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## SWOT analysis of the services provided by e-government sites in Brazil

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### Abstract

Electronic government (e-gov) may present a considerable number of opportunities but can also pose some threats. For the opportunities to be exploited and threats avoided, this study presents a SWOT analysis of the services provided by e-gov sites from the states of São Paulo, Paraná, Minas Gerais, Rio Grande do Sul and Santa Catarina, Brazil. This analysis enabled the development of a SWOT matrix of the studied sites, which is expected to contribute to the constant improvement of the services offered by e-gov sites.

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### 1. Introduction

One of the most significant innovations in information technology was the ongoing creation and development of the Internet, which increases the flexibility of communication, lower costs, and enables the exchange of large amounts of information instantly, regardless of geographical distance. Due to these advantages, governments are increasingly using the Internet to communicate and make transactions with citizens, the process of which is commonly referred to as e-government (McNEAL et al. [1]). The growing contributions of the Internet were highlighted by Diniz [2], Mora [3], Welch, Hinnant and Moon [4], among others.

This study's general objective was to perform a SWOT analysis of the services provided on the governmental electronic sites in the states of São Paulo, Paraná (PR), Minas Gerais (MG), Rio Grande do Sul (RS), and Santa

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Catarina (SC) and to identify the main threats and opportunities, strengths and weaknesses of the e-gov services available in these states.

## 2. Theoretical framework

### 1. E-government

According to Sanchez and Araújo [5], the term e-government is used to designate the set of activities governmental agencies perform through Information and Communications Technology (ICT).

For Diniz et al.[6], e-gov can be considered an evolution of the strategic use of ICTs as the element that enables a new model of public management, i.e., one of the main ways to modernize the State, changing the way governments interact with citizens, companies and other governments.

Endler [7] asserts that public services on the Internet should enable: (1) a reduction in expenditures on infrastructure and services; (2) greater synchrony in the process, achieved by the intensive use of information technology; (3) reduction of losses due to transportation since these can be almost totally eliminated with the use of safe and stable infrastructures; (4) reduction of losses due to waiting, since services are at your fingertips, available whenever they are requested.

There are, however, many barriers to consider, despite the benefits of e-gov. West [8] identified a number of difficulties to be overcome, such as the concern of citizens in regard to the privacy and safety provided by the government sites; lack of resources to meet the needs of special populations, such as people with disabilities or those who do not speak English; lack of computers or access to the Internet; the need to educate citizens in regard to the availability of online services and information; and the cost of e-government infrastructures.

Figure 1 shows the participation of the states in the composition of Brazilian e-government and the prominent positions occupied by São Paulo, Paraná, Minas Gerais, Rio Grande do Sul and Santa Catarina. This scenario is the basis of choosing to analyze the e-government sites of these five states, since these states present the highest representativeness of Brazilian sites and transmissions of bytes in comparison to the national e-gov. Additionally, these five sites represent 50% of the national sites available, which ensures the analysis will be significantly comprehensive.

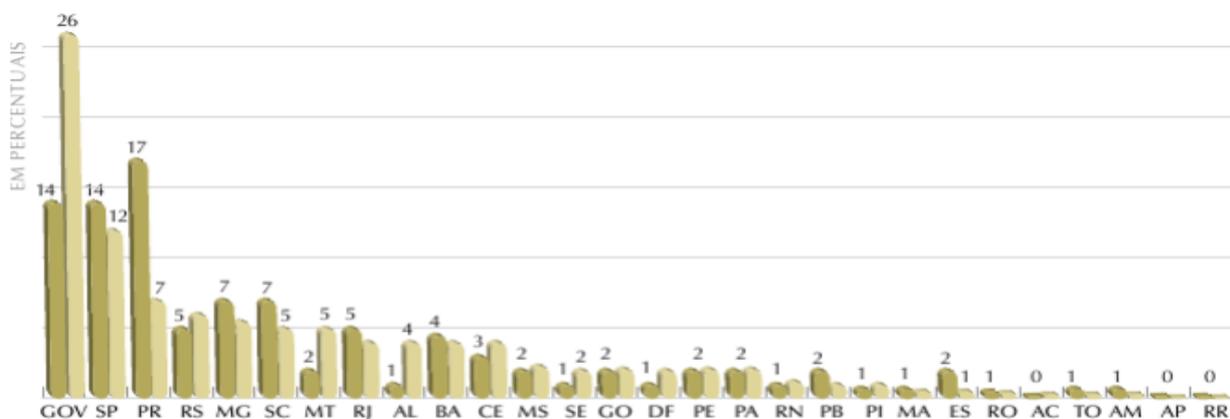


Figure 1 – Participation of the regions in the composition of E-Government by Federal Unit

Source: CGI.br [9]

The studies by Diniz [2], Fernandes and Afonso [10], and Arakaki [11] classified the e-gov initiatives of these five states as being at a more advanced stage compared to the remaining Brazilian states. This scenario contributes

to the development of this study and also justifies it.

## 2. E-government in the studies states

Based on the figures previously presented and on the stage of development of the portals of the mentioned states, the following sites were chosen to be evaluated in this study.

- São Paulo (SP) – *PoupaTempo* [Save Time] ([www.poupatempo.sp.gov.br](http://www.poupatempo.sp.gov.br))
- Paraná (PR) – *E-Paraná/Rede Cidadão* [Citizen Network] (<http://www.cidadao.pr.gov.br/>)
- Rio Grande do Sul (RS) – *Tudo Fácil Eletrônico* [Everything Electronic Easy] ([www.tudofacil.rs.gov.br](http://www.tudofacil.rs.gov.br))
- Minas Gerais (MG) – UAI ([www.uai.mg.gov.br](http://www.uai.mg.gov.br))
- Santa Catarina (SC) – Portal of the Government of the State of Santa Catarina – (<http://www.sc.gov.br/>)

These sites were chosen due to the large amount of services provided to citizens through the electronic portal.

## 3. Strategic analysis of e-gov services using the SWOT matrix

According to Dias [16], the term SWOT is an acronym for the words Strengths, Weaknesses, Opportunities and Threats. Strengths and weaknesses are internal variables that can be controlled by the agency that executes the program, while opportunities and threats are external variables, thus, not under the control of organizations, though, in some cases one can exert some influence. According to the author, strengths are positive internal features (skills, abilities, and competencies) an organization should use to achieve its goals, while opportunities are characteristics of the external environment, thus not controlled by the organization but with a potential to help it achieve or exceed the planned goals. Weaknesses are negative internal characteristics that may restrict the performance of the organization and threats are characteristics of the external environment not controllable by the organization and that can impede the achievement of its planned goals.

SWOT was devised to define strategies to maintain and enhance the organization's strengths, to reduce the risks arising from weaknesses and, at the same time, take advantage of opportunities and reduce threats (CAPUANO, [17]).

In regard to the benefits of SWOT analysis, Sorensen, Engström and Engström[18] highlighted that encouraging learning in regard to a situation and a reflection of what can be done.

Given the previous discussion, SWOT analysis has the potential, through the identification of strengths, weaknesses, opportunities and threats, to provide important contributions to improving electronic government.

The purpose of SWOT in this study is to identify the strengths, weaknesses, threats and opportunities of each of the sites chosen for analysis so that the study results can contribute to the proposition of a model for the analysis of e-gov sites.

## 2. Method

This study was conducted at two points in time: Phase 1 – a theoretical-methodological corpus was developed based on studies from both primary and secondary sources in the fields of Information Sciences and Business Administration; Phase 2 – An exploratory research study was performed using SWOT analysis in the mentioned sites for the states of São Paulo, Rio Grande do Sul, Minas Gerais, Paraná and Santa Catarina, due to their representativeness of the Brazilian situation in order to identify strengths, weaknesses, opportunities and threats for each site analyzed. In this second phase, aspects such as interaction with users, elements of architecture of information, and quantity and quality of the services provided were assessed using the sites' basic access (as a citizen) to collect data for the SWOT matrix.

### 3. Results

The services provided in the e-gov sites from the selected states were analyzed and classified according to a SWOT matrix.

Table 1 – SWOT matrix of the studied sites

<b>Opportunities</b>	
SP	To provide more services; explore ICTs more intensively; provide Search and “Search Tips” resources; make available the privacy and/or data safety policy; keep the site and its information updated.
MG	To create direct links from the UAI to the services without the need to go through the state’s site; provide more services; provide services and/or information in other languages and other formats, such as videos, for instance; provide Search and “Search Tips” resources.
PR	To develop an exclusive site; create a link between the government’s site and the E-Parana site; reduce the information on the main page and avoid the need to use the scroll bar; provide services and/or information in other languages and in other formats, such as videos; provide its own social networks.
RS	To avoid needing to use the scroll bar; provide other means of communication; make the site’s maps more user-friendly; reduce the space provided for news in the Feature section; provide an option for e-mail in the Share option; provide its own social network; provide information in other languages and in other formats, such as videos.
SC	To provide more services on the site; make privacy and/or safety of data policy available; keep the links working properly; provide resources that encourage citizens to use the portal.
<b>Threats</b>	
SP	Lack of habit of citizens in using e-gov services due to a lack of online services; not using resources that encourage the user to use the site, which makes it impractical to maintain the site.
MG	The citizens are not encouraged to use e-gov services due to a lack of online services and resources, which may make investment in the site impractical. Because there are UAI options available on the state’s site, UAI may be weakened.
PR	The electronic address is similar to the name of a program used for another purpose; lack of resources to encourage users to use the site; users are discouraged due to the amount of information provided on the same page; E-Parana may be forgotten by users because it uses the same website as the government.
RS	Large amount of information on a single screen and the links between <i>TudoFácil</i> and the state government may hinder access to information, discouraging the use of these sites and leaving them impractical.
SC	Citizens’ lack of habit in using the site due to a lack of a specific program and online services. It does not use resources that encourage users to use the site and there are unresponsive links that may lead citizens to abandon the site and not return again.
<b>Strengths</b>	
SP	Good speed of access; good response time for email; many paths to obtain information; some of the information is available in text and video, the latter of which is presented in three languages; the links work properly; there was no safety or privacy problems; available ombudsperson and toll free call (0880); screens were not over-crowded.
MG	The UAI units were represented on the map; Legal and Responsibility Aspects were presented; explanation concerning accessibility; customization; option to send to email; link to access the desired screen; search; help; page informing of terms related to the Internet; print option; communication through email and the LigMinas hotline (155); separated services according to the users’ characteristics; good access speed.

PR	Various paths to access the service and/or information; print and share option; communication through email and online (chat); option to search the site and Google; information concerning accessibility; Weather button; easier search for the most researched terms; customization and separated services according to the users' specific needs; good access speed.
RS	Separated services according to the users' needs; option to Search Services and Information with the "Search Tips" and option "Did not find the Service"; customization; informative pages with option to share and print; clear options Transparency; many options to access information; good access speed; Public Utility options; Recent services; Phone book; Weather; services from A to Z; and button for scheduling appointments.
SC	Good access speed; ombudsperson available (email or toll free call 0800); provided information in text, audio, video and picture, which could be shared via social networks.

<b>Weaknesses</b>	
SP	Informative site; options were outdated; did not provide Search option; privacy and/or data safety policy was not available.
MG	Link did not promptly direct to the service; the government portal had no option to go back to the UAI site; some options available on the UAI site provided information about the state government site; informative site.
PR	Accessible through the state government site; too much information and need for the scroll bar; the option to request services did link to the site responsible for the service that provided detailed information but it was not possible to request the service; the communication option provided a regular phone number for Celepar's call center and not for the E-Parana's call center; <u>Legal aspects and Responsibility or Privacy and Safety policy</u> was not available.
RS	The option "How to get to <i>TudoFácil</i> " did not work; Legal Aspects and Responsibilities or Privacy and Safety policy was not available; too much information in a single screen; provided only one contact option (through email); the Map option was not very user-friendly; Feature news were presented in many screens and occupied too much space; the government site did not provide a clear option to go back to the previous site; the Electronic <i>TudoFácil</i> option did not work.
SC	Site almost totally informative; Search was limited to the news available; privacy and/or data safety policy was not available; Many links were unresponsive; the classification of services was not clear and sometimes repetitive; Some of the information provided in the main page for some requested services would get lost when the site directed to another page, where the same service needed to be searched again in order to obtain information.

Source: developed by the authors

#### 4. Conclusions

This study performed with SWOT analysis of the states, which together present 50% of the e-gov services in Brazil, shows:

- The supply of e-gov services in the remaining 21 states of the Brazilian federation is still deficient.
- The opportunities clearly show a need for Information Architecture in order to improve the quality of information and interaction with users.
- The main threats include a possible lack of incentive, the need for a marketing system, on the part of the governments to encourage citizens to use these environments.
- Among the strengths we highlight good physical structure, especially speed and response to access and the number of services provided.
- Weaknesses include unresponsive links, services that redirected to other environments that did not provide the service initially identified.

In short, these Brazilian state governments have done well in offering services to citizens; however, these portals can improve in many aspects to convince citizens to replace the physical services with the online services.

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