How usable and clear are the websites of European capitals from the point of view of German students adopting an E-Government perspective?

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Abstract

With the help of our sophisticated evaluation tool for information artifacts (IA), the websites of 17 European capitals were assessed by four groups of evaluators from a degree program in Administration working independently of each other and applying an E-Government perspective. The results of this concrete user experience (UX) substantiate current best practice models, and provide very definite suggestions for improvement. As a general finding for all websites, it appears that the main evaluation categories Ease of Use, Noise Reduction, and Quality are, as a rule, better satisfied than Adjustment, Further Performance Features, and Affection.

1. Introduction and Motivation

Generally speaking there is no scientifically standardized and binding definition of E-Government. In addition, there are overlaps with other concepts like open government [17] and social media [14] as well as further developments in the direction of smart government and smart governance [22]. This heterogeneous terminology takes us back to the Speyer definition of E-Government [13], on the basis of which the classical fields of E-Government application can be classified according to three different levels of interaction: information, communication, and transaction. In its simplest form, E-Government comprises E-Information services, including information systems (IS) catering to citizens, tourists, businesses, and committees. Extending these information services, or ones like it, to include the possibility of exchange, dialogue, or even participation (E-Participation) opens the door to real E-Communication. In tandem with E-Forms and E-Transactions, the provision of goods and products with electronic payment systems (E-Commerce) and general services (E-Services) constitutes the third level of interaction between citizens or businesses and administrative bodies/government. Longitudinal exploratory studies certainly indicate similarities, while also suggesting differences, between, for example, private-sector E-Commerce and E-Government: “Transaction processing was found more sophisticated and of far higher volume in commerce than in government” [1].

Independent of such differences, all the areas of application for E-Government require coordinated, business processes to handle working operations (E-Workflow) at the so-called front and back ends (see also [11], [28]). And across all three levels of interaction, the forms these electronic processes take are a reflection, more or less, of democratic structures [5] and conceptions (E-Democracy). Technical systems and procedures thus become an instrument of deliberate and targeted social intervention [5]. Existing technological and/or organizational structures both enable and limit human–computer interaction (HCI) [9]. The new IS-related ability to shape process-oriented interaction and create real added value for citizens, businesses, and administrations (E-Benefit) will determine the success of E-Government [15].

Governments at different levels and around the world invest in the development of strategies to promote their goals in E-Government, which are based on their knowledge and available resources [10]. As the results of the investigation by [10] show, success in E-Government relies on multiple factors associated with a dynamic set of contingencies that influence information technology (IT) initiatives [10]. Moreover, “the measures of project success or failure were mostly not defined ex ante. Process improvements/speed-ups and cost savings were the most frequently cited measure of project success. […] Not all projects reached the implicitly expected goals” [21]. Bertot et al. (2008) see the promise of E-Government and its spin-off “E-‘s” not only in the user-centered engagement of citizens in see the promise of E-Government and its spin-off “E-‘s” not only in the user-centered engagement of citizens in government but also in the qualitative development of government services and in efficient and effective delivery systems. Citizens have practical online experience of the three levels of interaction (information, communication, and transaction) through the use of websites and integrated IS. User experience (UX) is a concept
that covers the total effect on the user of all the elements of an information artifact (IA) like a website or an IS and provides key information for its user-oriented development. UX is not a nebulous idea but is measurable - three elements are of interest [26]: an involved user, HCI between user and IA, and the user's experience.

HCI quality, performance, and other criteria for government websites of this type are useful indicators of a citizen's acceptance of E-Government services. But, as Bertot et al. (2008) have argued, the difficulty of providing efficient, cost-effective, citizen-oriented services lies in the fact that to date governments have had little idea of what citizens of E-Government want. Moreover, citizen-oriented E-Government needs to cater to a range of very different user groups - e.g. foreign citizens who want to find out something about the country [3] or wish to visit it as tourists. The findings of Bertot et al. (2008) “do indicate a general lack of citizen inclusion in the development, design, and implementation of E-Government services and resources,” which can lead to a range of barriers for users [21].

The success of online information portals relies, to a large degree, on the clear presentation and accuracy of information, the range of functions provided, and user-friendly operation as well as the overall build and design of the websites. But what about their evaluation? As Elling et al. (2012) summarized, “the need to evaluate the quality of governmental websites” using many different evaluation methods “is widely acknowledged”. The method and the tool used here for the evaluation of a total of 17 European capitals (see chapter 3) by four independent groups of 5th-semester students of administration in WS 2014–15 will be elucidated in chapter 2. The assessment categories used, the project and evaluation scenario, and the research questions (RQ) are also described in chapter 2. In chapter 3, we briefly outline the project results. A general discussion of these results in relation to further literature, the answering of the RQ, and aspects of transferability to citizens are covered in chapter 4. The outlook and necessary ongoing research is summarized in chapter 5.

2. Methodological Scenario

2.1. Evaluation tool TEDS*MOODLE

The results presented here are based on the application of the TEDS*MOODLE tool [24], developed to implement the methodology and criteria of the TEDS framework [20], which builds on Taylor’s concept of value-added processes for evaluating human needs when dealing with IT [25]. The framework was used in general for sports website evaluation and for international soccer clubs in particular (e.g. [13]), including a 13-step procedure to evaluate a defined “anchor” and the IA under review. The evaluation application is an integrated “activity” in the Moodle learning platform, which has been fully operational, complete with didactical and technical support, since winter 2013 [22]. The results shown here are the first to refer to a new Europe-wide TEDS evaluation of municipal websites (see chapter 3). The URL was specified for each city and the reviewer groups were each provided with their own TEDS activities in Moodle, which means that the anonymized evaluation results are specific to each group. Berlin was chosen as an “anchor” and reference artifact.

The evaluation itself is set up according to a German-style five-point Likert scale: “Strongly agree” (1), “Agree” (2), “Neither agree nor disagree” (3), “Disagree” (4), “Strongly disagree” (5) [23]. The evaluation tool yields statistical values, such as the average, standard deviation, mode, and median of the Likert data. Ultimately, every TEDS activity for each website provides an initial statistical evaluation and throws up a graph of frequency distribution for each criterion. The raw data is freely available to reviewers on the Moodle platform and can be downloaded for their own evaluations.

2.2. Assessment categories, criteria, questions

The TEDS framework distinguishes six main evaluation categories (see Fig. 1) carefully divided into the original 40 sub-criteria [20]. When set against current research on IS success factors [19], we find a number of overlaps and differences, because the TEDS framework targets the UX for IA but does not focus on organizational roles or project management. In the actual assessment our specific integration application has 33 sub-criteria, which are shown in detail in [23] (see also Fig. 3): Ease of Use (criteria 1–5), Noise Reduction (6–12), Quality (13–17), Adaptability (18–26), Additional Performance Features (27–28), and Affection (29–33). Each TEDS activity in the Moodle platform guides reviewers through the 33 evaluation criteria, while they perform a Likert assessment on an IA viewed in parallel. In order to reduce misunderstandings of the individual criteria during the procedure, the reviewers can see both the main category with its individual criteria and a clarificatory question as a support resource, as well as a picture offering helpful input (see [23]).
2.3 Project and Evaluation Scenario

The Administration and Law (VR) program gives students a comprehensive understanding of public law, finance, and management. Students gain knowledge about E-Government and develop social competences for subsequent interactions with citizens. The program qualifies students to work in high-level nontechnical civil service positions in Germany. Foreign language instruction is an essential part of all faculty curricula. English is, however, the only compulsory subject for the VR.

The evaluation of European websites was carried out as a student project assignment in the 5th semester of the VR program (VR 12), accompanied by independent project, risk, and quality management. The evaluation scenario was to carry out the review as European citizens assessing the websites from an E-Government perspective. The TEDS framework methodology, the literature, and the computer-assisted tool that were to be used to evaluate the websites were presented in the first lecture in WS 14/15. The project scenario envisaged the formation of four student project teams, each consisting of nine members to ensure that the individual results of the groups would also be meaningful. All four groups were set the same evaluation task. The assessments were independently planned in each team and were to be carried out by each participant individually and at separate times and places. A follow-up group discussion about the differences and commonalities in the evaluation results is conducted to avoid misunderstandings about individual criteria but not in an attempt to achieve uniformity. This means that each project team generates nine reviews per website, and these can then be compared with one another. The teams had to substantiate their analysis and suggestions for possible improvements and submit them in writing as a project paper. This produced evaluation data from four comparable project teams, which was then examined in detail for this publication. The home pages that were to be studied (see chapter 3) were preassigned at the request of the students. The criterion for the choice of European capitals was their population size, which had to be in excess of one million. Specifying the URL in advance as a student project assignment in the 5th semester of the VR program (VR 12), accompanied by independent project, risk, and quality management. The evaluation scenario was to carry out the review as European citizens assessing the websites from an E-Government perspective. The TEDS framework methodology, the literature, and the computer-assisted tool that were to be used to evaluate the websites were presented in the first lecture in WS 14/15. The project scenario envisaged the formation of four student project teams, each consisting of nine members to ensure that the individual results of the groups would also be meaningful. All four groups were set the same evaluation task. The assessments were independently planned in each team and were to be carried out by each participant individually and at separate times and places. A follow-up group discussion about the differences and commonalities in the evaluation results is conducted to avoid misunderstandings about individual criteria but not in an attempt to achieve uniformity. This means that each project team generates nine reviews per website, and these can then be compared with one another. The teams had to substantiate their analysis and suggestions for possible improvements and submit them in writing as a project paper. This produced evaluation data from four comparable project teams, which was then examined in detail for this publication. The home pages that were to be studied (see chapter 3) were preassigned at the request of the students. The criterion for the choice of European capitals was their population size, which had to be in excess of one million. Specifying the URL in advance was a way to ensure a consistent database.

2.4 Research Questions

The project and evaluation scenario generated multiple research questions (RQ). For example, is it also interesting for the curriculum of the VR program if the evaluation scenario can introduce students to scientific methodology and practical empiricism? And from the point of view of the project scenario, there is also the question of whether these kinds of assignments will initiate self-organized research-based learning. However, these research questions are not given further consideration here. Instead, the following RQ have been specified from the perspective of E-Government:

RQ#1 Do German students with a knowledge of English and E-Government matters understand the website for the European capital in question in terms of the concept and logic applied, its language, and its intuitive operation, etc.? What is the distinct user experience in comparison to the other European websites? Is there a general consensus in the student reviews?

RQ#2 Can the student results be applied across the board to citizens? Are the websites constructed in a way that is user-friendly and comprehensible to European citizens, or does each city cater more narrowly to the requirements of its own inhabitants?

RQ#3 Is the scientifically based TEDS*MOODLE tool that was used for practically assessing European websites suitable for providing citizens with online access to evaluation criteria and standards in a way that is self-explanatory?

These research questions will be answered in chapter 4 after the presentation of a selection of individual results in the next section.

3. Tool Usage and Student Results
3.1. Berlin Website as Anchor

In the evaluations of the Berlin anchor web pages, one is struck by the very low variance in the results for the individual groups. This is indicative, on the one hand, of the fact that the groups had discussed the criteria with each other in advance, and shows, on the other, that this website is clearly “easier” to evaluate, because the users have an existing relationship to the city. The groups seek to get an understanding of each site, e.g. by checking concerns specific to E-Government, such as housing benefit, and the up-to-dateness of the entries. Looking at the mean values from all four groups, broken down according to the main categories (Fig. 1), it is evident that on average, the site received very good reviews apart from in the Adjustment category, which gets a neutral rating. This is one area here there is clearly room for improvement. A detailed review of the other criteria (Fig. 3) shows a very fine breakdown of points of weakness. The biggest “lapse” is in Adjustment Community, indicative of the fact either that there were no forums on the website or that none were found.
Evaluator “expectations” also play an important role. Here, for example, there was a significant variance, because some reviewers expected that there would certainly be links to social networks like Twitter, Facebook, or YouTube. Since Berlin’s E-Government portal does not have this on its homepage, this subcategory fared poorly as a result.

Overall, the individual results for Berlin show that in many cases reviewers were disappointed not to have the ability to customize the site as a whole, e.g. in the form of a function that would change the font size or a text-to-speech capability for people with disabilities. Not only was it impossible to customize the search results and presentation of information but criticism was also made of the fact that it was relatively difficult to find the feedback option. Discrepancies with a noticeably high variance occurred in criterion # 21 (transaction). This is due to the fact that some reviewers found fault with the lack of a shopping cart, whereas others responded positively to the option of purchasing theater tickets via an Eventim pop-up window. Varying expectations also led to discussions about criterion # 26, although for most reviewers data privacy was covered by a data privacy statement and https encryption for key pages.

Overall, a positive rating was given to the Berlin website’s option of opening the page in eight different languages, the clear and coherent structure, the online process for bureaucratic procedures with multiple options for accessing contact, calendar, and form-filling functions. Reviewers were also able to find all the information they were looking for. Its accuracy could also be confirmed.

3.1. Comparison of Websites from Sixteen European Capitals (IA)

No generalized conclusions should be categorically drawn based on the evaluation results of the four independent student groups (Tab. 1), which included a total of 36 reviewers, rather the view of the services on offer needs to be accentuated by highlighting possible areas of improvement. Starting from the mean value of all four project groups and all 33 criteria, the Vienna website tops the list, followed by London, Berlin, Brussels, and Warsaw (Fig. 2). The last five places go to Rome, Budapest, Sofia, and Madrid, with Bucharest at the bottom of the list. Examining the results of the individual project groups yields a differentiated evaluation (Tab. 1). Vienna is the undisputed “winner” in three groups. A look at the first five spots shows clear overlaps, and it is by no means only western capitals in this group: besides Warsaw, the Belgrade and Prague websites are also positively rated. Bringing up the rear in table 1, we do not just see a uniform spread of eastern European capitals—
instead what stands out is the relatively poor evaluation of the websites of the western metropolises Rome and Madrid. The key rankings for the four groups can be summarized as follows:

**Table 1.** Group rankings of the evaluated municipal websites based on average values of the four reviewer groups, places 1–5 and 13–17.

<table>
<thead>
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Vienna (1st place on average):
http://www.wien.gv.at For the website of the Austrian capital, the evaluations of the individual criteria are generally 1 or 2, with the worst being 3, i.e. neutral (Fig. 4a). This illustrates the good impression that the site makes on all reviewers. There are also no language barriers here, as it is available in German, English, Turkish, and Bosnian/Croatian/Serbian. It has a very good structure and clear organization. All the information could be found, and applications and forms could be filled out and appointments booked online, which constitutes a comprehensive saving in terms of time and costs. The information density and accuracy of the Turkish pages were also rated as on a par with the German and English pages. Questions are answered via a virtual administrative office. Contact addresses, hotlines, a search function, and feedback options are also provided. A shopping cart can be used to order publications. Moreover, there was extensive data privacy and https encryption. The font size of the pages can also be adjusted.

London (2nd place on average):
http://www.cityoflondon.gov.uk/Pages/default.asp The website of the British capital is in the top five in all four groups and is above Berlin in three of the reviewer groups (Tab. 1). There are rogue results here (not shown) in criteria # 20 (Simplicity) and 25 (Localization)—the former seems to indicate certain customization problems, while the latter is due to a lack of language settings, as the website is only available in English. Even if the website shows a stronger orientation toward tourists, with the administrative aspects only appearing as background functions, forms and applications can be filled out online, saving time and money. However, it does not include the option of making appointments online, and the prominent shopping cart is only available for books and postcards. It was not possible to make personal adjustments, e.g. changing the font size, and there were no text-to-speech or sign language functions. A positive rating was given to the site’s clear structure, its attractive design, a working search function and multiple options for giving feedback. Based on the provision of source references and publication data, it is assumed that the information is complete/correct.

**Figure 4.** Average rating of the six main categories (right) and the mode of the individual criteria (left) by all four reviewer groups for the IA: a) Vienna, b) Warsaw, c) Moscow, and d) Bucharest.
Brussels (4th place on average):  
http://www.brussels.be/artdet.cfm?id=4000  The web presence of the Belgian capital Brussels has a good Internet presence, rated 2.4 (Fig. 2). In particular, positive reviews were given to its excellent structuring and feedback option. The search for specific information was unproblematic. The page made a convincing impression by including sources and publication data. It also offered the possibility of individually adjusting the page view. However, all the group members agreed the feedback area were equally hard to find, which resulted in varied ratings. The site lacked information about data security and a data privacy statement as well as a shopping cart for transactions. The division of the website into a section for citizens and for tourists was positively rated. The layout and the well-structured content was a compelling feature for most reviewers. Particular aspects like the ability to customize the IA via Brussels.me were highlighted as especially positive. In addition to this, open data is already visible.

Warsaw (5th place on average):  
http://www.um.warszawa.pl  The web presence of the Polish capital left all reviewer groups with a positive impression, reflected in an average score of 2.5 (Fig. 2). Of particular note are its very clear arrangement and the fact that the “useful links” are rated as really being helpful. There is detailed information about data protection, which, however, was not found by all reviewers. The up-to-dateness of the website is augmented by a calendar, which links to events that are running that day. The website can be opened in Polish, English, and Russian. The search function yields good results, although they are not always language compatible. As the modal values in Fig. 4b (left) show, the categories Ease of Use and Noise Reduction are often rated as “good” or “excellent.” There were rogue negative results in criterion # 21 (Transaction), as there was no shopping cart available, and # 23 (Community), as no forums were found.

Belgrade (6th place on average):  
http://www.beograd.rs/cms/view.php?id=220  For many reviewers, the information on the Belgrade website was easy to find. One reason for this is its clear breakdown into main topics with further subtopics, meaning that information could be attained very easily without resorting to the search function and could then be retrieved without difficulty. Although it is noticeable that the website (with a Legal Notice from 2006) is not up to date, direct source references and publication data for the reports suggest that the site is reliable and trustworthy. It includes the option to give feedback and can be switched into various languages. It cannot be adjusted in all the ways one would expect, and the reviewers were unable to find a data privacy statement or https encryption.

Prague (7th place on average):  
http://www.praha.eu/jnp/en/index.html  The web site for the Czech capital had a clear presentation which was favorably reviewed, even if it received an average rating of only 2.6 (Fig. 2). PG#3 gave the best score based on the site’s organization and formatting of information. Tourist information and resources for citizens, complete with contact details, can be found directly on the home page. The administrative page has a clear structure and is kept up to date with daily news. There are functioning links and access to social networks. The page can be opened in Czech and English, although in the English version some articles appeared in Czech. Fault was found with the fact that the requests in the search field did not deliver results in a satisfactory way.

Paris (8th place on average):  
http://www.paris.fr  The site for the French capital encourages visitors to stay on its pages with its strongly tourist-oriented presentation. It includes the option of choosing three different languages: French, English, and Spanish. However, on examining the site further, it transpired that the translations were, in fact, not thoroughly matched, which made it difficult to obtain information. PG#1’s assessment thus shows a rather significant variance, and it emerged from the discussion that, while the service offered to citizens in French was rated as “very good,” not all the reviewers were able to understand it, as the information in English was kept to a minimum. Criticism was made of the fact that there is no precise breakdown of topics, the site is not up to date, and long texts coming up in search results.

Moscow (9th place on average):  
http://www.mos.ru  The website for the Russian capital made a good, clear overall impression on many reviewers, even if the average score was also only 2.8 (Fig. 2). It has a structured design, which makes it easy to search for specific information, although the search function revealed some problems. Forms can be filled out online, which saves time and allows users to give feedback. Daily news gives the site an up-to-date feeling. The pages are available in Russian and English. The function of choosing a city neighborhood and getting immediate information about it was seen as a positive feature. As Fig. 4c shows, the evaluation for many criteria was similar to the ratings for Warsaw. There are marked differences, though, in a more negative assessment of criteria # 9 (Linkage/Referral), 26 (Privacy), 29 (Aesthetics), 31 (Engagement), and 32 (Stimulation). The feedback function was positively rated by all reviewers (criterion # 17).

Athens (10th place on average):
The website for the Greek capital Athens got a neutral rating (3.0) from all groups (Fig. 2). The experience with the search function was very mixed. The option of many different links to other websites was also positively rated, although their functionality could rarely be verified. The website can be called up in Greek and English. The feedback function was difficult to find, because it is located on a subpage. A lack of up-to-dateness (the last update was more than a month old) and the absence of government information caused reviewers to lose a certain amount of faith in the site.

Minsk (11th place on average):
http://minsk.gov.by The website for the Belarusian capital, which is more of a government site, took eleventh place on average and had a neutral mean value of 3.2 (Fig. 2), with the four groups of reviewers more or less in agreement. The existing administrative pages are divided into districts, which have their own separate Internet presence outside the IA under review. It was difficult to rate the site in the absence of any real relationship to the City of Minsk. The site can be configured in Russian and English and was generally seen as clear and well structured.

Kiev (12th place on average):
http://www.kmu.gov.ua/control/en/publish/article?art_id=335366 The website for the Ukrainian capital also caters more to governmental concerns than the handling of administrative matters. The actual up-to-dateness of the information was marked as a positive feature by all groups, along with the absence of advertising, pop-ups, and other distractions. Overall the majority of reviewers were dissatisfied, because the navigation through the information and its formatting were thought to be unclear and not very user-friendly. The lack of a feedback form and data privacy statement and some nonfunctioning links were also criticized.

Rome (13th place on average):
http://www.comune.roma.it/PCR/do/jpsite/Site/home The website for the Italian capital looks modern and clear, is free of advertising, and has functional links. It includes Italian and English as language choices. Strictly speaking, the home page is the only part in English, and a knowledge of Italian is needed to conduct more in-depth research. This language barrier had a negative impact on search requests and results. The up-to-dateness of the site was also given a poor rating because it contained obsolete articles.

Budapest (14th place on average):
http://budapest.hu/sites/english/Lapok/default.asp The website for the Hungarian capital did not win over any of the four reviewer groups (Tab. 1): it is in the bottom five places in all the groups. Although tourism is foregrounded here and administrative information is difficult to locate, the predominant finding is that it is also an extremely complicated matter to get official information. The significant variances in the individual results can be put down to the fact that some of the reviewers used translation tools to enable them to carry out the evaluation in an informed way, while others did not.

Sofia (15th place on average):
http://www.sofia.bg The information on the Bulgarian website is noted as being “sparse” and not intrinsically accurate. The modal values for the evaluation criteria were only very occasionally positive (not shown). Good scores were given to the presence of a clear thread, information on data protection, functional links, the lack of advertising, and the option of providing feedback. Although the website is available in Bulgarian and English, the subpoints on the menu are not translated and several of the English translations offered were incomprehensible to a number of reviewers.

Madrid (16th place on average):
http://www.madrid.es The website for the Spanish capital left a number of reviewers with an overall impression that was below “neutral” (Tab. 1), even though the layout was considered to be thoroughly user-friendly and clear. This is primarily because the site is only available in Spanish, which meant that reviewers encountered considerable problems when it came to searching for and finding information quickly and simply. The need to utilize translation tools added significantly to the time required to use the site.

Bucharest (17th place on average):
http://www1.pmb.ro/pmb/index_en.htm Overall, the website for the Romanian capital did little to impress (Fig. 4d) and was bottom of the list when the ratings across all criteria were averaged (Fig. 2). It should, however, be noted that PG#3 was an exception in this respect, as its individual results did not place the site in the bottom five (see Tab. 1). The smooth finding of information and the simplicity of its presentation were positively reviewed.

4. General Discussion and RQ

The toolkit afforded by TEDS*MOODLE yields very detailed evaluation results. Obtaining clarity about the meaning of the criteria by evaluating the anchor thus plays an important role not only in the analysis of the group evaluation but also in the risk and quality management of the student projects. The in-depth discussion also points to the fact that “the affordances that exist for the team may be different from the affordances that exist for individual mem-
bers of the team” [27]. Since the focus was to be on E-Government, it is not surprising that websites in which E-Government functionality and services are already visibly incorporated are on average rated as better than “neutral” (3). Although there are definite differences in the evaluation, and consequently the ranking, by individual, comparable groups, the websites for the cities of Vienna, London, and Berlin were in the top four places for all groups (Tab. 1). To this extent, there is a certain level of consensus in the independent ratings across all the groups.

The language barrier was a major hurdle that all the reviewers were obliged to overcome, as the provision of information, communication, and transaction possibilities was by no means identical in the languages offered on the sites. There was not always an English translation nor was the scope of the information always identical or comprehensible. The translation tools utilized by reviewers were not always as effective as hoped and were time-consuming to use. Almost all the websites should do the necessary homework to at least provide comprehensive information in English as well.

However, the results may also reflect the specific western socialization of the German reviewers or general cultural and sociopolitical differences in Europe. Even though sociocultural influences cannot be excluded, it would not be fair to simply say that western European websites were positively rated, while eastern European sites were not. Moreover, all the student groups set out to submit a sound, scientifically supported analysis.

4.1. Findings vis-à-vis the literature

One difficulty in assessing the success or failure of IS is the fact that different (organizational) groups, like software developers or clients, define success and failure differently [6]. This was also part of the motivation behind providing an identical evaluation assignment for four equivalent project groups. In this sense it is not surprising that there are differences in the reviews. What is more striking, though, is the fact that there was clear agreement in the results of the independent evaluations. The cities’ websites are their public faces. Literature research on E-Government is often focused on the organization of the so-called front-office [11], but it has long been known that the success of E-Government initiatives and front-end services needs back-office streamlining [2]. In order to achieve interorganizational information exchanges and the integration of back offices, Homburg et al. (2002) show the need for process-management techniques, consensus building, and the creation of shared meaning [11]. Here we see a relation to the differences that were found in the services on offer in the various websites we looked at in Europe, as the ability to fill out forms, make appointments, or shop online also requires the smooth integration of front- and back-end processes. In the case of our research, the cities need to build consensus with citizens in their understanding of processes.

Assessing E-Government in the UK, [28] also show the need for effective process management in the public sector connecting internal government systems to online interfaces that allow citizens to conduct electronic transactions: “It is clear that the effective delivery of public services will require harmonisation and integration of business processes and supporting IS/IT systems between various stakeholders such as, government agencies, business partners, employees and citizens”. According to the results of our four reviewer groups, the London website fulfills many of the criteria that were tested and takes second place on average in the rankings. This leads to the obvious conclusion that practical lessons have been learned from the inefficient findings of previous research.

In some of the reviews, in particular in the main category Noise Reduction, we can surmise the influence of user technology and user settings. This results in a major variance in the reviews, based on the fact that some reviewers had installed an ad-blocker, while others had not. Reviewers also have different attitudes to cookies, which has an impact on the saving of language settings. Such specific technological barriers in the context of information sharing and integration could be overcome or eliminated with a certain amount of effort and must be distinguished from “boundaries,” which are actual limitations, be they hierarchical, personal, geographic, developmental or process-based [29].

4.2. Findings vis-à-vis the RQ

In light of their studies and compulsory internships in professional practice, reviewers have more concrete ideas about E-Government and its possible services, although this may apply rather less on the international level. In response to RQ#1, we can note a) that the German students with their knowledge of English and of E-Government were able to perform an in-depth scientific analysis of the selected websites and substantiate their results; and b) that in the results of their independent evaluations, the four groups reached a certain common consensus. Language barriers occurred when the website failed to provide sufficient information. Transferability to citizens: A look at the Eurobarometer figures for 2012 [4] shows that 54 % of EU
citizens speak at least one foreign language, whereby the most common of these languages is English. This makes it clear that the recommendation of the student reviewers that the websites should at least present their full range of information and services in English as well, has some validity for many European citizens. We can also assume that the student groups conducted their projects with a serious intent and were probably more persistent than many other citizens would be in their efforts to explore the websites. From this we can conclude that it is more important that the information is intelligible than simply that it is available. Since, within the EU at any rate, citizens are invited to take part in consultations and discussions [8] it should be possible to build a bridge between reviewer interests and citizen interests.

To reiterate the above and answer RQ#2, we ought to be able to transfer many aspects of the student user experience and critique and apply them to the interests of citizens in general, especially as the students are also European citizens themselves. However, comparable investigations of sociological factors within technosociological research are required. Differences may also show up here, e.g. with data protection and data security. This topic is particularly important for German reviewers, and the Berlin anchor only stands mid-table here, clearly bettered by the Vienna website. It can be surmised from several of the websites that they are closely targeted at their own clientele, be it through a lack of or minimal foreign language information or the reduced number of services on the government pages. The results of the student reviews show a tendency towards similar expectations with regard to user orientation, intelligibility, and effectiveness to those shown in the international Study of the Future of 2013 [16]: Global differences notwithstanding, a trend can be determined toward simple, quick, trustworthy processes.

Evaluation tool TEDS*MOODLE: The tool is seen by students as an excellent method for evaluating the online IA. There were no problems in applying it, and it is easy to use and intelligently structured. Content-wise, as an addition to the Likert value 3 for “neutral,” students suggested having an explicit “cannot be rated” option. In response to RQ#3, it was found that the tool is practically and comprehensively suited as a scientifically based tool for evaluating the European websites. However, in order to offer this to citizens the conscious integration with the Moodle platform should be abandoned.

5. Conclusions and Outlook

Although the results presented are limited to a small target group of 39 German students the view on the e-government services and user expectations of citizens is sharpened. Besides the many fine-structured factors that can be practically drawn from our research, such as how and why a website of this kind can be improved and for which clientele, the language barriers and the insufficient adjustment capabilities both represent a major challenge that can lead to generally negative assessments of user satisfaction. In the detailed evaluation of the website, user expectations also come into play. In summary, it should be said that, on the websites under review, e-Gov administration services are only presented transparently and intelligibly to a limited extent, and only a few websites are customer oriented and efficiently put together. Looking at all the 17 websites that were evaluated and all four reviewer groups, the main categories Ease of Use, Noise Reduction, and Quality were rated on average as slightly better than “neutral”, with Affection classed as “neutral,” and Adjustment and Additional Performance Features, in particular, seen as slightly worse than “neutral” (not shown). (Dwivedi et al. 2015) explain as a key point in their overview that, with the implementation of a new technical system, one is “potentially changing organizational structures and culture—the way people think and work”. We think that the transformation process related to the paradigm shift that goes along with Web 2.0 [18] also applies to E-Government, and this already characterizes the expectations of the younger generation as citizens. However, further research is needed here too.

6. References


