

RIO DE JANEIRO IN THE ERA OF MEGA-EVENTS: CHALLENGES TO MOBILITIES AND TOURISM DEVELOPMENT

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ABSTRACT: This paper presents a set of reflections on intermodality of urban transportation in the city of Rio de Janeiro, focusing on the connections between airports with other areas of the city, notably points of interest to tourists (lodging, tourist attractions and transport terminals). Rio de Janeiro has been the venue of important sports events since the start of the present decade, with the 2016 Olympics still in store. From the standpoint of urban policy, this has prompted important interventions to improve the transportation sector. The investigation of the dynamics of the supply of tourism services in the city in relationship with the current and projected mobilities indicates that despite the continuing social and economic disparities, tourism contributes, albeit indirectly, to improve mobility in the city, benefiting visitors and residents alike.

KEYWORDS: Urban Mobility; Mega-Events; Tourism; Rio de Janeiro.

INTRODUCTION

Brazil has a history of harms related to transportation infrastructure and services, and its insertion in the international scenario by attracting mega-events is a strategy that requires a series of commitments (see the Matrix of Responsibilities, quoted in section 3) that can produce spinoffs and help consolidate the country as an important international tourist destination.

Nowadays, Rio de Janeiro is undoubtedly one of the most noteworthy international tourist destinations, and despite its socio-spatial segregation, although there are critical concerns regarding visitors' experiences in a metropolitan region with over 12 million inhabitants (IBGE, 2014). In the next few years, the city will host noteworthy international sports mega-events, including the final match of the *Fédération Internationale de Football Association* (FIFA) World Cup in 2014 and the Summer Olympics and Paralympics in 2016. These mega-events will surely attract record numbers of visitors to the city, raising doubts about the ability of the city's transportation

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infrastructure to handle this future demand, particularly in a metropolis where basic urban services have never been delivered properly to the whole population.

In this context, this paper aims to investigate the recent propositions to improve urban mobility in Rio de Janeiro, as an attempt to foresee future benefits. The concepts of tourism mobilities (Sheller and Urry, 2004) are taken into account, as well as some Urry's concerns on the mobility paradigm, which includes "anthropology, cultural studies, geography, migration studies, science and technology studies, tourism and transport studies, and sociology" (Sheller and Urry, 2006).

This is an exploratory and descriptive study, by using qualitative research methods, namely a comprehensive bibliographical review (including public and private technical reports and other documents), aiming to assess the interplay of transportation, sports mega-events and tourism, particularly regarding airport intermodality and the FIFA World Cup. This paper is organized into three parts besides the introduction and conclusions. The first provides a panorama of the transformations of the city of Rio de Janeiro while the second focuses on urban mobility, especially issues related to airport intermodality, the third covers the methodology and the fourth discusses the results.

1. RIO DE JANEIRO: FROM CAPITAL CITY TO MEGA-EVENT DESTINATION

In the first two centuries of Brazil's colonization (16th and 17th centuries), the Southern part of Brazilian territory – where Rio de Janeiro is located – had secondary importance. However, in the early 19th century the city experienced important changes, mainly after the arrival of the Portuguese Royal family in 1808, escaping from Napoleon's invasion of the mother country. Rio de Janeiro, then with some 50,000 inhabitants, was the stage for many interventions to accommodate the Portuguese royal court and retinue, which consisted of some 11,000 people (Barata, 2013, p. 47). With independence

(1822), and particularly after proclamation of the republic with abdication of the emperor (1889), the city became consolidated as the nation's capital, inspiring urban renovation projects at the start of the 20th century. Under Mayor Pereira Passos (1903-1906), several projects were started or planned that led to major changes in the cityscape, avowedly following in the footsteps of the projects in Paris in previous decades. As explained by Fratucci et al. (forthcoming), two important phases mark this period, "demolition" and "regeneration, the first involving demolition of a broad swath of buildings in the downtown area and the second the construction in these spaces of new thoroughfares and public buildings, for the purpose of turning Rio de Janeiro into a modern and attractive city, including for tourists. The overall aim was to leave behind the backwardness inherited from the colonial and imperial eras.

This period also saw the first exposure to organized international tourism. In 1907, the local press enthusiastically reported the arrival of the ship *Byron* bringing the first excursion organized by Thomas Cook International of New York, although by European standards the city still lacked infrastructure and even a culture receptive to visitors (Freire-Medeiros, 2013, p. 14). In the years that followed, the city hosted two events that symbolically contributed to the city's (and nation's) projection: the "National Exhibition– Agriculture, Industry, Folklore and Liberal Arts", in 1908, and the Universal Exhibition of 1922, to commemorate the centennial of independence. These were a hint of great events in the future (Fratucci et al., forthcoming).

Supporting the development of tourism was expansion of the harbor facilities to receive passenger shipping services and later the construction of installations to serve air traffic. Besides the increased arrival of ships, in 1929 the New York-Buenos Aires Line (NYRBA) was created, an airline that was later merged into Pan American, and in 1933 the Graf Zeppelin made 11 trips between Germany and Brazil. Finally, Santos Dumont Airport was opened in 1936, on land reclaimed from Guanabara Bay contiguous to the downtown area. It served as the main air gateway to the city until the opening of Galeão (later renamed *Antônio Carlos Jobim*) International Airport in 1977, and is still a busy hub for domestic flights.

In the first half of the 20th century many large and fancy hotels were built, first near downtown, such as the *Hotel Glória* (1922), and later in the South Zone, such as the *Copacabana Palace* (1923). The spread of tourist facilities to the South Zone was enabled by the implementation of trolley lines and construction of tunnels to facilitate access, and was spurred by the growing popularity of new way of life by the sea (Freire-Medeiros, 2013; O'Donnell, 2013a, O'Donnell, 2013b)⁶.

There was a brief period of euphoria with the opening of several plush casinos (ending when gambling was outlawed in 1946) and the realization of the World Cup in 1950, preceded by construction of the world's largest stadium, Maracanã. But from the 1960s to 1990s Rio de Janeiro suffered "cultural, social, political and mainly economic deterioration", after the nation's capital was moved to Brasília in 1960. To try to revitalize the city's economic base, during the military regime (1964-1985) tourism start to ascend as a strategy leaded by the federal government along with local authorities⁷.

This period saw the construction of facilities and infrastructure that still stand out today: *RioCentro Convention Center* (1977) – pointing toward Barra da Tijuca as a new vector for urban and tourism growth, mainly for the business and events segment; the opening of the first subway line (1979); and construction of the *Sambódromo*, the venue for the main carnival parades (1984)⁸.

The United Nations Conference on the Environment and Development (Eco-92) was an important international event held in Rio de Janeiro in the 1990s. That decade also saw urban planning initiatives with international nuance, especially with the contracting of foreign consultants, who directed urban

⁶ The first tourist maps and guidebooks gave emphasis on the central region, largely because there still was no mass culture of beachgoing and easy access to the now-famous beaches. Thus, "the narratives and images aimed at tourists in the first decades of the 20th century played up the entrance to Guanabara Bay and the port, where the ships brought the great majority of visitors to the city" (Freire-Medeiros, 2013, p. 32).

⁷ The national tourism promotion agency, EMBRATUR, was created in 1967 in Rio de Janeiro (transferred to Brasília only in the 1990s), and conducted ongoing campaigns to promote the city. However, the elements stressed remain stereotypes until today: sensuous women, natural tropical exuberance and the joy of carnival and soccer.

⁸ The Sambódromo allowed the development of carnival into a great media spectacle. Another spur to tourism was the expansion of Rio de Janeiro International Airport in 1990, preserving the city's status as one of the main gateways to Brazil (along with São Paulo) (Fratucci et al., forthcoming).

management toward “urban entrepreneurialism”, in which the city, made up of spaces for social reproduction, would be converted into a marketplace, a “market city”⁹.

In the context of this model, the Strategic Plan for the City of Rio de Janeiro, known as *Rio Sempre Rio* (“Rio Always Rio”), was prepared between 1993 and 1995, during the first administration of Mayor César Maia (1993-1996). The incorporation and diffusion of the principles of the “Barcelona model” (Monclús, 2003; Capel, 2009, Sánchez, 2010) in Latin America provided a great impulse after the work in Rio carried out under the scope of the CIDEU (Centro Iberoamericano de Desarrollo Estratégico Urbano – Ibero-American Center for Strategic Urban Development), created in 1993 in Barcelona.

At this moment, an “initial cycle of strategic planning of the city” occurred, with the idea behind Rio Sempre Rio Plan “proposing that the city assume a standout position among the global network of cities and that for this purpose, the city should become a candidate to host mega-events as a strategy to gain more visibility, mainly by attracting more visitors and investors” (Fratucci et al., forthcoming)¹⁰.

This plan was revised in 2001 under the second administration of César Maia (2001-2004), to emphasize the strategy of hosting mega-events. In 2002, Rio was chosen to host the 2007 Pan American Games. However, although the Games were generally considered a success, in the ensuing years some observers expressed doubts about the legacy of the event. A particular criticism was the concentration of gains from public investments in the hands of the owners of land property in certain areas of the city, mainly in the Barra da Tijuca district, in the areas surrounding the Olympic Village (Sánchez et al., 2007).

Despite these criticisms, the city entered the running to host the 2016 Summer Olympics and was declared the winner in 2009. The choice was

⁹ According to Sánchez (2010), in the current logic of capitalist accumulation, it is not enough simply to renovate cities, it is necessary to “sell” them. In this context, he stresses that cities are now “sold” as part of governmental policies to place cities on the global map.

¹⁰ In the field of tourism, in 1997, in line with the Rio Sempre Rio program, a specific plan was structured for development of tourism in the city – the “Plano Maravilha”.

largely based on the success of the Pan American Games and the fact that, according to the Olympic Committee, about 63% of the structures necessary for the Olympics already existed (out of 37 competition venues), such as Stadium Rio¹¹ (locally known as “*Engenhão*”). On top of this, Brazil was chosen to host the FIFA World Cup in 2014, during which Rio de Janeiro would host several matches, including the final game on July 13th.

Among the most important interventions to host the large number of visitors to these mega-events are exclusive bus rapid transit (BRT) corridors: TransOeste (opened in June 2012), TransCarioca (opened in June 2014) and TransOlímpica (yet to be opened). The BRT corridors will connect the main districts of the city where Olympic facilities are being built (Barra da Tijuca and Marechal Deodoro) with the existing transportation structures (subway lines 1 and 2, which already serve other Olympic areas – Maracanã Stadium and Copacabana Beach), including Rio de Janeiro International Airport.

At the end of the 20th century, tourism started to spread beyond the traditional iconic attractions (Sugarloaf, Corcovado Hill with its Christ the Redeemer statue, Tijuca Forest and the beaches in the South Zone – Copacabana and Ipanema), even including guided tours of hillside shantytowns (*favelas*). Moreover, the implementation of mass rapid transit corridors will guide tourist flows to other areas (such as the West Zone) and at the same time improve transportation to the population (Fratucci et al., forthcoming)¹².

The most recent urban planning initiative is based on two documents: one basically prepared by officials of the second administration of Mayor Eduardo Paes (2012-2016), with a long-range horizon (to 2030), and the other a revision of the strategic master plan, consolidated in the form of a law in 2011 (Municipal Law 111/2011). While the first two recent strategic plans were assisted by Spanish consultants, these two documents are based mainly on the recommendations of an American consultancy (McKinsey & Company),

¹¹ During Pan American Games 2007, Stadium Rio was known as João Havelange Olympic Stadium.

¹² Furthermore, the advent of the “Pacification Policy Unit” program (UPP), intended to bring slum areas, or *favelas*, under firm control through the establishment of community police stations and other social services, and growing interest in the landscapes and lifestyles present in more traditional districts of the city (such as Santa Tereza) have directed attention to areas other than the beaches (South Zone).

denoting the connection of urban policies with the technical precepts of foreign companies.¹³

With an important focus on tourism, the Rio Post-2016 Plan stresses transportation as an area for improvement. It even contains a chapter entitled “Rio, Capital of the Bicycle”, indicating the need to maintain and expand bike paths and integrate this system with public transportation routes. The diagnosis of transportation points to the lack of physical and fare integration of the various passenger transport modes in the city. The guidelines proposed call for promotion of this integration¹⁴ and expansion of high-capacity transportation throughout the greater metropolitan region in partnership with the state government. Among the 37 strategic initiatives of the municipal government are rationalization and route/tariff integration, through the Transcarioca Single Ticket (BRT between Barra da Tijuca and Penha), Connection C (transversal connection between Bangu and Jacarepaguá in six dedicated lanes) and TransOeste (BRT between Santa Cruz and Barra da Tijuca) – Grota Funda Tunnel (connecting Barra de Guaratiba to Recreio dos Bandeirantes). Most of these improvements will involve the West Zone of the city. Another of the 37 initiatives is the Porto Maravilha project to revitalize the downtown port district and surrounding areas¹⁵.

The Porto Maravilha project is seen as a strategic element for revitalization of the entire downtown area, leveraged by investments to prepare the city for mega-events. It is structured under a so-called Concerted Urban Operations model (similar to the French Zone d’Aménagement Concerté) and is legally defined in the Statute of the Cities (Federal Law 10,257/2001)¹⁶, and contemplates revitalization of urban spaces that are currently not suitable for real estate projects, with the provision of new cultural equipment and

¹³ Reliance on foreign consultants or ideas for urban renewal is nothing new in Rio de Janeiro, from the revitalization efforts in the early 20th century, largely based on the program in Paris, to the plan prepared by the French architect Alfred Agache in 1930 and the plan drawn up by the Greek urban planner Constantinos Doxiadis in 1965.

¹⁴ As part of the rationalization of the route and fare integration, a single ticket was created allowing combined payment at reduced rates on the subway and connecting bus lines.

¹⁵ Plano Estratégico da Prefeitura do Rio de Janeiro 2007/2012 (Pós 2016, o Rio maisintegrado e competitivo). Available at: <<http://www0.rio.rj.gov.br/planoestrategico/>>. Retrieved: July, 2014).

¹⁶ The Master Plan of 2011 also called for “Areas of Special Urban Interest (AEIUs), “intended for specific projects for urban structuring or restructuring, renovation and revitalization” – although the text of the law does not describe and characterize each of these initiatives (Lei 111, Art. 70, 2011).

transportation infrastructure. Around the perimeter of the area involved in the Porto Maravilha project is the Museum of Modern Art, and in the coming years the Museu do Amanhã will be built, on Mauá Pier, designed by Santiago Calatrava – another indication of the association of Rio de Janeiro with the “star system” of international architecture (Arantes, 2002)¹⁷. With respect to mobilities, three interventions will have great impact on the downtown region, enabling the attraction of more tourists: demolition of the elevated Perimetral freeway (and its replacement with an alternative route through 4 km of tunnels), which will dramatically beautify the cityscape, implementation of a light rail vehicle (LRV) system in the downtown region (with connection to Santos Dumont Airport), and construction of 17 km of bike paths, to extend the system that currently only serves the coastal areas (beaches of the South and West Zone).

The current Master Plan (2011) contains a series of points for improved mobility. In this respect, the document establishes the bases for implementation of BRT routes, but there is insufficient connection between transportation and tourism, with this being restricted to multi-lingual signs and parking space for tour buses. However, the plan does call for better integration of the airports with ground transport systems, chief of which is a BRT route connecting Galeão International Airport – Praça XV (downtown) – South Zone – Barra da Tijuca (West Zone), intended to maintain Rio de Janeiro as an important international tourist destination.

In this sense, because the hosting of sports mega-events requires a series of improvements in infrastructure and transportation services, the airports and urban mobility services will be one of the points of focus, to leave a positive legacy, an idea that is typically envisioned by those in favor of hosting mega-events. The improvements made to prepare for the mega-events in Rio, particularly those involving airports and urban mobility (with focus on

¹⁷ Municipal Law 101/2009, which created the “Concerted Urban Operation for the Area of Special Urban Interest of the Port Region of Rio de Janeiro”, before the revision of the Master Plan, indicated that the project’s aim is to “promote local restructuring, by expansion, articulation and requalification of the public spaces of the region, aiming to improve the quality of life of current and future residents and the environmental and socioeconomic sustainability of the area” (Porto Maravilha, 2014).

intermodality), will hopefully leave a positive legacy of the “Era of the Sports Mega-Events”.

2. URBAN MOBILITY AND AIRPORTS IN THE CONTEXT OF TOURISM AND SPORTS MEGA-EVENTS

There are several recurring approaches to the question of tourism, both related to the interests of visitors and of the receiving communities, particularly when the subject is tourism in large cities (see Pearce, 2001, 2003). In this respect, more than speaking of “tourists” – here focusing on their transportation demands – it is better to assume the idea of “city users” (Martinotti, 1994) or “place consumers” (Selby, 2004). From these issues comes the concept of tourism mobilities (Sheller and Urry, 2004), as well as Urry’s mobility paradigm (Urry, 2006), to help understand the relationship of airports, mobility and mega-events.

Sports mega-events have been important elements in the global competition to attract tourists, although they can be questioned as spurs to local development. Planning the integration between transportation and tourism in cities involving the attraction and holding of sports mega-events is a large challenge. For example, these events require the need to supply different levels of transport services for a broad spectrum of people (see Castro, Fraga and Lohmann, 2013). Therefore, part of the investment in transportation and urban mobility needs to be attuned to these needs. However, the focus must be broader, because transportation services should have a positive impact on urban mobility after the event.

The positioning of transport terminals (notably airports) in tourist and sports mega-event destinations and their intermodality, i.e., the integration of airports with other means of transport (roadway, railway and waterway) can have a strong influence on the choices that define the pattern of the typical tourist itinerary at the destination (e.g., between airport terminals on the one hand and hotels and tourist attractions on the other, the latter including the venues where the sporting activities will occur).

Intermodality can occur through two visions, the traditional and the contemporary. Regarding air travel, in the traditional view this mode is interconnected chiefly with bus and taxi service. In the contemporary view, airports should be interconnected with rail systems as well as bus and taxi service. In Brazilian case the traditional vision of modal interconnection is predominant (see Palhares, 2002, based on Stubbs and Jegede, 1998).

Starting in the middle of the 20th century, airport terminals increased in significance beyond just centers for takeoffs and landings and began to represent strategic economic multipliers, by generating direct and indirect jobs, besides serving as essential elements for border control and to stimulate business (Palhares, 2001; Bettini, 2007; Rodrigues, 2007).

The concept of Aerotropolis or Airport City (Kasarda and Lindsay, 2012) reflects more specifically the interaction of airport terminals with their surroundings – generally large urban agglomerations, more or less dispersed. Any physical or economic limitations placed on the existence or expansion of an airport's infrastructure consequently restricts the socioeconomic growth of its region, or even the entire country (Palhares and Espírito Santo, 2000).

In this context, tourist activities assume a leading role in large cities that host sports mega-events, and transportation infrastructure, notably airports, and urban mobility are central elements for the development of tourist destinations.

3. METHODOLOGY

This study is exploratory and descriptive and was carried out through a series of steps as well as the literature review in the previous sections, as follows:

Definition of the scope of the theme

Analyzing all the advances that can occur in the process of attracting and realizing sports mega-events in terms of urban mobility is a complex challenge for any city, particularly Rio de Janeiro, because the changes are

under way for hosting the Olympics and Paralympics in 2016. In this respect, there was an evident need to study airport intermodality to understand the potential advances that can occur in transportation and tourism regarding these events. In particular, we analyzed how the connections of Rio de Janeiro's two main airports (Antônio Carlos Jobim-GIG and Santos Dumont-SDU) with the urban fabric are to be improved, regarding the numerous interventions planned for the downtown area (mainly in the port area), as well as the bus rapid transit (BRT) system, projected to integrate different regions within the metropolitan area.

Description of the urban setting and development of tourism in Rio de Janeiro

In the first section, we presented an overview of the urban evolution process of Rio de Janeiro, particularly regarding the development of tourism (Knafou, 2001; Fratucci, 2000). The result of this step, although relatively extensive, is to present the urban context in which tourism has gradually grown in Rio de Janeiro since the start of the 20th century and what urban planning and management initiatives have incorporated tourism as an element of intervention.

Two important methodological lines guided this study, setting the stage to be analyzed (section 4) according to the conceptual framework of tourism transportation studies (section 2).

1) Collection and systematization of specific information

The Matrix of Responsibilities for the FIFA World Cup (2014) indicates the respective responsibilities of the federal, state and municipal governments regarding the actions, agents and funds to be invested by the public sector, considering those from the private sector as well. According to the Portal da Copa website¹⁸ (operated by the federal government with information on the

¹⁸ COPA 2014. Portal da Copa. **Matriz de Responsabilidades**. Available at: <<http://www.copa2014.gov.br/pt-br/brasilecopa/sobreacopa/matriz-responsabilidades>>. Retrieved: July 7, 2014.

2014 World Cup), the matrix is a strategic plan for investments¹⁹ for development of the country. These investments were seen as necessary regardless of the World Cup, but were given priority for the cities scheduled to host matches during the Cup. The document presents the priority infrastructure areas of the 12 cities where matches would be played, including airports and urban mobility, accounting for approximately 56% of the total amount earmarked for investment (about R\$ 25 billion). For this study, we considered the consolidated version of the Matrix of Responsibilities of September 2013, especially the data contained in its Annexes (Chart 1).

Chart 1. Investments in mobility and airports – Matrix of Responsibilities (Rio de Janeiro)

Undertaking (project, expropriation)	Overall investment (R\$.000)	Federal government loans (R\$.000)	Federal government investment (R\$ thousand)	State and municipal government investment (R\$.000)	Private investment (R\$.000)
Transcarioca BRT Corridor	1,582.20	1,179.00	-	403.20	-
Antônio Carlos Jobim Airport – Passenger Terminal 2	188.69	-	188.69	-	-
Antônio Carlos Jobim Airport – runways and apron	139.10	-	139.10	-	-
Antônio Carlos Jobim Airport – Passenger Terminal 1	115.86	-	115.86	-	-

Source: Matriz de Responsabilidades Consolidada – Sept 2013 (COPA 2014, 2014)

Chart 1 shows a strong concentration of federal investment in airports, especially Antônio Carlos Jobim Airport, (GIG)²⁰, and in roadway transport with the most significant investment (in partnership among the local, state and federal government) being in the Transcarioca BRT route. Moreover, we

¹⁹ As the name indicates, the document's objective is to define the responsibility of each of the signatories (federal, state, municipal and Federal District governments) execution of the projects and programs necessary for realization of the event. The document was signed in 2010 and was revised and updated several times by the Executive Group of the FIFA2014 World Cup.

²⁰ After the federal government launched a tender for the right to operate Rio de Janeiro/Galeão – Antônio Carlos Jobim International Airport (GIG), a consortium composed of Odebrecht TransPort (OTP) and Chaing Airports International (CAI) won the concession for 25 years. Plans call for investments of some R\$ 5 billion (about US\$ 2.1 billion at the exchange rate as of this writing), to enable it to handle 60 million passengers yearly at the end of the concession (CAI, 2013). According to the estimates in the study of Fernandes et al. (2011), the forecast is that in 2015 the airport will serve 22 million passengers, and 25.13 million in 2016.

gathered data on the supply of public transportation (present, under construction and projected) in relation to the distribution of tourist attractions (stadiums included) and hotels in the city, with focus on integration with the city's two main airports Santos Dumont (SDU) and Antônio Carlos Jobim (GIG).

II) Design of the thematic maps

Based on the *Guia Brasil Quatro Rodas* (2014 edition), which is the leading Brazilian travel guidebook, all tourist lodgings and tourist attractions were plotted on a map drawn with the support of GoogleMaps tools. The reference spreadsheet contained over 150 hotels, inns and other accommodations and 59 points of interest – among them tourist attractions and transportation terminals. The resulting map and database allows making important observations of the spatial distribution of tourism in Rio de Janeiro as well as the dynamic of integration through travel terminals (GIG, SDU, Novo Rio Bus Station and the cruise ship facility contiguous to Praça Mauá in downtown).

A limitation of this study was the construction of the cartographic database with the traces of the transportation routes (e.g., BRT lines, subway expansion, LRV routes, etc.). In fact, it was impossible to build a cartographic base that was proper for analysis. Given this limitation, we assessed that issue with support of Fratucci et al. (forthcoming) (see Figure 2).

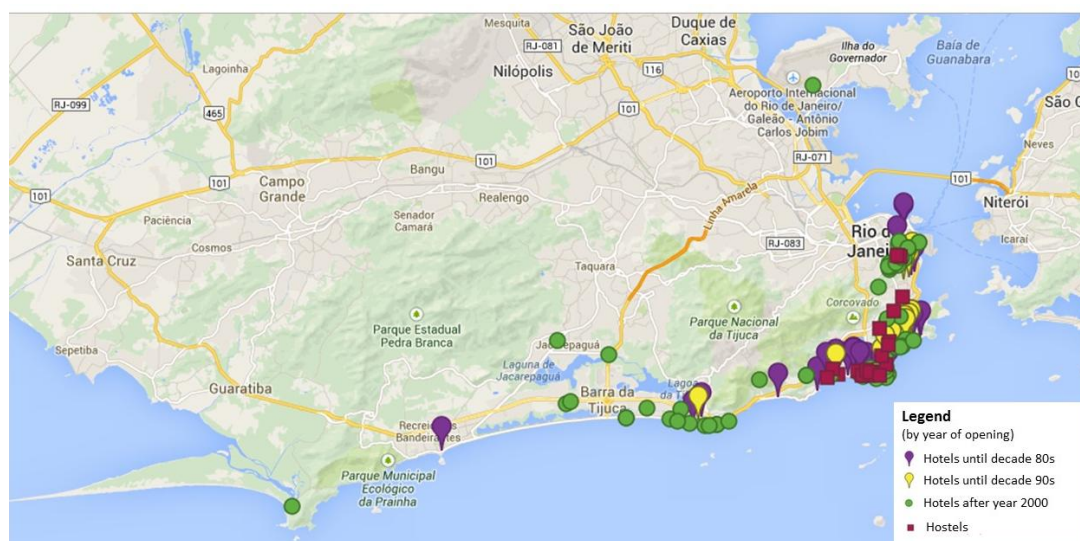
4. RESULTS AND DISCUSSION

The World Cup took place between June 12 and July 13, 2014, when seven matches took place in the city of Rio de Janeiro, including the final match. On June 6th, the BRT Consortium put into operation another step of the Transcarioca BRT system, interconnecting the Alvorada bus station in Barra de Tijuca to Galeão Airport. The forecast is for operation from 5:00 AM to 11:00 PM, with four stations along the segment: Galeão 1 and Galeão 2 (both at the airport), Vicente de Carvalho and Alvorada. The first segment already

started operating on June 2nd, between the Tanque district and Alvorada, with 19 stations. From a connection with the subway at Vicente de Carvalho station, it is possible to travel to downtown, the South Zone and also Maracanã Stadium, located in the North Zone. Each bus can carry up to 180 passengers and are equipped with a luggage compartment and running on biofuel (G1, 2014)²¹.

Below we present the urban tourism context of these transformations involving airport intermodality, with Galeão Airport as the focus.

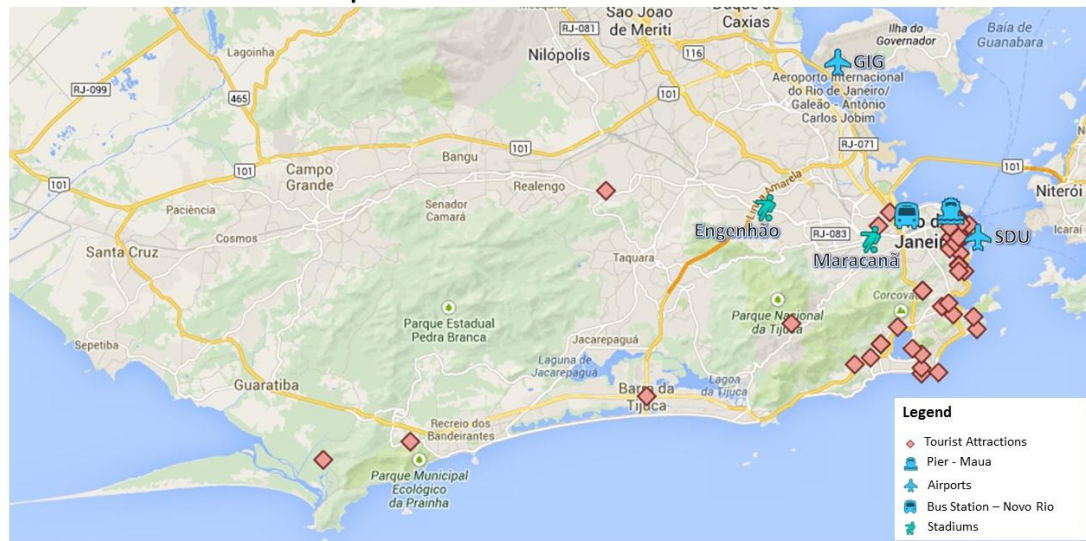
Figure 1. Urban tourism context of the transformations – lodging



Source: Guia Brasil Quatro Rodas, 2014 adapted by the authors

²¹GI (2014). **Trecho da Transcarioca que liga Barra a Galeão é inaugurado nesta quarta**. Available at <<http://g1.globo.com/rio-de-janeiro/noticia/2014/06/trecho-da-transcarioca-que-liga-barra-galeao-e-inaugurado-nesta-quarta.html>>. Retrieved: July 26, 2014.

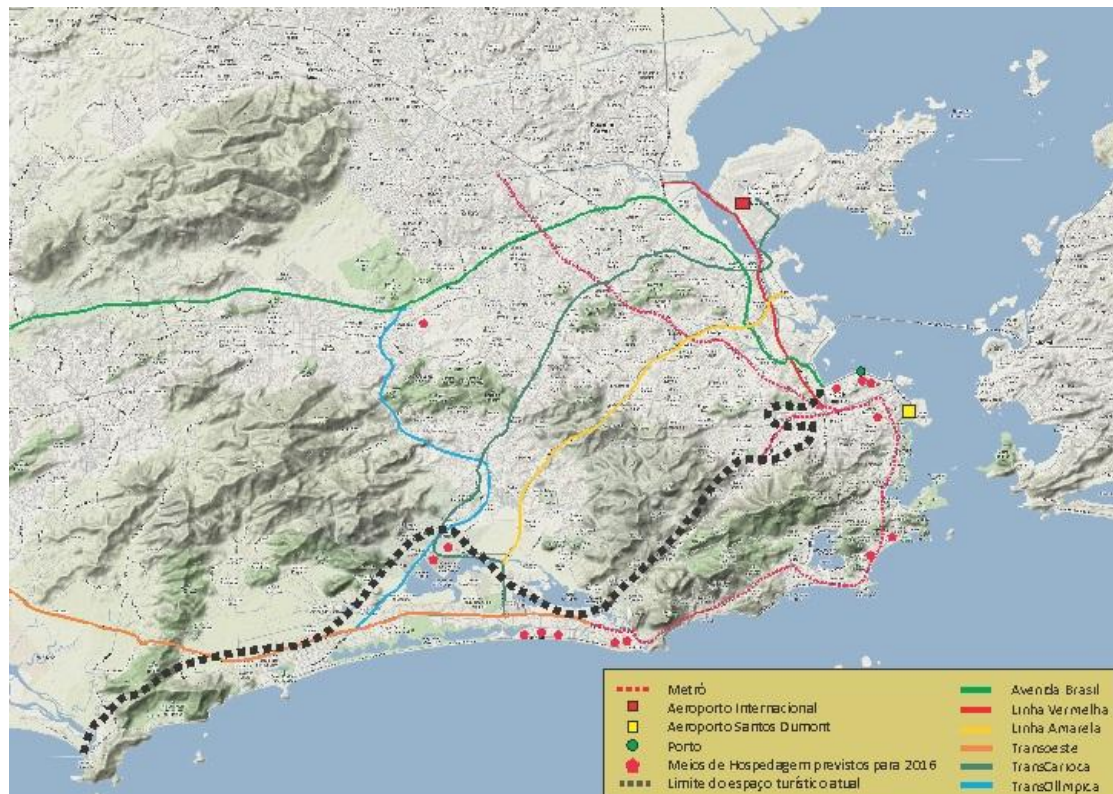
Figure 2. Urban tourism context of the transformations – tourist attractions and transportation hubs



Fonte: Guia Brasil 4 Rodas, 2014. Fonte do Mapa: Google Maps, escala não definida.
Elaborado por: Janaina Rehder, agosto/2014.

Source: Guia Brasil Quatro Rodas, 2014 adapted by the authors

Figure 3. Rio de Janeiro’s tourist space (including BRT and Subway lines)



Source: Fratucci et al. (forthcoming)

As shown in Figure 1, until the 1990s the hotel expansion was concentrated in the South Zone, where the main tourist attractions are located (e.g., Christ

Statue on Corcovado hill, Sugarloaf, Botanical Gardens and the beaches of Copacabana and Ipanema). However, in recent years this expansion has been more evenly distributed, with important projects as well in the West Zone (notably the Barra da Tijuca district) and the downtown region (which is also the stage of important revitalization efforts, particularly the Porto Maravilha project in the port area). In all cases, these projects have been accompanied by mobility improvements, such as expansion of the subway and other transportation corridors. Since the city's geography does not leave much vacant land available for urban expansion, many of the hotel undertakings now under way involve retrofitting existing buildings or major refurbishment of traditional hotels.

In light of these developments, it is relevant to consider that seven matches of the 2014 FIFA World Cup, including the final match, were played in Maracanã Stadium, located in the North Zone, also location of Galeão International Airport (Figure 2). Both the stadium and airport received large investments for improvement, as did the new TransCarioca BRT system, which interconnects this airport with the West Zone (Figure 3)²². Therefore, expansion of the hotel sector to this zone and the investments in modality (Chart 1) represent important advances for the development of tourism in the city.

Another area that deserves mention in this analysis of the urban transformation and advances in terms of mobility is the downtown region. Although not listed in the investments shown in Chart 1, the Porto Maravilha project²³, located in the downtown port region, is an important effort to establish new tourist attractions outside the South and West zones, especially to cater to a tourist segment that has been expanding dramatically in the city in recent years, the cruise ship market. According to data from the company

²² Rio de Janeiro International Airport is now connected to Maracanã stadium from the integration of BRT Transcarioca line and Vicente de Carvalho subway station.

²³ Regarding the Porto Maravilha project, Companhia de Desenvolvimento Urbano da Região do Porto do Rio de Janeiro (CDURP), established by Municipal Complementary Law 102, is the municipal agency in charge of articulating the project with other public and private entities, including the Porto Novo concessionaire, in charge of carrying out projects and rendering services in the Port Region of Special Urban Interest. **Porto Maravilha**. Available at: <<http://www.portomaravilha.com.br>>. Retrieved: August 11, 2014.

that manages Mauá Pier terminal²⁴, from 1998 to 2011 more than 2 million visitors passed through the terminal and injected some US\$ 1 billion in the city's economy. Indeed, Rio de Janeiro is one of the main destinations of cruise ships that call in South American ports.

The diversification of the supply of cultural attractions in this part of the city has also involved flagship museum projects, including the Rio Art Museum (*MAR*), opened in March 2013. The Museum of Tomorrow (*Museu do Amanhã*) will soon be opened nearby, designed by the world renowned architect Santiago Calatrava. The less centralized supply of attractions, both for tourists and local residents, requires better mobility solutions, which have gained space in recent urban policies.

Among the investments to improve urban mobility are expansion of bike paths, construction of a light rail vehicle (LRV) line, demolition of the elevated Perimetral freeway and its replacement with an underground route through downtown (called the "*Via Binário do Porto*") and the suspended cable car line ("*Teleférico*") on Providência Hill.

The proximity of the port region with Santos Dumont Airport (SDU) (see Figure 1) enables development of packages integrating cruise ship routes and air travel to other areas of Brazil, either in the country's interior or to cities not visited by ocean liners. However, since this airport only serves domestic flights, a direct connection between the port area and Galeão International Airport is essential to fully satisfy the potential demand of international cruise ship passengers. In this respect, the Carioca LRV project is envisioned to connect the port region with other parts of the city, notably SDU Airport. According to the Porto Maravilha website²⁵, this project will have six lines and 42 stops (including the Novo Rio bus station, Central do Brasil suburban train/subway station, ferry station and airports). Hence, there will be integration with the subway, suburban commuter trains, ferry, BRT routes, conventional bus service, Providência cable car (located near Central do

²⁴ Pier Mauá: Histórico das **Temporadas**. Available at: <<http://www.piermaua.com.br/historico-das-temporadas.html>>. Retrieved: August 11, 2014.

²⁵ Porto Maravilha. **VLT Carioca**. Published on June 14, 2013. Available at: <<http://portomaravilha.com.br/materias/evento-dilma/e-d-mat.aspx>>. Retrieved: August 11, 2014.

Brasil) and Santos Dumont Airport. The forecast capacity is 285 thousand passengers per day.

In turn, the TransCarioca BRT establishes an important mass transit connection of areas where in previous years were built roads and freeways aimed mainly at individual vehicles. The Linha Amarela (Yellow Line Freeway) originally conceived in the 1960s, was opened in 1997²⁶; and the Lagoa-Barra freeway, interconnecting the Gávea district in the South Zone with Barra da Tijuca, was opened in 1982²⁷. Therefore, the tourism space in Rio de Janeiro evolved and flourished in line with the real estate dynamic (such as expansion of hotel accommodations in the West Zone and downtown, shown in Figure 1). This is a reflection of the concern to cut travel times within the city, notably between Galeão International Airport, which is the main entryway for foreign visitors to Brazil and these other areas of interest.

Mobility management strategies encouraging the use of public massive transportation instead of cars can ease traffic congestion and positively influence the development of Rio de Janeiro as an international tourist destination able to successfully host mega-events. At present the city has a car ownership rate near the national average (25.1 cars/100 people versus 25.9 cars/100 people). This can suggest space for further initiatives in favor of public transportation. São Paulo, for example, has one of the highest car ownership rates in the country (43.5 cars/100 people), making the tendency to use individual transportation more strongly rooted, and thus harder to change (Observatório das Metrôpoles, 2013). Therefore, investments in urban mobility and intermodality with airports are essential, because otherwise these entryways for tourists (mainly Galeão Airport) will be relatively disconnected from the urban cloth, rendering Rio de Janeiro unable to remain competitive in the scenario of global tourism and attraction of mega-events.

²⁶ "Linha Amarela é aberta às pressas" **O Globo**. Nov. 8th, 1997. Available at: <<http://acervo.oglobo.globo.com/busca/?busca=inauguracao+linha+amarela>>. Retrieved: August 12, 2014.

²⁷ "Presidente inaugura hoje a Lagoa Barra". **O Globo**. Jan 22th, 1982. Available at: <http://acervo.oglobo.globo.com/busca/?busca=inauguracao+Lagoa+Barra>. Retrieved: August 12, 2014.

Final Remarks

The tourism space in the city of Rio de Janeiro is unquestionably improving because of the transformations brought by the sports mega-events, both recent (Pan American Games in 2007 and World Cup in 2014) and coming (Olympics and Paralympics in 2016). For the World Cup, the Matrix of Responsibilities produced a historic advance for airport intermodality in the city of Rio de Janeiro, to facilitate travel between Galeão International Airport and the West Zone through the TransCarioca BRT system. The subway system has only been gradually expanded due to the high cost of digging underground tunnels, making BRT routes a more attractive alternative for faster and cheaper establishment of more comfortable and convenient commuting, encouraging migration away from the use of private cars. Therefore, the extension of BRT lines will increase the connectivity of the urban space, with a direct and indirect influence on tourism in the city, looking toward the Olympic Games.

The expedited connection of Galeão International Airport with downtown (and the revitalized port district) and the South Zone (with its traditional tourist attractions and important hotels) still depends on the interconnections of the BRT systems with the subway and suburban commuter trains, among others. Therefore, further transformations are in store for these two regions. In the case of downtown, the changes are in the most advanced stage (mainly the Porto Maravilha project), including intermodal connection by LRV with Santos Dumont Airport. Progress has been slower in the South Zone, since it already is consolidated in the city's tourist landscape. Besides this, more efforts are needed in the North Zone, location of Maracanã Stadium (also an important venue during the Olympics). This region is still not well articulated (in terms of culture, landscape and logistics) as a tourist destination and not enough connected to the rest of the city, despite being served by suburban train and subway stations, so intermodality of these systems with BRT routes will influence and be influenced by the development of tourism.

As seen, the city of Rio de Janeiro has undergone important spatial transformations since the 19th century, first as capital of the colony and then of the country (until 1960). In this process, tourism has flourished in parallel with the persistent social gaps still observed. In this respect, if the large

transportation infrastructure projects brought by the recent and coming mega-events continue to be developed as envisioned by their planners, they will be an important legacy to the city and will in a certain sense maintain the socio-spatial dynamics of the world's best-known cities.

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