

GOVERNMENTAL WEBSITES QUALITY IN ROMANIAN CITIES: USABILITY, ACCESSIBILITY, AND THE INFLUENCE OF THE COVID-19 PANDEMIC

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Abstract

The website of any governmental institution is the main channel through which digital public services, both informational and transactional, are offered. This became even more relevant during pandemic times, when face-to-face interaction was severely curtailed in most European countries. This happened in Romania also, and our aim with this research (repeated once every two years from now on) is to evaluate the quality of the websites offered by Romanian city halls in large and medium-sized cities.

Most of the services offered by the government to citizens and companies are, in Romania, provided at the local level by city halls. Access to these services can be helped or hampered by the site ergonomics, loading speed or its overall quality. We are also trying to ascertain if other factors (the amount of collected taxes, the size of the city, the political party of the mayor, etc.) has any influence on the quality of the official site. Any such correlations could inform the necessary decisions that aim to improve the websites and, ultimately, the success of digital public services (both transactional and informational) that use it as a delivery channel.

Keywords: website analysis, city halls, digitalization, digital public services, Romania.

1. Introduction

People are increasingly accustomed to living their lives online. Private companies are offering us a plethora of platforms and websites that move in the cloud things that our parents used to do in face-to-face settings: buying groceries, getting a loan, booking a hotel room, calling a cab, talking with our aunt. To do this, websites, apps, and platforms are continuously improved, aiming constantly at reducing ‘friction’ (the effort necessary for achieving our goal there). As such, the digital offerings of private companies are improving all the time and have become so intuitive that our children do not need a lot of training (if any at all) to be able to use them.

The public sector, after few years’ lag, is also beginning to improve its digital offerings. In Romania, all towns and cities have a working website and the level of sophistication in the services they offer (both informational and transactional) is constantly increasing. The official website is the main channel through which city halls offer digital public services to citizens and companies. As such, the quality of these websites and the tools offered for citizens with disabilities should be regularly assessed and improved.

Evidence gathered in the last two decades increasingly support the assertion that usability and accessibility influence the adoption of online services. Several researchers (Fogg *et al.*, 2001; Flavián, Guinaliu and Gurrea, 2006; Robins and Holmes, 2008) found out that trust in the information or services offered by website increases with the quality and usability of the site and that, despite improvements, governmental websites still have problems with usability (Abu Doush and AlMeraj, 2019). At the same time, official websites all around the world (Youngblood and Mackiewicz, 2012; Kopackova, Michalek and Cejna, 2010; Kuzma, 2010; Islam, Rahman and Islam, 2017; Nnko, 2017) have accessibility problems that influence their ability to serve people with disabilities.

After the COVID-19 pandemic struck, in the first months of 2020, these long-time trends have accelerated. Governments proved they could be agile (providing quick decisions, testing new solutions, keeping those that work and abandoning those that do not) and adaptive (dealing with wicked problems, that have many stakeholders and do not have a clear solution). Although both concepts deal with the response of the government to a sudden change in the environment (such as a medical crisis), there is an inherent tension between the two. Agile is prescriptive, and provides methods, adaptive is descriptive, and can influence the environment, not only adapt to it (Janssen and van der Voort, 2020). Lockdowns and restrictions, which varied in intensity and length, were put in place at one time or another in all countries in Europe (with the notable exception of Belarus). These restrictions, which an increasing number of studies seem to show that work (Caulkins *et al.*, 2021) are imposed and lifted based on the epidemiological situation in each country. The European countries are, at the moment of writing this article (October 2021), going through the fourth or fifth wave of infections, and life has not yet returned to the pre-pandemic normalcy (Economist, 2021).

The digital transformation of work styles is gathering pace, spearheaded by private companies and the digital tools used for interacting with customers are increasingly im-

portant. The number of companies that use digital technologies is increasing (European Commission, 2021). These developments are also influencing public entities, not only in the way in which public servants work, but in the way in which participatory mechanisms are transformed (Kodama, 2020). For these potential improvements to come to fruition, digital technologies should become more central to the way in which public institutions deliver their services. The new coronavirus pandemic also showed that digital tools could be a powerful tool for delivering public services in situations that preclude face-to-face interactions (Agostino, Arnaboldi and Lerna, 2021) and can be quickly adopted by citizens and companies. Research shows that around half of companies have prepared a business continuity plan that, in essence, plots a way for organizations to react in the event of a crisis (Mercer Global, 2020). How widespread are such continuity plans inside governmental organizations is fuzziier, but, in Romania at least, such plans, when present, exist generally only on paper, are not feasible and were not implemented during the COVID-19 crisis. Both academic research (Gabryelczyk, 2020) and anecdotal information point to this being the case in other countries as well. A lot of ad-hoc solutions were implemented, many of them ‘good-enough’, as opposed to the higher standards requested by public institutions in normal times. Some of these shoe-string solutions have proven very useful and are constantly updated and upgraded, with good chances they will be kept even after the pandemic crises subsides.

Public institutions had to quickly adapt to this situation. In Romania, for example, events unfolded very rapidly in the spring of 2020. It took less than a month from the first recorded case until a national lockdown was introduced in March 2020, which meant that institutions did not have a lot of time to prepare for delivering public services without face-to-face interaction.

The current epidemic has transformed the way in which citizens look at the digitalization of public services. Forced to interact online with the public sector, they understand better what digital transformation means for public institutions, and the pressure on the governments to increase the number and quality of their digital offerings increased (Nacht and Belhcen, 2020).

Public servants were also affected by the new epidemic, and a lot of them were, during lockdowns, forced to work from home. The availability and quality of digital tools through which they could do their work (from teleconferencing systems, stable internet connections, and digital platforms to access their files, to available laptops and functioning websites) was essential (Kodama, 2020). Opinions on the effects of COVID-19 on the transformation of public service delivery vary from highly optimistic (Janssen and van der Voort, 2020) to less starry-eyed (Gabryelczyk, 2020).

The website of the institution is the go-to place where citizens look for online services. It is the main avenue through which both transactions (services that require exchanging of documents or payments) and information is offered. As such, these official websites should be of high quality; not only the services citizens can access on these webpages should be well designed, but the sites themselves should follow the latest developments in the fields of UX (user experience) and UI (user interface).

With this research, we wanted to find out how good are the city hall websites of the largest Romanian municipalities. In Romania, city halls offer most public services for the citizens. The road to digitalizing these services was long, complicated and the results underwhelming and uneven (Urs, 2020). The COVID-19 crisis quickened the pace of moving the interactions between citizens and institutions online. Many barriers that existed before the pandemic — an outdated legal framework, insufficient resources allocated inside institutions, resistance to change from public servants — seem to be more easily overcome in the middle of a global medical crisis.

The paper starts with a literature review of the current research in the field of usability and accessibility of the official public sector websites. We then assess the situation in Romania's cities from this point of view, and we evaluate 103 websites of the biggest Romanian urban municipalities. We then draw some lessons and offer advice on ways to improve the city hall websites.

2. Literature review

Research on evaluating the quality and usability of a website has a long history (on World Wide Web scale) and the scientific consensus is that a good website has a measurable impact on the success of information and service delivery (Nielsen, 1999; Flavián, Guinaliu and Gurrea, 2006; Belanche, Casaló and Guinalúa, 2012; Alshira'h, 2020). There is a growing body of research that assesses governmental websites and suggests improvements (Eschenfelder *et al.*, 1997; Wang, Bretschneider and Gant, 2005; Baker, 2009; Huang and Brooks, 2011; Youngblood and Mackiewicz, 2012; Tekemen and Tanriover, 2017). This trend is also intertwined with a drive for more transparency from public institutions. This development, even if results are uneven among cities (Cañizares-Espada *et al.*, 2021), is to be welcomed, but the growing quantity of information available makes the task of web designers working for the public sector even more difficult (Alcaraz-Quiles *et al.*, 2018). For this, new design paradigms are employed, some of them borrowed from commercial web 2.0 platforms (Zappen, Harrison and Watson, 2008).

For widespread adoption of digital tools in the interactions between public institutions and citizens, their existence is not enough. It is essential that both citizens and public servants embrace these solutions as the default mode of interaction (Cegarra-Navarro, Pachón and Cegarra, 2012). It will be interesting to see if these behavioral changes in the ways in which government and citizens interact are maintained or lost after the current crisis abates.

The new coronavirus created a global, regional, national, political, societal, economic and commercial crisis. However, it also leads to an accelerated adoption of digital technologies inside both public institutions and private companies (Karabag, 2020). These transformations did not start with the COVID-19 crisis, but were accelerated by it, in many companies around the world. The number of people that work from home increased markedly between 2019 and 2020 (Parker, Horowitz and Minkin, 2020), and at least some

of them did not return to their offices almost 2 years after the COVID-19 pandemic started (Godfrey, 2021).

In Romania, public services are usually delivered in-person. When these meetings are impossible due to social distancing and lockdowns, the other delivery channels increase in importance. In other countries as well, resources were poured in improving or creating from scratch operational digital channels. The focus was on services delivered to citizens and companies (front office services, the visible part of government). Projects aimed at back-office systems, although essential, were put on back burner due to the lack of resources (Gabryelczyk, 2020).

If institutions want to retain and improve their newly acquired digital expertise, better IT infrastructure is not enough. The other crucial component for constructing a basis for a coherent digital transformation process is improving the digital skills of public servants (Gabryelczyk, 2020).

The digital tools used for delivering informational or transactional services to the community are multiplying — for example, social media can play a role in providing informative services, especially considering the high use of such platforms by the citizens (Agostino, Arnaboldi and Lerna, 2021). However, even among these new tools, the website of the institution is usually the most important. It is considered part of the ‘public face’ of the institution (Karani, Thanki and Achuthan, 2021), the main ‘branding’ instrument of the city in an increasingly competitive race (Sicilia, Pérez and Heffernan, 2008; Manoharan and Wu, 2022) and the main channel through which digital public services are offered. As such, the quality of the website is very important in content and service delivery, especially in situations where other service delivery channels are not available. The usability and accessibility of the website is also positively correlated with increased trust in the information and services provided by the public institution (Thompson, Shirish and Jiang, 2008; Huang and Benyoucef, 2014) and in the governmental organization itself (Welch, Hinnant and Moon, 2005), which is important at the best of times and essential in case of a crisis.

A website should be easy to use, fast, mobile-friendly, accessible, linked with social media accounts, secure, and it should use Search Engine Optimizations tools. This ought to be measured periodically, because constant improvement is essential in the fast-changing world of the WWW (Kwangawad, Jattamart and Nusawat, 2019). Most people access the internet from their mobile devices. The way in which websites adapt to the smaller screen (their ‘responsiveness’) is another important factor in determining the usability and accessibility of a website, and a sizeable minority of the governmental websites are still lacking in this domain (Król and Zdonek, 2021).

Websites, especially those of public institutions, should also be accessible to all people, including those with disabilities. Although, in the last few years, the improvements in this field are evident, governmental websites are still lacking in accessibility (Acosta-Vargas, Luján-Mora and Salvador-Ullauri, 2017; Król and Zdonek, 2020). It is encouraging that institutions and public servants are aware of the problem and recognize the importance of providing information and services for people with disabilities.

In Romania, public institutions have a legal requirement to have a functioning website. Research shows that all town and city halls respect this law (Urs, 2020). This seems to be the case in other countries in Central and Eastern Europe as well: Slovakia (Bačík and Michal, 2021), Czech Republic and Poland (Svobodová *et al.*, 2019). What is less clear is what factors determine or are correlated with the quality level of a municipal website. In some studies, population size seems to be a good predictor of the quality of the website of a municipality (Dolson and Young, 2012). In others, the level of transparency visible on the municipality website correlates with the level of unemployment in the city, the average age of the population, or the number of consecutive terms in office the mayor has (Tavares and da Cruz, 2020).

Considering the pressures web designers in the public sector face — an increasing amount of information to be made available and more stringent standards for usability and accessibility — instruments and mechanisms to help with website evaluation and assessment are welcomed. Among these, automatic tools that can provide a summary of the problems encountered are increasingly used. Even if these tools are not perfect and cannot fully replace skilled professionals, they are a useful tool and can give web designers an idea on the most prevalent issues (Jati and Dominic, 2009; Csontos and Heckl, 2020). A more standardized approach (maybe at national level) to official website assessment could also help (Scott, 2005; Baker, 2009). Some researchers also propose tools that can help with solving automatically at least some of the problems (Brajnik, 2000), for example dead links, which seem, on average, more numerous on governmental websites as opposed to commercial ones (Bajracharya and Bajracharya, 2020).

3. Methodology

The main goal of this research was to analyze the current state of development, front-end UX (user experience) and back-end UI (user interface) of 103 Romanian urban municipalities (*municipii*) official websites (in Romania, urban municipalities are divided between *municipii*, of which there are 103, and reunite the biggest cities — and *orașe* — 215 smaller urban municipalities). The secondary goal was to determine the correlation status between the first results and different socio-economic indicators. To better understand the phenomenon, we are focusing our attention on three main hypotheses:

- *H1*: Most Romanian municipalities (>50%) will score below 50% for the PULSSE method;
- *H2*: The higher the level of education in a city, the higher the PULSSE score of the official website;
- *H3*: Private businesses sites will have a higher PULSSE average score than city hall websites.

The method used was the PULSSE method, which distributes 78 on-site and off-site, front-end and back-end indicators into five different categories: performance, usability,

links, social and SEO. Each indicator used generates a score based on its relation to the end-goal, to the category and based on the number of indicators used in said category. Each category is then averaged out and a spider diagram is generated to display the strong points and the weak points regarding the final score.

To achieve a more objective final score distribution, given as not all the five large categories share the same number of indicators, the final result is weighted by attributing different percentage values to each category, in the following order:

1. Performance — 20%, with a selection of indicators: server response, scripts, page load, page size, objects, google amp, java error, gzip, minification, deprecated html, optimized images, inline styles, etc.
2. Usability — 35%, with a selection of indicators: mobile friendly website, flash usage, existing favicon, iframes used, safe to use email address, button size on mobile, font size on mobile, etc.
3. Links — 15%, with a selection of indicators: inbound links, outbound links, secure domain, friendly links used, etc.
4. Social — 10%, with a selection of indicators: Facebook account, Facebook Open Graph used, a second social network account, an active second social network account, etc.
5. SEO — 20%, with a selection of indicators: title tag, meta description tag, header tag, key word consistency, content quality, image alt, no index, sitemap, analytics, Google ranking, etc.

The tool used for this research is SEOPTIMER White Label and Embedding. It is a premium tool used for website audits that allowed the authors of this paper not only to automate the data gathering, but also to achieve a high level of consistency between all the municipalities analyzed. It is used by marketing agencies to better understand a clients' website. It also uses Unique JavaScript Rendering Technology (UJRT) — to view a website like a real user, using a browser instead of a bot just reading code, and to see dynamic content and scripts that other tools will miss¹.

To achieve the goal of this research the authors analyzed a total of 103 Romanian municipalities official websites. The websites were kept in a single large category and to assure a correct data gathering process by the tool used, each municipality website was manually checked, inspected and random indicators were compared to the results yielded by the tool. Out of the 103 websites, 101 were operational at the time of the analysis and two were down for scheduled maintenance. However, after contacting the webmasters and the maintenance ending, the audit proceeded without any further issues.

1 As seen on <https://www.seoptimer.com/white-label/>, accessed on July 15, 2021.

4. Findings

After running the website audit tool, we were able to establish the best performing website and the worst performing website out of the 103 websites analyzed. In the following table the best and worst scores for each respective category are presented:

Table 1: Best and worst results, PULSse tool

	Performance	Usability	Links	Social	SEO
Best result	ARAD (100/100)	TURDA (92/100)	VASLUI (100/100)	BACĂU (70/100)	BRAD (95/100)
Worst result	BĂRLAD (6/100)	AIUD (15/100)	ORȘOVA (0/100)	AIUD (0/100)	CÂMPINA (0/100)
AVERAGE	50.04/100	68.92/100	78.82/100	20.70/100	57.77/100

Source: The authors

As seen above, the category with the highest average is ‘links’. This is indicative of a link building campaign that the municipalities used to achieve a higher page rank score and thus a higher page positioning on search engines, especially on Google, which is the most used search engine in Romania, with a 97.07% market share². The worst category is ‘social’, most likely due to the limited expertise of the public servants that maintain the social media accounts of the institutions.

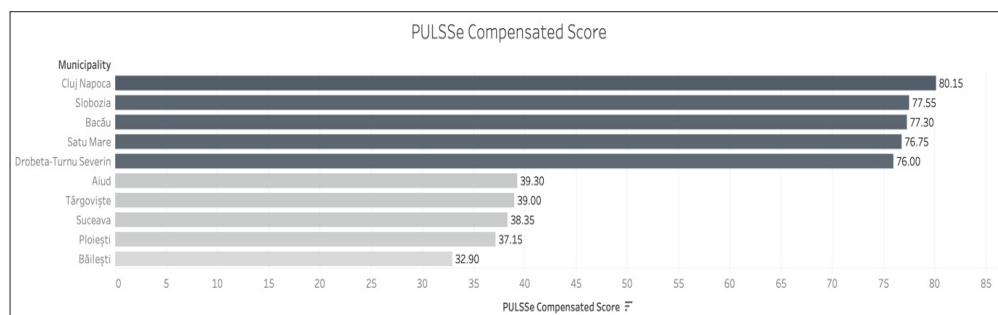


Figure 1: PULSse results, weighted results, top 5 and bottom 5

Source: The authors

The averaged, weighted PULSse score indicated a consistent high result across all categories for cities that were already known for their high level of e-governance. With an overall average of 55.41 out of 100, the deviation from this is similar for the lower scoring cities (Băilești, 32.9; Ploiești, 37.15; with a maximum deviation of 22.6 points) as for the

² As seen on <https://gs.statcounter.com/search-engine-market-share/all/romania>, accessed on July 25, 2021.

higher scoring cities (Cluj-Napoca, 80.15; Slobozia, 77.55; with a maximum deviation of 24.74 points). The standard deviation SD is 10.78.

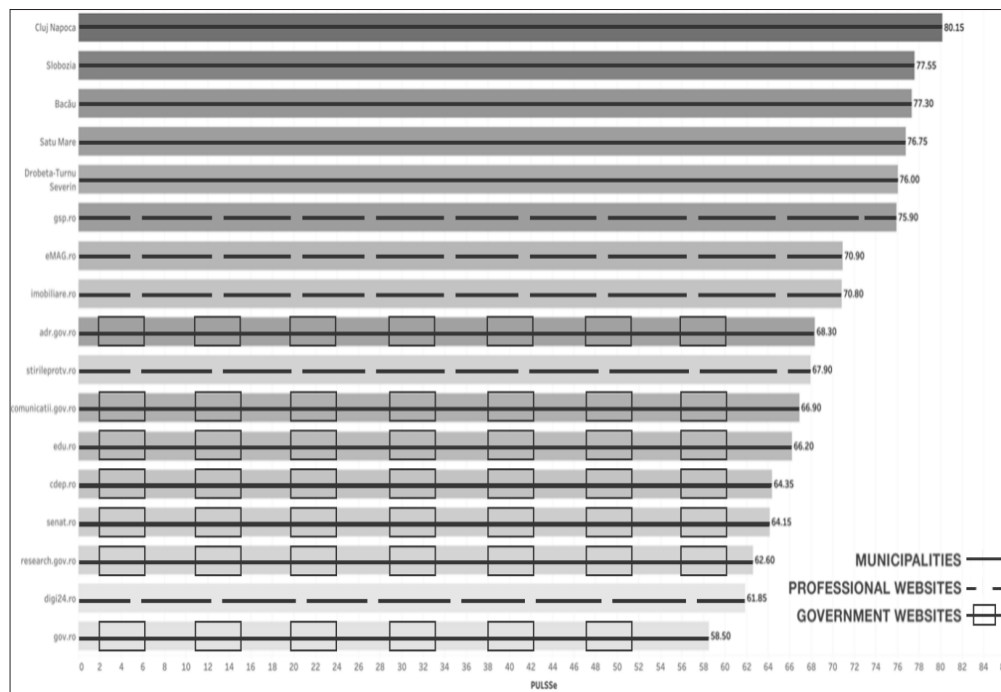


Figure 2: PULSSe Score, municipalities compared with professional websites and government websites

Source: The authors

We compared the PULSSe score of the best scoring 5 municipalities websites with 5 professional websites (marketing, news, electronics, sports) and with a selection of government websites (the Government, government agency tasked with the digitization of public services, Ministry of Education, Ministry of Communication, the Senate and the Chamber of Deputies). These governmental agencies should have great UX and UI given their activity and expertise. The reason behind the comparison between public and private organizations is the need to better understand the UX and UI capabilities of public institutions in comparison with commercial companies that, on average, invest more resources in their web presence and offerings.

In comparing the Municipalities Websites (MW) with the Professional Websites (PW) we noticed that MW performed better. This is due to the high level of dynamic content available to them. Whereas MW are static websites, with basic coding and minimal content added periodically, the PW are constantly updated with new content and require a more complex coding language.

The lowest performing websites were the ones from the government agencies. Not only were they not optimized for UX and UI, but in some cases (Chamber of Deputies) the

website was not even secure and in one case (Ministry of Communication) it was marked by Google as dangerous to the users and with a high risk of infection for the visitor.

A question that we wanted to answer is whether the political party of the current mayor has any impact on the websites PULSSe score.

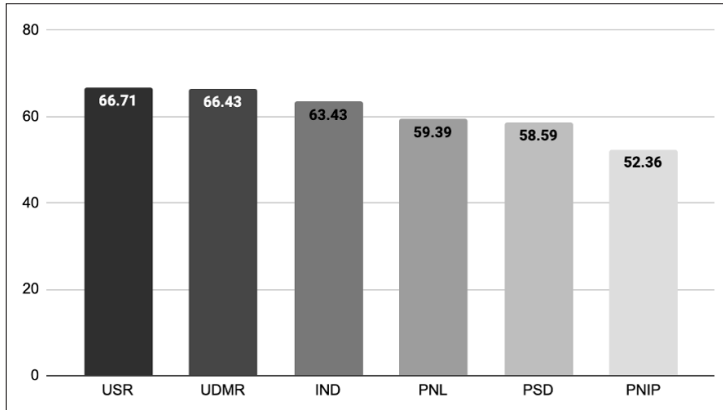


Figure 3: PULSSe results, political party

Source: The authors

The results showed a higher score for USR (Uniunea Salvați România) and UDMR (Uniunea Democrată a Maghiarilor din România), both political parties in power at the time of the data gathering process. A lower score is obtained by PSD (Partidul Social Democrat), an opposition party at the time of the analysis, and PNIP (multiple small parties that did not pass the threshold for the Romanian Parliament at the 2020 elections, but still managed to win some municipalities in the earlier 2020 local elections; PMP – Partidul Mișcarea Populară; PRO Romania; FDGR and others). However, there is no correlation between these results and the PULSSe score, $R\text{-Squared} = 0.004$. This is due to the high degree of randomness in the number of municipalities that each party holds, ranging from 5 cities for USR to 42 for PNL.

We have also analyzed any correlation between the PULSSe index and an e-government development index (Urs, 2020) which was representative of the front office e-government services that these cities are offering to citizens and businesses.

While there still are some cities with a good or bad performance in both indexes, the correlation between them is very low ($R\text{-Squared} = 0.22$). This might be caused by the difference in indicators that each method analyzed and by the time passed between when the e-Index was run and when the PULSSe method was run, approximately two years, which in internet time is a long time indeed. Websites have been updated, redesigned or entirely changed and new technology implemented.

The next correlation we were seeking was with the size of the city, i.e. the population of a municipality. Although the literature points to a positive correlation between the two variables (Moon, 2002), in Romania this is not the case.

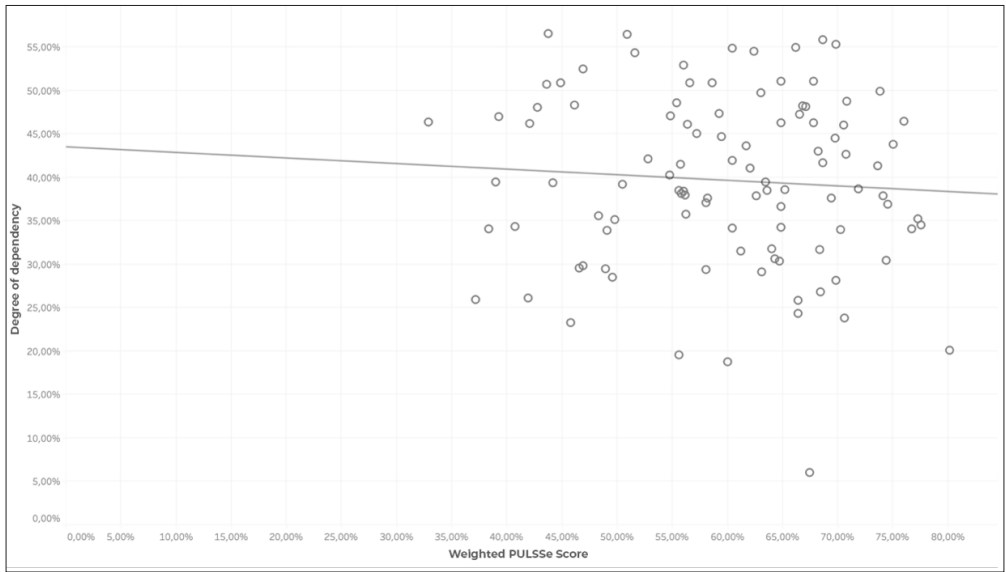


Figure 5: PULSse and the dependency degree

Source: The authors

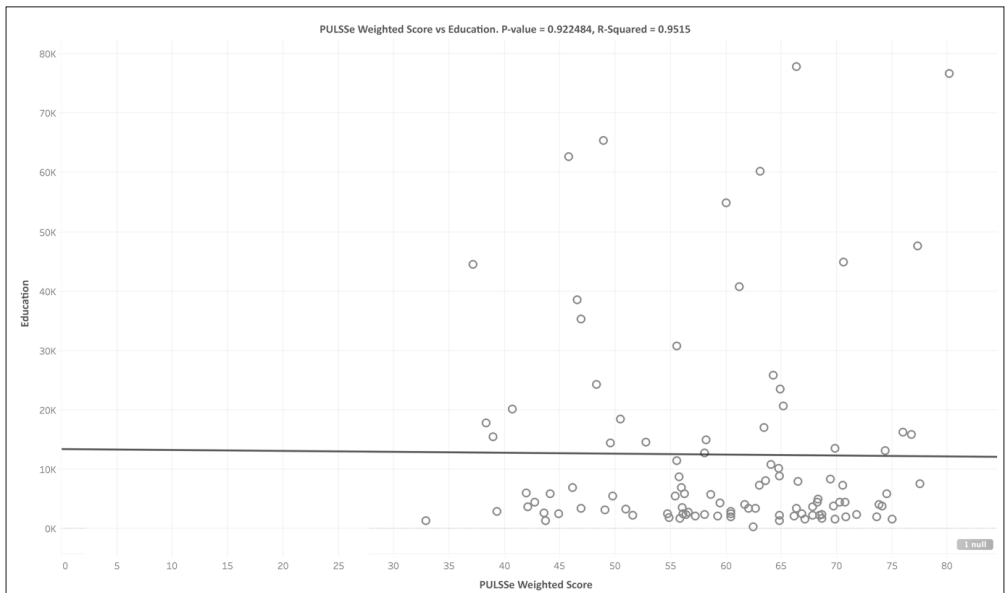


Figure 6: PULSse and education level 1

Source: The authors

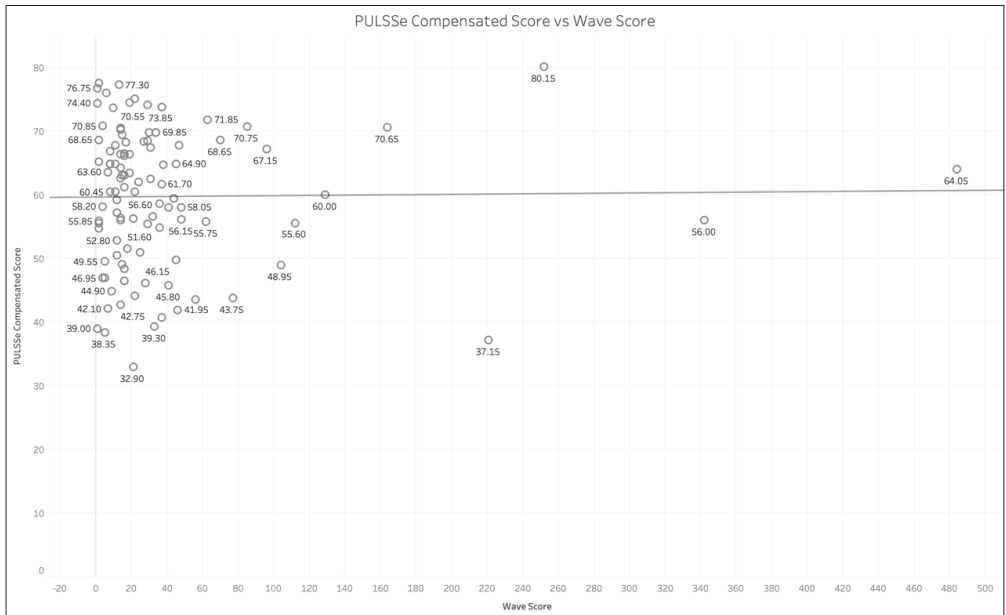


Figure 7: PULSse Compensated Score and Wave Score

Source: The authors

We also used an automated tool (WAVE), created by Utah State University, to evaluate the level of accessibility of the city hall websites. Citizens with disabilities have the same rights of service access as any other citizen, and public institutions should make sure their websites are accessible and are properly understood by screen reader software.

The overall results are encouraging; the majority of the websites have few errors or page elements that are hard to read or access by people with disabilities. The number of errors on the front page varies between 484 (Tulcea city hall) and 1 (Alba Iulia, Satu Mare and Târgoviște). Although we did not encounter an error-free site, most city hall websites are generally accessible.

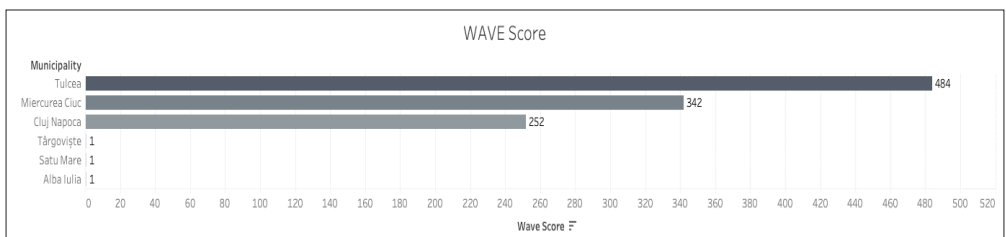


Figure 8: Worst and best WAVE scores

Source: The authors

After evaluating each website, we compared the WAVE results with the PULSSe scores, and we found that there is no correlation between them. R-Squared = 0.0001 and P-value = 0.89 (close to Null Hypothesis) proved once more that the performance, usability, link friendliness, SEO and social media presence are not correlated with the criteria needed to prepare a website for people with disabilities.

5. Conclusions

The PULSSe method is useful for on-site and off-site monitoring and analysis. It can be used to establish the level of interest that an institution has towards a greater overall experience of a user on the website. Our research showed, however, that there is little to no evidence that a PULSSe result, be it high or low, is in any way correlated with anything outside of a political party's ideology and orientation.

- H1 was invalidated due to the high number of high scorings on the PULSSe method. This was unexpected and the authors of this paper hypothesized that this was due to European financing of such websites and the need to achieve predetermined KPIs. These led to a higher than average quality of websites UX and UI, which scored higher on the PULSSe method.
- H2 was invalidated because the authors of this paper could not find any correlation between a PULSSe score and the education level of the municipalities' citizens.
- H3 was invalidated as most of the municipalities PULSSe score was higher than the private companies PULSSe score. This is mainly due to the quantity of official and mandatory information that the municipalities are obliged to publish on the websites in a visible and user-friendly manner. It can also, paradoxically, be a result of the lack of in-house specialists, that compels city halls to 'outsource' their websites to private companies with web design experience and expertise.

The most relevant result obtained was the one in which a more progressive party achieved a higher PULSSe score than a more conservative party with traditional views and with priorities that are not internet oriented. It is, however, a tool that can be an indicator of a municipality that has a higher degree of web-based knowledge, web services and e-governance.

Our analysis also showed that, on average, the quality of the municipalities' websites compares favorably with those of central public institutions or big private companies. This result, somewhat surprising, shows that, through internal expertise, collaborations with local IT companies or a combination of these two factors, city halls in Romania, by and large, have the knowledge and the tools to gradually improve their online presence.

We can hypothesize, from our previous research and contacts with many public institutions in Romania that, due to the lack of a coherent national effort for creating the infrastructure (technical, legislative, regulatory) for digitalization, the development of e-governance is left to local efforts. Some research (Urs, 2017) show that, in the eyes of IT professionals working in public institutions, managerial support is essential. Anecdotal evidence also points to the idea that in governmental institutions where at least some of

the top management is interested and actively supports digitalization projects, the pace of change and the quality of results is, in general, much higher than in other public agencies, where such support is less enthusiastic. Future research could shed some light on this topic.

The PULSSe tool is a great example of how automation in the online medium allows for the recording of large datasets with relative ease. However, it is not perfect. The main limitation of the tool is the lack of transparency in how it assesses and displays the results. There is no public way to verify some datasets that the tool generates and users are left with the option to either manually record the data, or to trust that the tool is displaying real and relevant results.

References:

1. Abu Doush, I. and AlMeraj, Z., 'Evaluating the Accessibility of Kuwaiti E-government Websites', 2019, *Jordanian Journal of Computers and Information Technology (JJCIT)*, vol. 5, no. 3, pp. 152–169.
2. Acosta-Vargas, P., Luján-Mora, S. and Salvador-Ullauri, L., 'Quality Evaluation of Government Websites', Institute of Electrical and Electronics Engineers, 4th International Conference on eDemocracy & eGovernment (ICEDEG), 2017, pp. 8–14.
3. Agostino, D., Arnaboldi, M. and Lerna, M.D., 'New Development: COVID-19 as an Accelerator of Digital Transformation in Public Service Delivery', 2021, *Public Money & Management*, vol. 41, no. 1, pp. 69–72.
4. Alcaraz-Quiles, F., Urquia-Grande, E., Munoz-Colomina, C.I. and Rautiainen, A., 'E-government Implementation: Transparency, Accessibility and Usability of Government Websites', in Alcaide Munoz, L. and Bolivar, M.P.R. (eds.), *International E-Government Development*, Palgrave Macmillan, 2018, pp. 291–306.
5. Alshira'h, M.H., 'The Effects of Usability and Accessibility for E-Government Services on the End-user Satisfaction', 2020, *International Journal of Interactive Mobile Technologies*, vol. 14, no. 13, pp. 78–90.
6. Bačik, V. and Michal, K., 'Web Pages and Social Networks of Municipalities in Slovakia as a Basic Communication Channel of Self-government: An Analysis of Their Development and Current State, Including Distribution of Results on the Internet', 2021, *Bulletin of Geography, Socio-Economic Series*, no. 53, pp. 71–86.
7. Bajracharya, D. and Bajracharya, Y., 'Comparison between Government and Commercial Websites Broken Links', 2020, *International Journal of Engineering Applied Sciences and Technology*, vol. 5, no. 2, pp. 98–104.
8. Baker, D., 'Advancing E-Government Performance in the United States through Enhanced Usability Benchmarks', 2009, *Government Information Quarterly*, vol. 26, no. 1, pp. 82–88.
9. Belanche, D., Casaló, L.V. and Guinalúa, M., 'Website Usability, Consumer Satisfaction and the Intention to Use a Website: The Moderating Effect of Perceived Risk', 2012, *Journal of Retailing and Consumer Services*, vol. 19, no. 1, pp. 124–132.
10. Brajnik, G., 'Automatic Web Usability Evaluation: What Needs to Be Done?', [Online] available at <http://users.dimi.uniud.it/~giorgio.brajnik/papers/hfweb00.html>, accessed on November 13, 2021.

11. Cañizares-Espada, M., Muñoz-Colomina, C.I., Pérez-Estébanez, R. and Urquía-Grande, E., 'Transparency and Accessibility in Municipalities: The Case of Social Services in Spain', 2021, *Central European Journal of Public Policy*, vol. 15, no. 1, pp. 31–54.
12. Caulkins, J.P. *et al.*, 'The Optimal Lockdown Intensity for COVID-19', 2021, *Journal of Mathematical Economics*, vol. 93, DOI: 10.1016/j.jmateco.2021.102489.
13. Cegarra-Navarro, J.-G., Pachón, J.R.C. and Cegarra, J.L.M., 'E-government and Citizen's Engagement with Local Affairs through E-websites: The Case of Spanish Municipalities', 2021, *International Journal of Information Management*, vol. 32, no. 5, pp. 469–478.
14. Csontos, B. and Heckl, I., 'Accessibility, Usability, and Security Evaluation of Hungarian Government Websites', 2020, *Universal Access in the Information Society*, vol. 20, pp. 139–156.
15. Dolson, J. and Young, R., 'Explaining Variation in the E-Government Features of Municipal Websites: An Analysis of E-Content, E-Participation, and Social Media Features in Canadian Municipal Websites', 2021, *Canadian Journal of Urban Research*, vol. 21, no. 2, pp. 1–24.
16. Economist, 'The Global Normalcy Index', 2021 [Online] available at <https://www.economist.com/graphic-detail/tracking-the-return-to-normalcy-after-covid-19>, accessed 19 November, 2021.
17. Eschenfelder, K., Beachboard, J., McClure, C. and Wyman, S., 'Assessing U.S. Federal Government Websites', 1997, *Government Information Quarterly*, vol. 14, no. 2, pp. 173–189.
18. European Commission, *Digital Economy and Society Index (DESI) 2021*, 2021, Brussels: European Commission.
19. Flavián, C., Guinaliu, M. and Gurrea, R., 'The Role Played by Perceived Usability, Satisfaction and Consumer Trust on Website Loyalty', 2006, *Information Management*, vol. 43, no. 1, pp. 1–14.
20. Fogg, B.J., Marshall, J., Laraki, O. and Osipovich, A., 'What Makes Web Sites Credible? A Report on a Large Quantitative Study', 2001, CHI '01: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, pp. 61–68, DOI:10.1145/365024.365037.
21. Gabryelczyk, R., 'Has COVID-19 Accelerated Digital Transformation? Initial Lessons Learned for Public Administrations', 2020, *Information Systems Management*, vol. 37, no. 4, pp. 303–309.
22. Godfrey, E., 'Another Truth about Remote Work', *The Atlantic*, September 20, 2021.
23. Huang, Z. and Benyoucef, M., 'Usability and Credibility of E-government Websites', 2014, *Government Information Quarterly*, vol. 31, no. 4, pp. 584–595.
24. Huang, Z. and Brooks, L., *Addressing e-Government Website Usability – A Users' Centered Evaluation*, Noordwijkerhout, WEBIST, 2011.
25. Islam, M., Rahman, S. and Islam, M., 'Assessing the Usability of E-government Websites of Bangladesh', International Conference on Electrical, Computer and Communication Engineering (ECCE), February 2017, pp. 875–880.
26. Janssen, M. and van der Voort, H., 'Agile and Adaptive Governance in Crisis Response: Lessons from the COVID-19 Pandemic', 2020, *International Journal of Information Management*, vol. 55, 102180, DOI:10.1016/j.ijinfomgt.2020.102180.
27. Jati, H. and Dominic, D., 'Quality Evaluation of E-government Website Using Web Diagnostic Tools: Asian Case', Conference: Information Management and Engineering, Kuala Lumpur, Institute of Electrical and Electronics Engineers, 2009, pp. 85–89.

28. Karabag, S.F., 'An Unprecedented Global Crisis! The Global, Regional, National, Political, Economic and Commercial Impact of the Coronavirus Pandemic', 2020, *Journal of Applied Economics and Business Research*, vol. 10, no. 1, pp. 1–5.
29. Karani, A., Thanki, H. and Achuthan, S., 'Impact of University Website Usability on Satisfaction: A Structural Equation Modelling Approach', 2021, *Management and Labour Studies*, vol. 46, no. 2, pp. 119–138.
30. Kodama, M., 'Digitally Transforming Work Styles in An Era of Infectious Disease', 2020, *International Journal of Information Management*, vol. 55, 102172, DOI:10.1016/j.ijinfomgt.2020.102172.
31. Kopackova, H., Michalek, K. and Cejna, K., 'Accessibility and Findability of Local E-government Websites in the Czech Republic', 2010, *Universal Access in the Information Society*, vol. 9, no. 1, pp. 51–61.
32. Król, K. and Zdonek, D., 'Local Government Website Accessibility – Evidence from Poland', 2020, *Administrative Sciences*, vol. 10, no. 2, pp. 1–17.
33. Król, K. and Zdonek, D., 'Local Government Website Usability on Mobile Devices: Test Results and Recommendations', 2021, *Digital Policy, Regulation and Governance*, vol. 23, no. 2, pp. 173–189.
34. Kuzma, J., 'Accessibility Design Issues with UK E-government Sites', 2010, *Government Information Quarterly*, vol. 27, no. 2, pp. 141–146.
35. Kwangsawad, A., Jattamart, A. and Nusawat, P., 'The Performance Evaluation of a Website Using Automated Evaluation Tools', 2019, Bangkok, IEEE Xplore, pp. 1–5.
36. Manoharan, A. and Wu, H.-C., 'Digital Branding for Government Public Relations', in Lee, M., Neeley, G. and Stewart, C., (eds.), *The Practice of Government Public Relations*, New York: Routledge, 2022, pp. 153–174.
37. Mercer Global, *Business Responses to the COVID-19 Outbreak*, Mercer Global, 2020.
38. Moon, M., 'The Evolution of E-Government among Municipalities: Rhetoric or Reality?', 2002, *Public Administration Review*, vol. 62, pp. 424–433.
39. Nachit, H. and Belhacen, L., 'Digital Transformation in Times of COVID-19 Pandemic: The Case of Morocco', 2020 [Online] available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3645084, accessed on July 16, 2021.
40. Nielsen, J., *Designing Web Usability: The Practice of Simplicity*, New Riders Pub, 1999.
41. Nnko, N., 'Usability, Accessibility and Web Security Assessment of E-government Websites in Tanzania', 2017, *International Journal of Computer Applications*, vol. 164, no. 5, pp. 42–48.
42. Parker, K., Horowitz, J. and Minkin, R., 'How the Coronavirus Outbreak Has – and Hasn't – Changed the Way Americans Work', 2020, Pew Research Center.
43. Robins, D. and Holmes, J., 'Aesthetics and Credibility in Web Site Design', 2008, *Information Processing & Management*, vol. 44, no. 1, pp. 386–399.
44. Scott, J., 'Assessing the Quality of Municipal Government Web Sites', 2005, *State & Local Government Review*, vol. 37, no. 2, pp. 151–165.
45. Sicilia, M., Pérez, R. and Heffernan, T., 'How Do E.U. Cities Utilise Their Websites? A Content Analysis and Suggestions for Improvement', 2008, *Journal of Internet Business*, no. 5, pp. 2–26.
46. Svobodová, L., Olejniczak, J., Bednarska-Olejniczak, D. and Dittrichova, J., 'Use of Web 2.0 and Social Networks by Regional Cities in the Czech Republic and in Poland', International Scientific Conference "Hradec Economic Days", Hradec Kralove, 2019, pp. 382–393.

47. Tavares, A.F. and da Cruz, N.F., 'Explaining the Transparency of Local Government Websites through a Political Market Framework', 2020, *Government Information Quarterly*, vol. 37, no. 3, 101249, DOI:10.1016/j.giq.2017.08.005.
48. Tekemen, F. and Tanriover, O., 'Website Usability Evaluation with Quickly Applicable Guidelines: An Assessment of a Government Website', 2017, *Global Journal of Computer Sciences: Theory and Research*, vol. 7, no. 1, pp. 8–16.
49. Thompson, T.S., Shirish, C. and Jiang, L., 'Trust and Electronic Government Success: An Empirical Study', 2008, *Journal of Management Information Systems*, vol. 25, no. 3, pp. 99–131.
50. Urs, N., 'E-government Services in Romanian Cities: A Look from the Inside', CEE e|Dem and e|Gov Days 2017, *Digital Divide in the Danube Region: Is It Still Significant in Explaining ICT Adoption in eDemocracy and eGovernment?*, Austrian Computer Society, 2017, Wien, [Online] available at SSRN <https://ssrn.com/abstract=3044272>, accessed on November 11, 2021.
51. Urs, N., *Evaluarea guvernării electronice în orașele din România* [Evaluation of e-government in Romanian Cities], 2020, [Online] available at <https://fspac.ubbcluj.ro/ro/evenimente/evaluarea-guvernarii-electronice-orasele-din-romania>, accessed on November 19, 2021.
52. Wang, L., Bretschneider, S. and Gant, J.P., *Evaluating Web-based E-Government Services with a Citizen-centric Approach*, Honolulu, HICSS, 2005.
53. Welch, E., Hinnant, C. and Moon, M., 'Linking Citizen Satisfaction with E-Government and Trust in Government', 2005, *Journal of Public Administration Research and Theory*, vol. 15, no. 3, pp. 371–391.
54. Youngblood, N. and Mackiewicz, J., 'A Usability Analysis of Municipal Government Website Home Pages in Alabama', 2012, *Government Information Quarterly*, vol. 29, no. 4, pp. 582–588.
55. Zappen, J., Harrison, T. and Watson, D., 'A New Paradigm for Designing E-government: Web 2.0 and Experience Design', Proceedings of the 9th Annual International Conference on Digital Government Research, Partnerships for Public Innovation, DG.O 2008, Montreal, Canada, May 18–21, 2008.