LiS - An AI for reviewing user service letters using plain language.

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Abstract. Digital transformation is a consolidated topic on government agendas and the use of AI-Artificial Intelligence in this context is increasingly expanding. However, efforts are needed to ensure that the digital transformation of public services no longer creates a channel for social exclusion. A key component in this sense is the use of clear language in products and information for access to digital public services. The main objective of this work is to describe the experience report of the construction of an Artificial Intelligence-AI, called LiS, with the purpose of improving the quality of the contents of service letters to users, from bodies of a subnational entity in Brazil. We will present the stages of developing the LiS, to review the contents of service letters to users, using plain language writing techniques. The combination of an automatic review, using LiS and a manual step, in the process of preparing and reviewing service letters for users, presented significant results in the services, which had their contents reviewed in this process. This gain was observed from the analysis of the results of evaluations of the content of services accessed by citizens. Another significant result presented was the reduction in review time for service letters. The use of the AI tool balanced with a human review stage, in the context of building and reviewing service letters for users, demonstrates efficiency in this process. Additionally, this combination reflects an approach to increase inclusion in citizen access to public services.

Keywords. Digital transformation, plain language, Artificial Intelligence, Inclusivity
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1. Introduction

Digital transformation is a reality in the business models of government entities both at the federal level and also in the states and municipalities of a federation. Governments have expanded the use of information and communication technologies to improve services delivered to citizens, reduce operational costs, increase transparency, support decision-making, as well as increase citizen engagement in government policies. This process of digital transformation has a lot of complexity involved, and this advancement of technologies and the development of digital public services is often not fully inclusive, UN (2024). Digital transformation is not just about technologies and innovations. It requires, among other things, well-defined strategies to promote initiatives so that this process does not create new layers of inequality. As presented by the UN (2022), the new face of inequality is digital and digital government can be a driver to equalize this phenomenon. Therefore, in the context of public organizations, it is necessary to encourage initiatives to combine the effective use of new technologies, in order to minimize factors that lead to exclusion. Inclusion, from the conception of projects, must be prioritized in relation to digital by standard, UN (2024).

One of the aspects identified as a facilitator in this context is the use of plain language in the Government's communication with society. The objective of this work is to report the case of building an Artificial Intelligence-AI tool, called LiS, for use in the process of building and updating service letters for users. This article is organized as follows: in Section 2, a basic set of concepts and work related to the article, in Section 3, the stages of building the tool are described with the main results presented. Finally, Section 4 presents conclusions.

2. Concepts and related works

2.1 User services letters

Brazilian federal law, 13,460 of June 2017, Brazil (2017), known as the code for the defense of the rights of users of public services, is an instrument created with the aim of expanding the capacity of public entities to meet social demands, simplifying the lives of citizens. Applicable to all public bodies and entities, at different levels of the federation, the law determines, among other things, the preparation of user service letters. The user services letter is an instrument that aims to inform users about the services offered by public bodies and entities, the forms of access and quality commitments.

The regulations determine that each service described in the user service letters must provide clear and precise information regarding how the user can access the service. The minimum information that must be included is: requirements, documents necessary to obtain the service, forms and information necessary to access the service, main steps for carrying out the service, forecast of the maximum period for providing the service, places and ways for the user to present any statement about the provision of the service. Once prepared, user service letters must be updated periodically with permanent dissemination and publication on the body or entity's website. The user services charter is also cited as one of the essential components for the digital provision of services. Brazil (2021).

2.1 Plain language in the public sector

The concept of plain language according to the International Plain Language Federation (2024), defines that a communication is in plain language if the words, structure and design to which the readers are addressed, allows this audience to easily find the information they need, understand what you found and use the information for your purpose. The focus is on the reader of the content, so that they can understand a document written in plain language on the first reading. In this sense, it is necessary to understand what the reader wants to know, what information they need and thus achieve their goals PLAIN (2024) .

In the context of Brazilian public organizations, the use of plain language has initiatives that are growing more and more. From a regulatory perspective, Federal Law 13,460 of June 2017, Brazil (2017), which in the chapter on basic rights and duties of users, estabLiShes among its guidelines the use of plain and understandable language, avoiding the use of acronyms, jargon and foreign language. In a subnational approach, the Municipal Plain Language Program of the City of São Paulo, estabLiShed based on Decree 59,067 of 2019, São Paulo (2019), and state Law No. 18,246 of December 1, 2022, which estabLiShes the language policy plain, in the State of Ceará, Ceará (2022), are examples of regulatory initiatives. Work carried out in innovation laboratories such as LAB 11. São Paulo City Hall Government Innovation Laboratory, Lab11 (2022) and the Innovation and Data Laboratory, Iris (2023), are other examples of initiatives to encourage the use of plain language in the context of Brazilian public organizations.

In addition to the examples cited and in the direction of making the use of plain language more effective in all communication with citizens, in public administration bodies and entities in Brazil, bill no. 6,256 of 2019 is being processed in the Brazilian Senate, which estabLiShes the National Plain Language Policy in bodies and entities of direct and indirect public administration of all federative entities, Brazil (2019).

Considering the importance of the topic and the need to promote the theme of plain language, at a subnational level in Brazil, the Brazilian Association of State and Public Entities of Information and Communication Technology, ABEP-TIC (2024) included in its Supply Index Digital Public Services of State and District Governments 2024, a dimension that evaluated the use of Plain Language in the description of public services presented on the Service Portals of Brazilian States, seeking to verify the engagement of federative units in better service to citizens. In the same direction of boosting the use of plain language, ABEP-TIC (2022) prepared the Guide for Using Simple Language for Presenting Services.

In the context of this work, we will use plain language techniques to prepare the texts presenting the services contained in the service letters to users, described in the previous section.

2.2 Artificial Intelligence - AI

Artificial Intelligence, although currently in evidence, is not a new concept. Since the beginnings of AI, researchers such as Russell and Norvig (2021) highlight that the evolution of intelligent systems has occurred through different approaches, from rule-based systems to deep neural networks. The recent advancement of generative AIs, especially those developed by OpenAI, has popularized the use of language models based on neural networks through accessible interfaces and simple prompts. GPT (Generative Pre-trained Transformer) is a notable example of this technology, supported by the Transformer architecture, which takes advantage of attention

mechanisms to understand the relationship between words in large text sequences in a parallel and contextualized way.

The Transformer architecture revolutionized natural language processing (NLP) by allowing the model to process and generate text while simultaneously considering multiple contexts within the same sentence or paragraph. Through the self-attention mechanism, the model is able to "weigh" different parts of the input text, understanding long-distance relationships between terms that, in other approaches, would be disconnected (Vaswani et al., 2017). As described by Sejnowski (2018), this advance in PLN enabled the creation of more robust and versatile models, allowing for diverse applications, from virtual assistants to automatic diagnoses.

The development and application of a GPT model can be divided into three main steps. In the first of them, pre-training, the model is trained with a large amount of textual data collected from different sources on the internet, which allows it to acquire knowledge of grammar, linguistic structures and general information about the world, although it is not yet targeted at a specific task. The ability to predict the next word in any context allows the model to build a solid foundation of linguistic understanding (Brown et al., 2020).

Next, the fine-tuning stage takes place, in which the GPT undergoes an adaptation focused on more specific tasks, such as translation, summarization or, in the case of this work, the review and generation of User Service Letters . This tuning is performed with smaller, specialized datasets that contain examples and instructions specific to the target task. According to Kai-Fu Lee (2018), this step is crucial to ensure that AI models are adaptable to different contexts and can meet the specific requirements of sectors such as health, education and public administration.

Finally, for organizational or government tasks, there is often a third step focused on personalized training and ongoing validation, in which the model is tested in controlled scenarios and receives constant feedback from experts. These adjustments are made through "prompt engineering", which consists of adding or modifying instructions to correct inconsistent output. It is also at this stage that, for example, a good practice guide is recorded, documenting recommendations and recurring corrections to guide the safe and effective use of the model.

3. Case description

3.1 Context

State law No. 16,420 of September 17, 2018, of the state of Pernambuco, Brazil, Pernambuco (2018), determined, among other matters, the obligation of public entities in the State, to prepare their User Service Letters, in accordance with the guidelines of Federal Law 13,460 of June 2017, Brazil (2017). The Pernambuco State Administration Secretariat was the government body with the responsibility of defining the methodology for pubLiShing the Services Letters to Users services on the State services portal, for citizens to access. Tab 1 shows the evolution of the number of services pubLiShed on the portal over the years, starting from the launch in August 2018.

Tab. 1 - Number of public services, pubLiShed on the services portal

Year	Number of services
2018	639
2019	725
2020	950
2021	1.003
2022	1.026
2023	1.065
2024	693

Despite the increase in the number of services pubLiShed on the services portal over the years, originating from service letters to users, some problems were identified when analyzing the content of the services, two of which are main: i. pubLiShed services, which were not public services for the citizen and ii. the quality of the texts presented difficulties in understanding from the citizens' perspective.

Based on the identification of these main problems, some actions were defined, including: i. adjustment to the methodology for preparing user service letters, with greater emphasis on the use of Plain Language; ii. definition of clearer criteria for distinguishing "what is and what is not a public service for user service letters", with contextualized examples; iii. implement a routine for updating public agents responsible for preparing service letters for users, based on monthly courses.

In parallel to these actions, in 2024 the development of Artificial Intelligence - AI began to support the team in the process of reviewing service letters for users.

3.2 Implementation of LiS

The success of using GPT models strongly depends on an iterative training and validation cycle. In particular, for public bodies, aspects such as clarity, coherence, use of civil language and legal compliance are fundamental. Adjusting the GPT for a government context requires additional care, such as ensuring data curation that excludes biases and misinformation, in order to protect the institutional image and ensure the correct provision of services; promote transparency and explainability, as AI models can generate convincing but incorrect content, which makes continuous training and validation by experts essential; maintain a constant concern with ethics and security, observing principles of data protection and non-discrimination, as well as ensuring human reviews that validate the content; in addition to enabling customization and scalability, allowing, upon mastering the task, the model to be applied on a large scale, such as reviewing hundreds of services in a few weeks, significantly optimizing efficiency in the public sector.

During LiS's initial training and learning phase, the creation and review of the first 20 services most accessed by the population were monitored by a multidisciplinary team that sought to identify flaws and possible adjustment needs in real time. Whenever inconsistencies or errors occurred in the generation of content, they were corrected through *prompt engineering*—either by reinforcing instructions from pre-training or by introducing new guidelines.

To consolidate learning, the most recurrent failures were recorded in a guide on good practices for using LiS, with direct instructions on how to overcome them when preparing prompts. Still in the controlled testing stage, LiS reviewed another 100 service descriptions, which subsequently underwent human validation to check for any remaining inconsistencies. In less than two weeks, the AI had already reviewed more than 300 service letters from 13 agencies of the Government of Pernambuco, demonstrating scalability potential and contributing to speeding up the process of producing official documents in simple language.

3.3 Results

The combination of using LiS with a manual review stage of service texts was initially implemented in a set of the 20 services most accessed by the population, starting in November 2024. To monitor citizen satisfaction regarding service texts, the service portal has a content evaluation, where citizens can leave their opinion on whether the content of the service they accessed was useful to them, marking "yes", positive evaluation, or "no", otherwise, evaluation negative. Tables 2, 3 and 4 show the evolution of this content assessment of the three services most accessed by the population throughout 2024, respectively: "Obtain 1st copy Identity Card service", "Obtain 2st copy Identity Card service", and "Get a Job Vacancy".

It is important to note that the review of services with the LiS was made available together with a new version of the service portal, which brought changes to the tool's design, and this update was publicized in the press and social media. To consider this situation, when analyzing the results, we included the following information in the tables: "% of positive evaluations", proportion of positive evaluations in relation to the total number of evaluations and "number of accesses" to the service by citizens on the portal.

Tab. 2 - Evolution of content assessment - Obtain 1st copy Identity Card service

Month	It was useful	It wasn't useful	% positive	number of access
January	401	46	89,71	189.772
February	218	28	88,62	119.715
Mach	243	38	86,48	137.289
April	400	87	82,14	208.387
May	296	43	87,32	160.142
June	209	39	84,27	119.093
July	276	55	83,38	173.846
August	238	42	85,00	152.571
September	225	54	80,65	147.233
October	147	38	79,46	147.328
November	2.709	127	95,52	900.429
December	1.418	39	97,32	681.263

Tab. 3 - Evolution of content assessment - Obtain 2st copy Identity Card service

Month	It was useful	It wasn't useful	% positive	number of access
January	522	59	89,85	389.962
February	304	34	89,94	278.047
Mach	421	65	86,63	327.077
April	507	76	86,96	405.755
May	322	48	87,03	352.398
June	290	40	87,88	271.081
July	421	64	86,80	349.857
August	332	47	87,60	336.063
September	205	32	86,50	304.907
October	198	41	82,85	321.610
November	5.740	306	94,94	2.359.464
December	3.217	168	95,04	1.777.558

Tab. 4 - Evolution of content assessment. Get job vacancy service

Month	It was useful	It wasn't useful	% positive	number of access
January	56	12	82,35	20.782
February	29	5	85,29	14.569
Mach	17	5	77,27	14.673
April	50	9	84,75	19.129
May	55	8	87,30	20.502
June	33	7	82,50	16.407
July	37	6	86,05	21.969
August	40	4	90,91	20.741
September	32	4	88,89	17.209
October	31	7	81,58	19.173
November	67	16	80,72	39.660
December	100	6	94,34	29.033

It is possible to identify, when analyzing the tables, a significant evolution in the evaluation of content by citizens, in the first two months (November and December) of using LiS in reviewing texts, with a human conference stage, in the two main services, Tab 2 and Tab 3. The increase in the number of accesses to both services in the same period can be seen as a reason for the launch of the new portal, and the publicity actions in the press, as mentioned previously. Even with this situation, of launching the new portal, at the same time of using LiS in reviewing texts, the percentage above 90% of positive evaluations, not identified in the months prior to November, and remaining high in the second month, December, is an indicator of success in reviewing the texts.

According to Tab 4, it is possible to identify in the month of November, the second lowest percentage of positive evaluations, 80.72%, of the service in the year 2024. However, in December, it presented the highest percentage 94.34%, similar to the same month's percentages for Tab 2 and Tab 3 services, above 94%.

Another aspect in this process of reviewing the contents of service letters to users is the time spent reviewing the service texts by the team. Before implementing LiS, a revised service with human interaction took an average of 30 minutes. Using LiS, a service reviewed with LiS lasts, on average, 3 seconds, with a human review taking an average of two minutes.

4. Conclusion

The objective of this work was to present an experience report on the construction of an Artificial Intelligence-AI, called LiS, to support the process of reviewing the contents of service letters to users, based on Plain Language guidelines, in order to improve citizen understanding when accessing public services. To this end, we present the main problems in the preparation of user service letters identified over six years, and the stages in the development of LiS. Following the implementation of the user services letters reviewed by LiS, in November 2024, it was possible to perceive a relevant set of significant results that demonstrate an improvement in the usefulness of texts for citizens, detected from the analysis of content evaluations. Another relevant result for the process was the reduction in time spent by teams reviewing the contents of user service letters.

The experience with LiS illustrates the potential of generative AIs like GPT to modernize the writing and review of official documents. The process, which includes pre-training, fine-tuning and constant validation, allows the technology to be gradually improved for the public services context, ensuring clarity, reliability and adherence to legal standards. The use of GPT models has proven to be a valuable tool for public management, as it optimizes time, standardizes processes and contributes to improving communication between government and citizens. The key to success, however, lies in the training phase and the active participation of multidisciplinary teams, which guarantee alignment between knowledge of the model and the real demands of communication, transparency and accessibility of public administration.

It is important to highlight that, despite the initial satisfactory results, for the first services in the first two months of monitoring, it is necessary to continue monitoring for a longer period, as well as expanding the evaluation to other services, including identifying services that do not present good evaluations. of content by citizens, so that it is possible to identify possible adjustments to the LiS.

Among the contributions that this case provided is the protocol of intent, signed between the State Government and the Federal Government, through the Ministry of Management and Innovation, to estabLiSh a cooperative or partnership link in the use of the solution. MGI (2024).

Finally, this work is just an effort within a theme of growing relevance in digital transformation in governments, which is understanding that language is a key component in human interaction and a way to reinforce inclusion in digital services and government initiatives.

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