



World Trade Architecture. The Twin Towers and Global Financial Centers.

Uta Leconte

Doctoral Candidate, Technical University of Munich, Department of Architecture, uta.leconte@tum.de

Currently, over 300 World Trade Center's exist worldwide in more than 80 countries, functioning as nodes within a global infrastructure, dedicated to promoting global business development. However, almost fifty years since the inception of the World Trade Center Association, the denomination 'World Trade Center' remains almost exclusively designated to the World Trade Center Complex in New York, with its iconic Twin Towers functioning as representation of capital, power and global trade far beyond their destruction in 2001. The starting point of the proposed paper is the timely coincidence of the completion of the World Trade Center Complex in New York in the early 1970s and the implementation of a new interdependent global currency system, marked by the end of the Gold Standard in 1973 and the initiation of fiat money. Arguing that the specific identity and symbolism of the Twin Towers and the New York World Trade Center has since helped to stabilize an unstable global financial system, this paper asks: what are the effects of the New York Twin Towers on the planning of Financial Centers worldwide? It seeks to examine, how the specific identity of the New York World Trade Center was created, what it served, how it has been maintained over time, and what its effects are on urban planning on a local and global scale. The paper will first describe the relation between finance, architecture and the built environment as well as its sociocultural impact, taking as an example the New York Twin Towers and the concurrent implementation of a new global financial system in the early nineteen seventies. It will then focus on local effects of the Twin Towers and the World Trade Center by looking at its planning history and the urban transformation of Lower Manhattan from port and radio district to World Financial Center, including both stakeholders involved in the project as well as the cultural, political and economic urban context of Manhattan at the time. Finally, it will explore the global effects of the Twin Towers on the planning of financial centres and its urban impacts. By looking at the planning history, effect and impact of the Twin Towers on global financial centers, this paper aims to shed light on the specific agency of architecture as a symbolic object for urban planning, world trade and global connectivity.

Keywords: Globalization, World Trade Center, Global Finance, Twin Towers, Representation

1. Introduction

This paper describes the Twin Towers as representation of finance and global trade and thus as an integral part of the interrelation between built and economic transformations in finance capitalism. It utilizes the case of the Twin Towers based on the following dispositions: First, their realization coincides with the shift from one global currency system to another. Second, the time of their realization marks the onset of the current globalization and its respective global trade system, and third, being the flagship buildings of the first globally visible World Trade Center, they served and still serve, after their destruction, as a symbolic object of global trade. The existence of the Twin Towers can be read along the development of a at the time newly emerging global infrastructure, one that was connected primarily by air traffic, telecommunication and data connectivity. The Twin Towers' life span can also be seen in parallel with the era of the supersonic passenger jet airliner *Concorde*, which Rem Koolhaas describes together with the Twin Towers as "modernism's apotheosis and its letdown at the same time".¹

Today, after their destruction during the terror attacks on 09/11, the Memorial on *Ground Zero* consists of two void spaces on the footprints of the former physical Twin Towers. Their symbolic presence within the global sign system beyond their destruction shows, that they are "both a physical, architectural object and a symbolic object of financial power and global economic liberalism (...) The architectural object was destroyed, but it was a symbolic object which was targeted and which it was intended to demolish".² The immense global impact of the violent destruction of the Twin Towers and the World Trade Center Complex in New York during the events of 09/11 has since been subject to extensive research and public discourse. This paper, however, intends to exclude the effects caused by the destruction, the absence or the replacement of the former Twin Towers in 2001. Instead, it will focus on the immediate local effect at the time of their realisation by looking at its planning history and the urban transformation from Lower Manhattan as port and radio district to World Financial Center as well as on the long term global effect of Minoru Yamasaki's Twin Towers. It aims to investigate, how and to what extend the



Twin Towers as a symbolic object helped establish global 'World Trade Centerness' and give some examples of their impact on the further development of global Financial Centres.



Figure 1: Stephen Brown. Concorde, The Golden Years.

2. The Twin Towers as representation of global finance

Two years prior to the Twin Towers' official opening in 1973, the end of the monetary system, referred to as 'Bretton Woods System', marked a paradigm shift in global finance with far reaching sociocultural and economic impacts. Based on fixed exchange rates and a Dollar tight to the gold standard, it has been named after the conference that took place in Bretton Woods in 1944, during which the victorious powers under the leadership of the United States had implemented the system to secure a stable post-war economic world order. In 1971, members of the *Group of 10*³ terminated the Bretton Woods System, in favour of a floating exchange rate, with the underlying intention to increase global lending ability. The new system of interdependent global currency system meant fluctuating exchange rates, hence increased instability, uncertainty, risk and speculation. Money was no longer a real asset and bound to real value (gold), but rather the promise of value exchange. The economic underlying this condition was in favour of increasing market liberalisation, privatization, competition and commodification, opposed to the economic concept of Keynesianism, the global system shaping the post-war world order. Today, one is able to analyse the global development and its economic, political and sociocultural impact over a time span of more than forty years. The global financial currency system is closely intertwined with the establishment of a global infrastructure that relies on data connectivity and the expansion of the internet. It also is strongly related to a political shift from national hegemony towards global governance and a transformation of territorial borders and boundaries on all levels. Money, as currency, and with-it business development, has been accelerated in its global spread and flow in an unimagined range over the past forty years, becoming data flow.⁴

In architecture and urban planning, this meant an increasing commodification of architecture and the emergence of real estate development⁵, an ever-growing global business sector, which had discovered architecture, once again, as a product that can be traded and speculated upon, as a financial instrument. In its ability to represent both value and meaning, architecture and the built environment could both be money (e.g. as REITs) and represent money at the same time, enabled by its ability to function as a placeholder for meaning and value and by its iconicity with effects reaching from local to a global scale. For local businesses, developers and architectural firms, the economic and strategic effects have resulted in a need to expand globally and to make themselves visible and recognizable within the global trade system. With global business opportunities growing due to increased connectivity and visibility, at the same time, the need to master contingency and to deal with uncertainty, complexity, speculation and crises, has risen over time. The effect of global financial crises since the early nineteen seventies on global business as well as on architecture and the built environment have been analysed in particular since the aftermath



of the last global crisis in 2008.⁶ In economic theory, crises in their disruptive character have shown to be systemically imminent and serve as both destructor and creator.⁷ In architecture and the built environment, this can be seen, for example, in the relation of global real estate price indexes, stock market indexes and monetary policy. Another imminent disruptor of the global system is its vulnerability to global terrorism. An icon that symbolizes the global system in its totality as did the original Twin Towers, is proven to be a desired subject of destruction. With the attack on the Twin Towers, it was not only buildings, a city or a country that were targeted, but also the global financial system.⁸

In cultural theory, effects of the global financial shift were absorbed almost immediately, starting in the late 1970s⁹: First, by postmodern Marxist theory, which explains cultural phenomena by economic conditions. Second, in postmodern theory in the semiotic tradition of poststructuralist thinking, which is concerned about the creation of signs, meaning and representation. Third, by the emergence of the latter towards a difference theory, which focuses even more on the performance character and interplay of signs; and finally, to today's predominant sociocultural approach of looking at the conditions of architecture and the built environment as a reciprocal process within actors and networks.¹⁰ How do the Twin Towers as the iconic landmark of the New York World Trade Center Complex reflect the described financial system, how do they represent global trade? What do they 'mark', as a landmark of global trade, and with what purpose? Within the sign system that helps establish, maintain and transform our knowledge and perception of the global system, the Twin Towers function as stabilizing elements within an unstable system, representing the grounded within an unstable, volatile globalism that appears intangible and abstract. In their morphology, they are solid, they are concrete; as a monolith they symbolise power and mark territory. In their twinness, a self-stabilizing morphology, they are symbolising the totality of the global: a self-referential and self-regulating system that symbolizes completeness; that dismisses diversity and difference by absorbing otherness into the unity of the global.¹¹ In its context of being the landmark of the World Financial Center, the Twin Towers can well be read in the Marxist context of Fredric Jameson or David Harvey by seeing them as the representation of finance and capital.¹² In a territorial convexity, the Twin Towers represent the World Trade Center as their urban context, they represent 'Manhattanism'¹³, they represent New York, the United States and the global system.

At the same time as the Twin Towers represent the local, they also represent the global, and hence something that is replicable, multipliable despite its singularity, or exactly because of its singularity as an icon. Towering sky-high, on airplane-level, over the city, it is, from far, visible and recognizable as a node within the global infrastructure, performing as a transmitter of meaning. The creation of meaning as building performance has been played with in many ways: The spectacle of the legendary restaurant "Windows on the World", on the top floor of the North Tower can be seen as such event (Fig. 2), another example is the legendary tightrope performance by the French high-wire artist Philippe Petit, who performed a high wire walk between the two Twin Towers in 1974.¹⁴



Figure 2: The Restaurant "Windows on the World" on the 107th floor of the North Tower. Photo: Ezra Stoller



Today, 17 years after the destruction of the 'original' Twin Towers, the two buildings are considered to be 'the' World Trade Center, despite the fact that they are two buildings of a World Trade Center complex consisting of seven buildings in total, despite the fact that they have not been the first World Trade Center since the establishment of the World Trade Center Association in 1968, despite the fact that they are currently more than 300 World Trade Centers worldwide, and despite the fact that they physically ceased to exist. Little is known about the World Trade Center Association, a not-for-profit and non-governmental organization, representing over 300 members in 91 countries,¹⁵ and which claims as a mission to "stimulates trade and investment opportunities for commercial property developers, economic development agencies, and international businesses looking to connect globally and prosper locally", and to "serve as an 'international ecosystem' of global connections."¹⁶

3. Urban transformation and local effects of the Twin Towers

Historically, global trade cities, such as New York City, have developed a significant share of their economic, political and cultural power and identity based on their ports. Being port cities, they were able to participate and profit from world trade, not only economically, but also culturally, given the vital exchange of people, ideas and goods. With global sea trade changing during the first half of the twentieth century, the formerly thriving port areas declined and urban planners needed to envision a redevelopment for their cities to remain or become visible and powerful actors within a future global trade infrastructure. In New York, efforts to redevelop the former port area and in between 'Radio Row' in Lower Manhattan in order to transform the city into a node within a global trade network, which relied on the connectivity of airplanes rather than vessels, had been underway since the 1950s. Stakeholders involved in the planning were the state governments of New York and New Jersey, the New York Mayoral Office, the City Council and the Port Authority of New York and New Jersey, which would later become the commissioner and owner of the Twin Towers.

Discussions for the urban renewal of Lower Manhattan and the planning of a new World Financial Center date back to the first half of the twentieth century. New York City with Wall Street and the Federal Reserve Bank had developed as the first major non-European financial centre and was considered the world leading financial centre by the middle of the twentieth century. Today, New York City is still taking the lead in the Global Financial Centre Index¹⁷. Looking back at the immediate era after the second world war, New York City experienced an economic boom, Wall Street was the symbol of the global economic leadership of the US, the United Nations moved its headquarter back to Manhattan and the urban development of Midtown and its international style skyscrapers strengthened the existing the identity of New York City as an international and powerful, financial hub. During this time, New York City was transforming itself from an industry-driven port city towards a city whose economy thrived mostly on finance, media, communication, tourism and the cultural industry. As a result, corporations and industries left Lower Manhattan either north towards Midtown, or left Manhattan entirely. Hence, Lower Manhattan, increasingly declined compared to its thriving Midtown neighbour.

David Rockefeller, the then chairman of the Chase Manhattan Bank, took the initiative in 1958 to establish the Downtown Lower Manhattan Association, intended to redevelop Lower Manhattan and to implement a World Financial Center in order to attract business and revitalize the neighbourhood. Mostly, he and his allies intended to create a visible symbol to the world that would substantiate New York City and the US as the global economic superpower.¹⁸ As the chairman of Chase Manhattan, one of the largest Banks in the United States with strong ties to its shareholders in the oil industry, an alliance, that derived from the corporate history of the Rockefeller dynasty, David Rockefeller's downtown agenda was not short of bias:¹⁹ Chase Manhattan had completed a new headquarter in the financial district in 1961, speculating on the urban renewal of lower Manhattan. Worrying about the success of this large real estate project, a group of developers, among them Robert Moses, suggested that a massive project such as an iconic World Trade Center would stop the decline and flight of businesses from lower Manhattan.²⁰ David Rockefeller found allies in his brother Nelson Rockefeller, then governor of New York, and the Port Authority of New York and New Jersey, the local transport agency, who would later become the commissioner and owner of the World Trade Center and would shift its business portfolio from transport infrastructure to real estate.

From there, the development of the World Trade Center and the Twin Towers becomes a complex case study of public private partnerships within global cities – including multiple stakeholders and interest groups, providing an example of the complex relation between public interest and funding on the one side and market-oriented private businesses on the other side.²¹ Another significant stakeholder in this process is public engagement and urban activism. The social climate in nineteen seventies New York City had been tense, considering the city was at the verge of bankruptcy, suffered a high crime rate and social tension such as racial riots. Even though the tendering process for the commissioning of the Twin Towers carried out by the Port Authority had as a first criterion, that the architect needed to have "great creative talent that would produce a World Trade Center of historical significance",²² and, as second criteria, that the architect needed to be "consistent in producing outstanding architectural work",²³ urban activists and architectural critics had a different opinion on the design that was



eventually presented. Louis Mumford compared the towers to a “gigantic filing cabinet”²⁴, while Ada Louise Huxtable from the *New York Times* called the Twin Towers “big, but not so bold”.²⁵ Criticism concerning design, public investment, functionalism and symbolism of the Twin Towers are numerous, the strongest critique was part of the wider debate surrounding the broad planning initiative by Robert Moses, lead famously by Jane Jacobs and others.²⁶ Measuring the Twin Towers according to their urban performance, one must note that they did not reach their goal of attracting new business tenants at least in their buildings. Struggling with high vacancy rates, the Towers were eventually mostly occupied by employees of the Port Authority and the City of New York. It can be concluded, that the Twin Towers had been built mostly for global visibility as a symbol of financial power and global trade. In addition, the development had been strongly motivated by political and corporate interests in real estate interests on an urban and state level.



Figure 3: New York Harbour, Lower Manhattan, around 1930.

4. Global effects of the Twin Towers

This paper seeks to identify selected criteria of ‘World Trade Centerness’, which, it argues, have been created as codes by the iconic Twin Towers, which globally spread as “traveling concepts”.²⁷ In this context, it is of interest, how these codes of ‘World Trade Centerness’ have worked over time and space, and to what extent they have adapted to be still valid today. These findings intend to offer explanations about the decision-making criteria of urban planners and developers, when commissioning financial districts with a global visibility and accessibility. It can be widely assumed, that the motivation behind the development of financial districts is, in general, based on criteria such as economic growth, real estate development, an increase in tourism, meeting the needs of business advocates and lobbyists, etc.

In the current globalization, ‘global cities’ are regarded as hubs within a global infrastructure, providing places of financialization as one category, that intersects with various other categories defining global cities.²⁸ It is becoming obvious that over time, places of global Financial Centres might become increasingly relevant beyond global cities, such as off-shore or as part of hinterland or infrastructure space²⁹. When asking about the global sign system and the interrelation of architecture and the built environment within the global trade infrastructure, one needs to ask: What is global trade today, how has it transformed over time since the nineteen seventies? What products are being traded, on which channels, with which currency? Looking at the entire process of the social production of space,



we need to ask: how do urban space and global trade relate to each other? Does global trade take place in financial districts, or designated World Trade Centers, or elsewhere? Are the landmarks representing global trade the same places, where trade is taking place? Do they present what they represent? After all, the tenants of the Twin Towers were mostly employees from the city as well as the local Port Authority. Minoru Yamasaki, the Architect of the New York Twin Towers, has been quoted saying: “World trade means world peace, and consequently the World Trade Center buildings in New York... had a bigger purpose than just to provide room for tenants. The Trade Center is a living symbol of man’s dedication to world peace.”³⁰ Yamasaki’s statement implies that the global significance had been prioritized over the local.

Financial Centers in global cities feature iconic buildings with the intention to make themselves visible, acting like lighthouses, nodes within the global infrastructure.³¹ As morphological objects, they are creators of meaning, image producers and city components, and at the same time, they represent meaning, they function as transmitters of global meaning into the urban space. Financial Centers lacking these signifying buildings, however, might mark their position within global finance by affiliation, such as the World Trade Center Organization. In the following, some strategies will be given as examples, of how ‘World Trade Centerness’ as a specific code, that allows financial centres as architectural objects to be recognized and understood within the global sign system, is being created. Financial districts in global cities, this paper argues, tend to being related in its signage and meaning to the Twin Towers of the New York World Trade Center, making them a World Trade Center prototype. Twinness is certainly one of the more ostensible categories of ‘World Trade Centerness’.³² It is not only represented by many of the member buildings of the World Trade Association, but also in architecture using the World Trade Center’s signage, as for example the Twin Towers of Deutsche Bank in Frankfurt’s Financial District³³, or the Casablanca Twin Center by Ricardo Bofill³⁴, which served as a landmark building for a newly developed commercial and financial district in Casablanca. Strategies of reproduction, meaning either a highly identical morphology compared to the New York Twin Towers, as for example displayed with the Dalian Dingsen Towers in China (Fig.4), or the use of a global designer and planning office, is a strategy applied with the purpose of creating ‘sameness’. An example here is the perpetual commissioning of the New York-based, globally working architectural practice Skidmore Owings and Merrill, which designed One World Trade Center in New York, the successor to the New York Towers, but also several others worldwide.³⁵



Figure 4: WTC Dalian Dingsen Towers, China, 2016. Figure 5: World Trade Center Belgrade, Serbia, 2012.

‘World Trade Centerness’ can also take the shape of refusal, for various reasons being anything but World Trade Center-like (Fig. 5). However, due to the signage and association “World Trade Center”, it represents the symbolism of the World Trade Center, without needing to display it itself.

Another example, that has emerged in particular in the aftermath of the last global financial crisis in 2008, is the strategy of symbolizing finance in architecture, without being finance. The buildings referred to here, for example the residential tower by Raphael Viñoly in New York from 2016, have been designed and planned as globally traded financial asset and seek to be visible as such.³⁶ The category of the lighthouse effect, the building as landmark and skyline, that is being seen in the world and from which the world can be seen, is exemplified with the Cosmo Tower in Osaka (Fig. 5).³⁷ Part of this World Trade Center characteristic is also the use of top floors as



public panorama platforms, bars, retail areas and restaurants. These spaces are created for performance: Seeing the world and being seen from this lighthouse position, is the symbolic marking of nodes within the global infrastructure, that help to make the abstract of the global sizeable.



Figure 5: Osaka World Trade Center Building (Cosmo Tower), Japan, 1995.

5. Conclusion

By looking at the planning history, effect and impact of the Twin Towers on global financial centers throughout and beyond its life cycle, this paper described the Twin Towers as a representation of finance and global trade and hence as an integral part of the relationship between built and economic transformations in finance capitalism. It discussed the specific agency of architecture as symbolic object for urban planning, world trade and global connectivity. It argued, that financial districts in global cities tended to being related in its signage and meaning to the Twin Towers of the New York World Trade Center. The given examples of global World Trade Architectures were designed to demonstrate, how the code of 'World Trade Centerness' is constructed and transmitted within the global system, and how it can be read and transformed despite is varying morphologies.

It can be concluded, that, in their iconicity, The Twin Towers as symbolic object exceed power, prominence and significance of the organization they represent. Moreover, none of the other World Trade Center's display a similarly strong iconicity with a similar global reach. Some of the over 300 buildings aim to represent the Twin Towers in their morphology, for example in their Twinness, while most of them cannot be distinguished from other functional office complexes, would they not be labelled 'World Trade Center'. In sharp contrast to its strong global iconicity, transporting an overall positive image, the New York Twin Towers as a part of the downtown redevelopment of the 1970s had not been a success in its sociocultural transformation of the neighbourhood. It did not fit in by its scale, it did not improve urban quality, business, infrastructure or public space. In this perspective, New York City in the 1970s provides a rich example of the intentions and effects caused by urban globalization. To provide in-depth evidence of the global effects of the Twin Towers on the planning of financial centres, a wider comparative study of the specific urban effects need to be examined over time and space.

In further research, a quantitative analysis of the development of World Trade Centers and financial centers in relation to economic, financial and socio-cultural indices, cycles and crises would provide more detailed information about the phenomenon of 'World Trade Centerness' and its global spread. A subsequent evaluation of various local effects of global 'World Trade Centerness' on the urban environment would complement this investigation. Additional further research is going to be done on the specific role of planning and development in the spread of 'World Trade Centerness', including the roles of urban planners, businesses, developers, investors and users. A study of role, impact and stakeholders involved in the World Trade Center Association will be



undertaken in order to gain a deeper understanding of function and impact of the organization behind one of the most iconic buildings for global finance.

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No potential conflict of interest was reported by the author.

Notes on contributor

Uta Leconte is a doctoral candidate and research associate at the Technical University of Munich, Germany. She is currently working on her doctoral thesis in Architecture and Cultural Theory. Prior to her research activities at TU Munich, she has been working as an architectural journalist and editor. She holds a Magister Artium (M.A.) in Literature Studies, Comparative Studies and Theatre Studies from Ludwig-Maximilians-Universität in Munich.

Endnotes³⁸

¹ Koolhaas, Rem. *Content. Triumph of Realization* (Köln: Taschen, 2004), 237.

² Baudrillard, Jean. *The Spirit of Terrorism*. (London: Verso Books, 2012), 33.

³ The *Group of Ten* refers to the group of countries that agreed to participate in the General Arrangements to Borrow (GAB), an agreement to provide the International Monetary Fund with additional funds to increase its lending ability. See: Chand, S.N. *Dictionary of Economics*.

⁴ See the work of Steve Graham and Simon Marvin: Marvin, Simon. Graham, Steve. *Telecommunications and the City: Electronic Spaces, Urban Places*. (London: Routledge, 1996), and: Graham, Stephen. *Splintering Urbanism*. (New York: Routledge, 2001).

⁵ See Susan Fainstein's work on the growth of the property sectors in London and New York: Fainstein, Susan S., *The City Builders. Property Development in New York and London, 1980 -2000* (Kansas: University Press of Kansas, 1994, 2001).

⁶ Kaminer, Tahl. *Architecture, Crisis and Resuscitation: The Reproduction of Post-Fordism in Late Twentieth-Century Architecture*. (London: Routledge 2011).

⁷ See Minsky, Hyman P. *The financial instability hypothesis, capitalist processes and the behaviour of economy* (Boston: Cambridge University Press, 1982).

⁸ Baudrillard, Jean. *The Violence of the Global*. In: Baudrillard, Jean. *The Spirit of Terrorism*. (London: Verso Books, 2012 (2002)).

⁹ See for example the theoretical works by Rem Koolhaas, Bernhard Tschumi and Peter Eisenman in the context of the Institute of Architecture and Urban Studies in New York, in particular Koolhaas, Rem. *Delirious New York. A Retroactive Manifesto for New York* (New York: Oxford Press, 1978). Today, since the aftermaths of the last global financial crisis, there is an increased interest in architecture and economic conditions, many of them relating to re-reading Marxist cultural theory. See for example the works of architecture theoreticians Peggy Deamer, Keller Easterling, Felicity D. Scott, Reinhold Martin, Jack Self or Douglas Spencer.

¹⁰ In sociocultural studies, architecture and economic conditions are viewed as actors within a complex interrelated processual system, the social. Architecture is seen as the production of space. See for example Farias, Ignacio (ed.). *Urban Assemblages. How Actor-Network Theory Changes Urban Studies*. Abingdon: Routledge, 2010.

¹¹ Baudrillard, Jean. *The Violence of the Global*. In: Baudrillard, Jean. *The Spirit of Terrorism*. (London: Verso Books, 2012 (2002)), 65.

¹² Jameson, Fredric. *Postmodernism, or, The Cultural Logic of Late Capitalism* (Durham: Duke University Press, 1991). Harvey, David. *The Condition of Postmodernity* (Cambridge, Mass./Oxford: Blackwell, 1990).

¹³ Koolhaas, Rem. *Delirious New York* (New York: The Monacelli Press, 1994 (1978)), 10.

¹⁴ <https://www.theguardian.com/culture/gallery/2015/oct/01/philippe-petit-walk-between-twin-towers> (Accessed March 17, 2018.)

¹⁵ <https://www.wtca.org/about> (Accessed March 17, 2018.)

¹⁶ Ibid.

¹⁷ <http://www.longfinance.net/Publications/GFCI23.pdf>. (Accessed on June 9, 2018.)

¹⁸ See here the history of the Downtown Lower Manhattan Association, <http://www.d-lma.com/history/>. (Accessed March 17, 2018.)

¹⁹ <http://www.pbs.org/wgbh/nova/tech/twin-towers-of-innovation.html>. (Accessed March 17, 2018.)

²⁰ <https://archive.nytimes.com/www.nytimes.com/ref/magazine/08wtc-timeline.html>. (Accessed March 17, 2018.)

²¹ In a continuation of this research, the development of One World Trade Center in New York, or the development of Hudson Yards in New York would be interesting to compare.

²² May, Kyle (Ed.) *CLOG: World Trade Center*. CLOG, 2014, 14.

²³ Ibid.



²⁴ Wainwright, Oliver. *New York's twin towers – the 'filing cabinets' that became icons of America: a history of cities in 50 buildings, day 40*. In: *The Guardian* March 15, 2015. <https://www.theguardian.com/cities/2015/may/20/world-trade-center-twin-towers-new-york-911-history-cities-day-40>. (Accessed March 17, 2018.)

²⁵ Ibid.

²⁶ Further reading: Glanz, James; Lipton, Eric. *City in the Sky. The Rise and fall of the World Trade Center* (New York: Times Books, 2003) p.66.

²⁷ Neumann, Birgit; Nünning, Ansgar. *Traveling Concepts in the Study of Culture*, Band 2 (Berlin/Boston: Walter de Gruyter, 2016 (2012)).

²⁸ The connotation of a 'global city' has particularly been shaped by Saskia Sassen throughout her research during past decades. For Sassen, Global Cities are hubs within a global infrastructure, embedded within the political, economic and financial global system: Sassen, Saskia. *The Global City: New York, London, Tokyo*, Princeton: Princeton University Press, 2001 (1991) Other authors such as Immanuel Wallerstein, Robert Friedman or Manuel Castells use the term 'world city', all stating the linkage of global finance with the world system.

²⁹ See: Easterling, Keller. *Extrastatecraft: The Power of Infrastructure Space*. London/New York: Verso, 2014

³⁰ <http://www.pbs.org/wgbh/nova/tech/twin-towers-of-innovation.html>. (Accessed March 17, 2018.)

³¹ Further reading regarding the role of the tower: Ferguson, Niall. *The Square and the Tower. Networks, Hierarchies and the Struggle for Global Power* (Milton Keynes: Penguin Random House, 2017); Koolhaas, Rem. *Delirious New York* (New York: The Monacelli Press, 1994, 1978), 33.

³² Examples of Twin Towers, that are part of the World Trade center Association: World Trade Center Abu Dhabi (2014), World Trade Center Buenos Aires (2011), World Trade Center Zaragoza (2007), World Trade Center Colombo (1995), World Trade Center Denver (1979), World Trade Center Bahrain (2008), World Trade Center Shiraz (2011), World Trade Center Brussels (1973), World Trade Center Sarajevo (1980), and others.

³³ The Deutsche Bank Twin Towers have been built between 1978 and 1984 and designed by German architects Walter Hanig, Heinz Scheid and Johannes Schmidt.

³⁴ The Casablanca Twin Towers, built in 1999, have been designed by Ricardo Bofill.

³⁵ In addition to One World Trade Center in New York, SOM designed for example the Guiyang World Trade Center (China) and the Korea World Trade Center. <http://www.som.com/projects>. (Accessed March 17, 2018.)

³⁶ The term „billionaire's row“ has been established for a particular type of „super-tall, super-slim“ residential skyscrapers in Manhattan since the past decade. 432 Park Avenue by Raphael Vignoly (2016) became a prominent example for certain morphology and building program, that is designed and planned based on economies of scale, this representing finance rather than dwelling. <https://ny.curbed.com/maps/billionaires-row-57th-street-nyc-construction>. (Accessed on March 17, 2018.)

³⁷ The Cosmo Tower, formerly known as Osaka World Trade Center Building or WTC Cosmo Tower, is the second largest building in Osaka. Designed by Nikken Sekkei in collaboration with New York-based Mancini Duffi (1995). <https://www.ibpcosaka.or.jp>. (Accessed March 17, 2018.)

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Image sources

- Figure 1: Stephen Brown. Concorde, The Golden Years, http://www.swafineart.com/pages/signatures_Concorde_The_Golden_Years.htm. (Accessed March 16, 2018.)
- Figure 2: The Restaurant “Windows on the World” on the 107th floor of the North Tower. Photo: Ezra Stoller. <http://nymag.com/news/9-11/10th-anniversary/windows-on-the-world> (Accessed March 16, 2018.)
- Figure 3: Figure 3: New York Harbor, Lower Manhattan, around 1930. <https://www.pinterest.de/pin/521010250627974066/>. (Accessed March 17, 2018.)
- Figure 4: Figure 4: Visualization of Dalian Dingsen Towers, China, 2016.
- Figure 5: Figure 5: World Trade Center Belgrade, Serbia, 2012. <http://mapio.net/pic/p-46644035/>. (Accessed March 27, 2018.)
- Figure 6: Osaka World Trade Center Building (Cosmo Tower), Japan, 1995. Architects: Nikken Sekkei, Mancini Duffi (1995). <https://ext.yakei.jp/spot.php?i=wtc>. (Accessed March 27, 2018.)