Wayfinding in Madrid: A study of pedestrian wayfinding in respect to tourism

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Wayfinding in Madrid:
A study of pedestrian wayfinding in respect to tourism

Ciara Glen
Fall 2014

ABSTRACT

Madrid is one of Europe's leading tourist destinations, attracting millions of foreign and domestic visitors every year. In a struggling Spanish economy, the tourism industry is, and will continue to be, a crucial component in the nation's growth and development. This study explores the significance of wayfinding systems and their importance to the tourism industry. The ability for a tourist to easily navigate through a city has an influence on their overall experience and level of enjoyment. In a progressively competitive and demanding market, satisfying tourists' needs will be of heightened importance. Research will demonstrate that Madrid is failing to provide its visitors with the resources to effectively navigate the city. A market analysis has shown that the opportunities and strengths of implementing a new wayfinding system outweigh the weaknesses and threats. An updated wayfinding system will aid in Madrid's effort to remain a progressive and attractive tourist destination.

INTRODUCTION

It is easy to feel lost and overwhelmed when exposed to new and unfamiliar environments, resulting in a need for wayfinding. Wayfinding can be defined as "the cognitive conceptual process of finding and planning a route from an origin to a destination through a known, partially known, or unknown environment" (Klippel, 2010). Understanding wayfinding as it applies to tourism management is critical for creating an accessible environment for travellers to explore, discover and learn. The city of Madrid attracts millions of tourists every year and boasts an abundance of attractions ranging from historical monuments and world-renowned museums, to arguably the most successful football club in history, Real Madrid. But how does the city accommodate its visitors and create an accessible, welcoming and efficient environment?

The first goal of this paper is to highlight the significance of wayfinding systems and their impact on, and relationship with tourism and subsequently, economic growth. This concept is particularly relevant to Madrid as tourism is Spain's leading industry accounting for 10% of the nation's total GDP and creating 11.9% of the country's jobs (UNWTO, Working Together in Europe, 2014). Madrid itself is on course to receive record-breaking tourism numbers, welcoming over 5 million visitors in the first 8 months of 2014, a cumulative growth of 12.3% (tourism-review.com, 2014). The second goal of this paper is to examine Madrid's current wayfinding situation and its impact on the accessibility of the city in regards to the tourism industry. As on-foot travel is the most common mode of transportation for tourists, the focus of this research will be specific to pedestrian wayfinding. Establishing the importance and relevance of wayfinding systems to tourism in Madrid raises the question as to what makes a successful wayfinding strategy. Therefore, the final goal of this paper is to make suggestions, based on primary research, case studies and literature, for a wayfinding strategy that can assist Madrid in its future and longevity as a prominent tourism destination.

PART I: THE SIGNFICANCE OF WAYFINDINGING TO TOURISM

While wayfinding is not specific to the industry, given the nature of travel, it is an inevitable part of every trip. Wayfinding happens not only for local residents travelling domestically, but also for international visitors during initial or repeated visits to foreign countries. How tourists approach wayfinding depends on their experience with travel, familiarity with an environment and their psychographic personality. Tourists who tend to be adventurous and spontaneous might feel a sense of relaxation or happiness when travelling in unfamiliar environments. For others, an unfamiliar destination will generate fear and anxiety, and this feeling of disorientation is linked with negativity (Chang, 2013). Wayfinding signage systems are key tools used by tourists to navigate through these unfamiliar environments. Signage and wayfinding systems are not entirely new concepts, but have, and will continue to become of increasing importance due to the growing tourism industry, shifting tourist behaviours and urbanization.

Trends in global tourism

The past six decades have seen international tourism develop into one of the world's largest industries, and while the global economy is seen to be in 'low gear,' demand for international tourism continues to exceed expectations (UNWTO Tourism Highlights, 2014). The world's economic balance of power is shifting with the once poor developing countries such as Brazil, China, India and Russia accelerating out of recession (Yeoman, 2012). With travel being strongly linked to GDP, the emergence of this new middle class is expected to fuel continued growth in international tourism. The shift in economic power has not only increased the number of global travellers but, combined with an expanding network of transportation infrastructure, facilitated a growth in destination choice (UNWTO: Global Report on Aviation, 2012). Travellers now have the opportunity to explore nearly every corner of the world, at any given time.

Figure 1: History and forecasted growth in international tourism (UNWTO, 2014)

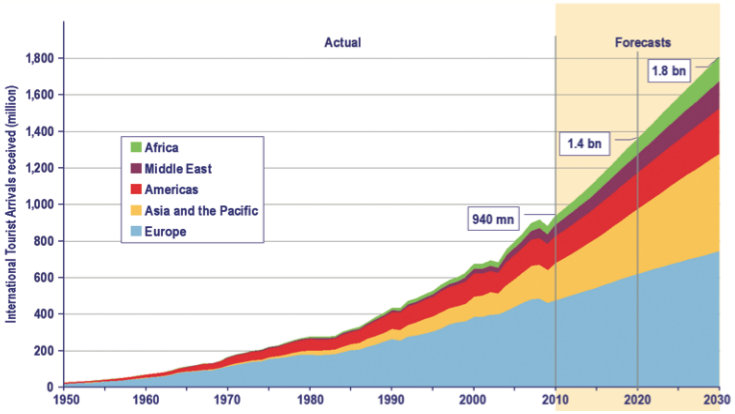


Table 1: Outbound departures from source country (,000)

Nation	2000	2001	2002	2003	2004	2005	2006	2007	2008	2000-08 outbound increase
Brazil	3,228	2,674	2,338	3,225	3,701	4,667	4,625	4,823	4,936	**53%**
China	10,473	12,133	16,602	20,222	28,853	31,026	34,524	40,954	45,844	**338%**
India	4,416	4,564	4,940	5,351	-	7,185	8,340	9,783	10,868	**146%**
Russia	18,371	18,030	20,428	20,572	24,507	28,416	29,107	34,285	36,538	**99%**

Data source: UNWTO

Technology altering tourist behaviour

There is a continued need for accessible wayfinding as the shift in power combined with the opaqueness of the Internet and speed of technology has tourists demanding "better experiences, faster services, multiple choices, social responsibility and greater satisfaction" (Yeoman, 2012). Technology has given travellers the ability to conduct their own research, make their own arrangements and bookings, and share first-hand experience with a global audience. Travel patterns and expectations are evolving as changes in the digital landscape are altering traditional relationships with time and place (Dickenson et al., 2012).

The smartphone revolution has been influential in altering perceptions and behaviour in regards to navigation as the device provides a convenient way for people to conduct research and receive instantaneous results. A study from the United States shows that between 2011 and 2012 the number of smartphone owners increased from 35% to 46% with the percentage of those owners accessing real-time location-based information, increasing from 55% to 74% (Zickuhr, 2013). Smartphones may have reduced the reliance on wayfinding signs, to what extent is unknown, as evidence still suggests that signs remain the most basic form of pedestrian wayfinding for tourists (Kokko, 2011). Access to instantaneous mapping information and location-based data is easily accessible on a domestic scale, however many tourists do not have the luxury on international data plans. Furthermore, while access is improving, readily available, dependable free Wi-Fi is still a challenge. The ability to receive location-based data on smartphones may have increased the ease of navigation; this instant gratification has come at the cost of decreased patience (Muther, 2013). People have become accustomed to instantaneous mapping information increasing the expectation and demand for efficient and informative wayfinding systems.

The increase in technology has also given tourists the ability to access and contribute to travel information on online social networks. Websites like Trip Advisors and Orbitz have an average of 315 million (Trip Advisor, 2014) and 139 million (Yelp, 2014) visitors per month. The ability for travellers to instantly share experiences has increased both the vulnerability of cities and specific attractions and the competition within tourism industry. The importance of a city's reputation, of which pedestrian accessibility plays a vital role, has been heightened by the hyper connectivity and exposure of the Internet. With the choice of tourist destinations expanding as well as expectations and demands increasing, tourism meccas, such as Madrid, are more vulnerable and their effort to satisfy customers more prevalent.

Urbanism and its implications on tourism

Managing tourism, in terms of effective wayfinding, will be of continued importance as the world population continues to shift to urbanization. Cities are tied to a better quality of life, and provide people with opportunities and services that are not available in rural areas. According to the United Nations, in 2014, 54 % of the world's population lived in urban areas with this figure projected to increase to 66% by 2050. Increased urban density places a greater stress and appreciation on the concept of space and the need for land use and transit planning (WHO, 2010). Urbanization heightens the importance of managing tourism to ensure that cities respond to the needs of both their visitors and members of the community.

As the world continues to urbanize, sustainable development challenges will be increasingly prevalent. With the number of people living in urban areas increasing, governments will be placed under great pressure to provide services such as health care, education, public transit, and access to water and electricity. Governments will need to adopt sustainable urbanization efforts and implement policies that generate better income and employment opportunities (United Nations, 2014). Wayfinding systems can serve as tools to direct visitors, promote commercial zones and subsequently strengthen the economy. Pedestrian signage can manipulate tourist routes and play significant roles in developing both small and large businesses districts which in turn, enhances the real-estate value resulting in high tax revenues for the city (The Signage Foundation, 2013).

While the level of urbanization is more severe in Asia and Africa, the phenomenon is also a concern for the city of Madrid whose urban population is predicted to reach 6.7 million by 2030 (United Nations, 2014). The challenge will be to create a friendly, accessible environment in an increasingly dense city and remain attractive in a progressively competitive global tourism industry. Signage and wayfinding systems will be at the forefront of efforts to manage tourism activity and ensure long-term success and sustainability of Madrid's leading industry.

Table 2: Urbanization, Madrid (,000)

Population				Average annual rate of change
Year:	**1990**	**2014**	**2030**	
Madrid	4 414	6 133	6707	1.4%

Datasourced: World Urbanization Prospects, UN, 2014.

PART II: ANALYSIS

Madrid today:

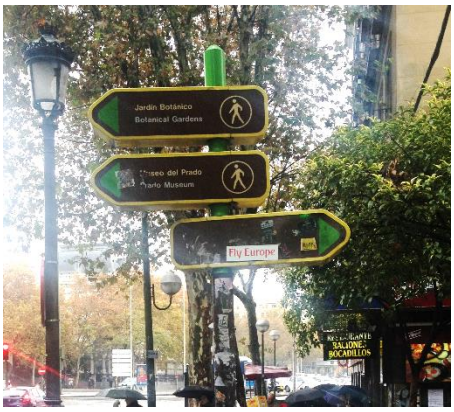
Having proven the prominence and importance of tourism in Madrid, it is somewhat surprising to see the lack of effective wayfinding efforts. Mario Barcelo, a professor of Urban and Regional Economics at Carlos III University in Madrid, compares the city's current wayfinding system to "more of a quest" than a system which helps tourists to navigate. Barcelo believes that the current signage does "nothing at all" to help tourists explore the city. Through my own observation it appears that Madrid's current wayfinding system consists of approximately five main competing or conflicting street signage systems across the city. The majority of the signs have being installed by the City of Madrid at different points in time – or for different purposes, the intent and reason for the variety is not entirely clear. To fully understand the existing wayfinding systems, I will reflect on each signage type separately before determining the effectiveness of the systems as a whole.

1. Pedestrian Tourism Signs

I am labelling this system of signage as the "Pedestrian Tourism Signs" for it seems to be specifically planned for tourists who navigate the city by walking. The signs are found on large posts and feature a brown background with white writing or symbols. The signs were part of a municipal initiative submitted in 2005 whose intention was to make Madrid more accessible. The City designed six walking routes through the city's most emblematic locations. The system includes 10 vertical panels, three meters in height, featuring mapping, route, and distance information; 250 color-coded directional arrows in English and Spanish; and 50 monument signs in Spanish, English and Japanese (Sanchez, 2013).

Figure 2: Pedestrian Tourism Signs (2014)

Good condition directional arrow



More typical vandalized directional arrow

(Source: Sanchez, 2013)

Vertical panels

Monument sign

Eight years after the establishment of these routes and it is clear that this signage system is failing. It is more common than not to find these signs littered with stickers or paint, illegible and inadequate of their primitive function to inform. Along with the signs, the walking routes have seen better days for even the municipal informational services do not know of their existence (Sanchez, 2013). There are several hypotheses as to why these signs and their accompanying walking routes have failed: Perhaps it is the placement and design of the system, for the directional arrows and monument signs tower above pedestrians, far above any human's line of sight. Not helping this situation is the fact that the brown background and small white writing, while non-invasive of the historical cityscape, do little to attract the attention of tourists.

Figure 3: Vehicular Signs, (2014)

Perhaps instead it is the lack of awareness, inconsistency and scope of the project as 10 information boards seem somewhat inadequate for a city of Madrid's size, while the color-coded nature of directional signs, lack meaning without a legend. Monument signs while supposedly trilingual are often solely in Spanish or feature a symbol of no relevance to a foreign visitor. The most obvious hypothesis however is that the system failed due to the upkeep of the signs for even if a tourist was aware of their existence and understood their intent he or she would likely struggle to make out any information.

2. Vehicular Signs

Located on busy motorways, intersections and roundabouts are larger directional arrows which often communicate directions to popular tourist destinations such as museums and plazas. Due to their size and location these signs appear to be intended for vehicular traffic although they are often used by pedestrian tourism traffic. Although attention grabbing, simple in design and easily legible, these signs are not specifically intended for pedestrians and thus, lack detailed information such as distance or travel time. There also appears to be a system of color coordination however, the meaning is unclear and inconsistent throughout the city.

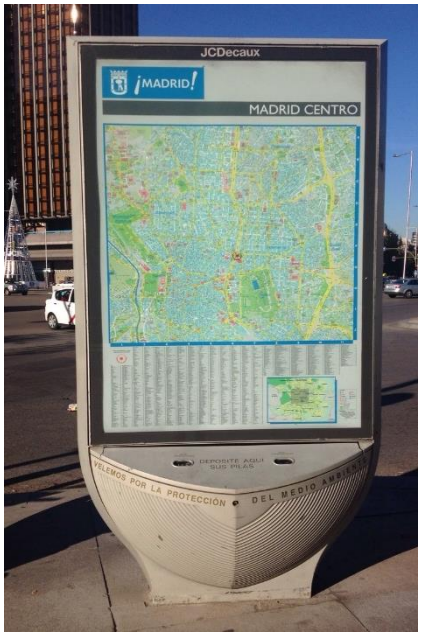


Figure 4: Directory Sign (2014)

3. Madrid City Map and Directory Signs

Large city maps presented on freestanding signs are located on sidewalks and plazas throughout the centre of Madrid. These maps act as directories, numbering attractions, plazas, parks, stations and streets, and providing a corresponding legend. They also feature a "you are here" spot so that pedestrians can locate their position and plan a route. The sheer amount of information and detail featured on these maps makes them difficult for many pedestrians to comprehend. While these signs do provide users with the ability to orientate themselves, they do little for directional navigation or route planning.

4. Bici Madrid Booths

BiciMAD is a new initiative to promote cycling in Madrid. The program includes 123 bike stations which use an interactive platform to communicate real-time information on the availability of bikes and stalls (BiciMAD, 2014). Concentrated in the centre of the city, the stations are often located a few meters away from the entrance to major tourist attractions or popular plazas. Modern in appearance, the bike stations feature several self-illuminating route maps. It is not uncommon to find tourists approaching the stations and attempting to use the maps for general wayfinding purposes. Chelsea Mosgrove, a recent visitor to Madrid, commented on her attempt to use a BiciMAD station as a tourism map: "I spent ten minutes trying to figure out if the numbers [on the map] corresponded with tourist attractions before realizing that they were indicating bike stations." Perhaps it is the poor identification or a lack of available tourist signage that has visitors turning to the BiciMAD stations for assistance. Regardless, the confusion has the potential to further discourage tourists as they attempt to navigate Madrid.

Figure 5: BiciMAD station (2014)

5. Mobile Information Booths

Mobile information booths such as the one shown in Figure 6 are located outside major tourist attractions and transportation hubs. These booths provide tourists with face-to-face navigation assistance and often distribute paper maps to aid with wayfinding. These mobile information booths tend to reduce in number during the winter months, adjusting to the high level of seasonality in Madrid's tourism industry. While mobile information booths may serve to be useful when present, they do not offer 24/7 assistance, are expensive to staff and are irrelevant if tourists become disoriented travelling between locations.

Figure 6: Mobile Information Booth, (2014)

Madrid's overall wayfinding

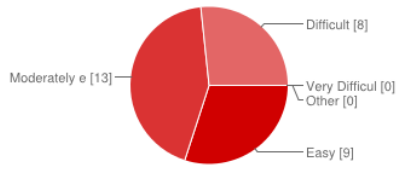
While the five signage systems described above are the most prominent sources of wayfinding in Madrid, these are not the only directional signs present in the city. As a pedestrian, it is not uncommon to come across an indiscriminate sign that does not appear to be a member of any particular signage system. The variety of signage systems throughout Madrid has resulted in visual and informational inconsistency. The existing signage types may individually have some benefit to wayfinding but the lack of connectivity between systems combined with a general absence of upkeep fails to provide tourists with an adequate and comprehensive wayfinding system. Recent reports indicate that the state of the city's signage is on the agenda for Madrid's City Council (Sanchez, 2013). In the meantime, the city appears to rely on the Internet providing visitors with tourist maps, transportation information and audio guides.

Survey results:

A recent survey I conducted uncovered some interesting information regarding tourism and wayfinding in Madrid today (Appendix 1). Using Google Forms, 30 individuals were asked to anonymously provide feedback on the accessibility of Madrid. Respondents were foreigners to Spain, having either recently visited as a tourist or in the process of completing a 4 month university semester in Madrid. When asked how easy it was to navigate the city during their first week, 30% of participants responded they found the process "easy", 43% answered "moderately easy" with 27% finding the city "difficult" to navigate. The same respondents were then asked how easy it was to find the main tourist attractions. 50% responded "easy", with 37% and 13% responding "moderately easy" and "difficult" respectively (Figures 7 and 8). The possible difference in these results could be that the general accessibility of Madrid is more challenging to navigate than finding the physically large attractions such as Plaza Mayor and the Royal Palace.

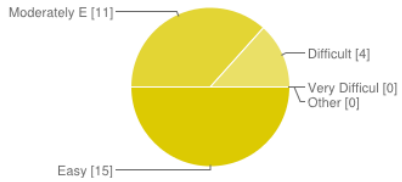
Figures 7 and 8: Survey Results (2014)

3. In general, during your first week here, how easy was it to navigate around the city?



Easy	9	30%
Moderately easy	13	43%
Difficult	8	27%
Very Difficult	0	0%

4. In general, how easy was it to find the major tourist attractions?



Easy	15	50%
Moderately Easy	11	37%
Difficult	4	13%
Very Difficult	0	0%

The survey continues by asking participants what their primary resource was for navigating the city. 50% answered “Cellular data or Wifi,” reaffirming the prominence of technology as a tool for wayfinding. As the majority of respondents are university exchange students, who typically have cellular plans while in Madrid, one might expect this result to be different amongst tourists who stay in Madrid for a shorter period. 33% of respondents indicated using either a city or tourist paper map, and only 2 out of 30 people referenced using street signage as their primary resource of navigation. When specifically asked questions about the “Pedestrian Tourism Signage,” 27% of participants said they noticed the signs within their first day in Madrid. Another 53% responded that they had also seen the signs “but not at first” possibly indicating that these signs are inadequate at grabbing the attention of pedestrians. Additional survey results confirm the ineffectiveness of the “Pedestrian Tourism Signage”: 6 of the 30 respondents have never noticed the signs in Madrid and 60% have never used the signs for navigation. Although less common than not, the survey results did indicate that 37% of respondents have used the signs for navigational purposes and 30% of people found them to be useful.

The final portion of the survey asked participants to reflect on the general accessibility of Madrid. Respondents were asked how they would rate the overall accessibility of city if they did not have cellular data or Wi-Fi. The results were as follows: 13% - “very accommodating,” 53% - “somewhat accommodating,” and 30% - “needs improvement.” Participants were then asked to rate Madrid’s overall tourist-friendly nature. 43% of the participants rated the city as “very accommodating,” 47% as “somewhat accommodating,” and only 7% of respondents thought that the city “needs improvement.” One possible reason for the difference between the two results is that people are willing to overlook poor wayfinding when evaluating the tourist–friendly nature of Madrid, because of other qualities the city offers. At the time of the survey, many participants had lived in Madrid for a few months and therefore, may not consider wayfinding in their evaluation, as they no longer struggle with it.

Although survey results show a general lack of signage usage in navigating in Madrid, this may not necessarily affect tourists’ general opinion of the city. The following SWOT analysis provides a brief analysis of the potential benefit of a new wayfinding system.

SWOT Analysis:

Table 3: SWOT analysis of a potential wayfinding system

Strengths	Weaknesses
Strong existing tourism industry Walk-able city centre with high concentration of tourism sites Government support for continued investment in tourism	Large number of existing signage systems Presence of vandalism & graffiti in Madrid
Opportunities	**Threats**
Projected increase in global tourism Society becoming more visual than verbal Ability to direct pedestrian flow to commercial areas Advances in signage design & capabilities Nationally expanding the wayfinding system increases the connectivity between Spain's tourist centres	Competing or conflicting motives of stakeholders Lack of upkeep Changing information causes out-dated signage Expanding network of tourist destinations increases competition More demanding tourists

Strengths

A pedestrian wayfinding system would go to good use as Madrid has an impressive history of hosting tourists. The city features a large number of spatially concentrated tourist attractions making a tourist's exploration of the city accessible by walking. This creates potential for a pedestrian wayfinding system to guide and inform tourists as they discover the city. The national government of Spain is aware of the importance of tourism and has voiced continued investment and support in the industry. This support serves as a strength in regards to a future wayfinding system as government backing can be crucial for a project's funding and for the system's long term upkeep and success.

Weaknesses

As previously presented, Madrid's current wayfinding system consists of several different signage types. These contrasting systems serve as a weakness for they fail to unite as a cohesive and effective wayfinding system. The lack of wayfinding cohesiveness could be a factor in why there appears to be a general lack of unification in the tourism industry in Madrid. The survey I performed indicated that 53% of respondents felt there was an absence of a tourism network and instead that Madrid offered a set of separate attractions.

It is clear from the existing signage and the general appearance of Madrid that vandalism and graffiti is a weakness of the city. As demonstrated on the current "Pedestrian Tourism Signage," this vandalism causes the signage to become illegible and thus fail to inform the user.

Opportunities

As global tourism continues to rise, there is potential for Madrid to exploit the growing number of foreign travellers. One such way that Madrid could take advantage of the influx of visitors is to create a wayfinding system which influences pedestrian traffic towards commercial areas in the hopes of strengthening the economy.

There is also potential to extend the pedestrian wayfinding system to other Spanish tourism centres in an attempt to improve between-city connectivity and strengthen the Spain "tourism brand".

The process of wayfinding is becoming increasingly more visual than verbal and recent developments in wayfinding systems have made significant improvements to the user-friendly, aesthetic and informational aspects of maps. State-of-the-art pedestrian signage systems now feature a wide variety of self-illuminating sidewalk furniture and signs which boast additional information such as walking distance and time. Wayfinding systems can also be translated digitally and provided to pedestrians on mobile phones or tablets.

Threats

As global tourism continues to rise and the economic and social developments of many countries increases, the number of tourist destinations will continue to multiply. The increasingly competitive tourism industry is a threat to Madrid's ability to attract international tourists. In addition, tourists are becoming more choosy and critical, using the Internet and social platforms to gain information and opinions, increasing their decision-making powers.

There are many stakeholders who would be affected by a pedestrian wayfinding system such as museums, restaurants, stores, and local residents. Each stakeholder has a conflicting motive regarding whether they want to encourage or discourage pedestrian traffic. These conflicting motives could serve as a threat to developing and implementing an effective wayfinding system that would benefit the city at large.

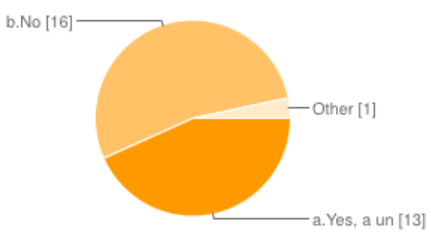
The future wayfinding system is threatened by the lack of upkeep and attention from the City of Madrid. The existing tourism signs have not been cleaned or maintained and the risk of this happening to future signage systems would compromise their success. As information such as traffic patterns or attraction locations change the signs risk becoming out-dated and irrelevant. Failure to understand the importance of a wayfinding system resulting in a lack of commitment would threaten overall success.

PART III: THE FUTURE OF WAYFINDING IN MADRID

Spain's "Tourism Brand"

The Spanish government is aware of the influence tourism has on the national economy and has pledged its dedication to the industry's continued investment. In 2012, the Ministry of Industry, Energy and Tourism released a document with outlined measures for the period of 2012 – 2015, in an attempt to boost Spain's competitiveness in the global market. The document highlighted the importance of Spain's "tourism brand" as a key asset in the economy but also, pointed out a declining trend in the nation's "tourism brand" in recent years (2012). My survey results also indicate that Madrid as a city, fails to convince the majority of visitors of a unified "tourist network" (Figure 9).

Figure 9: Survey (2014): "Did you feel that there is an effort to unify tourism in Madrid?



a. Yes, a unified feeling	**13**	43%
b. No	**16**	53%
Other	**1**	3%

As noted, pedestrian wayfinding systems can serve as tools to link tourists to services, attractions and businesses, but they can also serve as a marketing tool, helping to create a city or national "tourism brand." A consistent, comprehensive pedestrian wayfinding system can help Madrid, and Spain as a whole, increase the overall connectivity and unification of the tourism industry. In addition, the visual appearance of a wayfinding system can help portray Spain's image, mission and ambition.

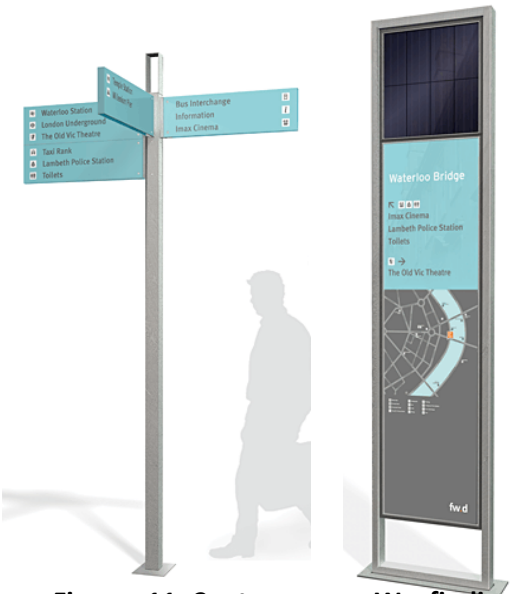
In 2012, Dublin, Ireland implemented a new wayfinding system consisting of a variety of signage structures, billboards and hand-held as well as online maps. Designed in a consistent scheme the wayfinding system collectively delivers a unique identity befitting to the city (Fwdesign, 2014). The wayfinding system has since been extended from Dublin city centre to the Dublin Docklands. The docklands are still relatively new to visitors and the extension of the citywide system is important to ensure understanding of linkages across Dublin (Dublin City, 2012). In 2014, signs of a consistent design were also installed in the neighbouring town Don Laoghaire, once again expanding the wayfinding network. A consistent signage system throughout Spain would help build connectivity between the major tourist centres and provide a sense of familiarity and ease of use for tourists. Consistent signage would also provide Spain with a sustainable competitive advantage, as elements, such as design, factory production and upkeep would be simplified.

Miami Beach, Florida combined their need for a tourism signage system with an effort to portray the city's brand and image. A design team worked in conjunction with several stakeholders to develop both directional signs, helping tourists navigate across the city, and, gateway signs, defining the entry into a distinct location. While the signs served their functional purposes, their visual design has since become iconic, communicating the identity and brand of Miami Beach (Hillier, 2004).

Figure 10: Miami Gateway Signs (Signage Foundation Inc., 2013)

Planning, Design and Maintenance:

In order to create an effective wayfinding system it is key that the city undertakes an extensive and comprehensive planning process. The project should begin by developing a clear mission statement including rationale and specific goals (The Signage Foundation, 2013). During the planning stage, particular attention should also be focused on understanding both pedestrian movement and the spatial orientation of the city. As society is becoming more visual (Lupton, 1993) and tourist expectations and demand are increasing, it is crucial that Madrid designs a wayfinding system that is informative, legible and attractive. In the past 10 years a series of cities across the United Kingdom and North America have installed wayfinding systems that while unique, are somewhat consistent in their contemporary design and appearance (Appendix 2).



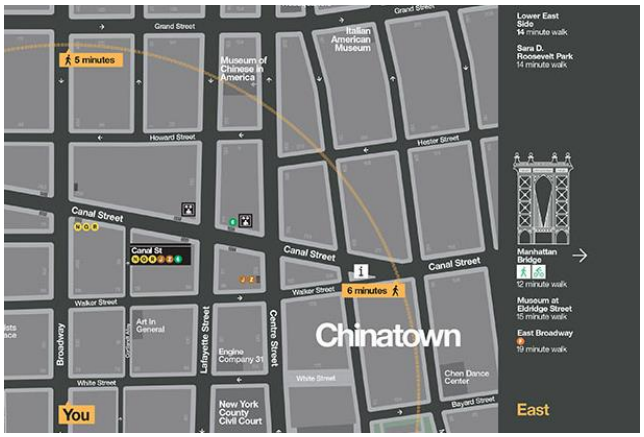
Figures 11: Contemporary Wayfinding (fwdesign, 2014)

These signage systems feature a variety of street furniture, customisable to each city's specific need. The majority of projects use a consistent

system of fingerposts, wayfinding panels, and wall mounts with internationally recognized directional and mapping elements (Figure 11). Map-based graphics are orientated in the direction the user is facing and provide a walking distance radius (Figure 12) so that pedestrians have a better understanding of the time it should take for them to reach their desired destination. Incorporating an element of sustainability, these multipurpose panel fixtures are often solar-powered for eco-friendly self- illumination.

The largest of these municipal wayfinding system, Legible London, contains a comprehensive system of more than 1,300 signs (Appendix 2). The extensive scope of the project creates a sense of organization and improves the flow of pedestrian travel (Legible London, 2010). Specific studies have been performed on London's wayfinding initiative and confirmed the use of, and validated the increased urban understanding by visitors and residents (Steer Davis Gleave, 2014). In order to further provide the wayfinding consistency needed to be successful, many of these systems incorporate additional applications such as paper maps and mobile maps.

Figure 12: Distance Radius (Billing Jackson Design, 2014)



Stakeholders and Management

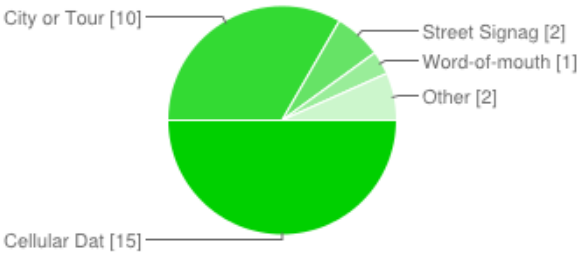
Like the majority of city planning initiatives, wayfinding systems affect a number of constituencies. It is vital that each stakeholder is consulted during the planning, design and implementation process to insure the success of the project. The inclusion of stakeholders will also help the seamless infusion of the wayfinding system into other aspects of the city. It is particularly important that Madrid integrates the design of the wayfinding system with the various transportation networks as these are often used by visitors to the city. While stakeholder dialogue, planning and development of the wayfinding system are imperative, proper management of the system will be the catalyst to its success. As previously noted, Madrid's current wayfinding system has been subject to vandalism and a general lack of attention. Madrid must manage the streetscape environment by removing all unauthorized and out-dated signs so as to reduce clutter. The city must also be prepared for constant updating, changing and maintaining signage as the wayfinding system adjusts to the needs of pedestrian travel in a dynamic industry.

CONCLUSION

Tourism signs affect the ability for tourists, both domestic and foreign, to navigate and explore a city, otherwise known as the ability to wayfind. We understand that signs contribute to a tourist's overall experience and perception of a tourism destination. A well-planned, executed, and maintained wayfinding system leads to increased visitation of tourist centres and attractions thus, increasing the economy. It is clearly in the best interest of Madrid to revitalize its current signage system and develop a wayfinding strategy that would aid in the city's attempt to remain a top tourist destination in rapidly expanding and competitive global tourism market.

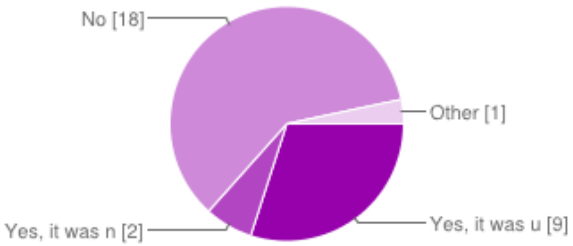
APPENDIX 1: ADDITIONAL SURVEY QUESTIONS AND RESULTS

1. What was the primary resource to navigate around the city?



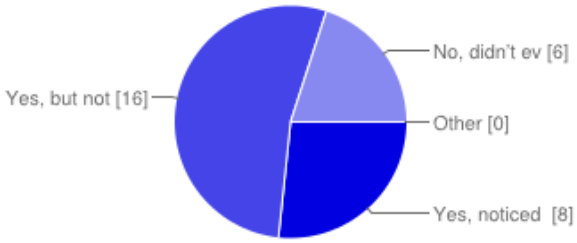
Cellular Data or Wi-Fi	**15**	50%
City or Tourist paper map	**10**	33%
Street Signage	**2**	7%
Word-of-mouth (spoken directions)	**1**	3%
Other	**2**	7%

2. In Madrid, have you ever used a tourist sign (not a street name) to guide you in the direction of a tourist attraction?



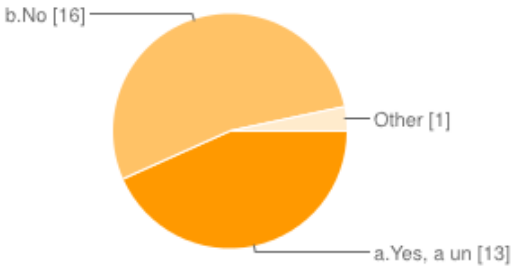
Yes, it was useful	**9**	30%
Yes, it was not useful	**2**	7%
No	**18**	60%
Other	**1**	3%

3. Have you ever noticed the tourist signage in Madrid?



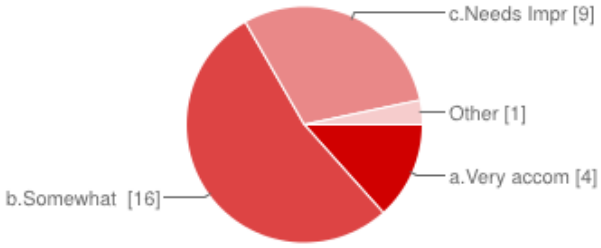
Yes, noticed it within the first day	**8**	27%
Yes, but not at first	**16**	53%
No, didn't even know they existed	**6**	20%
Other	**0**	0%

4. Did you feel that there is an effort to unify tourism in Madrid? Do you feel like the city has a tourism network?



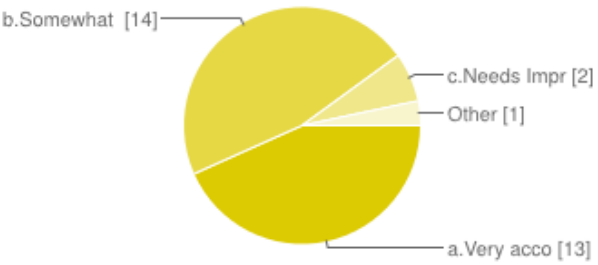
a. Yes, a unified feeling	**13**	43%
b. No	**16**	53%
Other	**1**	3%

5. Without the use of Wi-Fi or cellular data, how do you rate the overall accessibility of Madrid? Is the current tourism signage effective?



a. Very accommodating	**4**	13%
b. Somewhat accommodating	**16**	53%
c. Needs Improvement	**9**	30%
Other	**1**	3%

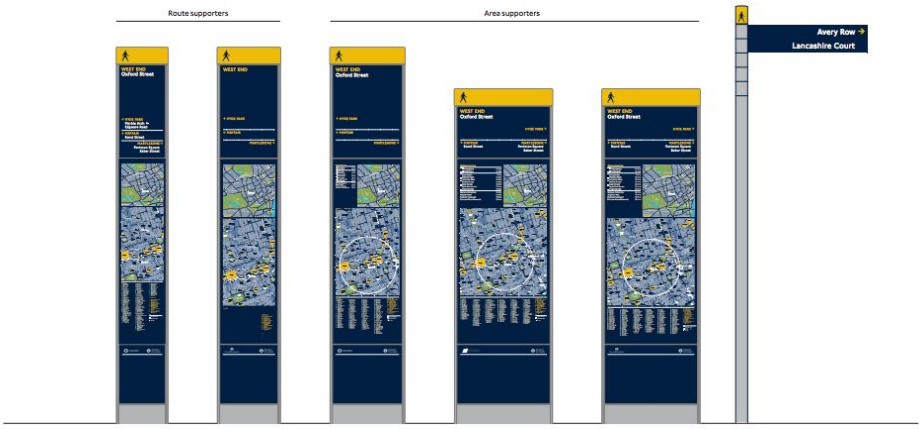
6. How do you rate the overall tourist-friendly nature of Madrid?



a. Very accommodating	**13**	43%
b. Somewhat accommodating	**14**	47%
c. Needs Improvement	**2**	7%
Other	**1**	3%

APPENDIX 2: CONTEMPORARY WAYFINDING SYSTEMS (UK AND N. AMERICA)

1. Legible London, London UK (Legible London, 2010)



2. WalkNYC, New York City (Billing Jackson Design, 2014)

3. Dublin Docklands, Dublin (fwdesign, 2014)

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