this Decree, accessibility in the portals and electronic websites of the public administration in the world computer network, for the use of persons with visual impairment, ensuring full access to the available information.

In December 2006, the Convention on the Rights of Persons with Disabilities was adopted. Two years after the event, the National Congress approved the text of the Convention and its optional protocol in 2008 - Legislative Decree No. 186, considered a milestone for guaranteeing social rights and social equality for the disabled. The purpose of the Convention, according to the Brazilian Law of Disabled Persons (BRASIL, 2009, online) was "to promote, protect and ensure the full and equitable exercise of all human rights and fundamental freedoms by all persons with disabilities and to promote respect for their inherent dignity." In August 2009, Decree No. 6949/09 was signed, promulgating the International Convention on the Rights of Persons with Disabilities (CDPD) in Brazil.

The text approved by the CDPD has approved 50 articles related to the most worrying issues and that present greater difficulties to the disabled, such as education, health, recreation, leisure, sports, work, employment, housing, international cooperation treaties, among others. With regard to accessibility, article 9 of the CDPD (BRASIL, 2009, online) highlights:

[...] the States-Parts shall take appropriate measures to ensure that persons with disabilities have access, on an equal basis with others, to the physical environment, transportation, information and communication, including information and communication systems and technologies, and to other services and facilities open to the public or for public use, both in urban and rural areas. These measures, which will include the identification and elimination of obstacles and barriers to accessibility, will apply, inter alia to:

The. Buildings, roads, means of transportation and other internal and external facilities, including schools, residences, medical facilities and workplaces;

B. Information, communications and other services, including electronic services and emergency services.

According to Cousin (2010), the rights established by law are extended to the population regardless of whether they have a disability or not, as they contribute to the evolution of the internet and promotion of equality of opportunities.

Recently, on July 6, 2015, the Brazilian Law on the Inclusion of People with Disabilities - LBI - Law no. 13,146 (BRAZIL, 2015, online) was sanctioned. It contains 127 articles that are divided into three chapters. The law was created to "ensure and promote, under conditions of equality, the exercise of fundamental rights and freedoms by persons with disabilities, with a view to their social inclusion and citizenship." Chapter II was designed to deal with access to information and communication. Article 63 of the LBI (BRAZIL, 2015, online), reports:

Accessibility is mandatory on websites maintained by companies with headquarters or commercial representation in the country or by government agencies for the use of the disabled person, ensuring access to the information available, in accordance with best practices and accessibility guidelines adopted internationally.

For Guimarães (2016) it is the duty of the legislature to draft bills and decrees regulating international standards of accessibility. The purpose would be to promote access to Brazilian websites with the purpose of eliminating information barriers that make it impossible for users to interact.

Based on the survey carried out on the legislation in force in Brazil, it is possible to understand that the country advances, even in slow steps, to propose accessible digital information environments. In any case, laws must be applied, because current legislation remains silent on relevant points and for this reason may not generate the benefits expected or even proposed by law.

3 PROSPECTIVE SCENARIOS AND THE USE OF CROSSED IMPACT MATRICES

Scenario planning is commonly used by companies. Organizations seek to understand the complex variables that influence them and the speed of changes that impact their actions. For Moritz and Pereira (2005), organizations are facing a number of threats, mainly related to technological innovations and require prospective scenarios to identify the dynamic forces that will prevail in the coming years. In Information Science, Santos (2017, p.18) presents a summary of the works that used the methodologies of prospective scenarios published in Brazil. The author indicates that such works are mainly related to strategic information management.

Nevertheless, the use of prospective scenarios can be applied to the understanding of the reality about accessibility on the web in Brazil. Observing the bills that are in process and creating scenarios can be useful for the deployment of actions and strategies adopted by all involved in the social and digital inclusion of people with disabilities.

Since the founding of the web, one of the main intentions has always been to make it universal, that is, to allow the internet to be used by anyone, regardless of the barriers

imposed (ALEXANDER, 2003). In this sense, institutes and agencies strive to devise actions that provide an accessible digital environment.

The focus of the article is not to focus on the definitions of accessibility on the web, but to understand how the elaboration of scenarios can help in understanding which laws can generate positive or negative impacts on the daily life of the disabled citizens in Brazil.

Godet and Durance (2011, 28) affirm that a scenario is "a set formed by the description of a future situation and the chain of events that allow us to move from the situation of origin to the future situation." For the authors, it should not be confused with the elaboration of scenarios as a set of hypotheses, it is necessary to adopt the following conditions, simultaneously: pertinence, coherence, likelihood, importance and transparency.

Santos et al. (2004) report that the following benefits of scenarios for science, technology and innovation can be expected: (a) promotion of common channels and languages for the circulation of strategic information and knowledge for innovation; (b) more anticipatory intelligence inserted in the decision-making process in science, technology and innovation; (c) increasing incorporation of future visions into the thinking of social actors involved in decision-making and networking; (d) support for R & D priorities, risk management of technological innovations, improvement of the technological competitiveness of products, processes and services. Based on this description, Table 3 presents the main benefits of exploring scenarios applied to web accessibility.

Chart 3. Main benefits of exploring scenarios for web accessibility in Brazil

Social and digital inclusion:	Promote, elaborate or develop public policies to provide social and digital inclusion in Brazil.
Users:	Understand the future needs of disabled users regarding web usage.
Organizations / Companies:	Support decisions regarding the establishment of new businesses or enterprises that meet the needs of people with disabilities on the web.
Institutions of development:	Assist institutions engaged in the development of actions to minimize web accessibility barriers.
Society:	Understand the visions of the future that impact the thinking of the social actors involved.

Source: Elaborated by the authors (2018)

The projection of scenarios, as explained by Lira, Araújo and Duarte (2017), can be elaborated based on different methods and approaches. The authors highlight Porter's five-force model, a model of scenario analysis proposed by Lee et al. (2015), the delphi method, and, finally, the method proposed by Godet (2006).

In addition to the mentioned methods, there is the Matrix Analysis of Cross Impacts for scenario projection. This method was elaborated in 1966 by Theodore Gordon and Olaf Helmer. It is based on the concept that the occurrence of a particular phenomenon, event or action can affect the probability of occurrence of a set of other phenomena, events, or actions. For this, it is recommended the definition of the interactions (main variables) and their due intensities (possibilities of occurrence). From then on, software is used to assist in the analysis of possible combinations and frequency of occurrence, so that the scenarios can be generated (KAMIMURA, 1994).

Santos (2011) reports that this method interrelates all tendencies to a question of study. This established interrelationship can be measured by means of a matrix model by assigning numerical values. Gordon (1999) details the steps of the proposed method, as presented in Chart 4:

Chart 4. Steps of Gordon's Cross Impact Method (1999)

Step:	Description:
(1) To define the study events	Essential step to achieve the expected result. It is recommended to define only the essential and most relevant events (between 10 and 40 events). Cross-impact analysis is simplified when events are independent.
(2) To calculate the initial probability of each event	Initially, the probability of each event is specified separately, assuming that the other events do not occur. Cross-impact analysis is used to adjust the initial probabilities with the influences of other events.
(3) To estimate the conditional probabilities	The impacts are estimated based on the following question: if an event "x" happens, what is the new probability of occurrence of event "y"? A software can be used to calculate the estimation of probabilities and the elaboration of the cross-impact matrix.

Source: Adapted from Gordon (1999)

Wright, Silva and Spers (2010) comment that to elaborate a projection of scenarios it is necessary that the apothecary takes into account the forces that act on its object of study. In this way, it is fundamental to understand the restrictive and propulsive forces that act on the identified variables, besides considering the natural and social limits that can evolve in the horizon of time under analysis. Obviously, the cross impact matrix method, like the others, has both advantages and disadvantages. The methodology focuses, as Gordon (1999) states, on the causal relationship and depending on the data collection can be quite exhaustive due to the extension of the number of events. The cross-impact matrix method was chosen for this work because it has the necessary instruments to meet the proposed objective and was the one that best suited the source of information used.

4 METHODOLOGICAL PROCEDURES

The research was qualitative and descriptive. For Minayo (2009), a qualitative research seeks to answer very particular aspects of a certain reality. In this sense, the present study sought to deepen in the bills on accessibility in the web that are in process in the legislative power. According to Neves and Domingues (2007), in qualitative research, the researcher approaches his object of study, allowing a better detailing of his results. It is characterized as a descriptive research, because it was sought to report the three possible scenarios (pessimistic, realistic and optimistic), describing their possibilities of occurrence. Gil (2008, p. 28) states that "research of this type has as its primary objective the description of the characteristics of a given population or phenomenon or establishment of relations between variables".

The elaboration of prospective scenarios for web accessibility in Brazil was based on Gordon's cross-impact model (1999). To observe the steps proposed by the method, it was necessary to carry out a survey of the current bills that are being processed in the Federal Senate and the Chamber of Deputies.

In this way, a collection was done with the use of search filters. The data were collected on January 23, 2018, through the Federal Senate portal (<http://www25.senado.leg.br/web/atividade/materias>), through the advanced search. We used the search filters "in process", and the use of the keyword "accessibility". In this way, 17 bills were drafted in the Federal Senate and 5 bills under the Deputy Chamber, as illustrated by Chart 5.

Chart 5. Accessibility Bills (in progress)

Bill	Senate Bill (SB)	Deputy Chamber Bill (DCB)
They deal with Accessibility as a whole (public transport, parking, etc)	15 bills in progress	3 bills in progress
Web accessibility	2 bills in progress	2 bills in progress

Source: Elaborated by the authors (2018), based on information from the Federal Senate.

From the result, a verification was performed, through the reading of each project with the purpose of identifying those that would be related only with accessibility in the web. As a result, 4 bills were pending in the Senate and the Chamber, two in each Legislative body. Table 6 describes the main information about SB and DCB.

Chart 6. Breakdown of draft legislation on accessibility on the web

	Filed	Authorship	Summary	Explanation of the summary
Senate Bill n° 138, of 2014	23/04/2014	Senator Ciro Nogueira (PP/PI)	Provides for the implementation of software programs in public libraries for the use of the visually impaired.	Public libraries, in municipalities with more than fifty thousand inhabitants, should facilitate the access of the visually impaired to their computers, through the implementation of software programs for this purpose.
Senate Bill n° 278, of 2012	17/07/2012	Senator Pedro Taques (PDT/MT)	Amends Law 10,098, of December 19, 2000, to provide for accessibility in the customer service for the visually impaired and hearing impaired in financial institutions.	Adds articles 19-A and 19-B to Law 10,098/00 (which establishes general norms and basic criteria for promoting the accessibility of persons with disabilities or with reduced mobility), to provide that financial institutions and card operators should provide customer service to the consumer accessible to the visually or hearing impaired persons, being able to use the internet, with online attendance, and the registration of people of confidence of the user, to represent him in case of emergency in the consultations by means of 0800 (free) telephones. shall take effect one hundred and twenty days after its publication.
Deputy chamber bill n° 106, of 2012	08/11/2012	Committee on Participative Legislation	Changes the arts. 2 and 17 of Law 10,098, of December 19, 2000, which provides for the accessibility of persons with disabilities or with reduced mobility, to add accessibility to public Internet portals.	Amends Law 10,098, of December 19, 2000, which provides for the accessibility of persons with disabilities or with reduced mobility, to add accessibility to public internet portals; establishes that public authorities will promote the elimination of communication barriers and establish technical mechanisms and alternatives that make communication and signaling systems, public and public interest portals on the Internet, people with sensory disabilities or communication difficulties accessible, to guarantee them the right of access to information, communication, work, education, transport, culture, sport and leisure.
Deputy chambre bill n° 28, of 2011	28/04/2011	Federal Deputy Vieira Reis (no party/RJ)	Declares the Digital Inclusion Centers - CID (Lan Houses) as a multipurpose entity of special interest for the purposes of digital inclusion and other measures.	Declares the CID (Digital Inclusion Centers/Lan Houses) as being of special social interest for the universalization of access to the global computer network in order to guarantee the exercise of citizenship and also attributes them to the characteristics of entities providing multipurpose services; defines Digital Inclusion Centers

Source: Elaborated by the authors (2018), based on information from the Federal Senate.

It is important to note that the oldest project in process is dated 2011 and the most recent one in 2014. Note that after this date, there were no projects related to accessibility on the web in legislative houses. The projects address different themes, with different proposals, but with relevance and impact at the national level.

From the methodological point of view, the first step of Gordon's model (1999) was elaborated from the four bills analyzed, taking into account the criteria of time of process in the congress, level of processing, number of process and last process date of the proceedings.

The second step proposed by Gordon (1999) was elaborated based on the same criteria, emphasizing that the initial probability should be estimated by analyzing the occurrence in the short term, ie the possibility of the bill being approved in 2018. In addition , the probability is estimated separately, assuming that the other events do not occur.

Finally, the third and last stage took into account the causal relations between events, that is, if an event "x" happens, what is the new probability of occurrence of event "y". Thus, to calculate the conditional probability matrix, we used mathematical calculations of probability estimation using Microsoft Excel software. The estimation occurred taking into account, if the event "x" happens, the impact on event "y" will be: "no impact", "low impact", "medium impact" and "high impact". These relations of impact between events are fundamental for the elaboration of the matrix analyzed in the next section.

4 ELABORATION OF THE SCENARIOS

The projection was made using the methodology proposed by Gordon (1999), respecting the three stages of the model. Step (a): definition of the events of the study was carried out based on the four bills detailed in Tables 6 and 7, namely: (a) implementation of software programs in public libraries for use by the visually impaired; (b) institution of customer service directed to the visually and hearing impaired person in financial institutions; (c) promotion of accessibility to public web portals; and (d) the development of Digital Inclusion Centers (CID). Table 7 presents more information on SN and DCB.

Chart 7. Information on accessibility bills on the web

Bill	Processing time in Congress	Proceeding	Nº process proceedings	Last day of progress
Senate Bill nº 138, of 2014	3 years and 5 months	Project is on the Commission on Human Rights and Participatory Legislation (Matters with the Rapporteur)	20 proceedings	11/05/2017
Senate Bill nº 278, of 2012	5 years and six months	Project is in the Commission of Constitution, Justice and Citizenship (Matter with the Rapporteur)	44 proceedings	19/06/2015
Deputy chamber bill nº 106, of 2012	5 years and 2 months	Committee on Constitution, Justice and Citizenship (Awaiting appointment of the Rapporteur)	35 proceedings	20/08/2015
Deputy chambre bill nº 28, of 2011	6 years and 9 months	Ready for deliberation of the Plenary of the Federal Senate (Waiting for inclusion in the	46 proceedings	28/08/2017

		Order of the day)		
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Source: Elaborated by the authors (2018), based on information from the Federal Senate.

From the information presented in Chart 7, it was possible to determine the initial probability of occurrence of each event. In order to base the initial probability, step "two" of the Gordon (1999) model, it was necessary to understand the processing time of each project, as well as the level of the project, besides the process number and its last date of progress. Event one obtained the initial probability index for 2018 of 20%, that is, 0.2. Event two and three received 10% probability, and finally, event four is the most likely to occur, as shown in Table 1.

Table. Initial probability of occurrence of events in 2018

Event	Initial probability for 2018
1. Implementation of software programs in public libraries for the use of the visually impaired.	0,2
2. Institution of SAC directed to the visually and hearing impaired person in financial institutions.	0,1
3. Promotion of accessibility to public web portals.	0,1
4. Development of Digital Inclusion Centers (CID).	0,4

Source: Elaborated by the authors (2018)

Event one refers to the implementation of software programs in libraries for the use of the visually impaired and is based on Senate Bill 138, of 2014. The initial probability of 20% takes into account that the project has a defined referendary, has been through 20 proceedings, the last in 2017. Events two and three have a 10% initial probability justified by their last proceedings in 2015. Event four, the development of Digital Inclusion Centers (CID), has the highest initial probability, obtaining a 40% chance of being approved in 2018. The index is based on the premise that the project has already gone through all the proceedings, has been under discussion since 2011 and is ready for deliberation of the Plenary of the Federal Senate, waiting only to be included in the Agenda.

Step three attempts to estimate the conditional probabilities by means of a cross-impact matrix. It was elaborated taking into account the following premise: if an event "x" occurs, what is the new probability of occurrence of event "y"? In addition, it was necessary to use mathematical formulas of probability to perform the calculations. The formulas were adapted to Microsoft Excel 2013 and applied with the purpose of elaborating the matrix, considering the criteria presented in the methodological procedures. Table 2 presents the cross-impact matrix elaborated with the conditional probabilities.

Table 2. Matrix of conditional probabilities

If this event occurs:	Initial probability for 2018	Event one	Event two	Event three	Event four
1. Implementation of software programs in public libraries for the use of the visually impaired.	0,2	-	0,1	0,25	0,5
2. Institution of customer service directed to the person with visual and auditory deficiency in the financial institutions.	0,1	0,2	-	0,1	0,4
3. Promotion of accessibility to public web portals.	0,1	0,3	0,1	-	0,5
4. Development of Digital Inclusion Centers (CID).	0,4	0,4	0,1	0,3	-

Source: Elaborated by the authors (2018)

In analyzing Table 2 it is possible to understand that if event 1 occurs it will not generate impact on event "two", but increase the probability of occurrence of event "three" and "four", respectively. Therefore, if software programs are implemented in public libraries, it will increase the possibility of approving bills that aim to promote accessibility in public portals by 15% and the implementation of digital inclusion centers by 10%.

Apparently, the event "two" will not generate interference in other events, as it has no direct relationship and specifically addresses a specific niche of performance and aims at improvements in financial institutions. On the other hand, if event "three" occurs, it will increase the probability of event "one" and event "four" occurring in 10%. Finally, what has the greatest relationship with the others is the development of Digital Inclusion Centers (CID), corresponding to event "four". This means that if it occurs, it will increase the possibility of occurrence of the others. In this case, the occurrence of event "four" increases the chance of occurrence of event "one" and "three" by 20%.

Based on the data elaborated by Gordon (1999), it was possible to develop the prospective scenarios based on the bills for web accessibility in Brazil, namely:

a) Pessimistic scenario: occurrence of the expected events. The filing of the bills that are in process may cause this scenario. Due to political instability, distinct priorities of social interests advocated by parliamentarians and other factors may lead to the possibility that none of the projects that are in process can be approved.

b) Realistic scenario: the scenario is most likely to occur in event 4, that is, the development of Digital Inclusion Centers (CID) through the approval of House Bill No. 28 of 2011. The project is ready for deliberation by parliamentarians and has chances of appreciation in the short and medium term. From its approval, the possibility of the implementation of software programs in public libraries for use by the visually impaired increases, as well as the promotion of accessibility to public web portals. It is likely that the projects that address these aspects deal with greater agility.

c) Optimistic scenario: the possibility of occurrence of event 4 due to the approval of the bill in the short term can boost the medium-term approval of draft laws that refer to events "one" and "three". Thus, in an optimistic view, the development of Digital Inclusion Centers (CID) in the short term and the implementation of software programs in public libraries for the use of the visually impaired, as well as the promotion of accessibility to public web portals in the mid-term. The event "two", because it has no direct relationship with the other events, can, in an optimistic view, process and be approved in the long term.

The projected scenarios took into account the arguments of Wright, Silva and Spers (2010) when they describe the importance of observing the forces that act on each variable. It is fundamental to perceive the relations that the events have between each other and in what form they can be influenced by several factors. In this specific case, the analysis was based mainly on the information about the process of processing bills.

It is known, however, that there are several interests in the political scenario that can interfere directly or indirectly in the approval or non-appreciation of the draft Laws. Godet and Durance (2011) comment that scenario projection can help predict a situation of origin for a future situation, however, it is understood that the object studied has limiting factors that will only be observed as they occur, such as popular pressure, partisan alliances, political / social interests, among others.

5 FINAL THOUGHTS

The present article presented prospective scenarios for accessibility on the web based on the bills of the Federal Senate and the Chamber of Deputies. In order to do so, it was necessary to carry out a survey on the bills that are in process and evaluate aspects such as summary, detailed explanation of the summary, number of procedures, report, date of last processing, processing time and authorship of the projects. These elements were evaluated to elaborate the scenarios following the steps proposed by Gordon (1999). In addition, a preliminary survey was carried out on the main laws that are in process in the country, as well as a panorama on the International Conventions and UN Resolutions. It is important to note that the last law on accessibility on the web was approved in 2015 in Brazil, the Brazilian Law on Inclusion of Persons with Disabilities - LBI - Law nº 13.146.

In relation to the proposed scenarios, it was possible to identify the existence of three possibilities: pessimistic, realistic and optimistic. In a pessimistic view it is likely that no bill will be sanctioned. On the other hand, the realistic scenario identified the possibility of approving the bill that seeks the Development of Digital Inclusion Centers (CID). Should this event occur, it is likely that projects that refer to the implementation of software programs in public libraries for the use of the visually impaired, as well as the project that predicts the accessibility of public web portals can be discussed with greater determination by the Federal Senate. In the optimistic scenario, it is possible that the last three laws will be approved. The incognito is the approval of the law that refers to the institution of SAC directed to the visually and hearing impaired person in financial institutions.

It should be emphasized that the scenarios presented are summarized only in the observations and analyzes made on the basis of the four bills that are in progress on some aspect of accessibility on the web. In this sense, it is probable that the elaboration of scenarios made by a method different from the one adopted can generate divergent results. In addition, it is important to mention that factors that are limiting and peculiar to politics in Brazil have not been taken into account. In any case, it is possible, through the proposed scenarios, to obtain an overview of what may happen in the future in relation to the evaluated bills.

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