Marriott Hotel Website - Study Report

A Study Collaboration of Marriott International and International Usability Testing Partnership (IUTP)

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1. Abstract

The International Usability Testing Partnership (IUTP) and Marriott International conducted an international hotel website evaluation to elicit differences in user behaviour patterns between countries, cultures and gender groups. The Marriott project team has designed a high fidelity HTML prototype of the new “1-page”- hotel website. We tested 510 users from 17 different countries. Results of eye-tracking data and survey examination show interesting pattern differences between countries regarding first attention, clicking behaviour and fixation duration of different website areas. While there exist big differences between countries regarding where users search for guest room information, service and amenities and the hotel loyalty program, users seemed to be quite at one when searching the hotel reservation process. Culture seems to have an evident impact on user behaviour and expectations. A simple language translation seems not to be enough to meet custom requirements of users from different countries. To avoid losing customers, it is important to design culture-specific web-pages in order to satisfy different user desires.

2. Introduction

E-commerce is a booming business. This research is about information needs related to hotel websites and current trends and behavioral changes related to it in the western world. With the current information overflow, e-commerce users tend more and more to only scan information instead of reading it. Reduction to the optimum is therefore a key success factor for every e-commerce website. We are particularly interested in understanding cultural differences in this respect and how today users look for information on hotel websites. The study embraces a real change project. The e-commerce team from Marriott is currently working on "content reduction" on their Indo-European websites in order to reduce content that users may find unnecessary. The project team has designed a high fidelity HTML prototype of a new "1-page"- hotel website (1-page HWS). The team's aim is to better understand the extent of cultural variation, i.e. whether there is a difference between consumers from different countries with regards to the information provided on a 1-page HWS.

This research study will build upon the previously conducted IUTP study (2010), which was measuring actual user behavior (eye-tracking) and user expectations (detailed questionnaire). Link to the study report: http://www.stefanwobben.com/usability/%E2%80%A8%E2%80%A8a-cross-cultural-eye-tracking-study

3. Hypotheses

Hypotheses are classified into the following five categories: First attention on the website, attention span on different website elements, booking intention, remembering website elements and scrolling behavior. See a screenshot of the Marriott website in Figure 2.

3.1. First attention (pull attention)

H1a: There are country related differences regarding time to first fixation for navigation tabs.

H1b: There are gender related differences regarding time to first fixation for navigation tabs.

H1c: There are age related differences regarding time to first fixation for navigation tabs.

H2a: There are country related differences regarding time to first mouse click on the front picture.

H2b: There are gender related differences regarding time to first mouse click on the front picture.

H2c: There are age related differences regarding time to first mouse click on the front picture.

3.2. Attention Span

H3a: There are country related differences regarding attention span on guest room information text fields.

H3b: There are gender related differences regarding attention span on guest room information text fields.

H3c: There are age related differences regarding attention span on guest room information text fields.

H4a: There are country related differences regarding attention span on different logos.

H4b: There are gender related differences regarding attention span on different logos.

H4c: There are age related differences regarding attention span on different logos.

3.3. Booking Intention

H5: Americans have more often the intention to book on the Marriott International hotel website, than people from other countries.

3.4. Remembering Website Elements

H6a: There are country related differences in remembering having seen the hotel phone number.

H6b: There are gender related differences in remembering having seen the hotel phone number.

H6c: There are age related differences in remembering having seen the hotel phone number.

H7a: There are country related differences in remembering having seen the photo gallery button.

H7b: There are gender related differences in remembering having seen the photo gallery button.

H7c: There are age related differences in remembering having seen the photo gallery button.

H8: Americans do more often remember having seen the hotel phone number, than people from other countries.

3.5. Scrolling behavior

H9a: There are country related time differences regarding when users start to scroll on a 1-page hotel website.

H9b: There are gender related time differences regarding when users start to scroll on a 1-page hotel website.

H9c: There are age related time differences regarding when users start to scroll on a 1-page hotel website.

4. Method

4.1. Variables

This study addresses the research questions: Do different cultures show different patterns concerning the interaction with a hotel website? Does gender or age of people affect these behaviour patterns?

Participants were instructed to conduct different tasks (described later) on a prototype of a 1-page hotel website from Marriott International Inc. To analyse participant's gaze data a Tobii eye-tracker X120 was used in most countries. Some countries used another model of the Tobii eye-tracker and in Mexico an SMI eye-tracker was used.

4.2. Participants

510 Participants from 17 countries were tested. A list of all participating countries can be found under appendix 8.2. Participants had to be at least 18 years old to take part of the study, and had to have online booking experience. Participants were paid approximately 10 $ for participating in the study (with small differences between countries). Most participants were between 20 and 30 years old.

4.3. Tasks

The study was divided into five tasks, in which participants had to interact with the Marriott Hotel website. The first task was to search for interesting information on the Marriott website. See a screenshot of the prototype in Figure 1.

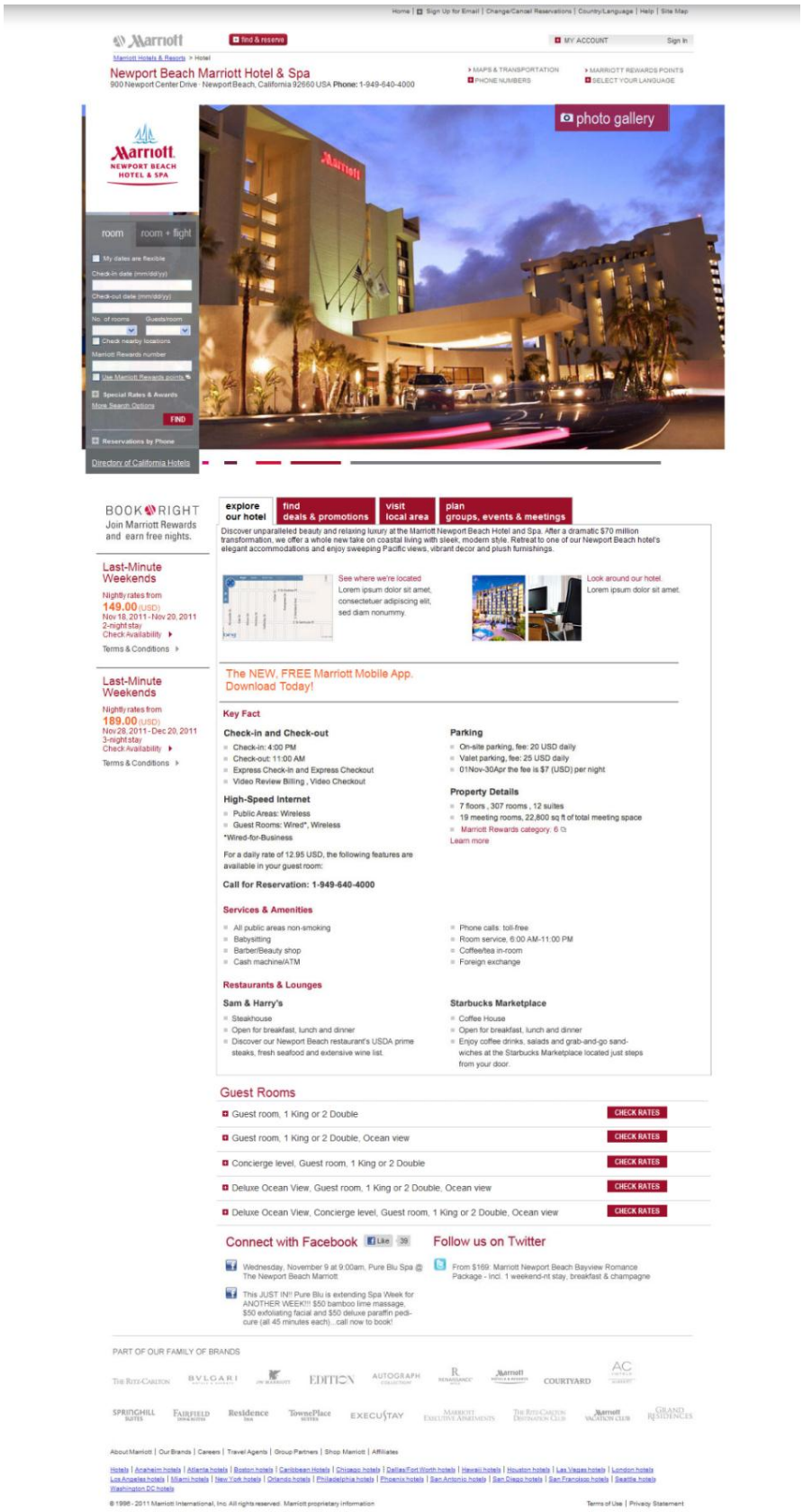


Figure 1. Screenshot of the Marriott Website.

Browser size was fixed, so that participants could only see to the bottom of the big front picture without scrolling. Comparing to the first task, scenarios 2 – 5 were more closed, meaning that specific information should be searched by the participants. Detailed tasks instructions of all five scenarios are written down in the following:

Scenario 1:

Consider you may be interested in staying at the Marriott Newport Beach Hotel & Spa. The location and price fit your travel preferences.
Check out all information, which is relevant for you while deciding for a hotel. If you have seen everything important for you, press F10 when you are done.

Scenario 2:

You would like to find more information about the guest rooms.
Click where you would expect it.
Press F10 when you are done.

Scenario 3:

You are interested in what services and amenities the hotel offers.
Click where you would expect information about it.
Press F10 when you are done.

Scenario 4:

Marriott has a loyalty program.
Click where you would expect information about it.
Press F10 when you are done.

Scenario 5:

You decided you want to stay at this hotel.
Click where you would start your reservation process.
Press F10 when you are done.

Additionally, participants were asked several open and closed questions. In the following all the closed questions are listed:

Q1: Based on the information you have seen – would you consider staying here?
Q2: Did you see the photo gallery button?
Q3: Did you see where you could find hotel deals?
Q4: Did you see the hotel phone number?
Q5: Based on this example of a hotel web site, how likely would you be to use this site to look for hotel information?
Q6: Based on this example of a hotel web site, how likely would you be to use this site to book your stay?
Q7: When looking for hotel information - how important is having the hotel phone number visible on the page?
Q8: How does the Marriott website affect your opinion of Marriott?
Q9: Do you belong to a hotel loyalty program?
Q10: Do you travel primarily for business or pleasure?
Q11: What is your gender?
Q12: Which age group best describes your age?
Q13: What is your language level?
Q14: Is IUTP authorized to publish short sequences of this video recording?

Open questions: After answering Questions Q1, Q5 and Q6 Participants were additionally asked to say why they chose a particular answer, “In a few words - please tell us why.” Answers to these why-questions were written down for evaluation.

5. Results

Statistical analysis was calculated with the gathered data. To statistically evaluate differences between countries a One-way ANOVA with the factor “Country” was calculated for different variables. Different metrics were calculated, using AOI’s which are shown in Figure 2.

In all statistical tests, a significance level of 0.05 was used.

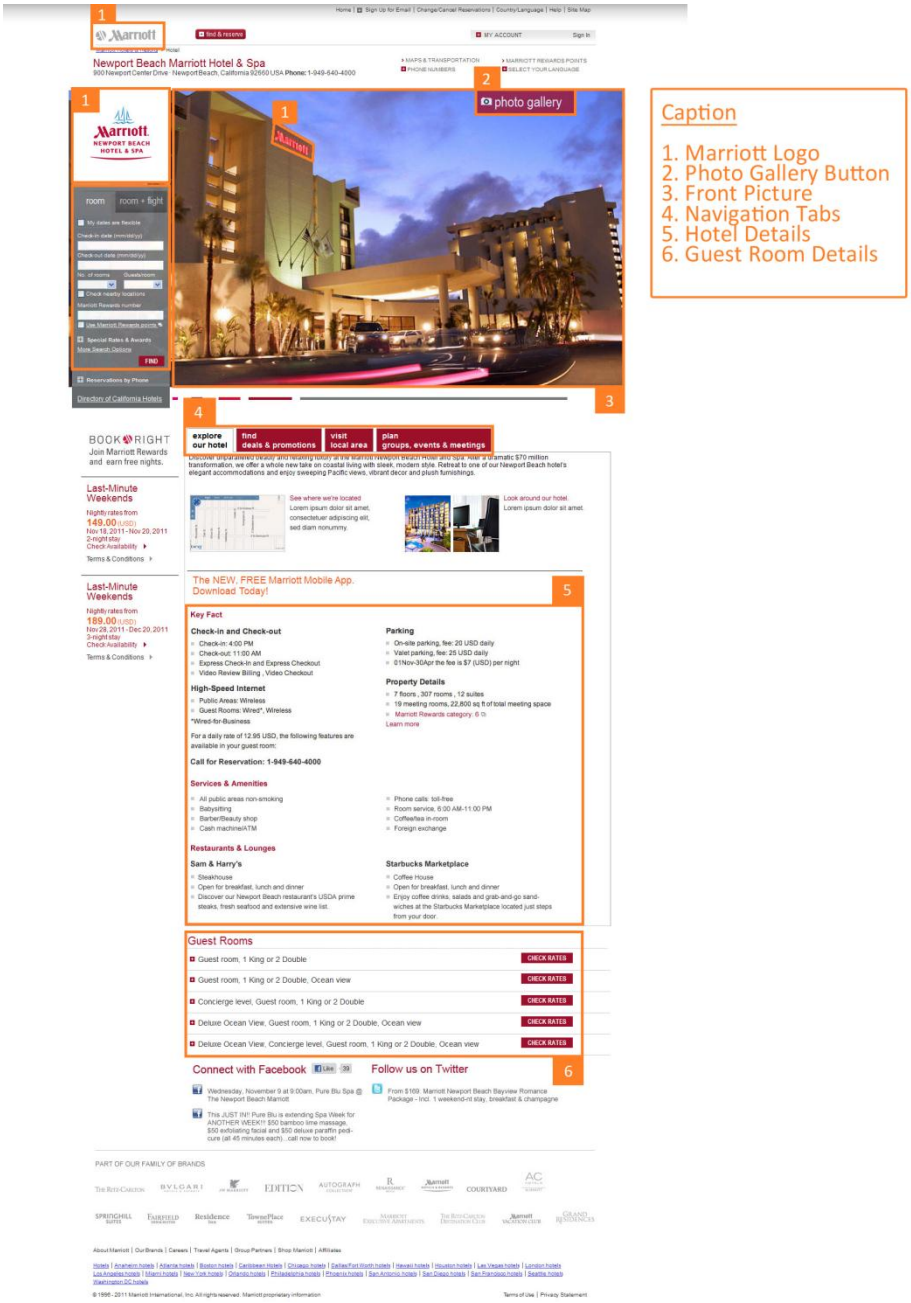


Figure 2. Areas of Interest on the Marriott Website.

5.1. General results

Page satisfaction

Most of the participants were happy with the Marriott homepage and said they would somewhat likely (38.5 % of participants) or very likely (18.5 % of participants) stay on the page (see Figure 3). Even more users would use this page to book their stay (32.9% very likely, 33.1% somewhat likely) presuming that they agreed with the price and location of the hotel. Verbal statements revealed that users liked the simple and clear design of the page, the completeness of available information and the well-structured information architecture. Participants which were less pleased with the website said they would have liked to see more pictures of the rooms and the hotel surrounding (photo gallery was not working in the prototype), or they were prone to check prices on a comparison page first. Other users criticized the lack of a clear navigation, so that they couldn't find the information they were looking for. Several people (16%) failed to recognize that they had to scroll in order to see the whole content of the website.

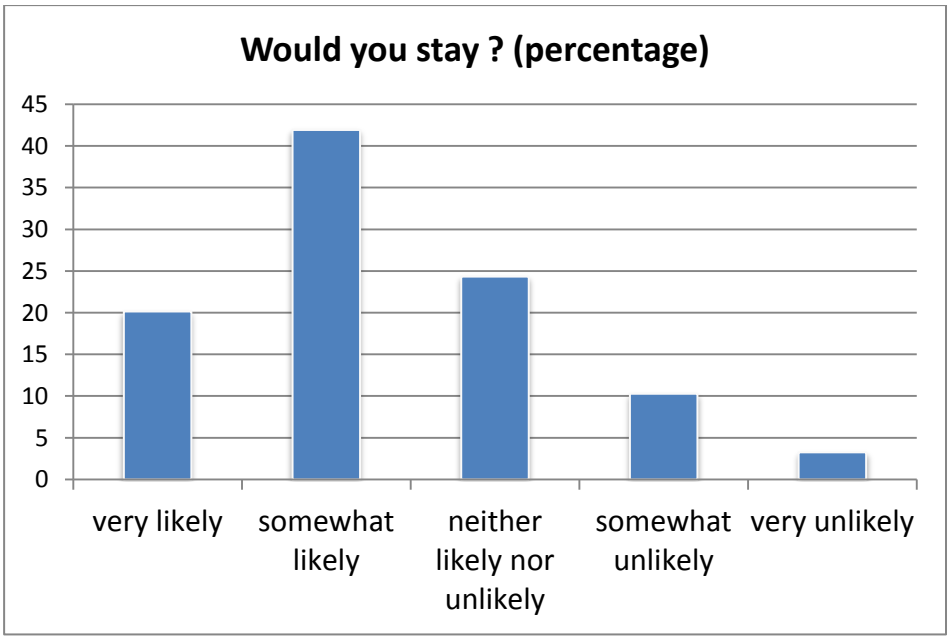


Figure 3. Percentage of users who answered they would stay on the page.

Visibility of different page elements

Important elements on the page were seen by most of the participants. 65.4 % reported having seen the photo gallery, hotel deals (57.6 %), and the hotel phone number (32% yes, 19.8% maybe). Eye tracking revealed interesting objective results regarding the visibility of further areas on the page. The photo gallery button was seen by most of users (83.6 %) but sometimes without awareness (34.6 % reported not having seen the button).

5.2. Testing of Hypotheses

None of our hypotheses concerning gender or age group differences were statistically significant. That's why they are not discussed in detail. In the following results for differences in user behaviour and expectations between countries are presented. Hypotheses which could be supported are written in **bold letters.**

First attention (pull attention)

H1a: There are country related differences regarding time to first fixation for navigation tabs. This hypothesis could be supported ($p<0.001$). See Figure 4 for an overview of all countries and their mean time to first fixation of navigation tabs. While Brazil, South Africa and Germany show a mean time of over 40 seconds until first gaze on navigation tabs, users from Poland, Belgium, Denmark and Spain looked on these page elements already before 25 seconds have passed.

H1b: There are gender related differences regarding time to first fixation for navigation tabs. This hypothesis could not be supported ($p= 0.86$).

H1c: There are age related differences regarding time to first fixation for navigation tabs. This hypothesis could not be supported ($p= 0.57$).

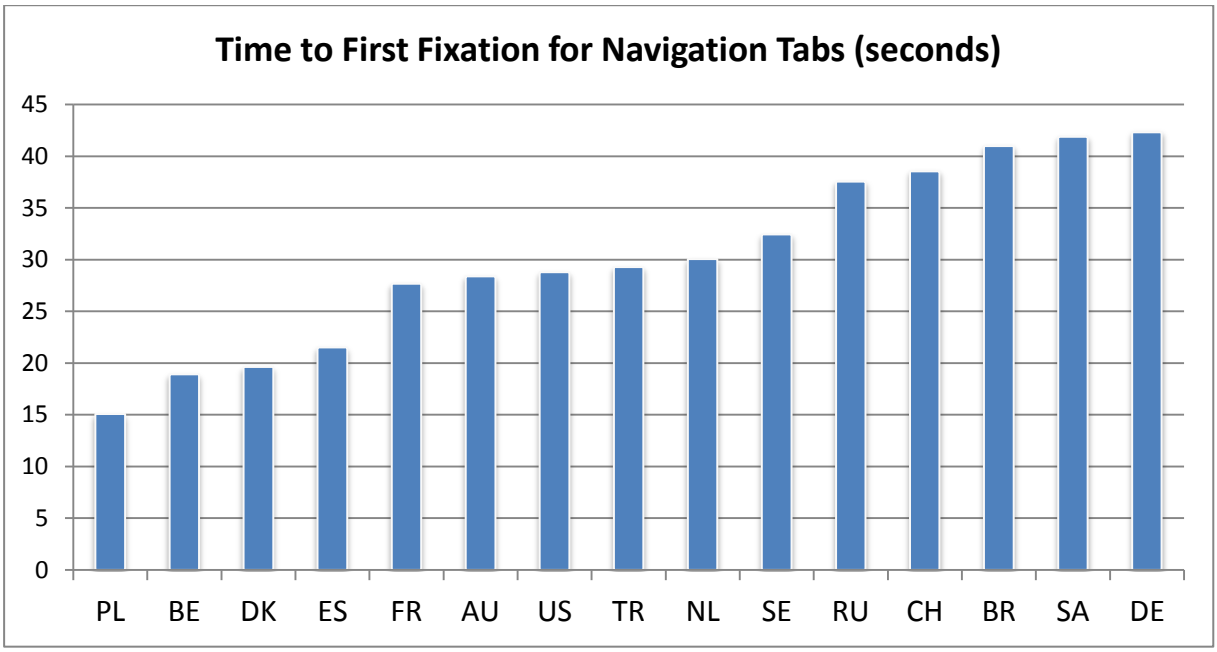


Figure 4. Time to first fixation for navigation tabs over all countries.

H2a: There are country related differences regarding time to first mouse click on the front picture. This hypothesis could be supported ($p<0.001$).

H2b: There are gender related differences regarding time to first mouse click on the front picture. This hypothesis could not be supported ($p= 0.39$).

H2c: There are age related differences regarding time to first mouse click on the front picture. This hypothesis could not be supported ($p= 0.29$).

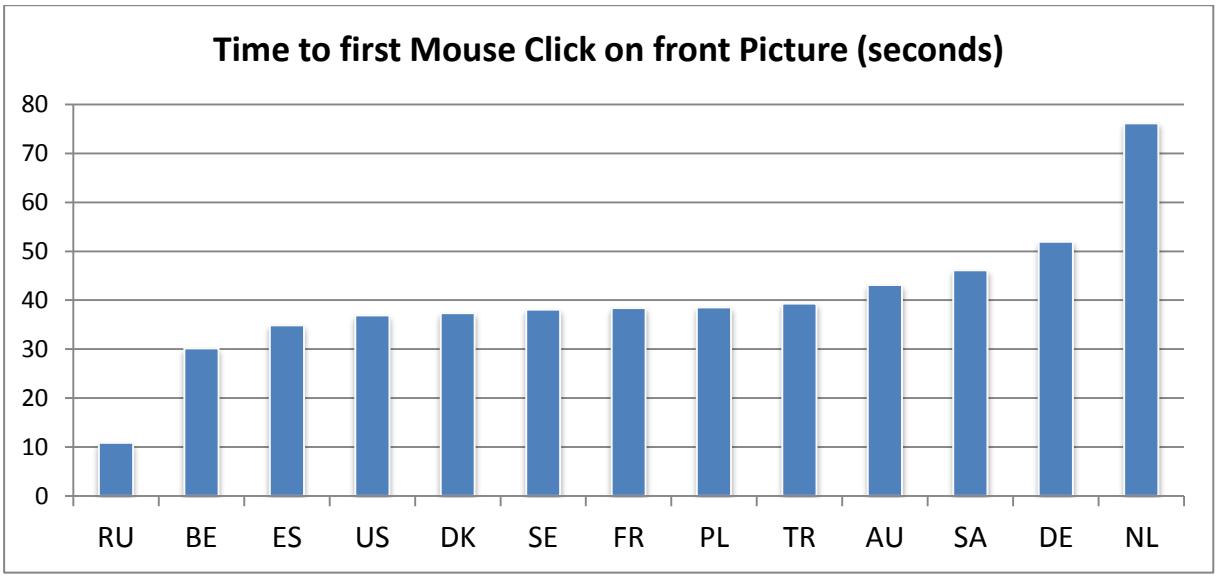


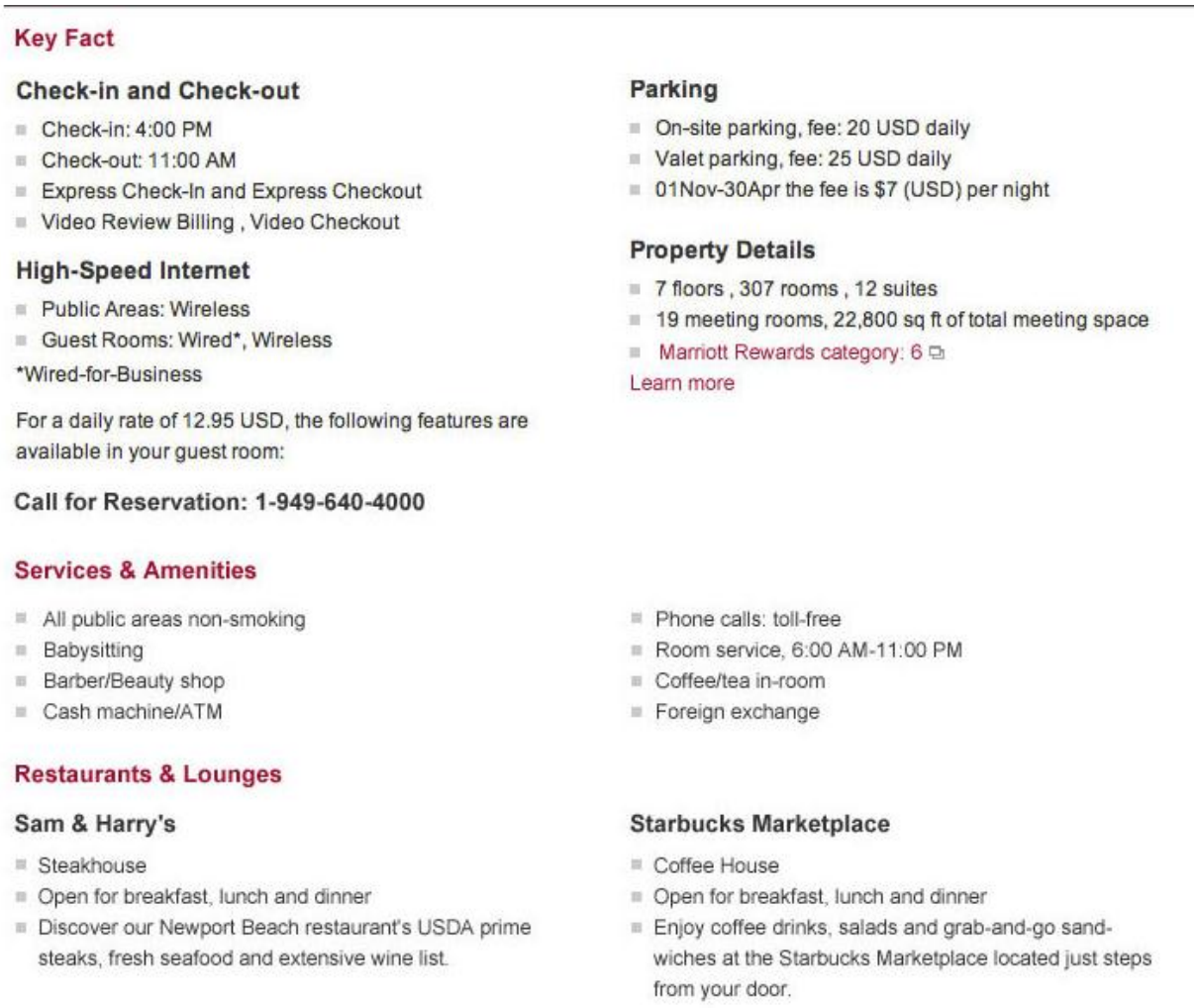
Figure 5. Mean time to first mouse click on front picture over all countries.

Attention Span

H3a: There are country related differences regarding attention span on hotel details. This hypothesis could be supported ($p<0.001$).

H3b: There are gender related differences regarding attention span on hotel details. This hypothesis could not be supported ($p= 0.42$).

H3c: There are age related differences regarding attention span on hotel details. This hypothesis could not be supported ($p= 0.28$).



Key Fact

Check-in and Check-out

- Check-in: 4:00 PM
- Check-out: 11:00 AM
- Express Check-In and Express Checkout
- Video Review Billing , Video Checkout

High-Speed Internet

- Public Areas: Wireless
- Guest Rooms: Wired*, Wireless

*Wired-for-Business

For a daily rate of 12.95 USD, the following features are available in your guest room:

Call for Reservation: 1-949-640-4000

Parking

- On-site parking, fee: 20 USD daily
- Valet parking, fee: 25 USD daily
- 01Nov-30Apr the fee is $7 (USD) per night

Property Details

- 7 floors , 307 rooms , 12 suites
- 19 meeting rooms, 22,800 sq ft of total meeting space
- Marriott Rewards category: 6

Learn more

Services & Amenities

- All public areas non-smoking
- Babysitting
- Barber/Beauty shop
- Cash machine/ATM
- Phone calls: toll-free
- Room service, 6:00 AM-11:00 PM
- Coffee/tea in-room
- Foreign exchange

Restaurants & Lounges

Sam & Harry's

- Steakhouse
- Open for breakfast, lunch and dinner
- Discover our Newport Beach restaurant's USDA prime steaks, fresh seafood and extensive wine list.

Starbucks Marketplace

- Coffee House
- Open for breakfast, lunch and dinner
- Enjoy coffee drinks, salads and grab-and-go sandwiches at the Starbucks Marketplace located just steps from your door.

Figure 6. Screenshot of hotel details

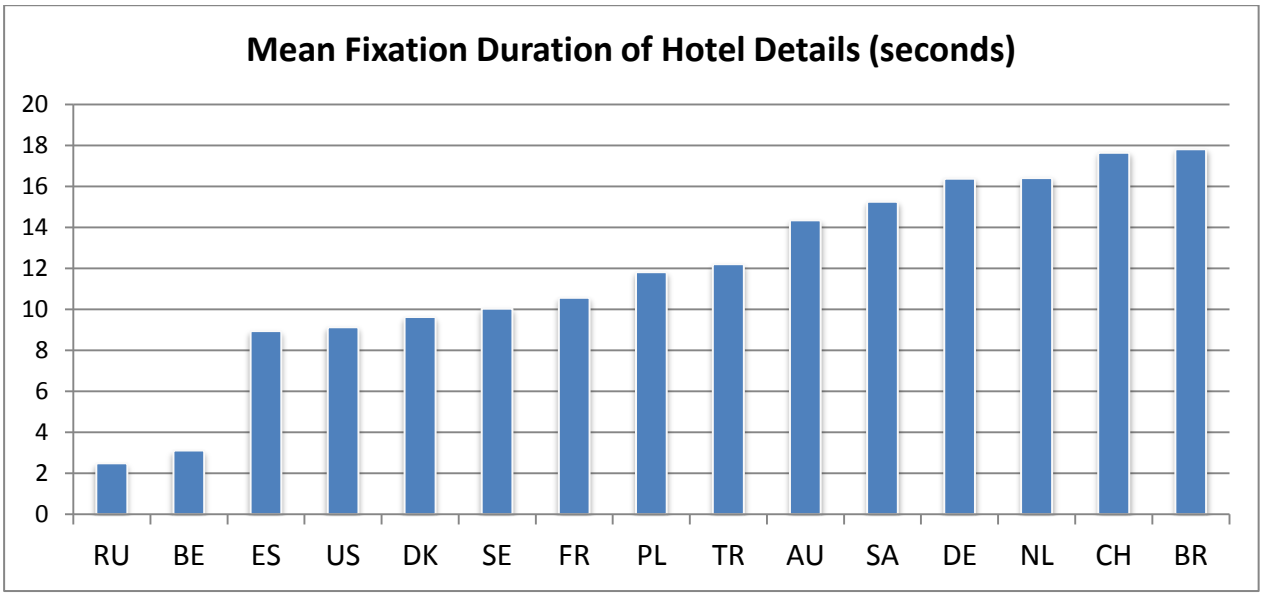


Figure 7. Mean Fixation duration of hotel details for each country.

H4a: There are country related differences regarding attention span on different logos. This hypothesis could be supported (p= 0.012). See the three Marriott logos marked in Figure 8.

H4b: There are gender related differences regarding attention span on different logos.

H4c: There are age related differences regarding attention span on different logos.

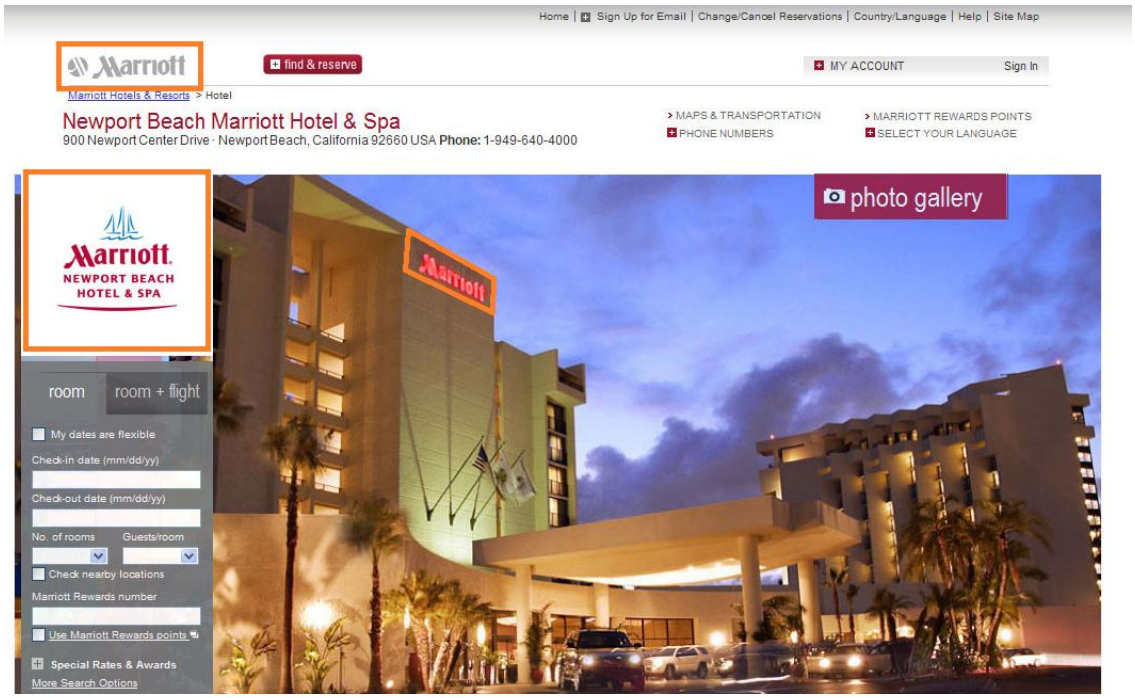


Figure 8. The three Marriott Logos marked with orange borders.

Booking Intention

H5: **Americans have more often the intention to book on the Marriott International hotel website, than people from other countries. This hypothesis could be supported (p= 0.001).** Americans answered significantly more often than non-Americans they would very likely or somewhat likely book on the Marriott Website. See **Figure 9.**

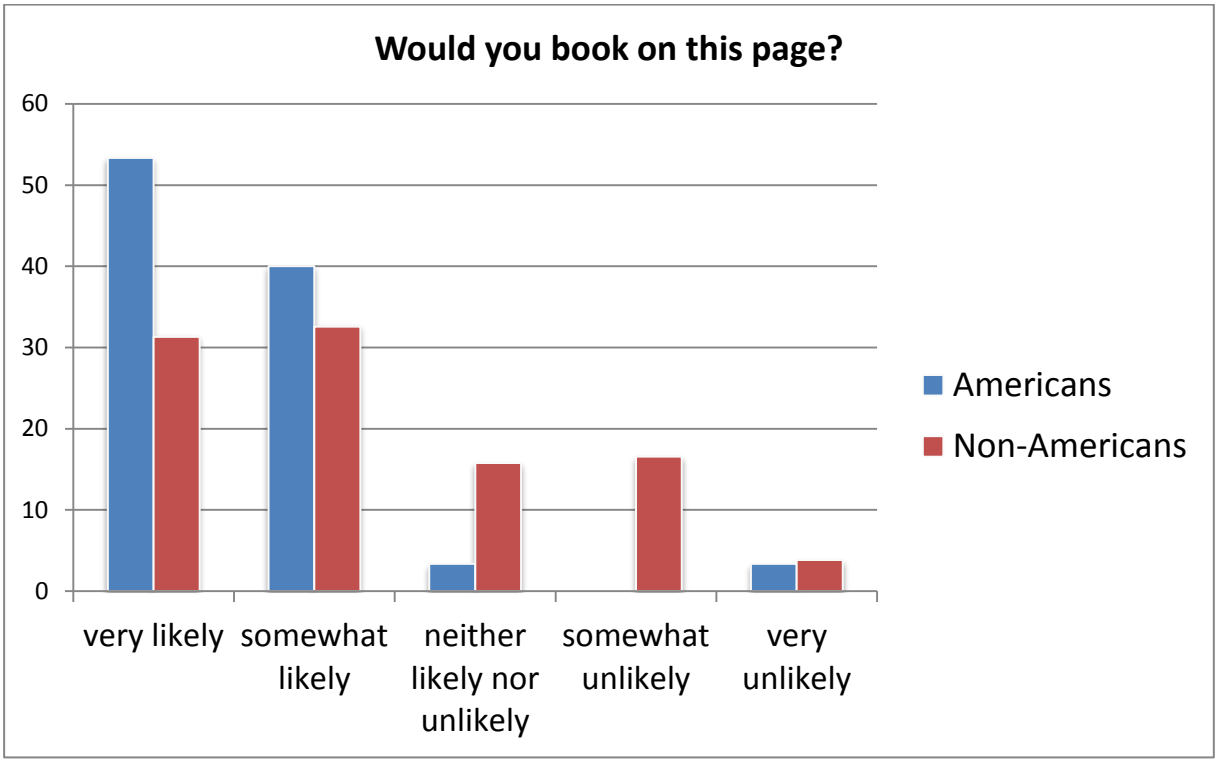


Figure 9. Percentage of Americans and non-Americans who would book on the Marriott Hotel website.

Remembering Website Elements

H6a: **There are country related differences in remembering having seen the hotel phone number. This hypothesis could be supported (p= 0.05).**

H6b: There are gender related differences in remembering having seen the hotel phone number (Q4a). This hypothesis could not be supported (p= 0.29).

H6c: There are age related differences in remembering having seen the hotel phone number. This hypothesis could not be supported (p= 0.48).

H7a: There are country related differences in remembering having seen the photo gallery button. This hypothesis could be supported (p= 0.017).

H7b: There are gender related differences in remembering having seen the photo gallery button. This hypothesis could not be supported (p= 0.46).

H7c: There are age related differences in remembering having seen the photo gallery button. This hypothesis could not be supported (p= 0.54).

H8: Americans do more often remember having seen the hotel phone number, than people from other countries. This hypothesis could be supported (p= 0.032).

Scrolling behavior

H9a: There are country related time differences regarding when users start to scroll on a 1-page hotel website. This hypothesis could be supported (p<0.001).

While

H9b: There are gender related time differences regarding when users start to scroll on a 1-page hotel website. This hypothesis could not be supported (p= 0.54).

H9c: There are age related time differences regarding when users start to scroll on a 1-page hotel website. This hypothesis could not be supported (p= 0.83).

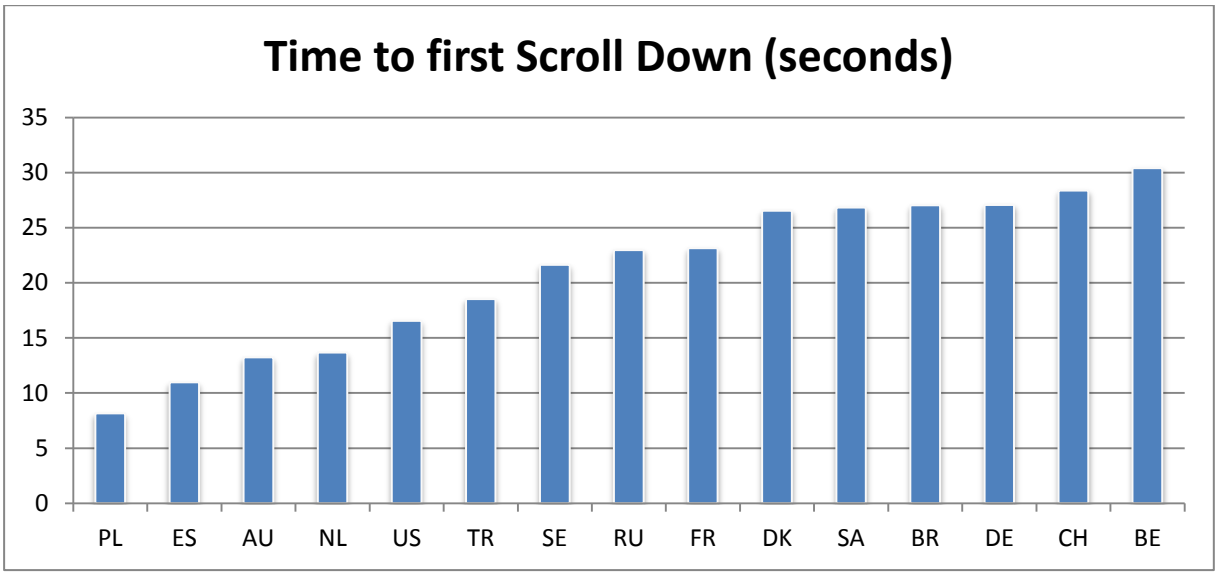


Figure 10. Mean time to first scroll down, for all countries.

5.3. Americans differ from non-Americans

When comparing Americans with non-Americans, it became evident that users differ. While 90 % of American users reported they would very likely or somewhat likely stay in Marriott Hotel, only 59.8 % of all non-Americans had the same opinion. The same pattern was observed for questions Q6 (Would you book on this site?), where 93.3 % of Americans answered “very likely” or “somewhat likely”, whereas only 63.9 % of non-Americans gave the same answer. Americans were also more prone to use the Marriott website to gather hotel information (64.5 % very likely) compared to non-Americans (26.8 % very likely).
54.8 % of Americans reported having seen the hotel phone number, whereas only 33.2 % of non-Americans reported the same. These results stay in line with the finding that for Americans the visibility of the phone number is more important than for non-Americans: over 90 % said the hotel phone number would be important on a hotel website, compared to 71.3 % of non-Americans.
Last but not least, Americans are way more prone to be member of a hotel loyalty program (64.5 % compared to 18.5 % of non-Americans).

5.4. Results of Scenarios T2 – T5

Scenario T2: Find more information about the guest rooms

The user instruction for that scenario was the following: “You would like to find more information about the guest rooms. Click where you would expect it.”

Users from different countries didn’t look at the same places to search more information about hotel rooms. While Belgian people quite unitary searched the navigation tabs, American and Spanish users mainly concentrated on the photo gallery button and the room and flight box. See heat maps of these countries in Figure 11.

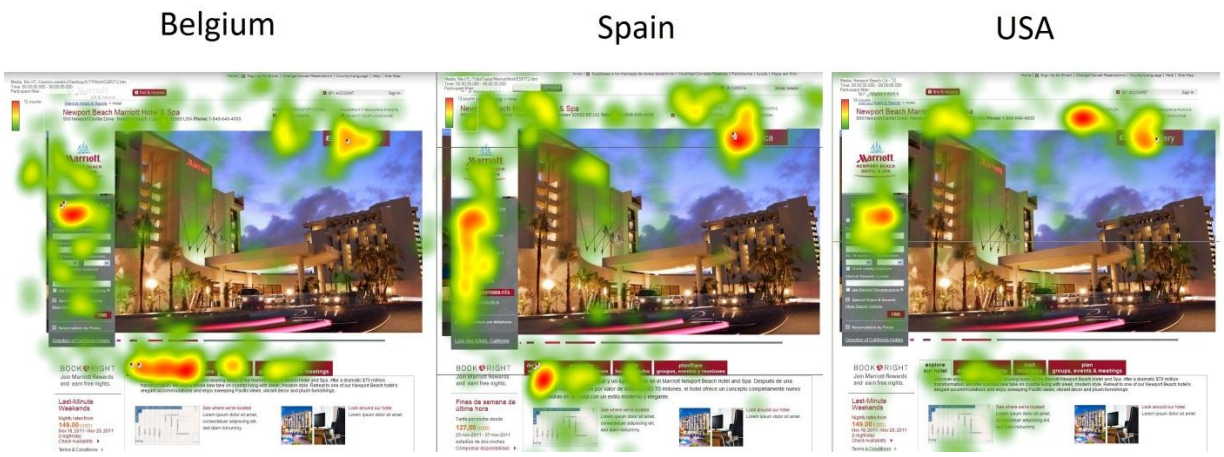


Figure 11. Heat maps of Belgium, Spain and America when users are looking for guest room information (first 5 seconds).

Scenario T3: Services and amenities of the hotel

The user instruction for that scenario was the following: “You are interested in what services and amenities the hotel offers. Click where you would expect information about it.”

While in Belgium people looked and clicked at the navigation tabs, Brazilian users did mainly search on top of the page (see Figure 12).

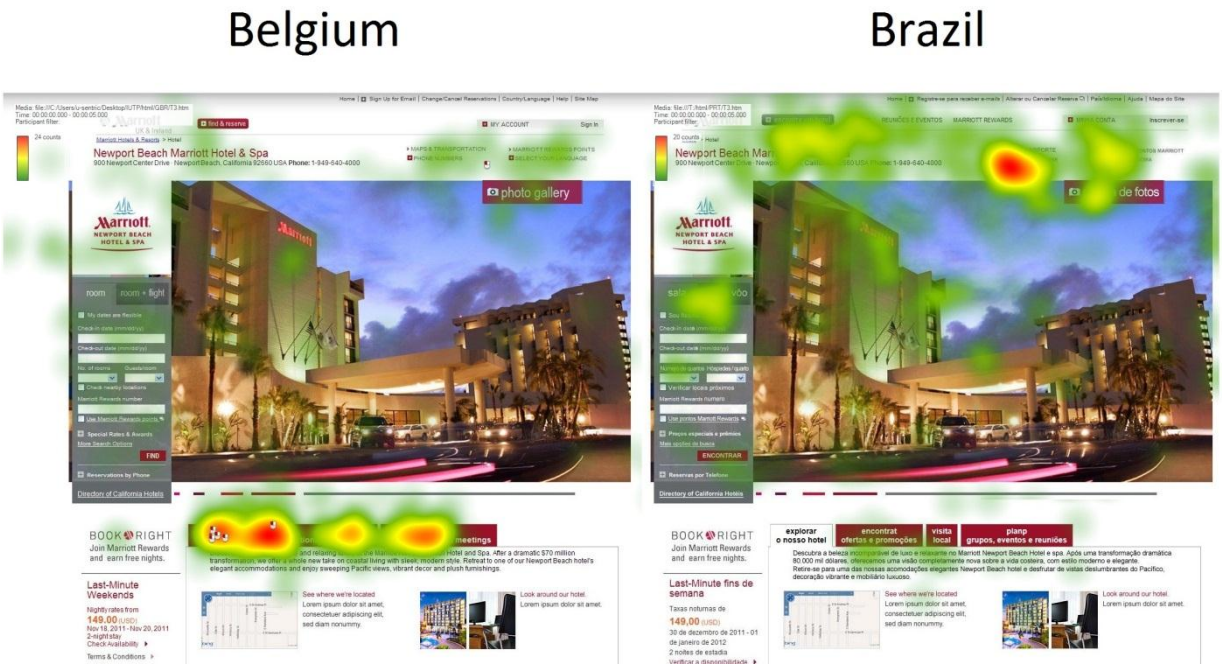


Figure 12. Heat maps of Belgium and Brazil showing users looking for services and amenities on the website (first 5 seconds).

Scenario T4: Loyalty Program of Marriott

The user instruction for that scenario was the following: “Marriott has a loyalty program. Click where you would expect information about it.”

While in Brazil and Turkey most people searched on top of the page, Belgians looked after the loyalty program in the navigation tabs more often, as well as on the room & flight box.

Figure 13. Heat maps of Brazil, Turkey and Belgium showing users looking for the Loyalty Program of Marriott (first 30 seconds).

Scenario T5: Reservation Process

The user instruction for that scenario was the following: You decided you want to stay at this hotel. Click where you would start your reservation process."

See Figure 14 for examples of 30 second heat maps of four different countries. Obviously most users expected to start the reservation process on the left side, in the room & flight box. In fact, this is where the reservation process gets started. Only Polish users tended to search additionally above the front picture.

Figure 14. Heat maps of Australia, Denmark, Poland and Sweden showing users looking for the reservation process (first 30 seconds).

6. Discussion

Present data reveals interesting differences between countries regarding user behavior on a hotel website. Not only looking behavior but also scrolling and clicking behavior is different between users with different cultural backgrounds. Additionally we could find differences in expectations and feelings about the Marriott hotel website. While there exist big differences between countries regarding where users search for guest room information (scenario 2), service and amenities (scenario 3) and the hotel loyalty program (scenario 4), users seemed to be quite at one when searching the hotel reservation process.

I would suggest to Marriott Hotels to slightly adjust their website for different countries and different cultures. Not only is the clicking behaviour different between countries, but also thoughts and expectations vary from country to country. A simple language translation seems not to be enough to meet custom requirements of users from different countries.

7. Lessons Learnt

7.1. Study design

To elicit clear facts about different user patterns between countries further studies must be conducted, in which simple hypotheses should be formulated in order to design an experiment. Instead of gathering a vast amount of data, a few short scenarios would have the advantage of being more comparable between countries and data would be easier to analyse.

7.2. Methodology

Planning and Conductance by same persons

In future studies, study design and data analysis must be accomplished by the same people. The lack of insider knowledge about study parameters and special variables makes it confusing to analyze data. Furthermore it can cause data processing errors and interpretation failures.

Simplicity of data

It would be an advantage to test one single study design in the different countries. Some countries used different browser configurations. Homogeneity of data is a very important prerequisite for flawless data analysis. Already small differences of test conductance can lead to serious heterogeneity of recorded data. On example of a systematic bias in Marriott Hotel Study were different browser settings in different countries, which led to clicking behavior biases in the first instance. I recognized that an active-X error message made nearly all Brazilian participants click on a particular location on the page. These clicks were then wrongly registered as clicks on the front picture of the hotel website.

Instruction guidance

Expectation study results (T2-T5): instruction to click on an area, where you would expect certain information is very important when dealing with quantitative data. Users who don't click on the AOI are not registered and therefore lead to a bias of analysis. That's why it is of

eminent importance to clearly guide participants through instructions and to remind them what they have to do after each task.
Furthermore certain areas of interest were too small to be analyzed. Eye tracking is not accurate enough for AOI's with dimensions of just a few pixels.

Test Recordings

Test recordings have been conducted in Sweden, USA and Switzerland prior rolling out the prototype to all countries. These test recordings did not show any issues for merging the data. After having received all recordings we identified small differences in the recording of various countries which we had to offset and which increased the effort for analysing the consolidated data. It is recommended to perform a test recording in each country to allow for eliminating local specific browser, language and eye tracking configurations prior the test start.

8. Appendix

8.1. Thanks for Participating

The Institute for Software-Ergonomics and Usability AG (Zurich, Switzerland) would like to thank the participants from all over the world for their contribution to this study. Without this huge effort the companies and universities made, a usability research of this scope would never have been possible. **Thanks a lot for participating!**

8.2. List of participating countries

In the following you see a list of all participating countries (in alphabetical order):

Country	Company	Contact Name
Australia	Objective Digital http://www.objectivedigital.com/	James Breeze
Belgium	u-sentric http://www.u-sentric.com/	Tara Shrimpton-Smith
Brazil	Checon Pesquisa http://www.checonpesquisa.com.br/	Rosangela Lopes Toledo
Chile	eyeonmedia http://www.eyeonmedia.net/	Pablo Rodríguez
Denmark	eyefact http://www.eyefact.dk/	Sune Alstrup
France	Miratech www.miratech.com	Jeremie Eskenazi
Germany	Institut für Software-Ergonomie und Usability AG http://www.usability.ch	Urs Zimmermann
Mexico	Q Solutions http://www.qsolutions.com.mx/	Ellen Lerek
Netherlands	Concept7 http://www.concept7.nl/	Liza Brouwer

Country	Company	Contact Name
Netherlands	Optimalisatielab http://www.optimalisatielab.nl/	Ineke Waas
Netherlands	Valsplat http://valsplat.nl/	Joris Leker
Poland	eyetracking.pl http://eyetracking.pl	Julia Falkowska
Russian Federation	Usabilitylab http://www.usabilitylab.ru/	Dmitry Silaev
South Africa	Western Cape Government http://www.westerncape.gov.za/	Marco Pretorius
South Africa	Nelson Mandela Metropolitan University http:// www.nmmu.ac.za/	Andre Calitz
Spain	Universitat Pompeu Fabra http://www.upf.edu/	Mari-Carmen Marcos
Sweden	Tobii Technology http://www.tobii.com/	Anne Jansen
Switzerland	Institut für Software-Ergonomie und Usability AG http://www.usability.ch/	Basil Keller
Turkey	UTR Lab http://www.utrlab.com	Aybike Tamer
USA	Marriott International http://www.marriott.com	LaDonna Russell

8.3. 30 Second Heat Maps of all Countries (Scenario 1)

In the following you can see all heat maps of scenario 1 of the first 30 seconds of page interaction.

Figure 15. Heat map of Australia (Scenario 1, 30 seconds)

Figure 16. Heat map of Belgium (Scenario 1, 30 seconds)

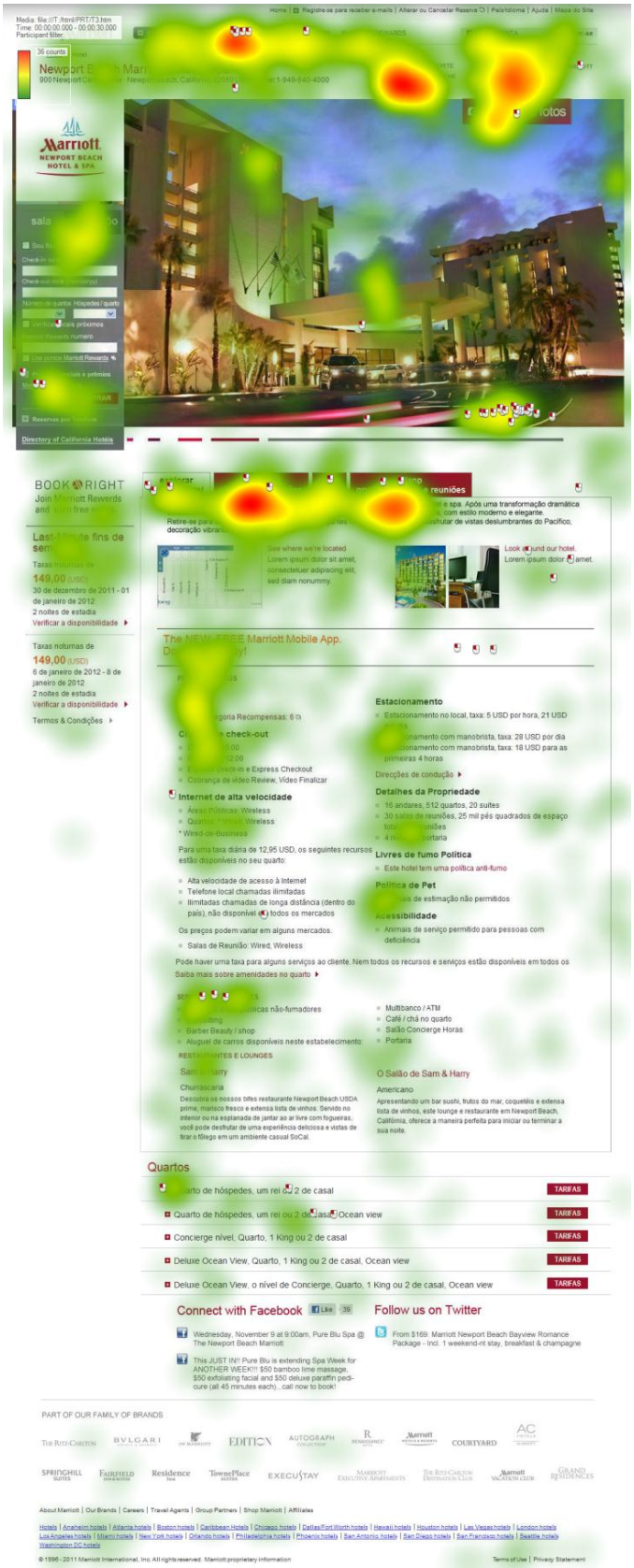


Figure 17. Heat map of Brazil (Scenario 1, 30 seconds)

Figure 18. Heat map of Chile (Scenario 1, 30 seconds)

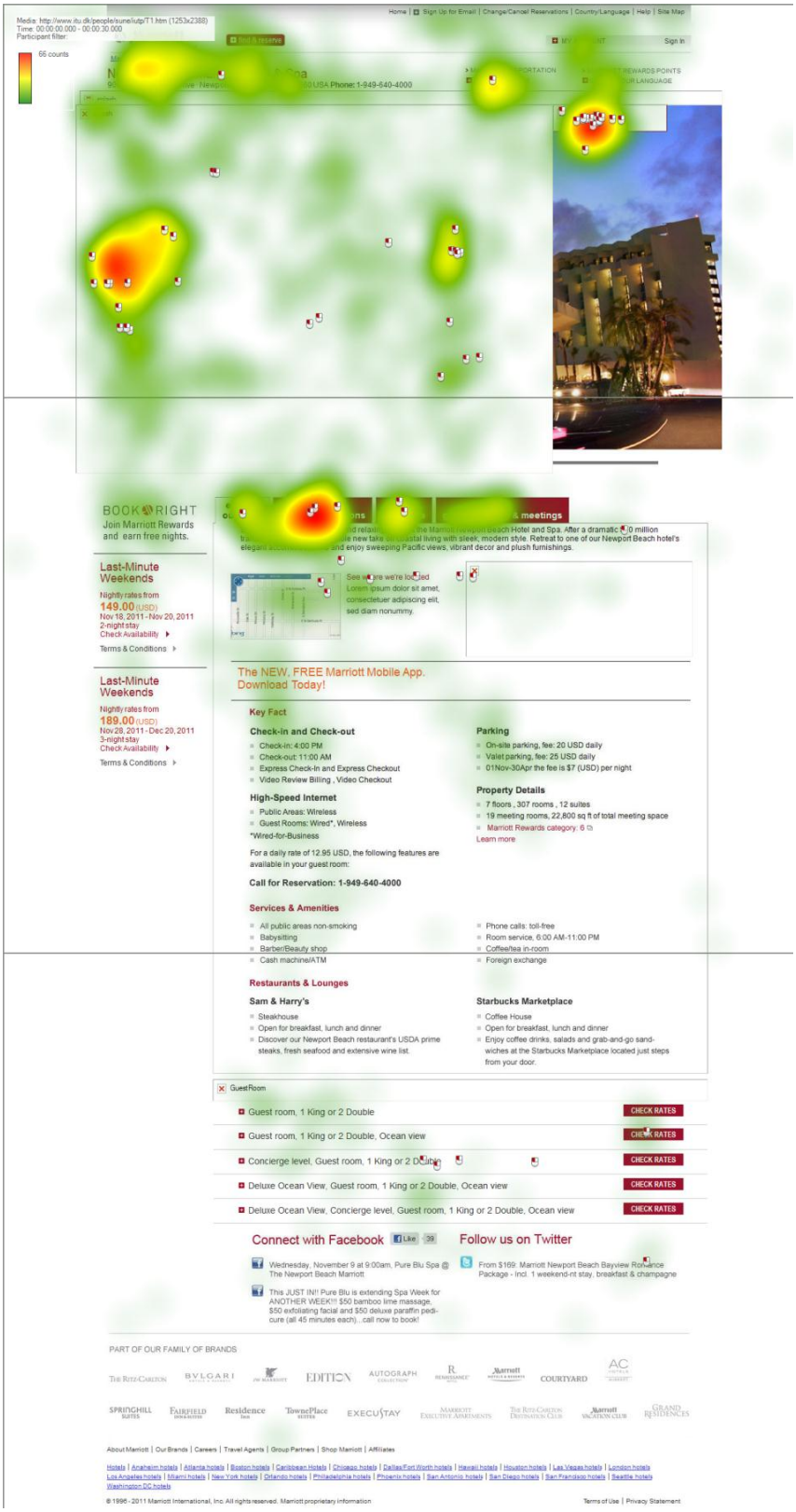


Figure 19. Heat map of Denmark (Scenario 1, 30 seconds)

Figure 20. Heat map of France (Scenario 1, 30 seconds)

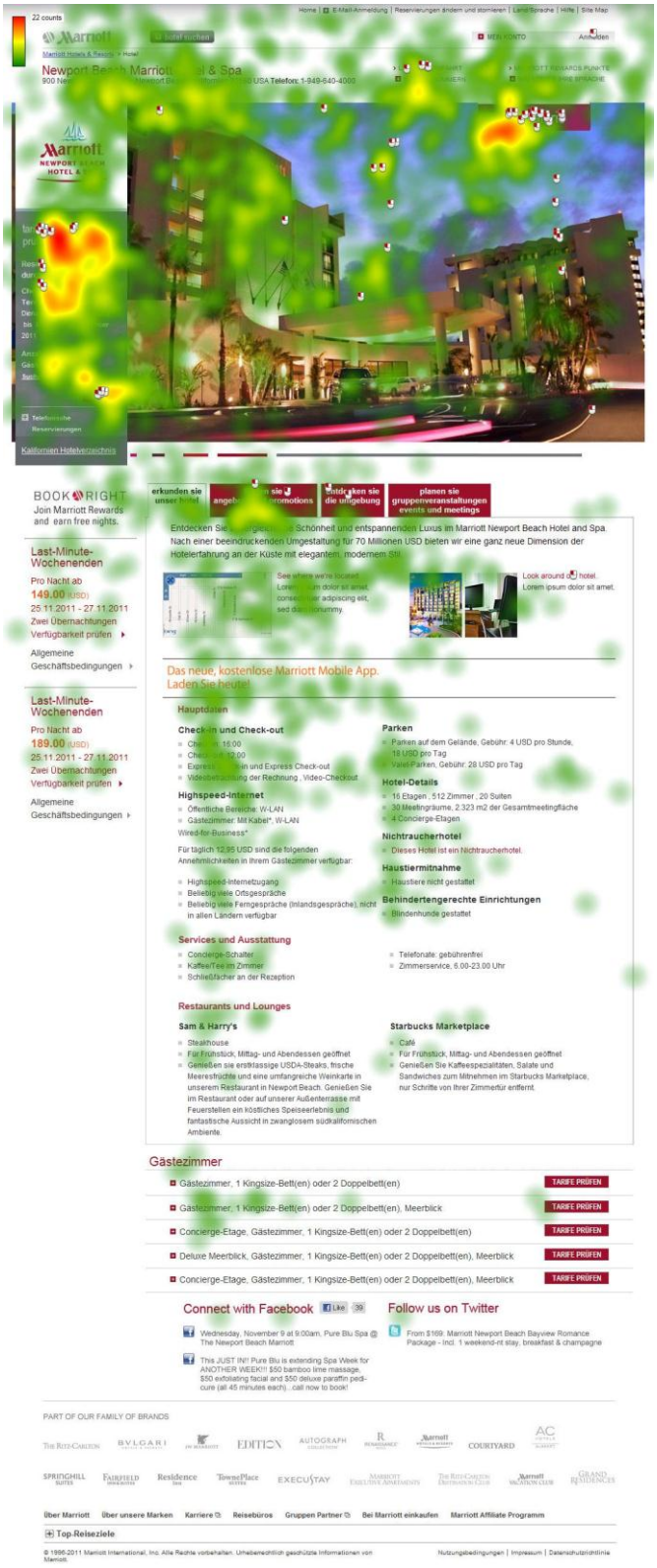


Figure 21. Heat map of Germany (Scenario 1, 30 seconds)

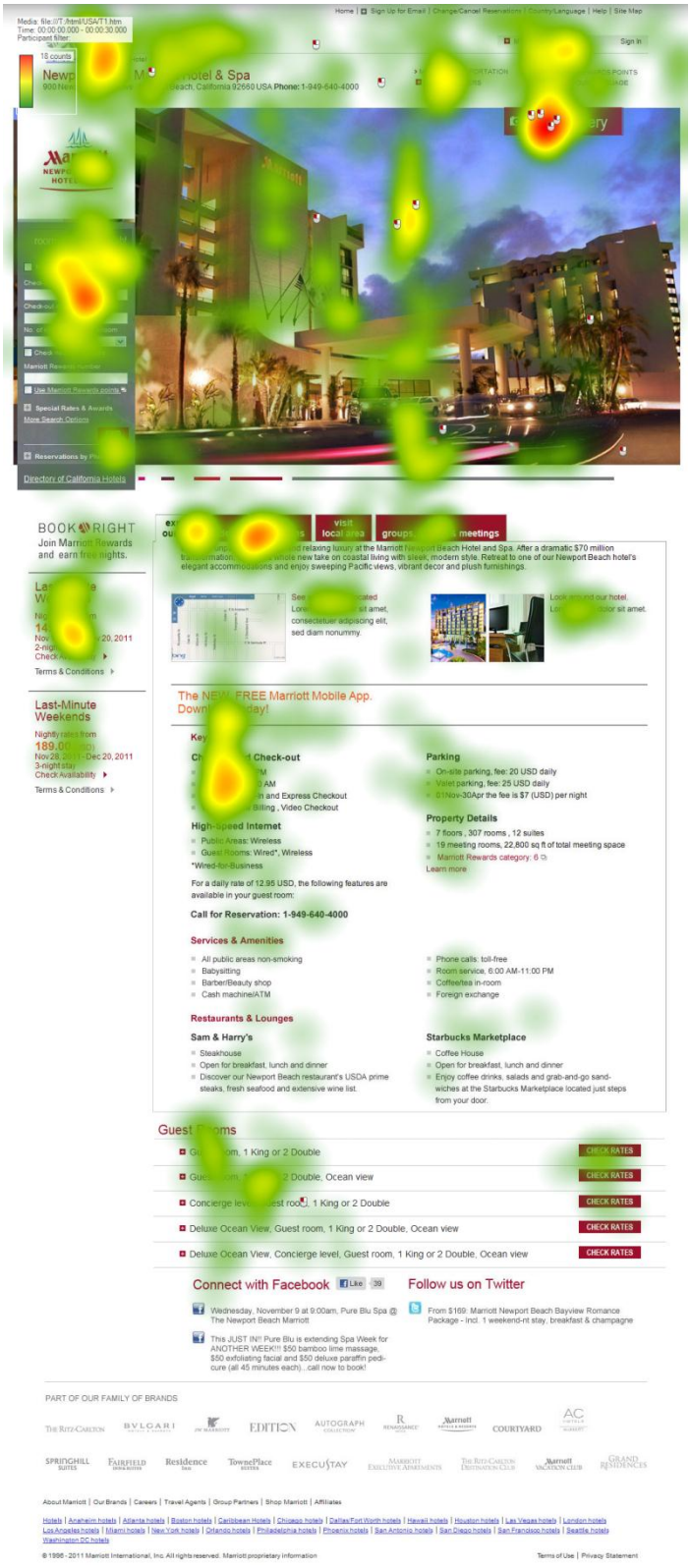


Figure 22. Heat map of Netherlands (Scenario 1, 30 seconds)

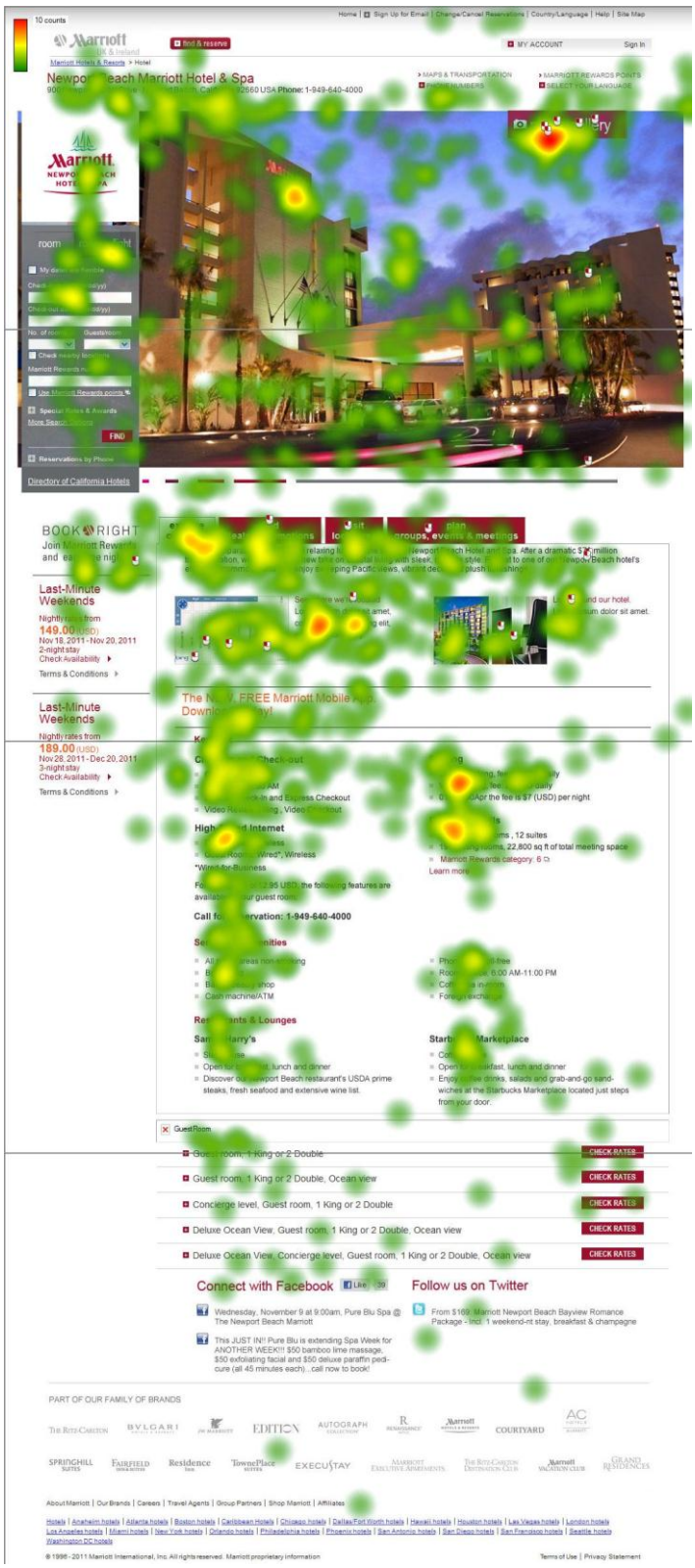


Figure 23. Heat map of Poland (Scenario 1, 30 seconds)

Figure 24. Heat map of Russian Federation (Scenario 1, 30 seconds)

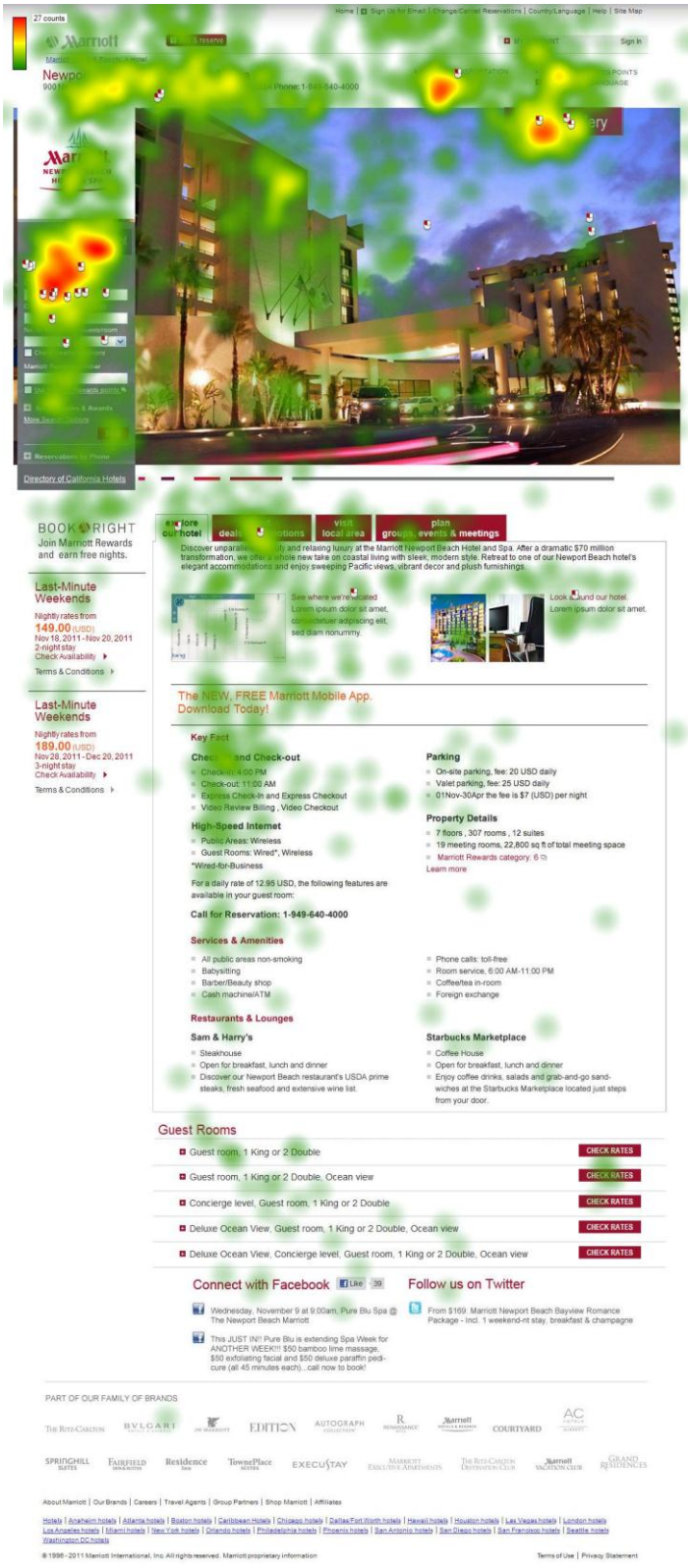


Figure 25. Heat map of South Africa (Scenario 1, 30 seconds)

Figure 26. Heat map of Spain (Scenario 1, 30 seconds)

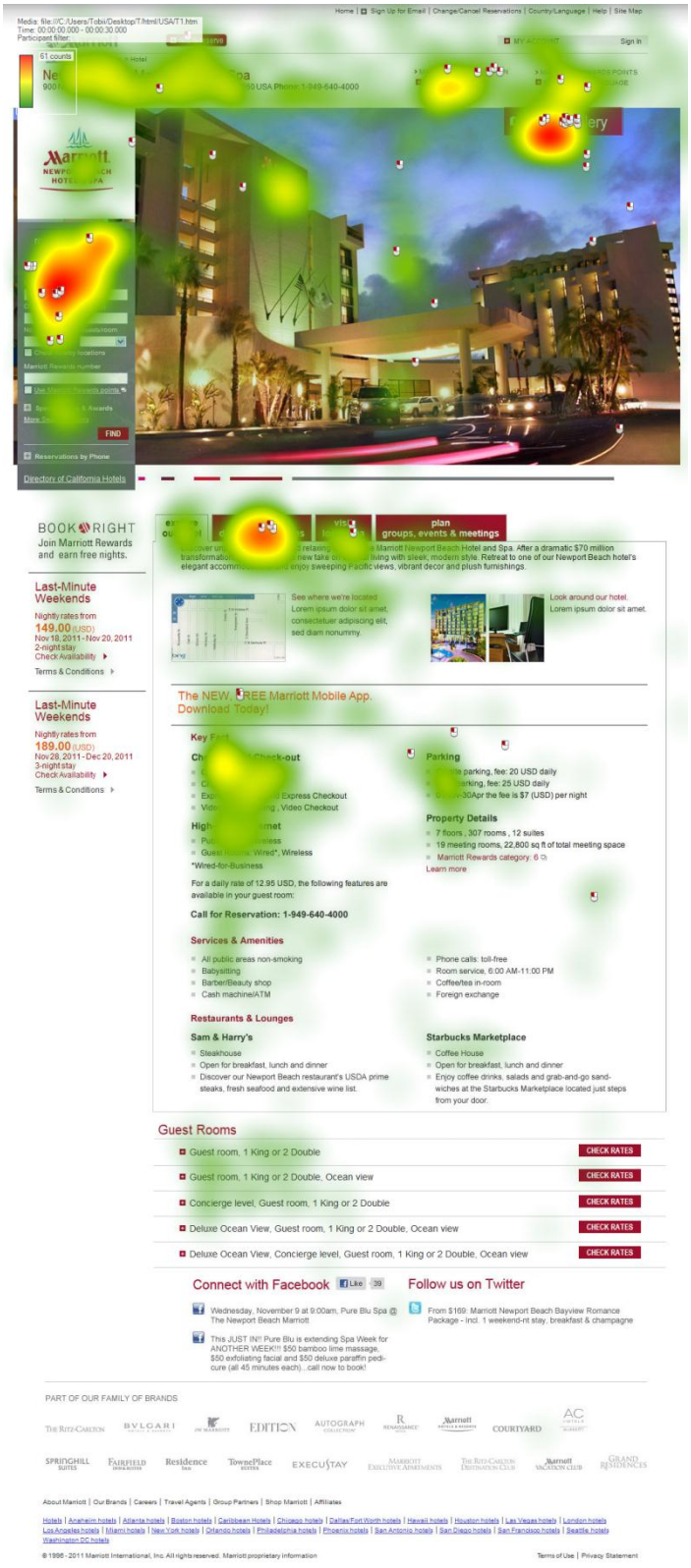


Figure 27. Heat map of Sweden (Scenario 1, 30 seconds)

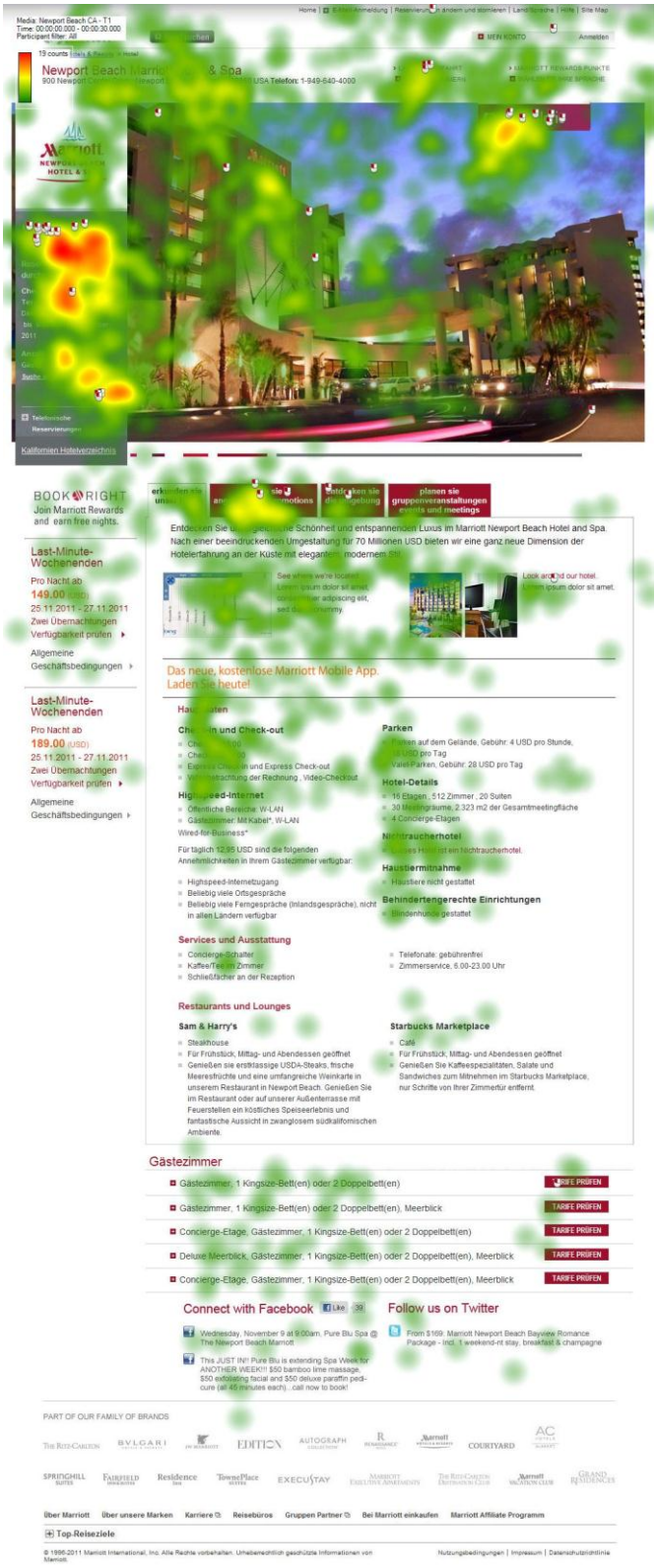


Figure 28. Heat map of Switzerland (Scenario 1, 30 seconds)

Figure 29. Heat map of Turkey (Scenario 1, 30 seconds)

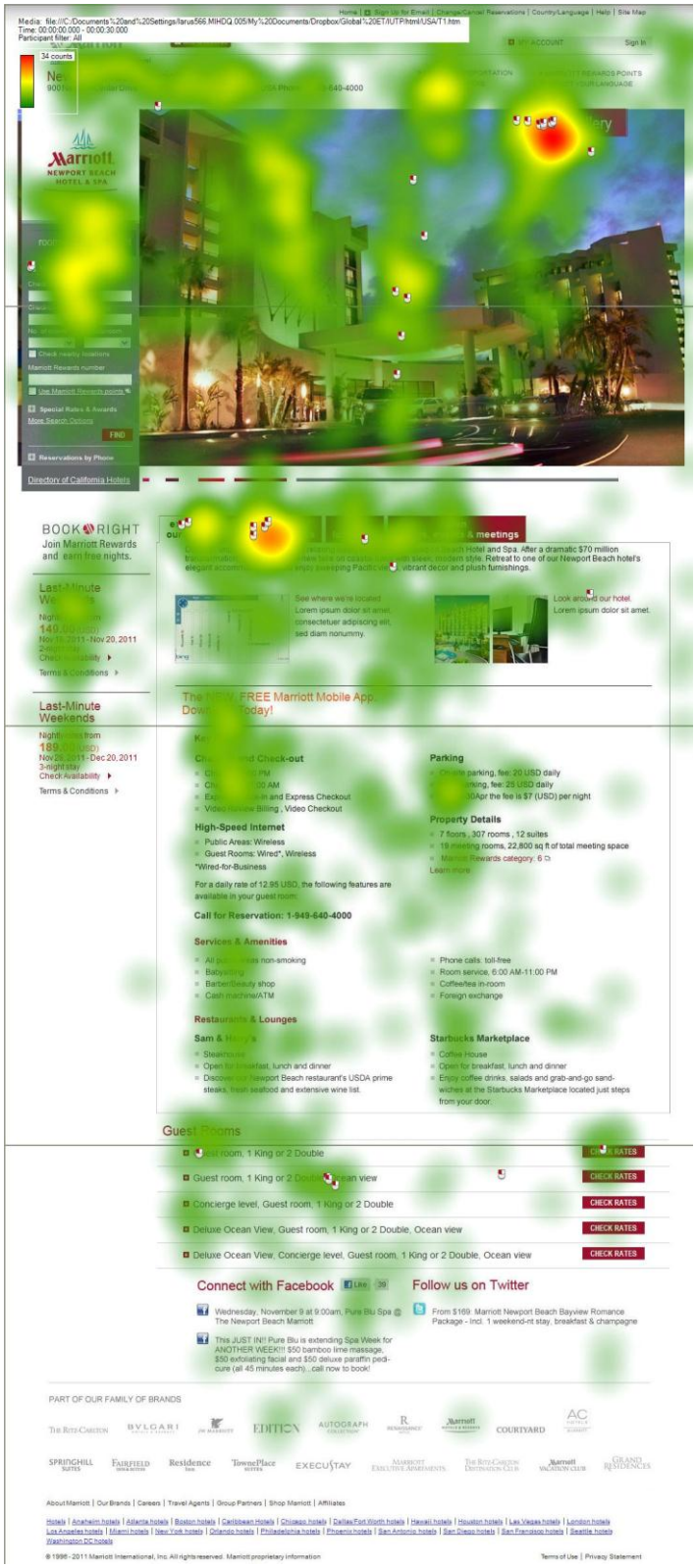


Figure 30. Heat map of USA (Scenario 1, 30 seconds)

8.4. About our data gathering

We have analysed a huge amount of data, to elicit interesting results, but we still own more data, which could be analysed as well. If somebody is interested in analysing answers to the open questions (Q1, Q5 and Q6) feel free to contact us.

And another comment to the data: Up till now, 440 out of the 510 recordings are analysed. Overall we had about 10 unusable recordings distributed over all recordings which are below expectation. It's a pity that Tobii data of Chile was not possible to analyse. See Figure 18 for a heat map of Chile. As you can see, the heat map is kind of corrupted, that's why we couldn't compute proper statistics. Data from Mexico was collected using SMI. Statistical Analysis between different Eye tracking systems should be possible but the effort for identifying qualitative and comparable data is much higher than expected. Until now, the Mexico data could therefore not be compared with data files from the other countries. During the recording sessions in Switzerland, the database file was corrupted prior we could create a backup of the recordings of that day. 15 recordings have been lost which had to be redone. Thanks everybody for collecting the data!