



infoaccessibilidad
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infoaccessibilidad

Accessibility of Bank Websites in Spain

Synthetic version

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The myriad possibilities internet offers in terms of accessing information and conducting banking transactions have turned "online banking" into a resource that benefits both customer and financial institution alike, as each take advantage of the cost savings on brick-and-mortar personnel and infrastructures.

The Discapnet Information Accessibility Observer, at the initiative of the ONCE Foundation of Spain and the European Development Fund, has been studying web accessibility of a number of different sectors. The present study looks into the banking sector in Spain and its presence on the world wide web. Some 15 representative websites were sampled for 5 pages per site. The pages were then subject to a technical analysis as well as task-based user tests for evaluation.

The resulting scores place this sector at the bottom of the list, from the technical point of view, of all the Observatory's studies to date, and were some of the lowest found in terms of user satisfaction.

Noteworthy amid the otherwise disappointing display were the scores of the La Caixa website, the highest scorer on the technical dimension at a successful compliance rate of 61.54% of the criteria analyzed, and second-place in user satisfaction with a percent rating of 61.67%.

Indeed, on the technical side, only two other websites passed the 25% success mark in complying with the criteria analyzed: eBankinter, at 30%, and Caja Madrid, at 25%.

The top achiever in the user satisfaction feedback was the Banco de Santander website, at 64.44%, in sharp contrast to its low turnout of only 8.33% on the technical analysis.

The people in charge of bank websites in Spain should be aware of the social responsibility involved in complying with accessibility and usability criteria, which in turn can boost both revenue and corporate image. Those criteria, correctly applied, can noticeably benefit not only people with functional limitations, but anyone accessing the web on small devices (such as PDAs) or non-conventional means (such as cell phones).

In addition, by the time the Law on Equal Opportunities, Non-Discrimination, and Universal Accessibility for the Disabled takes effect in 2012, every website offering services or operating online must be accessible to all.

NB: For more information, a detailed version of the present study (in Spanish) can be found on the Observatory website at:

http://www.discapnet.es/Discapnet/Castellano/Observatorio_infoaccessibilidad/default.htm

1. Introduction

The new technology in information and communications is providing ever more and better ways for customers to interact with suppliers of goods and services. It also helps people achieve remotely, from home or work, what used to involve lengthy traveling and waiting. In particular, the relationship between customer and bank has undergone clear changes in recent years. Financial institutions have taken the availability of nearby bank branches one step further by letting users enjoy bank services, transactions, and information from a computer via the web. According to several recent studies, the number of users of Spanish banking websites has soared by 60% in the last 8 years.¹

This new kind of relationship with financial institutions potentially benefits anyone who has difficulty moving, orienting, or relating to overcome the traditional obstacles present in the physical world. The advantages of not having to travel across town, of receiving full attention during the transaction, or of using customized technology available at home or in the workplace suggest a favorable evolution of accessibility for certain user groups as more and more banking services go online.

The purpose of the present study is to provide an overview of the current situation of a sample of websites from Spanish financial institutions. Under evaluation were 15 websites chosen as representative in terms of size, sector, and operator orientation. The websites were selected from the 5 top-ranked banks in the Sector Flash on "Banking and Finance: Savings and Loans and Banks, 2003-2004" in the "ESADE Business Guide" prepared by the Business Information Center of ESADE.² The Banesto website, however, had to be dropped from the sample because of web server problems they were experiencing at the time of the study. In addition, the sample includes the top-ranking savings and loan institutions listed in the aforementioned table. To complete the sample, another 5 bank websites were chosen whose services were specifically designed for online use. Details on the sample are provided in Section 4 below.

The results obtained in this study draw a line which should act as a starting point for reflecting on the current state and for adopting measures that can lead to improving online services. That is the spirit underlying this study: to highlight the achievements made, and encourage actions that open the World Wide Web to everyone, regardless of any limitations they or their equipment may have.

2. The Information Accessibility Observatory at Discapnet

In 2004, the Discapnet Project, co-financed by the ONCE Foundation of Spain and the European Regional Development Fund (ERDF), started up the Info-accessibility Observatory to generate and publicize information on website accessibility, by both analyzing specific sectors as well as comparing across sectors to monitor their development over time. A number of reports on web accessibility are the result of that line of work and have published on the internet.³

¹ For the ADESIIS Netlife study on the web accessibility of financial institutions, see: http://www.adesis.com/prensa/notas/ficha_prensa.aspx?IdNoticia=4

² This document is available at: <http://www.esade.es/guiame/flashs/sectoriales/banca/>

³ These papers are available at: http://www.discapnet.es/Discapnet/Castellano/Observatorio_infoaccessibilidad/default.htm

The purpose of the reports by the Discapnet Info-accessibility Observatory is to inform on and highlight not only the degree of compliance with current norms, but also the good practices and main obstacles on the websites, including assessments from user feedback. It is hoped that a deeper understanding of the strengths and weaknesses identified by web experts and users alike will lead to a better understanding of what constitutes web accessibility in those who are in charge of running, designing or developing a site and its tools and services. Guidelines are also given for improving this increasingly relevant means of communication.

The Observatory employs an innovative methodology designed by Technosite. The methodology follows on the W3C/WAI⁴ guidelines for combining the technical analysis of accessibility with an assessment of the usability and accessibility based on feedback from the users' own experiences:

- Evaluation of the technical aspects takes the Web Content Accessibility Guidelines 1.0 from the W3C/WAI web⁵ as a framework and synthesizes them in a set of indicators applied to a sample of web pages by website. Verification is carried out by professionals running automatic and manual checks..
- Assessment is done by a panel of users of varying functional abilities who undertake a set of tasks and then answer a questionnaire on their perception of each site. This procedure helps identify both the barriers and the aids in using each site, check the "information architecture" (i.e., how the content is organized, how to navigate around the site, perform searches, etc.) as well as determine how individual users interact with the websites.

The combination of both approaches provides information that is relevant, systematic, and qualified regarding accessibility in the sectors subject to this study. With it, insight is gained into how to correct and improve the Internet medium.

3. Selection of the Sample

The field of action involved in this study were 15 websites chosen to include, as mentioned above, Banks, Savings and Loans, and financial services designed for online use. The websites selected were the following:

1. Banco Santander Central Hispano (Santander Group).
2. Banco Bilbao Vizcaya Argentaria (BBVA).
3. Banco Sabadell Atlántico (Banco Sabadell Group).
4. Banco Popular.
5. Banco Pastor.
6. Caja de Ahorros y Pensiones de Barcelona (La Caixa).
7. Caja de Ahorros de Madrid (Caja Madrid).
8. Caja de Ahorros de Valencia, Castellón y Alicante (Bancaja).
9. Caja de Ahorros de Cataluña (CaixaCatalunya).
10. Caja de Ahorros del Mediterráneo (CAM).
11. ING Direct.

⁴ W3C/WAI: Web Accessibility Initiative of the World Wide Web Consortium. For further information, see <http://www.w3.org/WAI>

⁵ Available in English (<http://www.w3.org/TR/WCAG10/>), on the W3C/WAI website, and in Spanish (<http://www.teleservicios.es/accesibilidad/recursos/documentos/index.html>) on the Technosite website.

12. Uno-e (BBVA Group).
13. Bancopopular-e (Banco Popular Group).
14. OpenBank (Banco Santander Group).
15. eBankinter.

On each of the 15 websites above, 5 representative pages were chosen on the following features:

1. Home page
2. Standard page
3. Access page to client area
4. Page with data table
5. Site map

4. Aspects of Accessibility Evaluated

As on previous studies carried out by Technosite for Discapnet's Information Accessibility Observatory, the tests to verify the state of accessibility on the websites under study are divided into two parts:

- A technical evaluation
- A user experience survey

4.1. Results of the Technical Evaluation of Web Accessibility

The section shows the results obtained by evaluating the technical factors of web accessibility of the 75 pages analyzed from the 15 websites in the study.

In order to evaluate the technical aspects of accessibility, twelve aspects were used which synthesize most of the Web Content Accessibility Guidelines on the W3C/WAI 1.0 website (WCAG 1.0) corresponding to levels A and AA. The experts at Technosite, who led the study, consider the WCAG criteria able to provide a synthetic view closely matching the degree of accessibility of a website. Included most are priority 1 aspects, though in some cases those of priority 2 were also used. The criteria that were checked for verification are as follows:

1. **Validation of W3C technologies** (priorities 1 and 2 in WCAG 1.0).
2. **Frames** (priorities 1 and 2 in WCAG 1.0).
3. **Forms** (priorities 1 and 2 in WCAG 1.0).
4. **Text-only alternatives to multimedia elements** (priority 1 in WCAG 1.0).
5. **Headers** (priority 2 in WCAG 1.0).
6. **Units in Style Sheets** (priorities 1 and 2 in WCAG 1.0).
7. **Understandable links** (priority 2 in WCAG 1.0).
8. **Contrast** (priority 2 for images in WCAG 1.0).
9. **Semantic use of colors** (priority 1 in WCAG 1.0).
10. **Alignment of content in tables for layout** (priority 2 in WCAG 1.0).
11. **Data tables** (priority 1 in WCAG 1.0).

12. Scripts (priority 1 in WCAG 1.0).

It should be noted that the web pages analyzed in the study may often undergo changes and updates. Thus, the results gathered here solely reflect the status of the pages on the dates when the study was carried out: July 2006.

To see how the websites as a whole fared on the technical evaluation of web accessibility, Table 1 ranks each site's total score in percentages, from highest to lowest.

Table 1.

Classification of websites, by percent success at correctly applying the criteria analyzed on the technical evaluation of web accessibility

Websites	% Success
La Caixa	61.54
eBankinter	30.00
Caja Madrid	25.00
Banco Sabadell Atlántico	17.02
Banco Pastor	16.67
BBVA	10.87
Uno-e	10.64
CaixaCatalunya	9.09
Bancopopular-e	9.09
Banco Popular	8.51
Banco Santander	8.33
Bancaja	6.98
OpenBank	4.35
IngDirect	4.17
CAM	0.00
Average	14.82

It should be noted that compliance here does not equate to the global accessibility of the site, since the analysis used in this study only considered some of the aspects of accessibility; other verification points of the guidelines remain unanalyzed despite justifiably belonging in the WCAG 1.0.

The scores from the technical analysis of the sampled web pages on travel and transportation-related websites can not be interpreted as favorable. **The overall success rate of compliance with the accessibility standards is 14.82%.**

Individually, the La Caixa website stands out in terms of compliance with the technical criteria analyzed, scoring 61.54%, more than twice that of the next highest scoring website. Of the rest, only 2 scored above 25% (eBankinter at 30% and Caja Madrid at 25%) and 4 passed the 10% line: Banco Sabadell Atlántico (17.02%), Banco Pastor (16.67%), BBVA (10.87%) and Uno-e (10.64%). None of the others reached even 10%, with the Caja de Ahorros del Mediterráneo (CAM) in last place, not managing to validate any criterion at all on any of its pages and thereby earning a score of 0% in this classification.

Table 2.

Classification of the criteria analyzed, in percent success on the technical evaluation tests for web accessibility

Criterion	% success
Table alignment	39.06
Color contrast for images	31.34
Data tables	18.75
Understandable links	16.00
Text alternatives	14.86
Scripts	10.81
Forms	10.26
Headers	5.56
Style sheets	5.33
Valid codes	2.67
Frames	0.00
Semantic use of color	----

Table 2 shows the results obtained on the technical analysis for each criteria of accessibility used in the study. None of the criteria scored above 50% success.

The best score attained was that of the criterion for table alignment for layout purposes (39.06% success). Even though this technique is not the most desirable, its use is widespread throughout the sample: it was found on 64 of the 75 pages making up the sample. The frequent use of tables for layout rather than other techniques based on style sheets may be due to the fact that Content Management Systems (CMS) usually do as well.

The correct use of color contrast for pertinent images is the second-highest ranking criterion (31.34% success). The rest trail behind at below 20%: correct use of data tables (18.75%), understandable links (16%), text alternatives for images (14.86%), correct use of scripts (10.81%), correct forms (10.26%), headers (5.56%), style sheets (5.33%), valid code (2.67%), and correct use of frames (0%) round off the bottom of this list.

The semantic use of color did not receive a score, since none of the pages analyzed in the sample made use of this method.

4.2. Results from the User Feedback Assessment

To assess the banking websites, each of the 6 users received a self-administered test with instructions on how to fill it out.

The directions received by the users to assess each of the 15 websites were as follows:

1. Browse the website and find the indicated places.
2. Carry out 5 tasks for each of the services to be assessed.
3. Write down the answer to each task, as well as how long it took you to carry it out and the steps you followed to do so.
4. Make a note of any defeats—any time you gave a task up due to trouble with accessibility issues on the page.
5. Fill out a satisfaction survey of 10 multiple-choice questions (with 4 options each), and give your reasons for each answer.

The results obtained were then tabulated in order to draw measurable and comparable conclusions in terms of percentages.

After the participating users had turned in their surveys, a user discussion group was held so that they could go over their overall impressions and find common ground regarding the accessibility and usability of the websites.

We start with a look at the number of successes, errors, and defeats the participating users had in doing the assigned tasks for each website making up the sample.

Table 3 displays the results obtained from the 6 users for the 5 tasks they were to perform on the 15 websites.

Table 3.
Successes, errors, and defeats on the user assessment tasks, in absolutes and total percent.

Website	Successes	Errors	Defeats
Banco Pastor	23	3	4
Banco Santander	22	8	0
Bancopopular-e	22	5	3
Openbank	20	10	0
IngDirect	19	3	8
La Caixa	18	11	1
Bancaja	18	11	1
Caixa Catalunya	18	10	2
eBankinter	18	7	5
Banco Popular	17	6	7
Caja Madrid	17	6	7
Uno-e	17	9	4
BBVA	16	13	1
CAM	15	5	10
Banco Sabadell Atlántico	14	10	6
Total:	274	117	59
%	60.89	26.00	13.11

Of the 450 total tasks carried out, 274 (60.89%) were completed successfully, and the errors amounted to 117 (26%). The number of defeats, attributable to accessibility or usability problems with the service provided, totaled 59 (13.11%).

From the results shown in Table 6, the following information can be highlighted as the most salient:

1. The success rate on user tasks is the lowest of any of the previous studies carried out by this Observatory. Similarly, the percentage of errors made by the users in the present study is the highest to date.
2. The website scoring highest on the section of task successes is that of the Banco Pastor: 23, or 76.67%, of the tasks were completed successfully. Moreover, it is one of the two sites with the fewest errors made by the users when completing the tasks: 3, or 10%. In terms of defeats, however, it scored slightly higher: 4, or 13.33%, of the tasks were left unfinished by the users.
3. The INGDirect website, along with the Banco Pastor site mentioned above, received the fewest errors during task completion (3, or 10%). This is accompanied by other data: a discreet number of successes (19, or 63.33%) and the second-highest number of defeats (8, or 26.67%).
4. The fewest defeats were witnessed on the Banco Santander and Openbank sites, where none of the users met with defeat on any of the tasks (0, or

0%). For the Banco Santander, this worthy score is coupled with the second best score in terms of successes (22, or 73.33%), but also with a fairly high number of errors (8, or 26.67%), which detracts somewhat from its favorable score on successes. Openbank fared worse in terms of successes (20, at 66.67%) and errors (10, or 33.33%), which dulls the luster of not producing any defeats among the users who performed the tasks in this study.

5. At the bottom end, Banco Sabadell had the fewest successes; similarly, users were unable to complete the tasks successfully on not even half the tests (14, or 46.67%). On the errors section, the website where the greatest number of errors were produced was Banco Bilbao Vizcaya (13, or 43.33%). The greatest number of defeats was caused by the Caja de Ahorros del Mediterráneo (CAM), at 10, meaning that users could not conclude 33.33% of the tasks.

The data in this section leads to the conclusion that Spanish banking institutions should considerably improve their website design if they hope to provide certain user groups with the information and services they offer online. If the tasks performed by the users during the tests had been real banking transactions, 4 out of 10 would not have been conducted (whether from error or defeat). In business and service terms, these figures would be very conclusive in terms of the need to overhaul their sites if they are to gain new clients or serve a social group whose profile resembles that of the users who undertook this assessment.

The following section presents how each banking website in the study scored in an “ad hoc” questionnaire filled out by each user participating in our study after finishing the tasks.

The resulting scores have been turned into percentages. Table 4 shows the totals of the 6 users who performed the evaluation (bearing in mind that 5 of them had some degree of impairment while one did not).

Table 4
Percent scores on the user satisfaction feedback survey

Website	%
Banco de Santander	64.44
La Caixa	61.67
eBankinter	60.56
Openbank	60.00
Banco Pastor	57.78
Bancaja	56.67
Bancopopular-e	56.11
BBVA	55.56
Caixa Catalunya	55.00
Uno-e	52.78
Caja Madrid	51.67
Banco Popular	46.11
Banco Sabadell Atlántico	43.89
IngDirect	43.33
CAM	40.00
Average:	53.70

The data in Table 4 reveals the following salient information:

1. The average percent score overall from the user feedback survey is 53.70%, placing it among the lowest scores obtained to date in studies by this Observatory.
2. The site earning the highest degree of user satisfaction based on the surveys was the Banco de Santander website (64.44%). This site did not rank among the highest scores on the technical analysis, with only 8.33% successes and in fifth place.
3. The spread between the best-rated website and the worst is less than 25 percentage points. There were 9 websites ranked above the average. Along with the aforementioned Banco de Santander, La Caixa (61.67%), eBankinter (60.56%), Openbank (60%), Banco Pastor (57.78%), Bancaja (56.67%), Bancopopular-e (56.11%), BBVA (55.56%), and Caixa Catalunya (55%) all fall above the overall average for the group of 53.70%. It seems relevant to highlight the score from La Caixa, which, after receiving the highest score on the technical analysis, received the second highest rating on the user feedback surveys, with both score being similar (61.53% on the technical analysis and 61.67 on user feedback).
4. Above 50% on the user feedback survey were two other websites: Uno-e (52.78%) and Caja Madrid (51.67%).
5. Under the 50% mark, there were 4 more websites: Banco Popular (46.11%), Banco Sabadell Atlántico (43.89%), INGDirect (43.33%), and CAM (40%). This last site also received the worst score on the technical evaluation, at 0% success on the tests performed on the sample pages. It seems relevant to point out that the INGDirect website, from a banking institution that does not base its services on branches open to the public, but on virtual means such as over the Net, should have scored so poorly on

both this user feedback and the technical analysis (where it score a mere 4.17% success on the tests in this study).

4.3. Combined Scores

Table 5 shows the scores from each dimension of the study, thereby offering a side-by-side view of the results from the technical evaluation and from the user feedback survey.

Table 5
Comparison of percent scores from the two dimensions comprising the study, by degree of compliance or level of satisfaction

Technical evaluation			User feedback	
Website	%		Website	%
La Caixa	61.54	↓	B. Santander	64.44
eBankinter	30.00	↓	La Caixa	61.67
Caja Madrid	25.00	↓	eBankinter	60.56
B. Sabadell-Atlántico	17.02	↓	Openbank	60.00
B. Pastor	16.67	→	B. Pastor	57.78
BBVA	10.87	↓	Bancaja	56.67
Uno-e	10.64	↓	Bancopopular-e	56.11
CaixaCatalunya	9.09	↓	BBVA	55.56
Bancopopular-e	9.09	↑	Caixa Catalunya	55.00
B. Popular	8.51	↓	Uno-e	52.78
B. Santander	8.33	↑	Caja Madrid	51.67
Bancaja	6.98	↑	B. Popular	46.11
OpenBank	4.35	↑	B. Sabadell-Atlántico	43.89
IngDirect	4.17	→	IngDirect	43.33
CAM	0.00	→	CAM	40.00
Average:	14.82		Average:	53.70

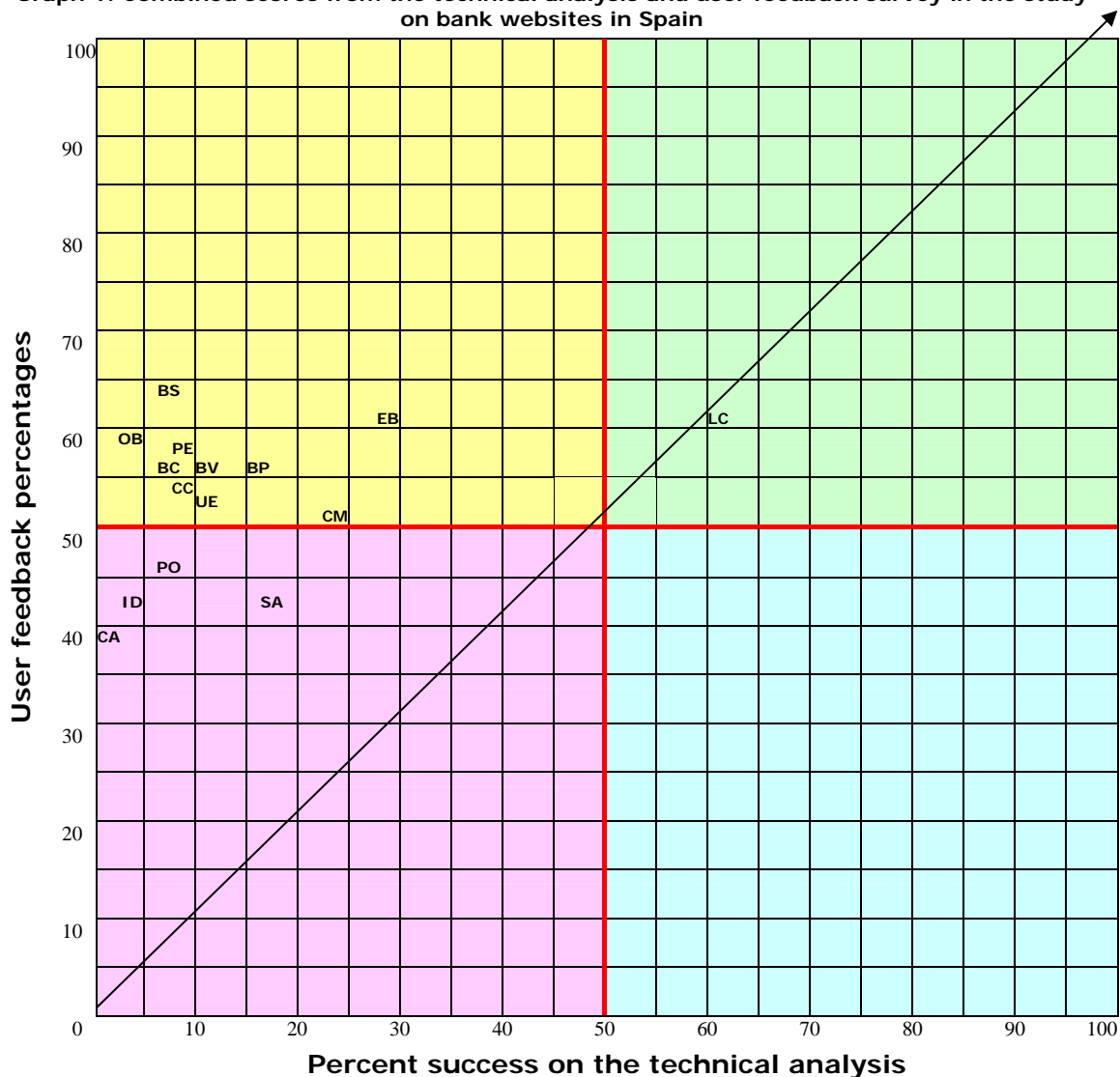
A comparison of the two tables shows the following salient information:

1. The most noteworthy website belongs to La Caixa, which took first place on success in the technical analysis and second place in terms of user satisfaction. It is interesting to note that the scores obtained on both measurements in this study are so similar, which rarely occurs, having achieved 61.54% on the technical section and 61.67% on user feedback.
2. The percentage averages on both measurements are among the lowest encountered in any study published by this Observatory.
3. With few exceptions, websites fall into similar places in both rankings. The most glaring discrepancies correspond to the Banco de Santander and Openbank websites, which jump from low-ranking scores on the technical analysis to high placement on user satisfaction. In contrast, Caja Madrid fell from third place on the technical analysis (though at an unremarkable score of 25%) to a lower position in user satisfaction (ranking fifth from the bottom at 51.67%).
4. At the bottom end of the scale on each table, there is a certain concordance of scores on both the technical evaluation and the user feedback survey. Low-rankers INGDirect (4.17% and 43.33%) and CAM (0% and 40%) claim last and second to last place on both measurements, respectively.
5. The data presented here suggests that users are less demanding than the rigors of technical application of standards, but that there is also a direct

relation between technical quality in terms of applying the criteria for accessibility and the satisfaction users perceived when navigating the contents of a website. Such differences are most likely attributable to how the content is laid out, how clear the explanations are, and what kind of help or guidance is available to users on how to move around the site.

Graph 1 displays the overall combined scores from the technical analysis and the user feedback survey on web accessibility on the Spanish banking institution websites.

Graph 1: Combined scores from the technical analysis and user feedback survey in the study on bank websites in Spain



Key: This graph displays the combined scores from the technical analysis and the user feedback assessment on a 4-quadrant table.

- Upper left (yellow): technical analysis below 50% and user satisfaction above 50%
- Upper right (green): technical analysis and user satisfaction both above 50%
- Lower left (red): technical analysis and user satisfaction both below 50%
- Lower right (blue): technical analysis above 50% and user satisfaction below 50%

The diagonal line crossing the table marks the dividing line above which fall sites scoring higher on the user feedback survey and below which are sites having higher scores on the technical evaluation.

The following list shows the abbreviations used and the percent scores obtained by each website on the technical analysis and user feedback, separated by a slash:

BC: Bancaja (6.98/56.67)
 BP: Banco Pastor (16.67/57.78)
 BS: Banco Santander (8.33/64.44)
 BV: BBVA (10.87/55.56)
 CA: CAM (0/40.00)
 CC: Caixa Catalunya (9.09/55.00)
 CM: Caja Madrid (25.00/51.67)
 EB: eBankinter (30.00/60.56)
 ID: IngDirect (4.17/43.33)
 LC: La Caixa (61.54/61.67)
 OB: Openbank (4.35/60.00)
 PE: Bancopopular-e (9.09/56.11)
 PO: Banco Popular (8.51/46.11)
 SA: Banco Sabadell-Atlántico (17.02/43.89)
 UE: Uno-e (10.64/52.78)

To understand the content displayed in the graph, the following points should be noted:

1. The vertical axis shows the percent satisfaction from the user feedback.
2. The horizontal axis shows the percent score from the technical analysis.
3. The graph displays a four-quadrant map reflecting accessibility (technical analysis) and usability (user satisfaction).
4. The upper left quadrant shows the most usable websites according to user feedback, but not very accessible according to the results of our technical analysis. The upper right quadrant shows the most usable and accessible sites. The lower right quadrant shows the websites that are not very usable but more accessible, while the lower left quadrant shows the websites that are neither usable nor accessible.
5. The diagonal crossing the graph from bottom left to upper right, denotes the point where both assessments would be if the site were equally accessible and usable. Scores above the line (which in this case are all of them except La Caixa, which has nearly the same score in both categories) indicate sites considered more usable (user feedback) than accessible (technical evaluation). Under the diagonal (none in this case) would be the other way around. Namely, except for the La Caixa website where the scores are very similar, all the scores show a higher rating from user feedback than from compliance with the technical criteria. In some cases, such as on the Banco de Santander and Openbank sites, that difference is considerable.
6. The La Caixa website is the only site falling inside the upper-right quadrant, where scores indicate the most suitable websites in terms of usability and accessibility. Though its success is moderate (it is situated in the lower-left of the quadrant), it is the only site that has taken the technical requirements for accessibility into account and provides helpful, user-friendly information as well. This site thus may be cited as an example of good practices, although its scores indicate that it still has some room for improvement.
7. The highest concentration of websites is to be found in the lower-left of the upper-left quadrant. This suggests that many (7 websites) are modestly usable (according to feedback from user experience), but only slightly accessible (based on their rate of compliance with the technical criteria).
8. There are 4 websites (CAM, IngDirect, Banco Popular, and Banco Sabadell Atlántico) appearing in the lower-left quadrant, where the lowest scores on both accessibility and usability are placed. The 4 sites lie in the top left

region of the quadrant, which suggests that their accessibility scores were far worse than their usability scores.

5. Conclusions

These studies by the Discapnet Information Accessibility Observatory are intended to show the current state of affairs regarding accessibility on the Web. At the same time, they are also meant to provide information for improving web accessibility by better adapting online services to the needs of their users. In that spirit, this section presents the conclusions we consider most relevant. Although what follows must remain objective of a rather unflattering reality, it offers suggestions intended to bring improvement to the sector.

1. The websites from Spanish banking institutions received the lowest success rate scores on compliance with the technical criteria analyzed by the Information Accessibility Observatory to date. The top-ranking site (La Caixa), at 61.54%, is the exception to the poor showing overall of the rest of the websites, with a gap of some 31 percentage points between it and the next highest scorer on compliance with the accessibility criteria analyzed. Only two other websites scored above the 25% success rate: eBankinter (30%) and Caja Madrid (25%). Of the 12 remaining sites, 8 did not even reach 10%. Only two other websites scored above 25% success: eBankinter, at 30%, and Caja Madrid, at 25%. Of the 12 remaining sites, 8 did not even reach 10%. The Caja de Ahorros del Mediterráneo (CAM) website did not have any of its sampled pages validated for any of the technical criteria whatsoever. These websites have clearly not modified their work routines to include applying the criteria for accessibility. It would be helpful if the people in charge of such sites became more aware of how useful it would be for all the information and services they provide to be available to particular groups of people. They should realize that access from home or work would resolve many of these users' other accessibility problems in the physical world. Furthermore, when the Law of Equal Opportunities, Non-Discrimination, and Universal Accessibility for the Disabled comes into effect, it will soon become a legal obligation to make all web information accessible aside from the social responsibility of having web content accessible to everyone. From a business point of view, it is important for them to bear in mind that making web content accessible broadens their potential client base and generally benefits online banking users overall by making websites compatible with a larger variety of devices (cell phones, PDAs, etc).
2. As on earlier studies, the user ratings were more positive than those from the technical evaluation. On every website in the study, the percentage obtained on the users' satisfaction with the website was higher than the score in the technical analysis on how well the criteria were applied. In La Caixa's case the two scores were quite similar, a situation which had not appeared in any other study until now. In some cases, the distance between the two is considerable: Openbank and Banco de Santander both showed spreads of more than 56 percentage points. The explanation for such differences is related to the determination disabled or impaired users display, the specialized devices and software they use, and the skills they develop to overcome certain barriers.
3. Of the twelve criteria used on the technical analysis to evaluate the sample, none received a percentage score above 50%, and most fell well below the half-way mark. Indeed, the best of them (table alignment) scored a mere

39.06%. Only one other managed to pass the 30% success rate: color contrast for images, at 31.34%, while the rest scored below 20%. Worse yet was the use of frames, of which none of the pages managed to pass the analysis successfully.

4. We would also like to point out that none of the 75 pages evaluated made semantic use of color to convey information. In and of itself, it does not constitute success or failure at accessibility, but it is worthwhile nevertheless to recall that correct semantic use of color provides distinct advantages to people of limited intellect or attention deficits. Thus, proper use of this resource may help a web become more accessible and usable.
5. We make special mention of the still frequent use of frames for layout purposes (used on 38 or the 75 pages in the sample) and their absolute lack of adhering to the guidelines for accessibility (0% of the pages using frames did so correctly).
6. We also call attention to the low success rates obtained on the criterion of valid code (only 2.6% success), especially considering that such validation can be done automatically, and specific indications are given on how to solve whatever errors arise.
7. In addition to the above, it should be stated that images without alternative text (success: 14.86%) severely limit blind people's ability to navigate the site; the use of scripts (success: 10.81%) not compliant with accessibility criteria may make it impossible for users whose browsers do not support them; forms (success: 10.26%) must obey the criteria for accessible design to be understood and used by people browsing with specially-enhanced devices; and that including headers (success: 5.56%) correctly will make it easier to navigate the site and understand its contents.
8. It should be noted that the use of style sheets following criteria on accessibility achieved a score on successful application in our technical analysis of only 5.33%. Style sheets control how the page is displayed to the web visitors, and should let them be able to adjust the display to their personal needs. In some cases, errors involved using structural elements inside the content (e.g., using the element `` within the HTML code instead of modifying the appearance of the font through the style sheet. This fact does not present a total barrier to accessing web contents, but it is a bad practice which the technical standards advise against using.

6. Final Reflection

The widespread presence and use of online banking is an object desired by both customers and banking institutions alike. For the customers, it represents the convenience of being able to access information and carry out transactions without leaving home and waiting in long lines. For the banks, it provides higher revenue by increasing the number of transactions while cutting costs on personnel and infrastructures. Indeed, some banking services have fully based their procedures on online platforms.

For people with functional limitations, the benefit from being able to conduct their business using their own means and not having to travel to do so provides additional advantages above and beyond those for the general population. The potential client base is not negligible, and it makes business sense to bring them in by using web design techniques correctly to make their websites accessible.

In the present study, we have found serious technical problems in the design of most of the websites, with the exception of the La Caixa website, which nevertheless has room for improvement as well. The users did not find their experience using these websites to be very satisfactory, and gave the whole sample one of the lowest overall scores of any obtained in our studies.

We consider that a relatively large number of people would directly benefit from the application of accessibility criteria to web pages by helping them overcome the other barriers they find in the physical world. Thus, it would be highly desirable that the people running these sites become more aware of that fact and foster the application of such criteria. This would lead to not only an improvement in the quality of service, but also an increase in business transactions.

By the year 2012, it will be mandatory for private-sector websites to be designed accessibly. The time has come, then, not only to understand the existence of barriers online for some users, but to take the appropriate measures to lessen them. The best way of carrying out this task is by being knowledgeable about the technical criteria and providing suitable professional training to those who design, develop, and maintain the contents on these websites.