RETHINKING THE SPATIAL IMPACT OF THE OLYMPICS
THE EXPLORATION OF A DECENTRALIZED LOCATION STRATEGY FOR OLYMPIC VENUES IN A REGIONAL SETTING - EXAMPLE OF THE ØRESUND REGION

EXPLORELAB 16
RESEARCH THESIS
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Research thesis
Rethinking the spatial impact of the Olympics
The exploration of a decentralized location strategy for Olympic venues in a regional setting - Example of the Øresund region
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Graduation... What will I do and what will be my focus? Having two very different back-grounds and coming from different types of universities, we had a discussion last year on what the ideal graduation would be. Many op-tions and dreams were mentioned and at one point the conversation fell on the Olympics. As both being very sport interested we found out that we had a shared fascination and curiosity: The Olympic Games.

A big and complex topic that matched with our interest and ambition in a graduation project that touched upon both the architectural and urban scale.

The Olympic summer Games is the biggest sport event in the world. It is an enormous apparatus that deals with a huge budget and complex organization. Hosting the games includes major risks, but also great potentials. The potential kick-start of major urban development and regeneration is the main reason for the many applicants IOC receives every bidding edition.

Beside a potential catalyst effect on the physical urban development, the host and applicant cities also see the value of mega-events in terms of capturing the attention of the world population and subsequently increasing tourism and business in the area. These effects have been more successful for some host cities than others.

What fascinates, but also make us wonder is the planning of the Olympic summer Games. With the planning and design of the Games comes a clash of interests: on one hand you have the IOC with a short term focus on making the best possible environment for the Ath-letes and spectating world. On the other hand, there is the local government that's focusing on the legacy and long-term use of the development.

With the exponential growth of the event and the increased focus on sustainability this clash has become more actual than ever. The IOC declared a vision of being more sustainable around ten years ago.

JACQUES ROGGE, IOC PRESIDENT
“Together with its partners, the IOC is committed to promoting sustainable development and respect for the environment in and through sport. Our efforts are driven by two considerations: the first is the impact that a degraded environment can have on sport, and the other refers to the effects that sport – and, in particular, the Olympic Games – can have on the environment.”

This has let to some changes in terms of technical requirements and the development focus of host cities. However, the conflict between local demand and IOC’s increasing requirements remains almost unchanged and in this perspective it is questionable if the Olympic Games can be even considered sustainable to begin with.

The scale of the event is especially an issue for future host cities in Europe, where only a few cities have the spatial and - more importantly - economic capacity to host this mega-event on its own.

Despite being the one of the most sustainable thinking host cities, even London 2012 (by far the biggest city in Europe) is facing issues with implementing the Olympic legacy in the city structure. The issue is not the planning or execution of the Games, but the transforma-tion from a temporary mega-event to contemporary city life.

This research is a reaction upon these conflicts of scale and interests between the host cities and the IOC. The aim of this research is to de-velop a new spatial strategy for networked city regions in Europe to host the Olympic summer Games.

With regards to this Olympic urbanism, the Olympic stadium has always been the most problematic in integrating in the city’s structure. Mainly due to its scale. Designed well, the stadium could act as a catalyst for its direct surroundings in different ways, but few exam-ple have succeeded in this in past Olympic summer Games.

We see this as an interesting design challenge and follow-up: We will formulate a design for an Olympic stadium that is based on the find-ings of the decentralized location strategy in this report.

This is presented in the design document of this graduation.

In this introduction we would also like to thank a few people that made it possible to write this research. First of all we would like to thank our research tutors Roberto Rocco, Yawei Chen for their enthusiasm, engagement, help, guid-ance, and feedback. Next to this would we like thank all the contributors who helped us in the data collection, such as interviews, but also guest critics and other persons who assisted us in any way.
ABSTRACT

The amount and size of the Olympic facilities have outgrown the needs of host cities. Most Olympic venues cannot be used after the event and maintenance is extremely expensive. Therefore cities cannot optimally benefit from the catalysing effect that mega-events, such as the Olympics, can have on host cities. An over-production of sport venues causes bad physical legacy.

This research addresses the spatial impact of the Olympics and poses a hypothesis of decentralisation. Can the spatial impact of the Olympics on a city be improved by decentralizing the event in a regional setting?

This document analyses the spatial organisation and impact of the 6 latest Olympics (from Barcelona 1992 until London 2012). The London Olympics is also thoroughly analysed on the process of hosting the Olympics. All of this is concluded in a strategy formulation that poses how the spatial impact could be improved by decentralizing the Olympic organisation in a regional setting.

This theoretical strategy is subsequently tested on a networked city region. The region chosen is the Øresund region between Denmark and Sweden. The reason for the implementation on this specific region comes from a comparative study between different European networked city region. It is concluded that from those regions, the Øresund region has the biggest developing potential and could therefore benefit the most from hosting the Olympic Games. The Øresund region is analysed and a strategic development vision is formulated that integrates the Olympics as kick-starter of the cities’ and region’s future development.
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RESEARCH DEFINITION
The research and design assignment addresses the current state of the Olympic Summer Games. Specifically the potential for this mega-event as regional planning tool: The exploration of a decentralized location strategy for Olympic venues in a regional setting.

The main problem of the current state of the Olympic Summer Games is the fact that the event has grown out of the scale for being able to be hosted in a single city. The number and sizes of required venues largely outscales the needs of the cities. This goes especially for European cities, where cities are relatively small and more & more areas are organized poly-centric rather than mono-centrically.

The catalysing effects that mega-events - such as the Olympics - can have on a city are being exploited in the last decades and can generate substantial improvements in the hosting city. The over-production of sport venues and other facilities however, are problematic for the integration the city afterwards, because of underutilisation and extremely costly maintenance. This causes bad Olympic legacy and results in a wasted potential.
ELEMENTS CONTRIBUTING TO THE PERCEIVED PROBLEM

From Coubertin’s “idealistic” proposal of a sports tournament as a educator and peacemaker, the modern Olympic Games have developed exponentially in size through the 117 years of it existence. What started out as an event around one sports field with surrounding stands has expanded to the latest IOC programme that covers a stunning 500-600HA (or 968 football fields); And this size is growing every 4 years.

This combined with an additional requirement of a compact Olympic zone, will result in the fact that in the future less and less cities will be able to handle this big event by themselves. A clear example of this is the fact that almost all host cities in the last 50 years have been forced to apply costly down-scaling of the build structures after the Games.

Table 1.1 and 1.2 show the increase in sports, athletes, spectators, media and volunteers. As a consequence of this growth, the amount and sizes of the built structures required to accommodate all these people and events also grows every 4 year.

There is a clear conflict of interests in the planning of the Olympic Summer Games versus that of a city. This conflict is present in both the required structures demanded for the event versus the need for those in the host city, but also the time-span to actually build all these structures is a lot shorter than the generic planning process of such scale.
HOST CITIES’ IMPLEMENTATION OF OLYMPIC VENUES

To give an insight in the organisation of previous Olympic summer Games, figure 1.3 shows the different organisational models on a diagrammatic level. The mapping contains the last 16 Olympics from Helsinki 1952 to London 2012. The diagrams gives an idea of how the different host cities have implemented the Olympic venues into the urban tissue. It should be noted that the diagrams are modified and simplified into general types. Each host city has its own very specific organisation that is totally related to the context and specific issues it tries to address.

With this said, the diagrams show a general tendency from the host cities to organize the venues in more or less compact clustering in one or few clusters. An observation that clearly relates to the IOC’s high priorities of the compactness of the Olympic Park, with an argument of minimal transport time and important sponsor interests. Barcelona 1992 can be mentioned as one of the most successful host cities in terms of after-use, benefiting from spreading the Olympic venues within 4 smaller clusters. They organized the venues, reasoned from the long-term urban development linked to the event. The extend of this spread however, was primarily within the city borders.

Although the decentralisation of past Olympics have only been executed within one city, it seems to have a positive effect on integrating the Olympic legacy in the urban fabric later on. Should this spread be restricted by city borders? The studies for the Dutch bid for 2028 seem to propose an interesting alternative where the idea of a single host city is challenged by a proposal of the ‘Randstad Spelen.’
In the last few years there have been multiple studies made on how the Netherlands could host the Summer Olympics. It has been a subject for much public and political discussion and although the Netherlands could benefit a lot from hosting this event, the risks of not regaining the large investment needed for the development connected to the Olympics was considered too large. Therefore the 2012 established Dutch government cancelled the initiation process and the project is officially on-hold.

Although it is unlikely that the Netherlands will host this event in 2028, there were some interesting models developed by different architects, urban planners and also students. One of the first conclusions that was drawn is that no single city in the Netherlands is big enough to host this mega-event. From this conclusion the concept of the ‘Randstad Spelen’ arose, where the Olympic events are spread over different cities within a well connected region, still conform IOC requirements on distances.

Looking at other large scale events, a similar trend is visible. An example is the proposal for the Football EC 2020, to host the tournament throughout the different suitable stadiums in Europe, rather than just in one country. If spreading out the event to this extend is still desirable for the Olympic summer Games is the question, but it illustrates current trend in mega-event planning.
DECENTRALIZATION AS A SOLUTION

In the light of the size and the likely conflict of interests of the Games, resulting from the short term event requirements and the long term city needs, this research poses the following question: Can a strategy that scatters the required facilities related to the Games around several interconnected municipalities be a direction for the future host cities?

Thinking about the future of the Olympic Games, with its continuing growth, the idea of spreading or fragmenting the event over an larger area seems to be an interesting alternative. It could even be a collaboration between two or more cities in a strategic region. Can such a de-central planning scheme fundamentally change the impact of Olympic Games in terms of its legacy on a city?

In an Olympic perspective, the spreading allows not only for more visitors to the different events, but also for more sustainable small(er) scale developments fulfilling local demands instead of merely IOC requirements.

This idea will create opportunity for networked city regions, such as the Randstad, to use the catalysing effect of the Olympics to benefit urban development and improvements of regional infrastructure. A privilege that has been reserved merely for the biggest metropolitan cities in the past decades.
How can European networked city regions\(^1\) hosting the Olympic summer Games benefit from a decentralized planning scheme\(^2\) in terms of the physical legacy\(^3\) generated by the event?

1. Networked city regions are areas with different cities that have strong economical, infrastructural & political relations.
2. A planning scheme for the Olympic Summer Games based on a strategy of spreading out the different venues over several cities collaborating.
3. Legacy has a broad definition, but in the case of the research we will focus specifically on physical legacy. Physical legacy refers to the built development left behind by the Olympics.
**Sub-questions:**
These questions are subsequent to the general research question and focus on specific elements that need exploration.

*What is the size of the program and additional requirements needed to host the Olympic Games?*

*How has the organization of the Olympic summer Games evolved through time and what are the current trends?*

*What has been the effect of decentralization on the legacy of previous Olympic Summer Games?*

*What are strategies to relate the Olympic planning to the planning of a city hosting the Games?*

*Which networked city regions have potential for hosting the Olympic summer Games?*

**Hypotheses:**
The hypotheses of this research relate to the effects of the decentralization of the Olympic Games.

*Future Olympic Summer Games in Europe will not be hosted by a single city, but by collaborating cities in networked regions.*

*A decentralized organization of the Olympic Summer Games will allow a broader area to benefit from the Games to catalyse urban development and improve the different venues' chances for a successful integration in its surrounding urban fabric.*

*Decentralized Olympic Summer Games will allow more visitors to visit the different venues, which will give the Games itself a more open identity.*

This research make use of research in the same field, from fellow student and other academic institutions. It takes existing theories and legacy strategies and sets them off against the decentralized hypothesis of this research.

The research and subsequent design will contribute to the discussion of how mega-events, such as the Olympics should be hosted in the future. How can host countries optimally benefit from such events in terms of the city integration of the Olympic program and the catalysing effect these have on their surroundings? More specifically it tests the validity of hosting the event as a collaboration within a strategic network of cities. This research can be seen as a test of the potentials and transferability of the Dutch ‘Randstad’ proposal for the Olympics in 2028. It opens a new direction for research on the theme of Olympic legacy and moreover proposes an alternative for future host cities.

The broader goal of the whole graduation is to get a better understanding of the mechanism of the Olympic Games and what it can do for a city and country. This mechanism is analysed on different scale levels: the level of a city, the level of the Olympic area(s) and the level of a building. This gives a complete overview of how the Olympics influence a city on different scales. All of these considerations are taken into account to create a decentralized proposal for a fictional Olympic bid. This proposal is projected on the most potential networked city region selected later on in the research.

The conclusions and implementations on the regional scale and the conclusions on area and building level scale all contribute to the definition and context of the architectural design.
RESEARCH METHODOLOGY AND REPORT STRUCTURE

In this research different methodologies are used to conduct information.

The research consists of 9 chapters shown on the right. The research has two types of studies. The first is a theoretical study and contains the chapters: Theoretical Framework, Historic Perspectives, London 2012 and Strategy Definition. They are mainly conceived by literature studies. The London 2012 Olympic chapter also makes use of literature studies, although the main part of this chapter consists of conclusions of seven semi-structured interviews conducted in London, with people and organizations involved with the Olympics in 2012. The actual transcriptions can be found in the appending document to this research: ‘From Temporary Mega Event To Contemporary City Life - Research on the London 2012’s legacy strategies.’

The second part of the research are site specific analyses, namely the chapters: Region Selection & Øresund Analysis. These chapters are focusing on the specific or context relevant elements of the research. The knowledge gathered here is a mixture between literature studies and empirical research.

It is important to realize that this research is not a linear process, but iterative. Conclusions from certain chapters affect other chapters and the process therefore loops, though it still follows the overall structure.

This research forms the basis for the architectural design assignment of this graduation project. The site, pre-conditions and parameters for the stadium design are formulated in this research and defines a clear direction for the architecture design.
This page describes the goal and aim of the different chapters:

**Research definition:**
An introduction and clarification of the aim and purpose of the whole research. This also includes a description of how the aim is thought to be reached and by which tools and methods.

**Theoretical framework:**
The theoretical fundamentals of the research based on literature studies sets the boundaries and the objects of the research. Including the terms, definitions and explanations.

**Historic perspectives:**
The study of the previous Olympic host cities' implementation of the Olympic venues, their legacy strategies, the main issue addressed that the Olympics should solve, post-Olympic use and an evaluation of to which extend their strategies have succeeded.

**London 2012 (Case study):**
A thorough analysis of the process of hosting the Olympics. Special focus on the legacy on building level. Conclusions of the seven interviews conducted in London with involved people and organizations.

**Strategy definition:**
A general strategy developed from the findings and definitions made in the theoretical framework, historic perspectives and London 2012 Olympic Legacy chapters. That elaborates and concludes on the potential of hosting a decentralized Olympics in a regional setting.

**Region selection:**
Mapping and studies on five different regions in Europe. After a comparative analysis focusing on factors such as infrastructure, collaboration willingness, ongoing developments and ambitions the Øresund region is chosen as location for the implementation of the Olympic development strategy and the stadium design.

**Øresund Analysis:**
A thorough mapping of cities, local plans, current issues and ongoing projects. The aim is to define the main issues of the region and define how the decentralised Olympic strategy would help tackle those issues.

**Strategy implementation:**
Collecting conclusions and findings in previous chapters and set up of a feasible decentralized Olympic organization model in the Øresund region. This model is part of a large regional development strategy for the region that uses the Olympics to kick-start the desired development in the right direction.

**Reflection:**
Reflects on the product and process and discusses this research's limitations, further directions & achieved knowledge.
THEORETICAL FRAMEWORK
INTRODUCTION

This framework explains the theoretical point of view from which the research is realized. The way this is incorporated into the research can be seen in the methodology description. The theoretical framework is the foundation for the research and it is defining different terms and setting up the borders.

The main topics of the theoretical framework relate to either mega-events or networked city regions. Within the theoretical framework the following terms and phenomena are elaborated: Networked city regions, mega-events as planning tools, mega-event strategy, the Olympic Games apparatus and Olympic legacy.
In this part the term networked city region defined in terms of its structure and urban characteristics. This is essential to realize because the Olympic Games will eventually be projected on one of these regions later on in the research. It talks about the characteristics of such a region and gives an example of one of these regions: the Dutch Randstad.

Networked city regions or poly-centric region refers both to the morphology of urban areas, structured around several urban nodes, but also to the existence of functional relationships between the cities and centres of such regions in terms of commuting flows, business relationships, forms of co-operation and the division of labour.

This research looks at the potential of a decentralized organization model for the Olympic summer Games in networked city regions in Europe. European cities are relatively small compared to other parts of the world, which limits the amount of cities that host the giant Olympic apparatus. Next to this, there are only a few regions in Europe that are still structured by a centralized setup. This are regions like Paris, London and Madrid. London is also by far the largest city of Europe with a city population close to 8.2 million (followed by Madrid with almost 5 million less). London’s legacy strategy of down-scaling and temporary structures shows that even this city does not demand the size and amount of sport venues necessary for the Olympics. Let alone any other European city on its own.

The Randstad example

Today, Europe’s economic centres are mostly located in networked regions rather than centralized metropoles. A good example of this kind of region is the Randstad in the western part of the Netherlands. ‘Rand’ means rim in Dutch and refers to the position of the Randstad encircling a green, rural area. The Randstad is formed by the four largest cities of the Netherlands: Amsterdam, Rotterdam, The Hague and Utrecht. In between those there are a lot of smaller cities and villages that also belong to the region. Although separated, these cities collaborate on different levels facilitated by an excellent transportation network. Holding the four biggest cities, the region has 45% of the national employment in a territory of less than 20% of Netherlands, that makes it the economical centre of the Netherlands. The region can be characterized as a typical poly-centric urban region. The origin of Randstad as a poly-centric region happened relatively natural. The cities each grew individually and created the good conditions for a network. Once this was realized, planning policies were developed to further develop the collective potential of the cities (Meijers, 2005).

The chapter Region Selection will further elaborate on the phenomena, with different case studies of European networked city regions that will be cross-referenced.
MEGA EVENTS AS A PLANNING TOOL

“The lessons learned related to urban planning and development from staging previous mega-events and especially the Olympic Games are clear, some directly transferable and some context determined and all more or less tangible.

Infrastructural improvements, in terms of new, adjusted or re-used facilities, public transport and urban renewal, are obvious physical examples of planned urban transformations. There are also a certain effect on a more intangible level, such as new image, new skills and expertise developed and new organizations formed. Although these outcomes are less obvious and measurable, they are among the most noteworthy legacies of mega-events.

The effect on the local communities

Mega events can catalyse substantial city development. However, they can also bring negative effects. It is often the local communities that will experience most disruption and displacement from new developments evolving from staging a mega-event. An important consideration in planning the next generation of mega-events is therefore to incorporate more effective participation of local communities and to minimize any negative local effects.

The financial costs of hosting events like the Olympics have grown, and parallel to this has the focus and importance of securing value for money and achieving the desired long-term social, environmental and economic sustainability.

The emphasis throughout the whole planning, execution and transformation process must be on the after-use of the legacies.

White elephants

Mega-events are by definition transitory and only careful planning can ensure real lasting legacies. In other words in order to maximize the positive impact of the event, the emphasis throughout the whole planning, execution and transformation process must be on the after-use of the legacies.

This will help ensure long-term significance, rather than creating ‘white elephants’ that do not contribute to the local community or can even create negative impact. In short, a white elephant can be defined as an idiom for a valuable, but burdensome possession of which the owner(s) in this case often a city cannot dispose. Its cost is out of proportion to its usefulness or worth (Avermaete, 2011). It is important to realize that although mega-events are often considered to bring a boost to large-scale areas. The real physical impact is on the level of the community in which the event is inserted.

The world Expo - Lisbon precedent

Another type of event used as a tool for catalysing urban development is the World Expo. This development concept is fairly well established in the sense that the long-term use is being integrally planned for a long time already. A famous example is the Expo in Lisbon in 1998. The development of the 1998 World Fair site Nations’ Park in Lisbon, illustrates how urban redevelopment strategies have been transferred from elsewhere. The project intended to strengthen the image and the competitiveness of the city. The aim was to transform an abandoned industrial site with great development potential, because of its proximity to the Tagus river. The goal was to use this potential to reinforce the image of an Atlantic coastal city.

The cornerstone in the new development was the Expo site, which had two main goals on a city level: redevelop an obsolete and run-down industrial harbour side and to create a new urban centre (Carriere & Demaziere, 2002). The Expo opened in Lisbon on May 22nd in 1998 and ran until September 30th, 1998 and had approximately 11 million visitors. The number of visitors of the temporary event indicates a certain success, but what about its after-use? In a general way the Expo improved the im-
age of the city of Lisbon and in particular the post-industrial zone, where the expo was build on. Because a world expo mainly consists of temporary buildings, most of them disappeared allowing for new development in the area.

What was special about the Lisbon Expo is that a part of the plots within the grid were given to the private market. For these areas there were some planning policies mainly related to building height, but the overall transformation of this part of the park was mainly market-driven.

The other part of the park is kept as a tourist attraction with different large scale public functions, such as museums.

The success of the transformation can be measured in different ways. It is very well regenerated in the sense that it the area became popular for businesses and there was hardly any vacancy (in the transformation period). It is also possible to measure the success in term of city integration and spatial quality. In this sense its success more questionable. The area functions currently as an economic centre mainly related to business & tourism. The link with the rest of the city however is not well articulated and spatial qualities in the area are rather low: Because of the lack of planning restrictions the privatized plots have been built for maximum exploitation, which has resulted in almost a literal wall of very anonymous office buildings (Section based on own observation and guided tour through Expo park, 2012).

The origin of the idea of mega-events as urban planning tools

Turning back to the case of the Olympics and the evolution of mega-events as urban planning tool, Steven Essex and Brian Chalkley have examined this phenomenon in general (S Essex & Chalkey, 1998) and more specifically in the history of the Summer Games (Chalkley & Essex, 1999). They conclude that the conscious use of Summer Olympics as a city planning tool originated in the Barcelona Olympics of 1992. Qu and Spaans (2009) examine this Olympic edition: arguably the first successful large-scale attempt to use the hosting of the Olympic games as a way to push through major city planning changes. Their research points out that by strategically inserting smaller clusters of the Olympic program into specific points of the city is generating a framework for development to happen in and set a new direction in city development: the transformation of the waterfront (Qu & Spaans, 2009).

"...inserting smaller clusters of the Olympic program into specific points of the city is generating a framework for development to happen..."

This is the essence of using mega-events to catalyse long-term city ambitions: although areas for the Olympic Summer Games are generally conceived as a highly specific piece of infrastructure, the scale of the development creates the opportunity to use it to create a framework for good development to happen in. It is more about fixing primary conditions and setting the trend or direction for new urban development, rather than the Games producing a integrated piece of city (Smith, 2013).
OLYMPIC HISTORIC DEVELOPMENT

The Olympic Games have a long and rich history. It has developed from an innocent and idealistic tournament to the biggest sport event in the world. This chapter will take a closer look into the origin, development and current state of the Olympic Summer Games, with specific focus on how the ideas and trends regarding Olympic legacy have developed during the years. How is this related to the size of the event, economic situations and general world development?

The ancient Olympic Games can be traced back to 776 B.C. and was by the legend founded by Heracles (the Roman Hercules), a son of Zeus. The ancient Games was, as it is known from the modern Olympic Games today held every fourth year for a period of almost 1200 years. The tradition was stopped in 393 C.E. by the Christian Roman emperor Theodosius, who decreed in this year that all such "pagan cults" be banned (olympic.org, 2013).

A young French baron, Pierre de Coubertin (Born on January 1st, 1863) pitched his idea to revive the Olympic Games approximately 1500 years later in 1892. In 1890, he organized and founded a sports organization, Union des Sociétés Françaises de Sports Athlétiques (USFSA). Although Coubertin’s attempt to get France interested in sports was not received with enthusiasm, he persisted with eventually success. In 1894 he organized a meeting with 79 delegates who represented nine countries. Short after this meeting, the International Olympic Committee (IOC) was founded. President Demetrious Vikelas from Greece was selected to organize the first edition and Athens was chosen as the location for the revival of the Olympic Games in a modern version.

Since this first edition in 1896 a lot has changed in the organization and impact of this tournament, but a few key ideas and symbols are still valid today.

Coubertin’s ideas of sports as a educating tool and the Olympic Games as a peace-maker are statements from the time that we still today in one way or another connect with Olympic Games. Through the history of the modern Olympic Games several icons have been developed:

"...sports as a educating tool & peace-maker..."

The Olympic stadium has in every event been the most important icon and symbol. This structure has from the first edition always been a enormous structure. That the Berlin stadium, already in 1936, could house 110.000 spectators underlines this fact. From this point in time the stadium hasn’t grown anymore, but remained the central point of the event and will probably always be.

The Olympic flag with its five Olympic rings represent the five parts of the world involved in the Olympics and at the same time it contains all the colours of the participating nations flag. The white background on the flag is symbolizing the world. The flag was designed in 1912, and debuted at the 1920 Antwerp Olympics.

The Olympic flame has its roots back to the ancient Greece, where a fire was kept burning throughout the celebration of the Olympics. The fire was reintroduced at the 1928 Summer Olympics in Amsterdam.

The idea for collective accommodation for the athletes - the Olympic Village - was first introduced in the 1932 Olympics of Los Angeles. This grew out to be one of the biggest physical entities of the Olympic summer Games, with large areas for media, public & training facilities.

Beside these icons, the Olympic melody and one of the latest additions, the travel of the Olympic torch from one host country to another are also important icons belonging to every Olympic Games. On the fold out pages that follow you can see the growth of the Games is shown in a graph and time-line. This gives a clear graphical overview of how the modern Olympic Games have developed and grown through its 117 years of existence. Next to showing the growth it also shows how Olympic legacy was treated and how different legacy strategies have been used in different time periods.

The Olympic Games have a long and rich history. It has developed from an innocent and idealistic tournament to the biggest sport event in the world.
PREVIOUS OLYMPIC EDITIONS

Fig. 2.3 Maps indicating distribution of the Olympic Summer Games in countries and continents throughout the history (By Authors)
GROWTH OF THE OLYMPICS

Tab. 2.1 Growth of the Olympics (By Authors)
The origins of Olympic urbanisation, few urban legacy

The dominance of the Olympic stadium

Legacy development

Major conflicts

W.W. I
<table>
<thead>
<tr>
<th>Year</th>
<th>City</th>
<th>Stadium Name</th>
<th>Seating Capacity (Normal Capacity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1896</td>
<td>Athens</td>
<td>Panathinaiko</td>
<td>80,000 (45,000)</td>
</tr>
<tr>
<td>1900</td>
<td>Paris</td>
<td>Vélodrome de Vincennes</td>
<td>50,000</td>
</tr>
<tr>
<td>1904</td>
<td>St. Louis</td>
<td>Francis Field Stadium</td>
<td>19,000</td>
</tr>
<tr>
<td>1908</td>
<td>London</td>
<td>White City Stadium</td>
<td>68,000</td>
</tr>
<tr>
<td>1912</td>
<td>Stockholm</td>
<td>Stockholms Olymipia Stadium</td>
<td>14,000</td>
</tr>
<tr>
<td>1916</td>
<td>Berlin</td>
<td>Olympic Stadium Berlin</td>
<td>110,000 (74,244)</td>
</tr>
<tr>
<td>1920</td>
<td>Antwerp</td>
<td>Antwerp Olypisch Stadium</td>
<td>30,000 (13,000)</td>
</tr>
<tr>
<td>1924</td>
<td>Paris</td>
<td>Stade Olympique Yves-du-Manoir</td>
<td>45,000 (14,000)</td>
</tr>
<tr>
<td>1928</td>
<td>Amsterdam</td>
<td>Amsterdam Olympisch Stadium</td>
<td>31,600 (22,291)</td>
</tr>
<tr>
<td>1932</td>
<td>Los Angeles</td>
<td>Los Angeles Memorial Coliseum</td>
<td>101,574 (93,607)</td>
</tr>
<tr>
<td>1936</td>
<td>Berlin</td>
<td>Olympia Stadion Berlin</td>
<td>110,000 (74,244)</td>
</tr>
<tr>
<td>1940</td>
<td>Tokyo</td>
<td>Empire Stadium (Wembley)</td>
<td>82,000</td>
</tr>
<tr>
<td>1944</td>
<td>London</td>
<td>Olympic Stadium Helsinki</td>
<td>70,000 (40,000)</td>
</tr>
<tr>
<td>1948</td>
<td>London</td>
<td>Empire Stadium (Wembley)</td>
<td>82,000</td>
</tr>
<tr>
<td>1952</td>
<td>Helsinki</td>
<td>Olympic Stadium Helsinki</td>
<td>70,000 (40,000)</td>
</tr>
<tr>
<td>1956</td>
<td>Melbourne</td>
<td>Melbourne Cricket Ground</td>
<td>103,000 (100,000)</td>
</tr>
<tr>
<td>1960</td>
<td>Rome</td>
<td>Stadio Olimpico</td>
<td>65,000 (72,000)</td>
</tr>
<tr>
<td>1964</td>
<td>Tokyo</td>
<td>National Olympic Stadium</td>
<td>57,363</td>
</tr>
<tr>
<td>1968</td>
<td>Mexico</td>
<td>Estadio Olimpico Universitario</td>
<td>83,700 (63,186)</td>
</tr>
<tr>
<td>1972</td>
<td>Munich</td>
<td>Olympia stadion München</td>
<td>80,000 (69,250)</td>
</tr>
<tr>
<td>1976</td>
<td>Montreal</td>
<td>Olympic Stadium Stade Olympique</td>
<td>58,500 (66,308)</td>
</tr>
<tr>
<td>1980</td>
<td>Moscow</td>
<td>Luzhniki Stadium</td>
<td>103,000 (72,360)</td>
</tr>
<tr>
<td>1984</td>
<td>Los Angeles</td>
<td>Los Angeles Memorial Coliseum</td>
<td>92,000 (93,607)</td>
</tr>
<tr>
<td>1988</td>
<td>Seoul</td>
<td>Seoul Olympic Stadium</td>
<td>100,000 (69,950)</td>
</tr>
<tr>
<td>1992</td>
<td>Barcelona</td>
<td>Estadi Olímpic Lluís Companys</td>
<td>67,000 (56,000)</td>
</tr>
<tr>
<td>1996</td>
<td>Atlanta</td>
<td>Centennial Olympic Stadium</td>
<td>85,000 (49,586)</td>
</tr>
<tr>
<td>2000</td>
<td>Sydney</td>
<td>Stadium Australia</td>
<td>110,000 (82,500)</td>
</tr>
<tr>
<td>2004</td>
<td>Athens</td>
<td>Olympic Stadium Athens</td>
<td>71,030 (75,000)</td>
</tr>
<tr>
<td>2008</td>
<td>Beijing</td>
<td>Birds nest/Beijing National Stadium</td>
<td>91,000 (80,000)</td>
</tr>
<tr>
<td>2012</td>
<td>London</td>
<td>London Olympic Stadium</td>
<td>80,000 (25,000)</td>
</tr>
<tr>
<td>2016</td>
<td>Rio de Janeiro</td>
<td>Olympic Stadium Birds nest/Beijing</td>
<td>85,000 (49,586)</td>
</tr>
</tbody>
</table>

### Olympic Games Timeline

- **1960**: First fully broadcasted Olympics
- **1994**: Legacy first mentioned in Olympic candidature
- **1999**: First sponsored Olympics

### Legacy

- **The Olympics as a catalyst of urban change**
- **Environmental aspect**
  - Added to Olympic Charter
- **First sponsored Games**: $225 Mil Profit
- **First fully broadcasted Olympics**: Added to Olympic Charter
- **Legacy first mentioned in Olympic candidature**: Official declaration of sustainable ambitions

### Urban Expansion

- Avoid over-extravagant projects

### Olympic Sports

- Number of sport-250
- Athletes-Athletes
Barcelona 1992
Atlanta 1996
Sydney 2000
Athens 2004
Beijing 2008
London 2012
Tokyo 1964
Rome 1960
Melbourne 1956
Munich 1972
Montreal 1976
Moscow 1980
Los Angeles 1984
Seoul 1988

The raise of the Olympic quarter
Urban expansion
Avoid over-extravagant projects
Inner-city regeneration
Sustainable urban form

Melbourne Cricket Ground
103,000 (100,000)
Stadio Olimpico
65,000 (72,000)
National Olympic Stadium
57,363
Estadio Olímpico Universitario
83,700 (63,186)
Plympia stadion München
80,000 (69,250)
Olympic Stadium Stade Olympique
58,500 (66,308)
Luzhniki Stadium
103,000 (72,360)
Seoul Olympic Stadium
100,000 (69,950)
Estadi Olímpic Lluís Companys
67,000 (56,000)
Centennial Olympic Stadium
85,000 (49,586)
Stadium Australia
110,000 (82,500)
Birds nest/Beijing National Stadium
91,000 (82,000)
London Olympic Stadium
80,000 (25,000)

The Olympics as a catalyst of urban change
Environmental aspect added to Olympic Charter
First sponsored Games: $225 Mln Profit
First fully broadcasted Olympics
Legacy first mentioned in Olympic candidature
Legacy aspect added to Olympic Charter
Official declaration of sustainable ambitions

Fig. 2.4 Time line illustrating the growth of participants, events and facilities of the Olympic Games (By Authors)
HISTORIC EVALUATION

The historical and thematic run-through of the 137 years old history and the 27 examples of the Olympic Games leads to some interesting findings on the legacy strategies of host cities.

As the time-line shows, the Olympic apparatus has grown rapidly both in physical size and in number of participants. This directly influences the increasing impact on the host cities. The current IOC President Jacques Rouge, 2012, stated that "We (IOC) need to control the size of the Games. We have to help the organizing cities by lowering the demands (Roche, 2013)." Meaning that a further increase in size of the Games is not possible within one city (as the Olympics are organized at this moment).

The observed growth is caused by a palette of different factors that, throughout the Olympic development, have had more or less influence in different periods. For instance, the time-line shows the development of the Olympic legacy divided in seven different phases (Shirai, 2009a, p. 4).

The phases are not chronologically organized and some of the phases seem to be overlapping. However the division gives a clear idea of when the different approaches have prevailed. The legacy phases can be divided in the following way, inspired by the findings of Shirai and shown by dashed lines in the lower part of the time line on the two previous pages:

1. The Origins of the Olympic urbanization - little urban legacy (1896 - 1904): The Olympic Games in the early years had a scale that was still manageable by host cities and therefore didn't influence these cities in their development.

2. The dominance of the Olympic stadium (1908-1928): From the start of the Games, the Olympic Stadium has been the centre of the event. This was the biggest object and most extravagant. In the early 20th century the after-use of the stadium was mostly considered. Whereas for the other development there was no clear idea of the long-term use.

3. The raise of the Olympic Quarter (1932 -1956): In this period the other venues and buildings of the Olympics started to grow and the idea of an Olympic park originated.

4. Urban expansion (1960 - 1976): In this period the idea of using the Olympics to extend cities and use it as a catalyst for this development became dominant.

5. Avoidance of over-extravagant projects (1980 - 1984): In this period the Olympic host cities first start to question the growing scale of the event. The effect on the city becomes big and the iconic expression of the different structures is being questioned.

6. Inner-city regeneration (1988 - 1996): During this period the host cities focused on using the Olympic Games to regenerate run-down area's in the existing city structure.

7. Sustainable Urban form (2000 - ): From the start of this century, as the word sustainability became more dominant, the focus was on creating responsible Games. These should not primarily benefit the 2 times 2 weeks event, but focus on avoiding waste. To build for primarily for the long-term instead of the short.

This position towards legacy has very much to do with the general world development during the last decades. Next to the development of legacy approaches, the development of the modern Olympic Games can be seen cycles of around 20 years (Millet, 1997, pp. 3, 4):

From the first modern Olympics in Athens in 1896, through to the Games’ formative years as a peaceful platform for competition in an increasingly volatile world.

The second period and especially the late ’20ies and early ’30ies was characterized by the introduction of quasi-religious symbols such as the Olympic flag, Olympic oath and the Olympic hymn which all become a part of the event’s heritage and has been it since.

The third period was very influenced by the second world war and two Games were cancelled in 1940 and in 1944. The post-war event took place in London, where the former military barracks were temporarily used to accommodate the athletes.

The fourth cycle is called “Resurrection” (XML, Olympic Cities, 2012, pp. 239-245), is where the games were used for reconstruction of cities destroyed that has been more of less destroyed during the war. This was the case in Rome (1960), Tokyo (1964) and Munich (1972) (van Apeldoorn, Cohen de Lara, Gibson, Mulder, & Petaccia, 2012, pp. 239-245).

In the fifth period the Games professionalize as a commercial machine. This so-called “Franchise” period started for real around the Olympics in Los Angeles 1984 and culminated in Beijing 2008. According to Mulder and Cohen de Lara (XML, Olympic Cities, 2012, pp. 239 - 245) we are still in this period now.

The 20-year cycle theory gives a clear view on how the Olympic Games have developed due to the general world development. The current scale of the whole apparatus is becoming an issue and the next period of the Olympic Games will focus on dealing with the scale of the event: “I think more and more people are starting to doubt the sustainability of this huge model for cities or coun-
tries, especially some European cities - Rome, for instance, recently backed out. We’re starting to see the implications of having this huge amount of investment having to take place at one point. Many cities struggle to recover from such an operation”. (XML, Olympic Cities, 2012: 239 - 245)

According to Mulder (2012, pp. 239-245), "It really has to do with what the Olympics are at the moment. The characteristics make it difficult to do things much differently - the role of the IOC, the sponsors, all the stakes involved at the moment require a very specific model. It’s Disney Land, basically - you put everything together, put a fence around it then you have control over advertising, entrance, tickets, everything. You build a city for two weeks that should be able to accommodate 800,000 people, but the challenge is absorbing that after the Games. Some cities are more able to accommodate this kind of new centre than others. Right now, in order to make a successful bid, there’s some necessary requirements that unfortunately don’t serve the long-term agenda for a city (van Apeldoorn et al., 2012, pp. 239-245)."

The growth in the amount of participants, nations and events shown in the time-line underline Mulder’s point. Italy’s recent withdrawal of Rome as applicant city for the 2020 Games showed that it is increasingly difficult for European countries, given the current economic crisis, to balance large scale investments with public support for the Games. Change must be embraced if the IOC is to avoid the risk that the only nations capable of organizing the Olympics in the long run will be centrally controlled states with rapidly growing economies. The question remains; how this will relate in the long-term to the ideals of Olympics. Looking towards the urban development in world and especially in Europe is there a tendency of regional collaboration, challenging the traditional central cities leading positions. Trend watcher Farid Tabarki argues that we the coming twenty years will experience a radical decentralization. Self-organization on a small scale will take on the roles of centrally controlled institutions. The regions will stand strong and new models of knowledge sharing, energy pro- and reduction, food chains, economic dynamics and cultural exchanges. The regions will benefit from this and the cities in the collaboration will therefore gain more influence and thereby challenge the competitiveness of the traditional central leading flagships.

Another important point in the growth of the Olympic apparatus is the role of the media and especially television. Looking to the graph is it clear to see how the TV Broadcast initiated in the Olympics in Rome 1960 has been one of the main catalysts for the current scale of the Games. Though the digitalization has rapidly transformed the business model of television, whereas television has been the dominant mass medium since the ‘60ies, digital technologies such as social media are increasingly challenging this monopoly. Interactive television, Internet television and mobile Internet probably will change the role of the media in the society and its impact on the Olympic Games. The accessibility to the Games will have to change and follow both the demands of its location as well as the global demands from IOC and the media. As a summary of our findings, it is possible to state that:

---

**PRESENT**

City  
Building a suburb  
Centre  
Master plan  
Opposition between city and landscape  
Car or public transport  
Consumer  
Centre vs. periphery  
Clustering  
Local government  
Concentration  
One size fits all  
Old boys’ club

**FUTURE**

Region  
Re-using the suburb  
Network  
Collaborative plan  
Diffuse borders  
Integrated network  
Re-user  
Poly-centric  
Scattered organization  
Governance without government  
Distribution  
Distinctive diversity  
Transparent network

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OLYMPIC APPARATUS

“The Olympic Summer Games is an event for over 200 countries that collectively delegate about 10 500 athletes, 5 500 supporting coaches and 3 000 officials. This group is accompanied by another 15 000 other invites somehow related to the Athletes or the Olympic family. The worldwide media sends about 35 000 representatives to the city during the event. Looking at precedent Games, average amount of visitors is between 4 to 6 million, separated over 300 sport events (Twynstra & Gudde, 2008, p. 7).”

This introduction made for research for the Dutch government tells about the amount of people participating in one way or another in the event. To house all these flows of people a host city needs an enormous amount of development related to the event. This is not only related to sport venues, such as stadiums and arenas. A city needs to update its infrastructure, hotels, media facilities and many kinds of buildings and public spaces. These developments have quantitative requirements, like the amount of seats in a stadium or beds in hotels. Next to this there are additional requirements regarding qualitative aspects, such as the proximity and accessibility of the accommodation to all the venues.

This chapter gives a brief overview of this massive program and requirements, based on the research of Twynstra Gudde done for the Dutch Government in the light of a possible Dutch candidacy to host the Olympic Games in 2028. Subsequently this section defines an abstraction to the ‘Olympic Program’ that will be used for the implementation of decentralized hypothesis on a region selected later on in this research.

Sport venues

The primary buildings of the Olympic Summer Games are of course the stadiums and other sport facilities. Roughly taken the Olympic repertoire of sport venues consist of: (1) an Olympic stadium with a minimum of 80 000 spectators and a running track; (2) a large Olympic hall for a minimum of 20 000 spectators; (3) 4–5 Multi-purpose halls for 10 000–20 000 spectators; (4) a minimum of 7 smaller stadiums for hockey, beach volleyball, baseball and soccer (15 000 – 20 000 spectators); (5) An Olympic swimming pool for 15 000 – 20 000 spectators; (6) a Velodrome (10 000 spectators); (7) a shooting range (7 000 spectators); (8) a tennis complex (10 000 spectators); (9) rafting facilities (5 000 Spectators); (10) space for rowing and canoeing (20 000 spectators); (11) Sailing (10 000 spectators); (12) “Green” space for events like the marathon, cycling, cross-country, .. (10 000 – 30 000 spectators) (Twynstra & Gudde, 2008, p. 12).

The dimensions of the different sport venues are mainly a consequence of the IOC requirements for each event. The IOC has strict requirements for the build facilities and publishes an updated version every new bidding process. The Olympic design manuals do not state that these venues have to be built new, but in most cities there are no sport venues with an Olympic capacity. This means that a host city should invest substantially in constructing either new, or extending existing sport facilities. This also means that the new sport venues are over scaled for the after-use. There are a lot of recent examples of stadiums that become obsolete after the event has ended (e.g. Beijing’s ‘Bird’s Nest’, the different venues for the Athens Olympics, but also the stadiums constructed for the WC2010 in South-Africa). A solution for this is temporary (spectator) structures. This is already quite usual within the Games for the smaller venues, such as rowing and cycling. The last edition of the Olympic Games London (2012) took this strategy to the next level: The theme of social, economic and environmental sustainability for the built facilities was once of the main points of concern, resulting in mostly down-scalable or temporary facilities.

The revenue gained by the events during the games is far from sufficient to cover the construction costs. This is also shown in the diagram on page 47. Therefore investments are necessary. Another way of improving the after-exploitation and initial financing is integrating secondary functions in the stadium like dwellings, offices, hotels, shops, parking and so on (Twynstra & Gudde, 2008, p. 14).

Olympic Village

The Olympic Village houses the accommodation for all the athletes and coaches during
the Olympic Games, which results in 5 000 to 8 000 dwellings, dependent on the average unit's size. This zone is called the 'residential zone'. Close to this zone there should be a large amount of training facilities, sufficient for all athletes. There are also increasing requirements for collective (mainly leisure related) functions like shops and catering in the residential zone. Next to the Olympic housing the Olympic village has substantial other parts, namely: The international zone & the public zone.

The international zone is mainly required for contact of the athletes with media, family and friends. There are substantial media facilities required in the proximity of this zone.

The public zone is meant to give the public a peek into the ‘magical’ Olympic Village.

All this together, can cause the Olympic Village to have a size of around 100 hectares (Twynstra & Gudde, 2008, pp. 14, 15).

Since the Olympic Games in Helsinki (1952) the Athletes Village has been used to fulfil the current need of the host city’s housing market: If a city needs new student housing, this becomes the model for the Olympic village; If a city is in need of larger family dwellings, it will base the Olympic dwellings on that typology. This is a fairly established model that is the least problematic for city integration afterwards. Still, inserting 5 000-8 000 houses at once into the market can cause a serious imbalance in the sense that a city hardly really needs that amount of new houses all at once. This can cause a lot of people to move to this new area (due to its identity and history), resulting in vacancy in other areas of the city.

**Hotels & accommodation**

The demand for hotels & accommodation are generally measured in beds per night. Based on calculations for the Dutch Olympic bid, the required amount of beds for people professionally involved is 72 000. The quality requirements of those hotels are 3 to 5 stars. Next to this, these hotels should be within the proximity of maximum 45 minutes from the different events (Twynstra & Gudde, 2008, p. 15). This doesn’t sound like a lot of time, but in a networked region with good infrastructural connections, the accommodation can be located in another city than the one hosting the event. There is also an enormous amount of tourists visiting the event. These numbers vary from 4-6 million. Supposing the maximum of 6 million visitors, where 10-15% of them spent an average of 2 nights in hotels (Twynstra & Gudde, 2008, p. 16), there is an additional requirement of 68 000 beds per night. This puts the total requirement to an astonishing amount of 140 000 beds per night. This extends in any case a city’s local supply of hotels. Building extra permanent hotels brings major risks of underutilization after the event. A host city should have a clear idea on how to house this enormous number of people. Alternative ways of providing beds can be found in temporary accommodations, cruise-ships and student housing that are available due to the summer break (Twynstra & Gudde, 2008, p. 17). But also realizing accommodations for the event that can be easily transformed to permanent housing later on is an interesting option.

It is clear that even though hotels and other accommodation are not considered as a primary facility for the Olympic Summer Games, they form a substantial part of the Olympic apparatus and need special attention in the planning of the event.

**Media facilities**

The Olympic Games is an event hosted in a single city but is closely followed by an average of 4 billion people worldwide. Since the 1960 Olympics in Rome it became a fully broadcasted event and has grown out to be a largely commercial-driven event. The amount of media present at the event is therefore massive. About 20 000 broadcaster, photographers and journalist come to the city to best possible transfer everything that is happening there to different media, such as TV, newspapers and internet.

To make all of this possible substantial facilities are required. The two main required buildings are the International Broadcast Centre (IBC) and the Main Press Centre (MPC).

The IBC requires about 50 000 m² of studio space + 8 000 m² of offices. The MPC requires about 30 000 m² of office space for the journalists and photographers.
Infrastructural needs
The sport venues need to be well connected and easily accessible from different accommodations, airport(s) and major train stations. This requires an extensive and qualitative infrastructural network. The intensity of use is described by Twynstra and Gudde (2008, p. 17): "the Olympic Games will attract 6 million visitors to a city, which results on 600 000 persons on peak days, of whom 10% belong to the Olympic family. If all those visitors would go to the same location (depending on the setup of the Olympic venues) it would mean that the local infrastructure should be able to move 60 000 people per hour, which results in a train of 1 000 passengers every minute, or a 300 person tram every 20 seconds, and so on (Twynstra & Gudde, 2008, p. 17)." In reality the event schedule and the spread of different venues will reduce this number slightly, but even in a decentralized organization, there is an immense pressure on infrastructure from and to the events.

Solo investments in new highways and public transport networks merely for the logistics of the Games are not desirable for the host city. The infrastructural improvements and extensions should come from a legacy point of view mainly benefiting the city and the country in the long-term, while at the same time fulfilling the Olympic requirements. The investments made on infrastructure are usually financed by the central government and (depending on the country) the private companies that facilitate the public transport (Twynstra & Gudde, 2008, p. 17).

Costs vs. revenue
All these built requirements together result in an enormous development, requiring large investments. If previous Games are analysed, substantial differences in investment patterns can be found. The balance and the magnitude of the total are much related to the intended goals of the host city and country. If a country wants to use the Olympic Games to upgrade infrastructure in the area, this will subsequently result in higher investments on infrastructure. An example is the London Olympics (2012). Beijing (2008) used the Olympics to improve the environmental issues in the city and Barcelona (1992) invested a lot in the Olympic accommodation, to optimally benefit the housing market in the city. An overview of these investment patterns is displayed in the graph on the corresponding page.

The short-term revenues from precedent Games do not vary as much as their investments. These revenues are mainly generated by ticket selling, sponsoring, broadcasting rights and residual revenues. In some cases there was also some revenues generated by grants and donations. See the table 2.2 for an overview (Twynstra & Gudde, 2008).

As said, this graph considers the short-term revenues. The long-term revenues are a lot harder to grasp in exact numbers and are also not always measurable in Dollars or Euros. Long-term revenues refer to the positive Olympic legacy like increased tourism, improved sports culture and economic growth. The definition of the central term legacy, its various means, definitions and means in this research are elaborated later on in the theoretical framework.

Sustainability
As sustainability is a central topic in all large policies and projects, this is not different in the organization of the Olympic Games. From the mid '90ies the IOC has shown commitment to environmental issues, but also socioeconomic sustainability seems to play a larger and larger role. This socioeconomic sustainability is very inter-related with Olympic legacy and is elaborated further in that chapter.

Past host cities, like Sydney and Athens have put special focus on creating 'Green Games'. This was central in their branding for the event and more importantly the branding of the city and country (Twynstra & Gudde, 2008, p. 18). In other cases, like Beijing, improving the environmental issues is necessary for creating healthy conditions to perform sports in. Countries see hosting the Games as an opportunity to catalyse or even realize their sustainable ambitions.
Investments in billion US$

- Operational Costs
- Infrastructure (incl. Telecommunication)
- Sportaccommodation & facilities
- Olympic village, housing & other buildings
- Residual costs (incl. environment)

Revenue in 100 million US$

- Tickets
- Broadcasting right
- Sponsoring & licensing
- Other revenues
- Subsidies & grants

Tab. 2.2 Costs & revenues precedent Olympics (Twynstra & Gudde, 2008)
OVERVIEW OLYMPIC PROGRAM

The program of the summer Olympics consists of many venues. Each of those require a certain lay-out of different components that allow for easy accessibility and parking/public transport facilities. The program shown on these two pages is defined by the Dutch Bureau Nieuwe Gracht & Twijnstra Gudde for the research on the possible summer Games of 2028 in the Netherlands.

As you can see the different kind of program components are shown in different colours where:

- Stadiums
- Other buildings
- Public spaces (squares, etc)
- Training fields
- Public transport (stations, etc)
- Traffic & Parking

This program has the size of around 600 Ha (see football field below this text for a scale reference). The IOC requires for this program to be within a radius of 50 km from the Olympic Village.

To show the impact of the contemporary Olympic apparatus is the program projected on two different characteristic area’s of the Netherlands on the next few pages.

It is to be kept in mind that this is only the program for the venues and the Olympic Village. Other developments like connecting infrastructure, hotels and other buildings are all additional to this.
Fig. 2.5 Olympics spatial requirements (By Authors)
AMSTERDAM CITY CENTRE

Fig. 2.6 Olympics projected on Amsterdam (By Author)
Fig. 2.7 Olympics projected on Rotterdam (By Authors)
The previous text clarifies the scale and complexity of the required facilities for the Olympic summer Games. This research will conclude with the implementation of the Olympic program on a networked region. In order to properly do this, has the program requires been brought to the necessary level of abstraction. This section defines the program and the detail level that is used in the Strategy Implementation chapter. It is based on the program of the London 2012 Olympics and the described criteria in the "SchetsboekOS2028" by Twynstra Gudde & Nieuwe Gracht.

The different sports define the components, but housing different sport venues in the same facility is possible in a lot of the cases. The Olympic Village and the Media Centre are the only 2 non-sport entities that will be considered in the planning. The necessary hotels, service buildings and other facilities are disregarded from this research.

What will be considered is the open space around these facilities and organization of the Olympic areas in general.

<table>
<thead>
<tr>
<th><strong>OUTDOOR SPORTS, FIXED LOCATION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rugby</td>
</tr>
<tr>
<td>10 - 20,000 spectators</td>
</tr>
<tr>
<td>Tennis</td>
</tr>
<tr>
<td>10,000+ spectators</td>
</tr>
<tr>
<td>Modern Pentathlon</td>
</tr>
<tr>
<td>5,000+ spectators</td>
</tr>
<tr>
<td>Equestrian Jumping</td>
</tr>
<tr>
<td>5,000+ spectators</td>
</tr>
<tr>
<td>Archery</td>
</tr>
<tr>
<td>7,000+ spectators</td>
</tr>
<tr>
<td>Shooting</td>
</tr>
<tr>
<td>7,000+ spectators</td>
</tr>
<tr>
<td>Beach Volleyball</td>
</tr>
<tr>
<td>15,000+ spectators</td>
</tr>
<tr>
<td>Football</td>
</tr>
<tr>
<td>15,000 spectators / minimum 4 stadiums</td>
</tr>
<tr>
<td>Equestrian Dressage</td>
</tr>
<tr>
<td>15,000+ spectators / 20m track</td>
</tr>
<tr>
<td>Athletics</td>
</tr>
<tr>
<td>80,000+ spectators, running track</td>
</tr>
<tr>
<td>Track cycling</td>
</tr>
<tr>
<td>10,000+ spectators / Velodrome</td>
</tr>
<tr>
<td>Hockey</td>
</tr>
<tr>
<td>10 - 20,000 spectators</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>OUTDOOR SPORTS, FLEXIBLE LOCATION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sailing</td>
</tr>
<tr>
<td>10,000+ spectators</td>
</tr>
<tr>
<td>Golf</td>
</tr>
<tr>
<td>2 courts with 18 holes</td>
</tr>
<tr>
<td>Road cycling</td>
</tr>
<tr>
<td>250 km</td>
</tr>
<tr>
<td>BMXing</td>
</tr>
<tr>
<td>2 tracks of at least 250 m</td>
</tr>
<tr>
<td>Mountainbiking</td>
</tr>
<tr>
<td>40 km track (biking several laps)</td>
</tr>
<tr>
<td>Triathlon</td>
</tr>
<tr>
<td>1.5 km swim / 40km bike /</td>
</tr>
<tr>
<td>Kayak Flatwater</td>
</tr>
<tr>
<td>5,000+ spectators</td>
</tr>
<tr>
<td>Kayak/Canoe</td>
</tr>
<tr>
<td>slalom</td>
</tr>
<tr>
<td>5,000+ spectators</td>
</tr>
<tr>
<td>Rowing</td>
</tr>
<tr>
<td>2.2km still water</td>
</tr>
<tr>
<td><strong>INSIDE SPORTS</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Artistic Gymnastics</td>
</tr>
<tr>
<td>20,000+ spectators</td>
</tr>
<tr>
<td>Trampoline</td>
</tr>
<tr>
<td>10 - 20,000 spectators</td>
</tr>
<tr>
<td>Table Tennis</td>
</tr>
<tr>
<td>10 - 20,000 spectators</td>
</tr>
<tr>
<td>Badminton</td>
</tr>
<tr>
<td>10 - 20,000 spectators</td>
</tr>
<tr>
<td>Volleyball</td>
</tr>
<tr>
<td>15 - 20,000 spectators</td>
</tr>
<tr>
<td>Handball</td>
</tr>
<tr>
<td>10 - 20,000 spectators</td>
</tr>
<tr>
<td>Fencing</td>
</tr>
<tr>
<td>10 - 20,000 spectators</td>
</tr>
<tr>
<td>Judo</td>
</tr>
<tr>
<td>10 - 20,000 spectators</td>
</tr>
<tr>
<td>Weightlifting</td>
</tr>
<tr>
<td>10 - 20,000 spectators</td>
</tr>
</tbody>
</table>

| **INSIDE SPORTS**                    |
|                                     |
| Rhythmic Gymnastics                 |
| 20,000+ spectators                  |
| Basketball                           |
| 20,000+ spectators                  |
| Swimming                             |
| Aquatic centre / 20,000 spectators  |
| Diving                              |
| Aquatic centre / 8 lanes of 50m     |
| Waterpolo                           |
| Aquatic centre / 20,000 spectators  |
| Volleyball                           |
| Aquatic centre / 20,000 spectators  |
| Boxing                              |
| 10 - 20,000 spectators              |
| Taekwondo                            |
| 10 - 20,000 spectators              |
| Wrestling                            |
| 10 - 20,000 spectators              |

<table>
<thead>
<tr>
<th><strong>OTHER MAJOR FACILITIES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletes Village</td>
</tr>
<tr>
<td>10,000+ Athletes</td>
</tr>
<tr>
<td>IBC &amp; MPC</td>
</tr>
<tr>
<td>88,000m² (IBC 58,000m² &amp; MPC 30,000m²)</td>
</tr>
</tbody>
</table>

Fig. 2.8 Olympic sport overview (By Authors)
OLYMPIC LEGACY

The previous chapter focuses on the historic development of the Olympic Summer Games, which is characterized by exponential growth. The increasing size of the event also means an increasing impact on the hosting cities. The legacy that the Olympics leave behind in a city has drastically increased. Therefore, an idea and strategy for the long-term advantages of the Olympic Games have become more and more important. In the previous chapter the development of Olympic legacy was briefly touched upon. This chapter takes a look into what can be defined as legacy and how this term has developed. The definition is also of high relevance for the decentralized strategy definition, since legacy is the primary focus.

The term ‘event legacy’ has become a central term in the bidding and organizing for the Olympic Games. Although the term is often used, the definition of the word ‘legacy’ is a very broad and vague term. Becca Leopkey (2009) describes the Olympic legacy as ‘All planned and unplanned, positive and negative, intangible and tangible structures created by and for the Olympic Games that remain for a longer time that the event itself (Leopkey, 2009, p. 5). Her research is focusing on a more precise and complete definition of the term legacy, which forms a base for the definition in this chapter.

“All planned and unplanned, positive and negative, intangible and tangible structures created by and for the Olympic Games that remain for a longer time that the event itself.”

The ambitious Games

As it is shown in the time-line overview in the previous chapter, the development of legacy is very inter-related with the growing size of the event. From the start of the modern Olympics in 1896 Pierre de Coubertin stated that the revival of the Olympics should benefit the society and host city, by bringing “Athleticism to a high state of perfection, and by infusing new elements of ambition in the lives of the rising generation (IOC, 1896).”

In the first half of the 20th century the term legacy was never officially used and although the after-use was not always as successful as others, there was no real issue, since the size and amount of venues still was possible to be absorbed by the host city. In this period the Olympic stadium was by far the biggest and most important entity (Shirai, 2009b, p. 4). The Olympic Games of Melbourne in 1956 was the first host city that officially spoke about after-use in their candidature (McIntosh, 2003, p. 450). Before this edition there were talks about the local benefits for hosting the Olympics, but was in no case part of the official bidding process. McIntosh (2003) describes the bidding process in the first half of the 20th century as candidate cities mainly stating how suitable and capable they were and the great honour it would be to serve the Olympic Movement (McIntosh, 2003, p. 451). Basically ensuring the IOC that their Olympic edition would be the best the world had ever seen.

Legacy introduced

After the Melbourne edition the size of the Olympic Games grew tremendously (see graphs and time-line earlier in this chapter). The Olympics were mainly used for catalysing urban extension. However, the word legacy was never officially mentioned until the Calgary 1988 (winter) bid (Leopkey, 2009, p. 14). In the 1980s and 1990s the term legacy became a more often used term. Host cities were focusing more and more on the long-term use of the Olympic venues in the city.

In 2003, was the legacy term officially added as a subject in the Olympic Charter (IOC, 2011) and the latest edition of the Olympics in London had long-term integration of the build structures in focus, rather than their performance during the event.

Planning legacy can help host cities with the integration of the Olympic venues and other build structures after the event. A legacy strategy tries to fill the gap between the local demands of a host city and the IOC requirements. With the current size of the Olympic summer Games there are major risks for oversized and unused facilities afterwards, also known as white elephants. Moreover the host city could not get the expected revenue from the event, resulting in major debts for the city and county.

Defining legacy

As said, the word legacy is an extremely broad and vague term. Cashman (2003) describes legacy as an “elusive, problematic and even dangerous word” (p. 33). The word has more than one meaning and by the English dictionary it means: ‘a gift or property left by will through an individual's inheritance or more generally remaining from a time period or event’. Next to
the fact that the word has multiple meanings, the term is mostly associated with positive results, often ignoring the risks and possible negative outcomes that were mentioned earlier above (Leopkey, 2009, p. 9).

The thorough palette of the different positive and negative effects of legacy are listed in table 2.3. The table gives a good overview of the effects of the possible long-term effect of hosting a mega-event. Together with the definition of Becca Leopkey (2009) shown below makes this the base for the definition of legacy, applicable to the idea of decentralisation in this research.

Leopkey's (2009, pp. 17, 18) definition consist of a subdivision in the term Olympic and event legacy, identified in previous Olympic bids and final reports (What should be mentioned is that these categories are strongly inter-related and overlapping):

- **POSITIVE**
  - New event facilities,
  - General infrastructure,
  - Urban revival,
  - International reputation,
  - Increased tourism,
  - Improved public welfare,
  - Additional employment,
  - Local business opportunities,
  - Corporate relocation,
  - Renewed community spirit,
  - Inter-regional cooperation,
  - Production of ideas and cultural values,
  - Popular memory,
  - Education, experience and know-how

- **NEGATIVE**
  - High construction costs,
  - Investments in non-needed structure,
  - Indebtedness of public sector,
  - Temporary crowding problems,
  - Loss of permanent visitors,
  - Property rental increases,
  - Only temporary increases in employment and business activities,
  - Socially unjust displacement

<table>
<thead>
<tr>
<th>POSITIVE</th>
<th>NEGATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>New event facilities,</td>
<td>High construction costs,</td>
</tr>
<tr>
<td>General infrastructure,</td>
<td>Investments in non-needed structure,</td>
</tr>
<tr>
<td>Urban revival,</td>
<td>Indebtedness of public sector,</td>
</tr>
<tr>
<td>International reputation,</td>
<td>Temporary crowding problems,</td>
</tr>
<tr>
<td>Increased tourism,</td>
<td>Loss of permanent visitors,</td>
</tr>
<tr>
<td>Improved public welfare,</td>
<td>Property rental increases,</td>
</tr>
<tr>
<td>Additional employment,</td>
<td>Only temporary increases in employment and business activities,</td>
</tr>
<tr>
<td>Local business opportunities,</td>
<td>Socially unjust displacement</td>
</tr>
</tbody>
</table>

Table 2.3 The possible positive and negative legacy on a host city (Preuss, 2006)

"This research is primarily studying the physical legacy of the event."

The main legacy aspect that this research specially deals with can be defined as: Physical Legacy is the permanent infrastructure, buildings, sport facilities and recreational areas left behind in the post-games setting.

The effect of the strategy on the other types of legacy will be considered and evaluated as well, though these are of secondary relevance for this research.
HISTORIC PERSPECTIVES
HISTORIC PERSPECTIVES

BARCELONA 1992

ATLANTA 1996

SYDNEY 2000

ATHENS 2004

BEIJING 2008

LONDON 2012 (separate chapter)

Img. 3.1 Collage preceding Olympic Games (Sources listed in Bibliography)
This chapter evaluates preceding Olympic Games and analyses them on their planning strategies and how these related to the after-use. For this analysis, the last 6 Olympic Summer Games are selected to give a clear overview on the different spatial strategies that were used to implement the Olympic apparatus. These are: Barcelona 1992, Atlanta 1996, Sydney 2000, Athens 2004, Beijing 2008, London 2012 is analysed in a separate chapter that will elaborate more on the process rather than the actual legacy for London. The analysis starts with Barcelona that used a model of inner-city clustering, creating several centres in the city with each of them having their own specific function. Atlanta tried to achieve minimum impact by a fully scattered model. Sydney organised the main venue of the Olympic Games in a central park on the location of a former waste dump, Athens used the model of Barcelona of creating several centres, rather than a central area. These centres were more in the periphery of the city though. Both Beijing and London used the model of a central park with different satellite venues. These two cases are quite different in terms of scale and compactness though.

Summarizing the chapter, the specific lessons learned are listed in the end, giving a clear overview on how physical Olympic legacy can be influenced.

The central questions that this chapter tries to elaborate on are the following:
"What are strategies for good Olympic legacy?"
"What are the possible reasons that led to poor after-use of the Olympic development?"

Each of the cases are build-up in the following way:
1. A mapping of the spatial organisation of the Olympic program through the city.
2. What were the motives and strategies of the host city?
3. How was the event spatially organized?
4. What is the legacy of the Games for the host city? This legacy is measured on the following levels:

Legacy on city level:
- Physical legacy
- Economic legacy
- Other notable legacy (positive & negative)

Legacy on area level:
- Physical integration of site(s)
  - Morphology
  - Public space
  - Connectivity
- Functional integration of site(s)
  - Function-mix
  - User-intensity

Each version of the Games is concluded in a table where the legacy on the different scales is judged by a point system that goes from --- (very weak legacy) to +++ (very strong legacy). This makes the different cases comparable to a certain extend. It should be mentioned that some circumstances are so specific and complex for each Olympic edition that they are not directly transferable.

The table below shows a statistical overview of the different host cities that will be analysed. This shows that there are significant differences in the total investments and operation costs and financing structures. The numbers are based on the values from Twynstra & Gudde (2008) and Rombouts (2013). We will elaborate on each of them why there was chosen for the specific organisation model and how this affected the after-use.

<table>
<thead>
<tr>
<th>Host city (Year)</th>
<th>Inhabitants</th>
<th>Investment costs (Billion US $)</th>
<th>Operation costs (Billion US $)</th>
<th>Initiative</th>
<th>Finance (public-private)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barcelona (1992)</td>
<td>4 654 407</td>
<td>11 533</td>
<td>1 900</td>
<td>Local municipality, Mayor</td>
<td>70-30</td>
</tr>
<tr>
<td>Atlanta (1996)</td>
<td>418 823</td>
<td>4 939</td>
<td>1 800</td>
<td>Private, Billy Payne</td>
<td>30-70</td>
</tr>
<tr>
<td>Sydney (2000)</td>
<td>3 455 110</td>
<td>3 826</td>
<td>2 300</td>
<td>Central and state government</td>
<td>64-36</td>
</tr>
<tr>
<td>Athens (2004)</td>
<td>3 894 573</td>
<td>8 122</td>
<td>2 200</td>
<td>Central and city government</td>
<td>80-20</td>
</tr>
<tr>
<td>Beijing (2008)</td>
<td>19 612 368</td>
<td>15 966</td>
<td>1 700</td>
<td>Central government</td>
<td>75-25</td>
</tr>
</tbody>
</table>

Tab. 3.1 Statistics of previous host cities of the Olympic Summer Games (Twynstra & Gudde, 2008 & Rombouts, 2013)
HISTORIC PERSPECTIVES

Olympic area(s) & Main city ring-roads & City centre

Fig. 3.1 Map Olympic areas Barcelona (By Authors)
1992 - BARCELONA

The Barcelona 1992 summer Olympics is by many considered as the first successful example of using the Olympics as a planning tool. By using the Olympics to realize changes the city needed and branding the city on a global scale, Barcelona received a positive Olympic legacy. People even speak about the ‘Barcelona model’ when talking about major sport events stimulating urban regeneration.

The city of Barcelona located in Spain and is the 2nd biggest city of the country (after Madrid) with 1.6 million inhabitants. It is the Capital of the Catalonia region. It lays directly at the Mediterranean Sea and is historically a port city.

At the time that Barcelona was bidding for the Olympics the city was in desperate need of modernization and was changing from an industrial focused city to a service related city. This was a substantial task since the whole coastline of Barcelona was occupied by harbour or industrial related buildings and totally private. When Barcelona was selected to host the Olympics in 1986 they grasped this opportunity to realize major urban development plans and fit the Olympics into this large-scale regeneration process.

Planning ambitions & motives for the Games
Barcelona was - as mentioned in the introduction - in need of structural change in the city. With the process of economic globalization Barcelona was forced to improve its urban image to attract people and capital. To achieve this, the city had to invest in different city districts and with that, the physical infrastructure to facilitate the development in these different areas. All this was formulated into the ‘Barcelona 2000’ planning exercise of 1988-1992.

The reason why Barcelona was interested in hosting the Olympic Games was because of the economic urgency due to the crisis in the early ‘80s. The city faced serious problems as high unemployment rates, growing population and the deprivation of certain areas, which required immediate actions. These problems were translated to detailed socio-economic and spatial-environmental objectives. These objectives were then again translated into concrete projects like building new ring roads, upgrading deprived areas and so on. So there was a sort of twofold motive in hosting the Games: 1. Adapting the city to the rapid globalization & 2. Solving local problems caused by stagnation and the crisis.

In Barcelona most of the spatial planning for the Olympic Games were already dating back from the ‘60s and ‘70s and were not solely developed for the Games. In this way the city had a continuing urban strategy and not a strategy that was brutally put on hold because the city won the Olympic bidding (Qu & Spaans, 2009, p. 1293).

Organization of the Olympics throughout the city
The physical developments that the Olympic Games catalysed in the city go beyond the main Olympic areas. There were as mentioned substantial investments in infrastructure and a lot of financial means were invested in deprived areas. The sport venues for the event consisted out of 43 existing facilities, 10 renovated and 15 completely new sport facilities. These facilities were clustered in 4 main parts within the city (visible in the map on the previous page):
1. Parc de Mar
2. Montjuïc
3. Diagonal
4. Vall d’Hebron

The intention of the applied clustering was to avoid a single large-scale park that wouldn’t fit to the city afterwards.

Area 1 on the map was Parc de Mar. This developed was a former polluted industrial site and would house the Olympic Village and the Olympic Harbour. The area was totally cleared from industrial activity and the soil was cleaned. One of the main spatial interventions was to create relation between the housing and the water; this was established by removing a railway line. This way the Athlete’s village had a direct connection to the beach. The desired after-use for the area was a residential area.

Area number 2 on the map was the main iconic Olympic Park called Montjuïc. It is located on a
hill overlooking the city. The area was already used for different kind of (sport) events in the past, like the World Expo in 1923. There was a Formula-1 track for 40 years and the Olympic stadium that was used for the Games, was an existing structure dating from 1929 (it housed the Expo back then). Next to the Olympic stadium it was home to several other sport venues. The public space in the area is very monumental and immense of scale. It has several icons like the Calatrava communication tower.

Diagonal (3. on the map) was another area with several sport venues. The area already had several private sport facilities like the FC Barcelona stadium: Camp Nou. The Olympic development focused on modernizing up-scaling of the different sport venues on in the area and adding several new ones.

Vall d’Hebron is the 4th location on the map and was also already an area filled with major sport facilities. The area is quite high up the hill and was updated to Olympic standards. It gained the prominent broadcasting tower (designed by Foster) as an icon for the area.

Barcelona’s Olympic Legacy
The introduction already spoke about a positive Olympic legacy in Barcelona. This part takes a look into how this legacy came to be on the different scale levels, starting with the overall scale:

Legacy on city Level
The Barcelona Olympics did a lot for the city. The physical changes that it brought were substantial and well executed. Major interventions such as airport extension, A new ring road and 35 km of new highway, new urban centralities within the city fabric, renovated sport facilities, 4 500 new dwellings (result of Olympic Village) and 5 km of new beaches (Gold & Gold, 2007). But the Olympics did more in a physical sense. Where before the Olympics there was a border between the city and the Mediterranean due to industrial and harbour activity, the Olympics initiated a larger planning strategy of turning the city towards the sea. After the Olympics had ended the city development continued with regenerating these areas and creating lively, new waterfront areas, such as the Barcelona Forum. You can say that a major intervention such as the Olympics can create a general development direction or vision for the cities long-term transformation. This is what the Olympic village cluster did for Barcelona.

"...the Olympics initiated a larger planning strategy of turning the city towards the sea.”

Looking at the economic aspect of the Games itself you can still call it very successful: it was totally self-financed. Negative legacy of the Games on a city level can to a certain extent be argued on the housing market. These prices rose substantially and a process of gentrification took place where certain areas were upgraded with higher-class housing and city functions and the Working-class industry-related inhabitants and functions were moved.

Legacy on area level
As earlier mentioned, the Olympic development of Barcelona consisted out if 4 main clusters with each their specific function. This text takes a look at each of them and analyses how it functions in the city and to what extend the desired goals were achieved.

Parc de Mar:
The location of the Olympic Village and harbour is very successful in terms of city integration. It has become a vibrant area, intensely used and with a lot of different functions, such as housing, offices, hotels, leisure and of course the new beaches and harbour. You can hardly notice the Olympics have ever really been here apart from some iconic buildings and structures, like Gehry’s Copper Fish. The city structure of the surrounding areas is continued into this area in terms of street lines and morphology. The main public space is along the beaches in the form of a boulevard with different restaurants, bars and clubs. The area lies along the central ring road of Barcelona and Metro, bus and train are close by.
Montjuic:
The Montjuic Mountain is a pure tourist attraction in the daily life of Barcelona. It was the ceremonial venue of the Olympics and it designed that way. There is much to see related to the Olympics and other cultural & leisure activities. In this way it is quite successful since Barcelona attracts a lot of tourist and most of them have a look around the Olympic site. For people living in Barcelona its use is a lot less frequent and can be labelled as mainly an event space. Due to the monumentality the morphology of the area doesn’t blend in the city at all, but this was never the intention. The public spaces however are so big that even for a tourist hot-spot and event space it is over-scaled.
The connectivity of the area is rather poor. Although you can easily get to the mountain by car from the ring road and there is enough parking facilities the public transport is less well arranged. It is only possible to get directly to the area by bus. If you take any other form of public transport you will have to make a 15 minute uphill walk before you arrive at the area (Klee, 2012, pp. 61-63). In general you can conclude that the intention of the Montjuic area was to create a monumental legacy that represents the Games, still today. In that way they have succeeded very well, but all the above illustrates that there are some negative aspects on different levels.

Diagonal:
This area is today mostly known for the FC Barcelona stadium. This defines the eastern part of the area with the mega block of Camp Nou and the large squares around it. This area is a popular tourist attraction and has in that
1992 - BARCELONA

sense a regular use.
The rest of the area is crammed with smaller stadiums and sport facilities. The spatial quality of the area is rather low and any vision for the area seems to be lacking. There are small roads in between the different fenced off plots. The area is however very well connected to the rest of the city, being situated at the ring road and along the main diagonal axis of the city (hence the name).
The area is only filled with sport facilities and therefore mono-functional. This mono-functionality results in irregular use and it only lives up periodically.
Although this area is not an attractive and vibrant city part, one can argue that sport facilities are per definition characterized by irregular use and by clustering them a compact zone is created instead of having smaller ‘dead zones’ in many other city parts.

Vall d’Hebron:
The fourth area of Barcelona’s Olympic sites is more in the periphery of the city and still has some of the major sport facilities of the Games. There has been a lot of development next to this and there is quite a mix of different type of buildings in the area. There are housing blocks, offices, small parks and of course the sport areas. In this sense the area is better used and the sport facilities are less prevailing as in the Diagonal area.
The spaces that have been transformed to other functions (rather than sports) are integrated quite well in the surroundings. The area is located along the ring road and is in that sense well connected. Other clear connections towards the city centre aren’t present, but this is also a consequence of the geography.

Legacy of the Olympic stadium
The Barcelona Olympic stadium or Estadi Olímpic Lluís Companys was not specially build for the Olympics and has a long history. It was originally constructed for the 1929 World Expo in the city. After this it was was used for several events until Barcelona won the bid for the Olympic Summer Games of 1992.
The stadium was selected as the main stadium of the Olympic and was totally rebuilt, where only the historic facade was maintained. It contained an athletic track and stands for 72 000 spectators, which was the requirement at that time. After the Games the stands were down-scaled to 61 000.
The architectural expression of the stadium is castle-like and has been a city icon for more than 80 years now. It fits in to the architectural language of Barcelona. The fact that it has such a strong historic expression with the massive surrounding walls makes it less flexible in the sense of technical adjustments. Major add-ons would damage the expression of the stadium and technical interventions like a movable field (to protect it during events) or larger VIP areas are not possible due to the historic shell; this affects the flexibility of use.
The stadium was mainly used for the hosting of (international) events like sport competitions and concerts directly after the Olympics. This use was irregular. In 1997 the stadium got a regular user: RCD Espanyol. The football club had to demolish its stadium at that time and the Barcelona municipality relocated them in the Olympic Stadium. The club appreciated the temporary location, but the stadium being an athletic stadium, was not very suitable for football due to the athletic track around the pitch that forms a border between the crowd and the players. Their new stadium was ready in 2009 and from that moment on the stadium was again purely an event location. With Espanyol being in the stadium it had a regular use, but it clashed with the planning of events in the stadium due to matches and trainings. Today it is still used for different events. Mainly for corporative events, sports, family shows and concerts (Klee, 2012, p. 70).

"...the stadium as icon in the city works very well, but in a functional way is less successful."
The stadium is owned and managed by the Barcelona de Serveis Municipals (BSM) that is responsible for the management of different event facilities in the city (Klee, 2012, p. 66). They felt that Espanyol using the stadium was financially a bad thing, since they weren’t paying for the use and it was jeopardizing the function of the stadium as a place for events. In this sense the BSM was happy that Espanyol left the stadium in 2009. However the stadium is still not financially self-sufficient being purely an event space (BSM, 2012). They have to compensate this with revenues from other departments of their organization.

In conclusion you can say that the stadium as icon in the city works very well, but in a functional way is less successful. Although it hosts many events it is still used irregularly. This is the same with the rest of its surrounding and it does not make up for this in the revenue earned by these events.
### Legacy on city level

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>CONCLUSION</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical legacy</strong></td>
<td>Very good integration and adjusted to long-term city vision + created a new direction in urban development.</td>
<td>+++</td>
</tr>
<tr>
<td><strong>Economic legacy</strong></td>
<td>The Barcelona Games were self-financed and created an increase of the employment rate.</td>
<td>+++</td>
</tr>
<tr>
<td><strong>Other notable legacy (positive &amp; negative)</strong></td>
<td>Games put Barcelona on the world map and tourism rose.</td>
<td>++</td>
</tr>
</tbody>
</table>

**Barcelona has made excellent use of the Olympics and translated long-term objectives into concrete spatial interventions. The Games fitted in to these developments quite well. Barcelona’s approach was to divide the immense program of the Olympics into 4 smaller clusters that each had their specific function. Because it being smaller clusters instead of 1 big park the impact of each of those was less extreme. All of the clusters were situated in areas in need of development. Next to these clusters the city invested in a new ring-road that connect all 4 clusters and makes them quickly accessible from outside the city.**

### Legacy on area level

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>CONCLUSION</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical integration of site(s)</strong></td>
<td>All Olympic sites are well connected to the inner ring-road. Parc de Mar is perfectly integrated in the city, Vall d’Hebron okay and Montjuic and Diagonal not so much. However this is a planning strategy of the city of compact clustering of specific functions. Montjuic also has certain iconic value for the city.</td>
<td>++</td>
</tr>
<tr>
<td><strong>Morphology</strong></td>
<td>Parc de Mar excellent in both function-mix and intensity of use. Vall d’Hebron okay in both. Montjuic an okay user-intensity &amp; not a good function-mix and Diagonal poor in function-mix and alright in intensity of use.</td>
<td>+++</td>
</tr>
</tbody>
</table>

**Parc de Mar is a beautiful example of using the Olympics to create a new, high quality piece of city and setting a new trend in urban development. After the Olympic the city continued with developing the coastline into public spaces. The Montjuic mountain is designed as a monumental place and as permanent legacy of the Olympics. In this way Barcelona has succeeded and has created an impressive location. The function-mix is not that spectacular and it is hard to reach area by public transport. Diagonal is famous for Camp Nou, but next to this it is a quite dead area that is characterized by sport fields that are occasionally used. Vall d’Hebron did a better job in integrating other city functions in the area.**

### Legacy on building level

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>CONCLUSION</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design &amp; Technical</strong></td>
<td>A true icon for the city of Barcelona. On its hill it has a prominent position in the city and has been there already for a long time. Because of its historic facade the adjustability of the stadium is poor, but the stadium is in general quite flexible in use.</td>
<td>+++</td>
</tr>
<tr>
<td><strong>Architectural value to city</strong></td>
<td>The cost outweigh the revenue for the stadium.</td>
<td>--</td>
</tr>
<tr>
<td><strong>Adjustability/Flexibility</strong></td>
<td>The stadium knows multiple uses, mainly for different kind of events. Is has also been the home of Espanyol for 12 years. However, the use is infrequent.</td>
<td>+</td>
</tr>
</tbody>
</table>

**The Barcelona Olympic stadium is a true city icon and is loved by its inhabitants. Used however is less the case. There are occasional events, but the use is not more than once or twice a week. The stadium is not easily adjustable due to the historic facade that surrounds the stands, but is still able to host a lot of different events. The financing of the stadium is not easy but the city has found a structure were different event venues are working together and support each-other financially.**

---

Table 3.2 Overview Barcelona's Olympic legacy (By Authors)
Planning ambitions & motives for the Games

The initiative for Atlanta to bid for the Olympic Summer Games of 1996 came forth out of the ambition in becoming the ‘next great international city.’ The city saw the Games as an opportunity to gain national and international attention and branding the city. Next to this they were considering how it could help the city furthermore in economic, social and spatial sense. The main issues the city was facing at that time are described below.

As already shortly mentioned in the introduction, the city was shrinking due to the upper-class citizens moving to the suburban areas. By this the inner city neighbourhoods were inhabited by lower-class society and the buildings and public space were in a bad state, the crime rate increased and caused social (and racial) segregation. This was a problem Atlanta needed to address and wanted to use the Olympics in catalysing change (French & Disher, 1997, p. 380).

Next to this Atlanta is home to different headquarters of major corporations, such as UPS, CARE, Coca-Cola, CNN, Home Depot and Delta Airlines. Atlanta was home to the most Fortune 500 Corporations after 3 other metropolitan regions in the states (French & Disher, 1997, p. 380). This created major economic effects on the city, however in the years before the Games downtown Atlanta had been losing businesses and the regional office market was shrinking to only 19 per cent (Research Atlanta, 1993). The role of businesses in the city has always been of major importance for the development of the city in the last 50 years before the Olympics. There have always been collaborations between the municipality and the downtown businesses. This also played a major role in the way the Games were organized in Atlanta.

Atlanta mainly approached these city issues from a commercial, economic perspective. They reasoned that by branding a strong city image and creating a successful Olympic edition the perception of the city by families and businesses would improve, resulting in an increased influx of people and corporations. Atlanta submitted a bid and won this by their own surprise, since most people expected Athens to win as a sentimental favourite.

Atlanta’s bid was successful because of amount and quality of the existing sport venues, excellent hotels and a very large airport that assured easy connectivity to the rest of the world. The bid was based on a mainly private financed Games, where early on the Olympic Organizers pledged to have a ‘no new tax’ Games (French & Disher, 1997, p. 381).

Organization of the Olympics throughout the city

Atlanta’s spatial planning scheme concentrated the main Olympic venues within a 3 mile radius from the downtown area. This contained the Olympic Stadium, the Olympic Village, the Aquatics Centre and 10 other venues. Next to this there were 5 more venues in the metropolitan area of Atlanta and 9 others located around the state and even in other states such as Florida, Alabama & Tennessee. These venues were different football stadiums and for sports that required natural resources that weren’t available in the Atlanta region.

The spatial model of Atlanta wasn’t really formed by any urban strategy or vision, but...
1996 - ATLANTA

merely looked into what sport facilities would best function where in the city. It made use of quite some existing venues that were updated to Olympic standards. The main newly build sport venues were the Olympic stadium and the Aquatics Centre on the Georgia Tech Campus.

The Olympic village was housed in student dormitories of the Georgia Tech. The dormitory capacity was for about 6,951 students, so additional housing was required (for the more than 10,000 Athletes that would come to the city). These facilities were realized next to the existing dorms and were high-rise housing blocks that were built for the Georgia Tech and the Georgia State universities (French & Disher, 1997, pp. 384, 385).

The different venues weren’t clustered at all and had no spatial relation what so ever. The Olympic organizers unveiled a plan for a public park between downtown and the Georgia World Congress Centre that would function as a public facility dedicated to the Olympic. It was a place where visitors and residents could meet during the Games.

“All of the build facilities were financed by private parties in order to keep the tax-payer burden free.”

Atlanta’s Olympic Legacy

Atlanta approached the organization of the 1996 Olympics Games from a relatively economic perspective. All of the build facilities were financed by private parties in order to keep the tax-payer burden free. This is however easier said than done. The following part elaborates on Atlanta’s legacy on different scale levels.

Legacy on city Level

The organization model of the Olympic Games was as mentioned following a compact inner-city scattering, with no real Olympic areas except from the relatively small centennial Olympic park. The organization was market driven and thereby was a good legacy on building level ensured. The different sport venues got their expected after-use and it was not really the city’s issue to begin with. The same goes for the Olympic village that was built to house students from the Georgia Tech and State University.

Next to this was the city of Atlanta investing in infrastructure and regeneration of deprived neighbourhoods. The investments in infrastructure were however more seen as necessary for executing a smooth Olympic Games, rather than thinking of the long-term benefits for the city. Bridges were temporary supported by hydraulic jacks, others have been closed for the Games since they weren’t in proper condition.

All these interventions were realized just so that Atlanta wouldn’t look like a failure on the world stage of the Olympics, rather than making substantial long-term investments for the city (French & Disher, 1997, p. 385).

On the level of neighbourhood regeneration the event organizers created the Corporation for Olympic Development in Atlanta (CODA). They were supposed to achieve 2 main objectives: (1) Neighbourhood redevelopment and (2) pedestrian improvements between key locations for the Olympics and infrastructural hubs. The organization prepared plans for 5 deprived neighbourhoods, but due to lack of funding the implementation of the plans wasn’t fully realized. The organization had to prioritize, purely reasoned from a short-term perspective: they invested in the 2 most visible neighbourhoods during the Games, to make them look good for the world audience and left the other 3 areas as they were (French & Disher, 1997, p. 388).

Clear is that short-term benefits were put high above long-term city objectives and this is mainly a result of the financing model around the Olympic Games. We elaborate on this financial model a bit further here in the part below on economic legacy.

...short-term benefits were put high above long-term city objectives...

Earlier was mentioned that the thought behind the Olympics was that the tax-payer was not affected by the Games. This is however never really possible, since you cannot expect private organizations to pay investments on security, connectivity and physical infrastructure. Another consequence of the financing model is that public participation in the planning was limited. This meant that there never really was an open, public process in preparing these developments (French & Disher, 1997, p. 391). Apart from that you can definitely say that Atlanta’s economy benefited substantially in the short-term of the construction stimulus. Next to this there was substantial revenue created by direct income from visitors to the event. These numbers were lower than expected though.
1996 - ATLANTA

Img. 3.4 Centennial Olympic park: the Fountain of Rings (quepasaenatlanta.com)

Img. 3.5 Atlanta’s Olympic with downtown Atlanta as a backdrop (sports.ru)

Img. 3.6 Atlanta’s Olympic stadium transformed from an athletic function to a baseball stadium, removing a part of the stands (estadios.wordpress.com)
1996 - ATLANTA

You can say that in the long-term Atlanta improved its image as a city, but had a really one-sided approach that was purely focusing on branding and short-term objectives. Other notable legacy for Atlanta is actually the lack of social improvements in this edition of the Games. Many had hoped that Atlanta would grasp this opportunity to start tackle the different social issues that faced the city.

Legacy on area level

The Atlanta Olympic Development doesn’t really have an Olympic area with the different sport venues, as is clarified in the text above. This part will therefore shortly elaborate more on the Olympic Village and the Centennial Park, large areas that were created for the Olympics.

The legacy of the Olympic Village in Atlanta was fairly well thought out. It existed out of existing dormitories and newly build dormitories to fulfil the demand of beds for the Athletes. After the Games these dorms were taking over by students and haven’t shown any vacancy so far. The newly build student housing was largely financed by the Georgia Tech University and the event organizers contributed 19% or US$ 47 million to the development of the village.

The Centennial Olympic Park was announced by the ACOG president Billy Payne in the fall of 1993 and came as a surprise to many. Even high city official didn’t know about the planning of this piece of city and neither did the CODA (French & Disher, 1997, p. 390).

The park connects the downtown hotel district with the famous Georgia World Congress Centre that also hosted several sport events during the Olympics, such as fencing, handball and weightlifting. During the Games the park served as meeting place for the visitors. It had many temporary pavilions of the different corporations sponsoring the Games and the park. The park was not so tightly controlled in terms of security as the rest of the venues and this resulted in a bomb explosion killing 2 people and injuring more than a hundred.

After the Games the city was left with an 8 hectare large park as legacy. It is a popular part of the city and is used for leisure activities. The park made the surrounding area the most popular piece of city for corporations and increased their land value.

Legacy of the Olympic stadium

The Olympic stadium of the Atlanta Games - the Centennial Olympic stadium - was newly constructed for the Olympic Games of 1996. Its design was quite unique in the sense that it was designed to be transformed from an Olympic/athletic stadium to a baseball stadium. A very smart move since athletics wasn’t a popular sport in Atlanta and the USA in general. Baseball is however and the local team, the Atlanta Braves, was exploring options for a new stadium at the time Atlanta won the bid. They made a deal with the event organizers who would pay for the transformation that they would lease the stadium.

"...it was designed to be transformed from an Olympic/athletic stadium to a baseball stadium."

After the Games were finished the stadium was transformed which meant breaking down some of the stands and changing the pitch. This was completed one year after the Games and the stadium was renamed to Turner Field. It is still used by the baseball club today. Next to this it is occasionally used for events like concerts, but is always filled on game-days. It has become an integrated part of the city and the Atlanta people see it as one of their city icons that is a legacy from the 1996 Games.
### Legacy on city level

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Conclusion</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical legacy</td>
<td>Good integration on building level, but no effort in using the Games to create long lasting physical legacy for the city of Atlanta</td>
<td>--</td>
</tr>
<tr>
<td>Economic legacy</td>
<td>Good branding of the city, but there were large investments made that only contributed to short-term objectives.</td>
<td>+--</td>
</tr>
<tr>
<td>Other notable legacy (positive &amp; negative)</td>
<td>Social legacy of the Games was hardly addressed and ideas were not implemented due to lack of financial support</td>
<td>++--</td>
</tr>
</tbody>
</table>

The Atlanta Games totally reasoned from a corporate perceptive. It was focussing on creating as less possible public investments with corporate driven developments. This doesn't mean that no public investments are necessary. Investments on security, infrastructure and other aspects were made by the government, mainly thinking of the short-term benefits. Not a lot of physical legacy on city scale and social improvements were hardly addressed.

### Legacy on area level

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Conclusion</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical integration of site(s)</td>
<td>No real collective area for the different venues and other facilities. The integration of the Centennial Olympic park and the village was fairly well done. However hard to compare with other Olympic editions.</td>
<td>++--</td>
</tr>
<tr>
<td>- Morphology</td>
<td></td>
<td>+--</td>
</tr>
<tr>
<td>- Public space</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Connectivity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Functional integration of site(s)</td>
<td>Park is surrounded by different functions. Village is isolated from collective functions</td>
<td>+--</td>
</tr>
<tr>
<td>- Function-mix</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- User-intensity</td>
<td></td>
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</table>

In the Atlanta Games you can not really speak of a central Olympic park where the main events took place. There was a park in the downtown area that was meant as meeting place. The Olympic village was designed as future student-housing and the transformation of this was quite successful. It is not really comparable to other Olympic parks from for example Barcelona or Sydney though.

### Legacy on building level

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Conclusion</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design &amp; Technical</td>
<td>Of value to the city of Atlanta. The after-use was extremely well thought out. Transformed from an athletic stadium to a baseball stadium.</td>
<td>++--</td>
</tr>
<tr>
<td>- Architectural value to city</td>
<td></td>
<td>+++--</td>
</tr>
<tr>
<td>- Adjustability/Flexibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial</td>
<td>Regular tenant which assures sufficient financial income</td>
<td>+--</td>
</tr>
<tr>
<td>Use</td>
<td>Filled on Game-days, but is furthermore quite mono-functional in the sense that it is not regularly used for events.</td>
<td>++</td>
</tr>
</tbody>
</table>

The Centennial Olympic stadium was never designed to be a lasting Olympic icon, but as a transformable structure that could house a baseball club after the games had ended. It is in this sense extremely adjustable. It has become an integrated part of the city and is financially stable. The use is mainly related to Baseball events of the local club, but is occasionally used for other events like concerts.

Table 3.3 Overview Atlanta's Olympic legacy
HISTORIC PERSPECTIVES

Olympic area(s)
Main city ring-roads
City centre

Fig. 3.5 Map Olympic areas Sydney (By Authors)
The Sydney 2000 Olympic Games was the first edition that put environmental improvements and legacy at the base of their bid proposal. Sydney had the ambition in becoming the most sustainable Olympics and branded it through the name 'the Green Games'. This case study analysed to what extend this ambition influenced the legacy and how the priorities changed throughout the process.

Sydney is the biggest and oldest city of Australia and is the capital of the New South Wales state. The city has about 3.6 million inhabitants. When Sydney was making initiatives for the bid it was not in a crisis and didn't have major issues to address with the Games. However they saw the potential in branding the city and moreover Australia to the world and with that increasing (international) economic activity and tourism. Sydney was bidding against other strong candidates, such as Beijing and to strengthen their position they decided to fully integrate the sustainability and more specifically the environmental aspect in their bidding proposal.

Planning ambitions & motives for the Games
Motives for Sydney in hosting the Games were mainly reasoned from the long-term potentials of hosting this event, rather than concrete problems in the city that needed substantial investments, as in Barcelona 1992 for example. The city government saw the Games as an opportunity to promote Sydney as a city with global potential. The long-term objectives were to improve Sydney's image and with that attracting (international) businesses and tourists (Chen & Spaans, 2009, p. 102).

Next to these intangible objectives Sydney had ambitions in making infrastructural improvements and stimulating regeneration programmes. The urban strategies presented in the bid focused on regenerating an extremely heavy contaminated site to be the Olympic park. The reasoning for this site to become the main area for the Olympic Games originated from a broader thought of creating the first ever 'Green Games' (Chen, Qu, & Spaans, 2013, p. 13). Sydney was afraid to lose the bid to competitors like Beijing and therefore anticipated on the recent expressed concerns for the environment by the IOC (Chalkley & Essex, 1999). They decided to dedicate their ambitions fully to create the most environmental aware Games and addressing concrete sustainability issues on different scales of the development. This resulted in that site selection and next to this strong requirements on building level regarding sustainable building in the form of approximately 90 ecologically sustainable development (ESD) principles (Chen et al., 2013, p. 14).

Organization of the Olympics throughout the city
The spatial strategy of the Sydney 2000 Games was to concentrate the main development in the Olympic park and creating one central zone. Next to this there were quite some scattered venues in both the city centre and the far periphery of Sydney. These were mainly existing sport venues. The main focus was to regenerate the Homebush Bay, which was a former wasteland used for household and industrial waste disposal. This site needed a drastic clean-up before being even able to responsibly build on the site.

The masterplan of the site sub-divided the area into 4 clusters (see fig. 3.7 on the next page): (1) an urban core with sporting, entertainment, exhibition and commercial facilities; (2) The Olympic village with a desired after-use of 5 000 dwellings (3) a major park and (4) a waterfront development that allowed public access to the Homebush Bay Shores (Chen & Spaans, 2009, p. 103).

All of this was organized in a compact development that had everything within walking distance.

Sydney's Olympic Legacy
This part elaborates on what Sydney gained
**2000 - SYDNEY**

from the Olympics on different scales. Was Sydney able to maintain their sustainable ambitions throughout the process and how did this influence the legacy?

**Legacy on city Level**

The Chief Executive Officer of the Sydney Olympics - Sandy Hallway - states that the desired tangible legacy could be sub-divided on three categories: (1) The presence of international standard sport facilities in Sydney due to the Games; (2) The improvement of urban quality due to the rehabilitation of the Homebush Bay area; and (3) the development of economic infrastructure as an impulse of the Games, such as upgrading the Airport, new railway links and a new Eastern motorway (Hallway, 2001).

"Sydney made use of the Games to regenerate a very unattractive part of the city in short time."

With the first category Sandy is mainly referring to the central Olympic Park that housed the main and representative venues of the Games. The text on ‘legacy on area level’ will elaborate how the after-use of this area turned out to be. One thing that can be concluded on city level is that Sydney made use of the Games to regenerate a very unattractive part of the city in short time, to a very large area with potential of becoming an integrated city party. It is strongly the question if Sydney would have been able to realize this in such short time without having the Olympics to create (financial) support.

The planned infrastructural developments were all executed and this resulted in an increase of the use of public transport (that relates again to the ‘green’ objectives that were made). The public transport system was complemented with a light rail system, extended bus, coach and ferry lines and extensively implemented pedestrian and cycling paths throughout the city. Next to this the airport was substantially upgraded and the Eastern Distributor road was constructed (Chen et al., 2013, p. 15)

Other physical legacy on city level is the extra investments for upgrading Sydney’s Central Business District that was related to improving the city image for potential international businesses.

The economic legacy of the Games for Sydney is mainly resulting in a substantial increase in tourists and a more attractive business climate. For instance, the positive economic impact of the Olympics can be traced back for 50-60% to tourist visits and spending, measured from 1994-2004 (Chalip, 2000).

Other notable legacy is the fact that the potential of creating social Olympic legacy was hardly addressed on the planning and execution of the Games. All objectives were all focused on commercial, economic and political interests (Hall, 2001). This had the consequence that the social interests were not primary targets. This caused no improvements on this level.

Moreover, by escalation housing costs due to the Olympics a process of gentrification took place in many of the areas around the Homebush Bay (Chen & Spaans, 2009, p. 106).

It can be stated that Sydney’s approach to sustainability just focused on ecological aspects, forgetting about social and economic sustainability. Although it should keep in mind that at the time of Sydney’s bid thinking of sustainability was still a relative new approach and not as elaborated as now.

**Legacy on area level**

The main spatial aim of Sydney’s Olympics was to create a large, new green area in the city that would function as a mixed-use sport and leisure zone, with high quality housing and good city connections.

To start with the connectivity of the area it can be concluded that this is well integrated into the city’s infrastructural network. The investments made regarding this were well executed and the site is well reachable from both West and East of the city. One of the major ring roads ends at the Park. The connections within the Olympic park are primarily pedestrian and cyclist paths.

As mentioned earlier in this chapter, the park consists out of specific clusters: One part was dedicated to the prime sport venues, and another to towards the bay for the Olympic village and some educational facilities. By creating these clusters, there is a good function mix and clear division between the public park and the semi-public spaces related to the neighbourhoods and educational facilities. This works well spatially.

The after-use of the park was not directly successful after the Games. Sue Holliday - chief planner for the Sydney Games - stated that Sydney became yet another white elephant after the Games, due to lack of vision on the long-term. It was only in 2005 that proper transformations were completed that led to new uses of the facilities and spaces (The Independent, 2008). The focus on environmental aware development combined with the
**2000 - SYDNEY**

**Fig. 3.7** Post-use activities in the park according to the owner/promoter (sydneyolympicpark.com.au)

**Img. 3.7** Bird’s eye view of the Sydney Olympic Park in legacy form (vogueenterprises.com.au)

**Img. 3.8** Sydney’s Olympic Stadium in Olympic and Legacy mode (EPA)
2000 - SYDNEY

immense time pressure of realizing a project of this magnitude in 6 years has pushed long-term objectives to the background. Today the park is a fairly well used piece of city and has adopted many smaller functions relating to leisure, sports and events. The map on the next page shows these different functions. It is however so big and with a such a capacity, that it is never after the Olympics has been filled with people.

Summarizing you can say that the transformation from Olympic Park to public park took time, but is now fairly established.

Legacy of the Olympic stadium

Sydney’s Olympic stadium - the ANZ stadium - was newly constructed for the Games and could accommodate an astonishing 118 000 spectators. It was built on the ESD principles on sustainability, set by Sydney in order to assure sustainable buildings. The stadium was designed to be down-scaled substantially: The non-covered stands on the short side of the pitch were temporary and removed once the Games finished. After this the roof was extended over the short sides and the stadium established its legacy form, with 85 000 seats. Thereby it can be said that the stadium is highly adjustable and designed that way.

The long-term use however, was not so well thought through on a management and functional level: The stadium had serious issues with attracting large events shortly after the Games and therefore the financing became a problem (Lochhead, 2005). Today this is not the case at all: The stadium is regularly used for different sports, such as Australian football, cricket, rugby and track & field. It is further occasionally used for big concerts. With the popularity of sports in Australia there is no problem filling the 85 000 seats during these events.

"...different functions within one structure create an actively used building throughout the week."

Next to these primary functions there are also a lot of smaller facilities integrated in the stadium’s structure. There is an extensive variety of VIP rooms, lounges & galleries, rentable meeting, conference & event facilities and a large gym. All these different functions within one structure create an actively used building throughout the week.

The stadium is considered as one of the few man-made icons after the Opera House and the Harbour Bridge and is of architectural value for the city.
By focusing on the ‘Green Games’ Sydney managed to clean up a major piece of city that was heavily contaminated. It is extremely doubtful if they would have had been able to realize this without using the Games. Other infrastructural developments were also realized under the theme of sustainability promoting public transport and realizing pedestrian and cycling routes through the city. Next to this there was a strong focus on the city branding that resulted in a better international position, but the one-sided focus undermined the opportunities for social improvements in the city.

### Legacy on area level

- **Physical integration of site(s)**
  - Morphology
  - Public space
  - Connectivity

- **Functional integration of site(s)**
  - Function-mix
  - User-intensity

The Olympic Park of Sydney has left tremendous environmental legacy to Sydney, loose from any of the development going on there: the heavily polluted area was cleaned up, creating possibilities for development. The park contains different urban functions clustered in parts in the park. There is a part with all the representative sport facilities, an Olympic Village, educational facilities, a green park and waterfront development. The site is well accessible from the rest of the city.

### Legacy on building level

- **Design & Technical**
  - Architectural value to city
  - Adjustability/Flexibility

- **Financial**

- **Use**

The ANZ Stadium is a good example of a multi-functional stadium. On the one hand it is flexible in use, allowing different kind of sports on the pitch. While it on the other hand incorporates smaller functions under the stands as well resulting in a mixed-use building used on different periods throughout the week. The stadium is an icon for Sydney’s inhabitants, Sydney city and Australia.
Fig. 3.8 Map Olympic areas Athens (By Authors)
The Athens Olympic of 2004 is in general perceived as an edition with a bad reputation. Shortly after the event ended, pictures turned up in the media with abandoned sport stadiums. How and why did this bad legacy appear and was it all bad or did it also do good things for the city? Greece is the birthplace of the Olympic Games. The Ancient Olympics were hosted in Olympia and the first modern Olympics of 1896 were also hosted in Greece and Athens to be more specific. The Panathinaikos stadium of this edition is still present in the city and is well maintained: the longest living legacy of the modern Olympics.

Athens is the capital of Greece and the biggest city in Greece with 655,780 inhabitants. The city has of course grown tremendously since the first modern Olympics and with minimum government intervention the city developed through citizen initiatives (Gold & Gold, 2007). Athens saw the 100 year existence of the Games as a good moment to bid for the Games and use it to regenerate and modernize parts of the city. Athens lost the bid for the 1996 Olympics, but this didn't stop them from reposing a bid for the Olympics 8 years later, which was successful: Athens won the bid for the 2004 Olympic summer Games.

Planning ambitions & motives for the Games
The introduction already indicated that Athens first posed a bid for the 1996 Olympics, with the idea of letting it return to its birthplace after 100 years of existence. This edition was however awarded to Atlanta and after the first disappointment of losing the bid Athens looked ahead. The country was admitted to EU and there was more political and economic stability, so they posed a bid for the 2004 Olympics, which was successful.

The main goals of Athens with the Olympics were to put Athens on the world map and restore the ancient Olympic value. The main objectives in terms of development projects laid in the re-urbanization of the city; The linking of the ancient and modern culture to boost business and tourist market (Chen, 2012, p. 6). Key city infrastructure needed to be updated and the traffic pollution had to be brought back. Regeneration of deprived areas was also a key notion in the bid.

"Instead of the immediate implementation the newly elected government decided to review the spatial planning around the Olympics."

When Athens won the bid something unexpected happened. Instead of the immediate implementation of the different planned development the newly elected government decided to review the spatial planning around the Olympics. It was a direct consequence of the new governments different priorities (Gold & Gold, 2007). This process was very time consuming and put Athens very much behind the time-schedule (which is already extremely tight for the magnitude of the required development). This delay resulted in an official warning from the IOC in 2000, stating that Athens would lose the 2004 Games if no immediate changes were made (Klee, 2012, p. 78).

Organization of the Olympics throughout the city
The Olympic model that was finally realized can be described as a scattered model with 4 bigger clusters. These clusters are (visible on the map of the previous page):
1. OAKA
2. Faliro Olympic Bay Complex
3. Helliniko Olympic Complex
4. The Olympic Village

Whereas Helliniko was a completely new site (planned after the bid was won) to de-stress the Faliro zone of venues that now only had 4 sports instead of 11 as was planned in the bidding phase. Below is a short description of each of the bigger venues.

1. OAKA: This venue was the main ceremonial venue of the Games and contained the main stadium, the aquatics centre, the indoor hall, the tennis complex and the Velodrome. Next to this there were smaller sport and training facilities present in a monumental park design. The main stadium was an existing venue and...
2004 - ATHENS

was extended with an expressive roof structure designed by Calatrava.

2. Faliro Olympic Bay Complex: This park is located in the Athens bay and was home to the beach volleyball centre, the volleyball stadium that was an existing arena, the Keraiskaki stadium (football) and facilities for taekwondo and handball (Klee, 2012, p. 78).

3. Helliniko Olympic Complex: The use of this area was last-minute decided by the new government and was built on the former Ellinikon International Airport. It housed several sport venues, such as the indoor arena, the baseball centre, a kayak centre, a softball complex and a hockey complex (Klee, 2012, p. 78).

4. The Olympic Village: The final bigger entity of the Athens Games is the Olympic Village. This was built in the outskirts of Athens and created a new suburb. Next to the housing itself are the training facilities and the leisure activities for the athletes in the proximity.

Outside of these four main zones were as mentioned several sport venues. These were mainly existing venues that were upgraded to Olympic standards and capacity.

Athens’ Olympic Legacy

The Games of Athens are known to have quite a bad legacy. Especially on area and building scale. The following part elaborates on reasons and what went wrong in the planning of this development.

Legacy on city Level

Although Athens’ legacy is generally perceived negative, it did some good things for the city:

- Athens used the Olympics to update its infrastructural network, such as 90 km of new roads, the widening of 120 km, a new light-rail system and modernized the traffic management system to diminish traffic congestion (Klee, 2012, p. 81). The existing city structure got a face-lift by upgrading public spaces and the repainting thousands of houses.

Next to this there were a lot of sport venues build and a lot of existing upgraded. The scattered organization model of Athens constructed four main areas. The use of these areas can be described as bad and will be elaborated in the part ‘Legacy on area level’.

"The areas developed for the Games were in outskirts of the city."

If you look further on a city level you can say that the spatial strategies for the Games were poorly integrated in the long-term city objectives and moreover in any spatial strategy concerning the city.

The areas developed for the Games were in outskirts of the city. This meant that not a lot of public life would pass by these areas. They were however designed as monumental areas that need a large flow of people to function. The newly build venues were mostly constructed on green fields outside of the main tourist areas instead of on brown fields as the bid stated (Gold & Gold, 2007).

There is a sort of mismatch between the thinking on area scale and city scale in that sense and in general in the thinking of what the city needs and what the Olympics require.

The bad physical legacy can be traced back to different causes, such as political decision-making, urban strategies and existing city facilities.

As mentioned before, there was a freshly established government in Athens that once they won the bid that didn’t saw the priority in directly executing the planned developments, but was re-evaluating the planning schemes and changed quite a lot. The strategies shifted from urban regeneration to merely hosting the Games (creating a good event and finishing in time), with no long-term vision. This can largely be dedicated to the time-pressure, which made realizing the required facilities purely for the Games already an enormous challenge.

Next to this there was a general lack of vision and coherence in the process especially due to the change of government.

Something that complements this is the fact that the city of Athens didn’t came close to having the appropriate facilities for the Games. The lacking infrastructure, hotels, venues and other accommodations supporting the games made hosting the even a major challenge in the first place (Klee, 2012, p. 80).

The fact that Athens didn’t had any of these facilities makes one wonder if they actually needed them? This is especially the question on the different sport venues (as a city almost always benefits from improved infrastructure). Athens built a lot of modern and large stadiums for specific sports that were not even practiced in the city, such as Volleyball and Hockey. This resulted in the vacancy of many sport facilities and the areas surrounding them.
The economic legacy of the Games was not a lot better than the physical. The Athens Games were the most expensive Games in history at that time. This was due to a few reasons: first of all massive investments had to be made in order to realize the different developments since Athens didn’t have these facilities. The Athens Olympics was the first edition of the Games after the 2001 terrorist attacks on the USA, which meant very large investments on security for the event. This and other factors resulted in a massive debt for the Greek people, because the Games was 80% public funded. This was a debt of approximately 50 000 Euro per Greek household (The Independent, 2008).

**Legacy on area level**
This section evaluates the legacy of the four larger areas developed for the Athens Olympics.

**OAKA:**
This area served as the ceremonial venue of the Athens Olympics and contains some iconic structures situated in a monumental public space. The OAKA area was not a new venue, but was built in the early ‘80s and hosted the Mediterranean Games of 1991 and upgraded substantially for the Games. Today, it still functions as sport area. It is a monumental park, with excessive public for the mono-functional buildings that are not (often) used. The area is well reachable from any part of the city, but is not surrounded by any major public functions and therefore it is not really on any route. It is far outside the main tourists zones of Athens and is about half an hour travel from the city centre. When visiting the park there are no supporting functions, such as restaurants and...
2004 - ATHENS

bars, which doesn’t really stimulate visitors to spent time there. On top of that quite some of the venues are unused and not maintained.

Faliro Olympic Bay Complex:
This area is located along the open sea and has the location potential for a high-value piece of city. This didn’t happen however. The area is characterized by empty open-spaces with vacant sport structures. Because of the lack of use, Gypsies have entered the area and set camp on the unused open fields. The area is in true decay and is even used for dumping trash. The saddest aspect is that these areas were actually often used green-fields before the Games came to Athens (Malone, 2008).

Helliniko Olympic Complex:
The former airport functioned as an area for multiple sport venues during the games. Zooming in on the setup and the public space around, it actually appears as an area with great potential to situate these facilities, with temporary venues and other facilities that would disappear after the Games. However, these stadiums are permanent and this creates a very incoherent area. The stadiums are built in the spatial structure of the airport and the different lines are still present. Over these lines there are some very large pedestrian paths connecting the buildings and creating several entrances. It seems to not to have been thought into the long-term use and the integration city. On top of that, most stadiums are out of use and are costly to maintain, white elephants.

The Olympic Village:
The Olympic village is located in the far North-ern outskirts of the city. After the Games it was transformed into a new neighbourhood, with mainly social housing for the working-class. Next to the houses there are no collective functions, such as schools and shopping facilities. The area is known in Athens as a sort of ghetto and this can surely not be the intentions of the planners. The connecting infrastructure is also lacking and this results in a poorly connected piece of city.

"However, these stadiums are permanent and this creates a very incoherent area."

Legacy of the Olympic stadium
The Olympic stadium Spiros Louis was named after the winner of the marathon of the first modern Olympics in 1896. The stadium was not newly build for the Olympics, but was first opened at 1982 and served as host for the European Athletes Championships. It hosted several other sport events before Athens won the bid. To upgrade the stadium to contemporary Olympic standards it was renovated by architect Calatrava and got its roof-structure and extended seating facilities.

After the Games the stadium was down-scaled from 81 000 seats to 72 000. Its primary after-use is sport related: it is the home-field of the football clubs AEK Athens and Panathinaikos (who dislike the athletic ring around the pitch very much). Next to this there is an occasional event there, like a tournament or concert, but this has happened for only about 10 times since the 2004 Olympics (Klee, 2012, p. 88). It can therefore be stated that the stadium is mono-functional.

The adaptability of the stadium is minimal, but is quite flexible in use. It has all the facilities required for a contemporary event venue. The stadium and especially the roof is a known symbol of Athens and its inhabitants, but is located far out of the centre of Athens. On top of that it is also psychologically connected with all the other sport venues build for the Games that are in decay. The stadium management is done by the OAKA S.A. that manages all facilities on the OAKA area. Information about the financing of the stadium and the revenue it’s creating is not published.

In general it can be said that the stadium has quite a stable after-use, but it is to be mentioned that it is one of the only buildings constructed for the Olympics that has an after-use at all.
## Historic Perspectives

### 2004 - Athens

#### Legacy on city level

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Conclusion</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical legacy</td>
<td>General improvements of infrastructure and buildings in city, but newly build development has an extreme bad after-use. Arbitrary planning with no regards to after-use.</td>
<td>--</td>
</tr>
<tr>
<td>Economic legacy</td>
<td>Left the city and country with large debts.</td>
<td>--</td>
</tr>
<tr>
<td>Other notable legacy (positive &amp; negative)</td>
<td>Transformed actually functional green spaces into vacant areas</td>
<td>---</td>
</tr>
</tbody>
</table>

The Olympic legacy of Athens can be considered as one of the worst examples from recent history. There was little to none integration with long-term planning objectives and it was a financial disaster. Although Athens benefited from updated infrastructure and a face-lift of the existing city, there is no real effect of the Olympics. These investments would have been a lot cheaper if they would have just invested in this, rather than integrating it in the Olympic planning scheme. Conflicting political interests and lack of facilities resulted in an immense time pressure where long-term objectives were thrown overboard to just get it done in time.

#### Legacy on area level

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical integration of site(s) - Morphology</td>
<td>All of the larger Olympic areas have troubles being integrated in the city. The Olympic Village is build too far out of the city lacking public transport connections and it is known as a sort of ghetto. The OAKA is an iconic place, but has an over dimensioned public space and not all sport facilities are used. The other two areas are mostly vacant and are not maintained. They are gaps in the city fabric.</td>
</tr>
<tr>
<td>Public space</td>
<td>---</td>
</tr>
<tr>
<td>Connectivity</td>
<td>---</td>
</tr>
<tr>
<td>Functional integration of site(s) - Function-mix</td>
<td>All of the larger Olympic areas suffer from a lack of after-use. The Olympic Village lacks additional functions required for a new neighbourhood and is no popular area to live. The OAKA is occasionally used, but is mono-functional. The other two area's are as good as unused.</td>
</tr>
<tr>
<td>User-intensity</td>
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</tr>
</tbody>
</table>

The Olympic areas of Athens have a very poor after-use. Mainly the Faliro Olympic Bay Complex and the Helliniko Olympic Complex are extremely bad integrated in the city and seem to have had little to none long-term vision. The OAKA area is the iconic sport venue of the city and is appreciated by the people of Athens, but is little used. The Olympic village is used, but is far from a high-value piece of city as seen in other cities. It lacks collective functions and has a bad reputation.

#### Legacy on building level

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design &amp; Technical - Architectural value to city</td>
<td>The stadium is one of the only Olympic buildings that actually functions. It is home to two local football clubs who play there weekly. The roof structure is an icon for Athens, but located far outside of the centre of the city.</td>
</tr>
<tr>
<td>Adjustability/Flexibility</td>
<td>-</td>
</tr>
<tr>
<td>Financial</td>
<td>No information available on the financing of the stadium</td>
</tr>
<tr>
<td>Use</td>
<td>The stadium is mono-functional. There have been less than 10 events in the first 8 years after the Olympics and functions as football stadium, where it is not designed for. Frequent use however.</td>
</tr>
</tbody>
</table>

Although there is not much known about the management and financing of the stadium you can conclude that it is one of the only buildings that has found a frequent after-use in the form of a shared stadium of two football clubs. Next to this, there is little use of the stadium. The clubs are not happy with the athletic ring around the pitch, but this is hard to adapt without making several structural changes. The stadium is appreciated by the people of Athens and especially the roof-structure is an icon for the city. This icon is located in the periphery however.

Tab. 3.5 Overview Athens’s Olympic legacy
HISTORIC PERSPECTIVES

Fig. 3.10 Map Olympic areas Beijing (By Authors)
Planning ambitions & motives for the Games

The introduction above illustrates the state of Beijing at the moment it was thinking of bidding for the Olympics. Serious spatial, social and environmental issues characterized the city and something substantial had to be done to guide the city development in a different, more sustainable direction. Next to this the ambitions to strive for a more knowledge orientated economy and the global recognition of China were the main motives for hosting the Games. Beijing saw the Games as a unique opportunity to catalyse different large-scale urban changes under the theme of ‘Green Games’. Direct objectives were solving the main spatial, social, environmental issues and giving sports a central role in the society.

Organization of the Olympics throughout the city

All these ambitions were translated into concrete targets. The biggest development on city scale were the construction of the fifth and sixth ring roads, construction of substantial other road networks, railway connections, a light-rail network of 154.5 km, 8 new subway lines & the renovation of 2 existing, an extended bus system and a new terminal of Beijing Capital International Airport (Chen, 2012, p. 6)... A total development of unreal magnitude. The main Olympic program was organized in one central area: The Beijing Green. This area is an astonishing 1 215 hectares large of which 760 hectares are green areas. This area contains 12 of the 37 sport venues, the Olympic village, media centre and excessive amount of public space, even for an Olympic capacity. The newly build venues in this park were the Olympic Stadium, the Aquatics Centre, the Indoor Stadium and the Olympic Green tennis Court. Next to this there were existing venues and temporary.

The other 25 venues were scattered over the city and mainly made use of university facilities (see map on corresponding page). These were mainly located in the Northern part of the city.

Beijing’s Olympic Legacy

The Olympic Games has brought Beijing a lot and changed its image for good, from a rapid growing industrial city, to a world class metropolis. In the following part is it described how the Games affected Beijing on the different scale levels:

"...integrating the Olympic Games into the spatial ambitions of the city.”

Legacy on city Level

What is very clear is that Beijing made optimum use of integrating the Olympic Games into the spatial ambitions of the city. Beijing is a city that grows in such a high speed that enormous urban developments are necessary to cope with this continues growth. Therefore the construction of the Olympic Ven-
HISTORIC PERSPECTIVES

The construction of different stadiums and other Olympic facilities was only a fragment of the whole development that was initiated under the name ‘Beijing 2008 Olympics’. It was very well incorporated in the city’s long-term development vision.

A difference from the other cases treated in the chapter is that there were immediate and serious problems and needs to address, whereas in other editions it was more about regeneration of city parts and grasping potentials.

The reason for the chosen organization is to create one large, iconic park that contains all the landmarks and gives the Olympics a permanent location in the city. All the other venues were strategically located to optimize the after-use (more on this in the following part of ‘legacy on area level’). In general you can state that the city had such a powerful will and also need to get these spatial interventions done, that nothing could stop it.

The economic legacy consists mainly of the shift of economic focus of the city. It reduced the manufacturing sector and tried to stimulate the service sector, with certain success. Next to this, Beijing developed a model for the Games that involved private parties in the bidding process and created a public-private corporation in managing the Olympic venues. It allowed them to create commercial plans for the different facilities (Chen, 2012, pp. 11, 12).

Other notable legacy is the successful city branding of Beijing that made it a well accessible, greener and in general more attractive city for tourists, but also businesses (Klee, 2012, p. 108). A negative effect of the Games is that most of the developments happened in just the Northern part of the city. Due to this concentration the gap between South and North has increased in terms of urban quality and social status (Klee, 2012, p. 108).

"A negative effect of the Games is that most of the developments happened in just the Northern part of the city."

Legacy on area level

The Olympic development consisted - As mentioned earlier - out of two main components: the Olympic Green (the representative venue) and several venues scattered over the city. This part reflects on what both of those developments have brought in terms of legacy physical legacy.

The Olympic Green is a large park that contains the main representative buildings and spaces of the 2008 Games. The site is composed as a combination of existing venues, new venues, temporary venues, the Olympic Village, media centre and very large green areas in the form of a park on the North side of the area. The rest of the site is also characterized by very large open spaces in between the buildings. These give a very monumental and impressive image when seen from the helicopter shots on TV, but feel in fact massively over-scaled when actually walking around the area. Any sense of human scale seems to be lacking and it can be concluded that the area was primarily designed for the picture, rather than use.

Apart from that it is an area that functions as one of the city’s main tourists attractions and is used quite often by both visitors, but also as leisure place for the people of Beijing. The function of the Olympic Green is purely a city icon. Except for the Olympic village and the Media centre (that are integrated in the city fabric quite well) it is all focused on attracting people. It stands out of the city, but that was its intention: to create a permanent physical legacy and world icon of the Olympic Games in the city. The accessibility between the area and the city is very good. Two different ring roads run through the site and there are several different ways of getting there by public transport.

The other part of the Olympic development are the venues that were distributed over the city and were specifically located to create optimal after-use. New venues were built within university campuses to guarantee good after-use. Other existing and temporary venues were also used. It goes too far to go into detail to the different venues, but it can be concluded that the after-use of these venues is successful. In both functional and physical legacy.

Legacy of the Olympic stadium

The ‘Bird’s nest’ or the Beijing Olympic Stadium is the ultimate icon for the city and the country. One of the key motives of Beijing in hosting the Olympic Games in 2008 was to brand the city and to create a new image that
2008 - BEIJING

Img. 3.11 The Olympic Green (KCAP, 2009)

Img. 3.12 The Olympic Green before the construction of the Olympics (en.beijing2008.cn)

Img. 3.13 The Bird’s Nest is a popular attraction for both tourists and people from Beijing
2008 - BEIJING

fitted a global city, attractive for international businesses.
Building iconic buildings was one of the ways to reach this goal, and iconic buildings they got.
The Bird's nest is probably still the most famous stadium in the world known for its extraordinary structure. The bird's nest is most popular modern building in Beijing (measured in tourist visits). It is a structure not only admired by tourists but also very much appreciated by the Chinese. A very strong architectural value that makes the people of Beijing proud.
Since the stadium is newly built it matched all criteria of a modern event space in terms of extra facilities, VIP spaces and the logistical capacity.

The stadium was downscaled from 91 000 seats to 80 000 seats after the Games, but this is actually still too much seats for regular Chinese sport events. This is illustrated by the fact that the local football club Beijing Guo'an turned down the offer to use the Bird's Nest as it would embarrass them to play in a stadium where 70 000 seats would be empty. However, the stadium can be filled with the hosting of different events and that is the main focus of the owner. In principle is the stadium able to accommodate events, like concerts, family shows and sport competitions, although the athletic track and field for a difficulty for these events since they are not able to really protect those, which results in high maintenance costs (Klee, 2012, pp. 102, 103).

Above was stated that the stadium doesn’t have a regular use and is reliant on events, but this is actually not true: The Bird's nest is a very popular attraction for the public and about 20 000 to 30 000 people a day visit the stadium and is thereby the number one tourist attraction in the country (Hornby, 2009). It cannot really be defined as a permanent use, but its creating substantial revenue however.

"...the Beijing Olympic Stadium is in definite need of a more reliant source of income."

The stadium's receives its income over the hosting of events and tourism. In the first year after the Olympics, it generated a revenue of US$ 38.2 million (Xinzhen, 2009) of which 70% consisted out if income generated from tourists. This is sufficient for the stadium maintenance in the short-term perspective, but is questionable in the long-term since it is hard to believe that this amount of visitors is still the same in 20 years. Therefore the Beijing Olympic Stadium is in definite need of a more reliant source of income.
### HISTORIC PERSPECTIVES

**CONCLUSION**

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>CONCLUSION</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Legacy on city level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical legacy</td>
<td>Immense investments on infrastructure and on 'cleaning up the city'</td>
<td>+++</td>
</tr>
<tr>
<td>Economic legacy</td>
<td>Private-public collaboration for building and managing venues. New city image that attracts international businesses.</td>
<td>+++</td>
</tr>
<tr>
<td>Other notable legacy (positive &amp; negative)</td>
<td>Has showed the world a new China very successful branding.</td>
<td>+++</td>
</tr>
</tbody>
</table>

Beijing has integrated the Olympics in its ambition to increase the quality of the city. Very large-scale infrastructural projects have been realized (that are of a total different scale than any of the Western Game developments). There were a lot of investments in cleaning up the city, in terms of relocating polluting factories. Next to this, Beijing (and China in fact) have created a new image for the world and have branded themselves to a modern city that is service economy based and attractive for tourists.

### Legacy on area level

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>CONCLUSION</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical integration of site(s)</td>
<td>The Olympic Green is not at all integrated in the city fabric, but this was never the intention. The intention was to create an impressive and iconic piece of city. They succeeded in this, however the public spaces are far over dimensioned and lacks human scale. This is also partly a matter of a different perception of space in Chinese culture. Site is very well connected.</td>
<td>++</td>
</tr>
<tr>
<td>Functional integration of site(s)</td>
<td>The Olympic Green is set-up as a attraction park, focussed on entertaining the public. There is a lot to do there and is all related to tourism and entertainment. The site is one of the most popular tourist attractions of the country. It can feel empty, due to the over-scaled public spaces.</td>
<td>++</td>
</tr>
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</table>

The main site of the Olympics: the Olympic Green is an enormous park that accommodates the representative venues of the Olympics. It is in no way integrated in the city fabric, but this was not the legacy Beijing was aiming for. It was aiming for a monumental piece of city and a permanent legacy for the Olympic Games. The spaces are very impressive, but it is overdone. The human scale is not addressed at all. The area functions nowadays as a prime tourist location and there is a lot to do when visiting.

### Legacy on building level

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>CONCLUSION</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design &amp; Technical</td>
<td>The Ultimate icon for Beijing and china, a stadium that everybody remembers. Of great value to the Beijing people. Stadium is able to accommodate different kinds of events. Bottlenecks are the field and athletic track that the different events often suffer from.</td>
<td>+++</td>
</tr>
<tr>
<td>Financial</td>
<td>Revenue mainly created from tourism, which balances it for now, but no long-term perspective</td>
<td>+</td>
</tr>
<tr>
<td>Use</td>
<td>A lot of tourists visiting every day, occasional event. No permanent tenant.</td>
<td>++</td>
</tr>
</tbody>
</table>

The Beijing Olympic stadium is probably the most famous stadium in the world and is a national icon for the Chinese. Its iconic structural expression is unmatched so far. It matches all the modern requirements of a contemporary event venue and hosts many different events. This is however not its most important income. The large amount of tourists visiting the stadium creates about 70% of its financial revenue. There is no permanent tenant and this is desirable since it is unexpected that the amounts of tourist will remain as high as it is now.

Table 3.6 Overview Beijing's Olympic legacy
HISTORIC PERSPECTIVES

With the statements from this analysis in mind and by comparing the five previous host cities venue distribution it becomes clear how close the accessibility is related to the level of success in the post-game setting. Comparing for example Barcelona and Athens is it obvious how the four easy accessible clusters within the city borders of Barcelona are left with much better development potentials than the very periphery clusters with low accessibility in Athens.

Fig. 3.12 Comparison of Olympics venue distribution
From this comparison as well as the one on the previous page the Olympic venues’ magnitude and relation within the host cities are easy to see. In the cases of Barcelona, Sydney, Athens and Beijing are the Olympic intervention all equal or bigger than the host city’s centre. Atlanta stands out in this case as a result of extensive reuse of existing facilities. A very scattered approach not leaving any real Olympic area is left behind.
**COMPARISON - SIZE AND COMPACTNESS OF OLYMPIC AREAS**

This comparison gives an impression and idea of both size and compactness of the Olympic Games and its apparatus. With the historic centre of Amsterdam as reference of scale, the five Olympic areas are compared in terms of size. The Olympic area in Atlanta is around one tenth of the historic centre of Amsterdam. The areas of Barcelona, Sydney and Athens are all around the same size, while the Olympic Area of Beijing is almost 2 times the size of the historic centre of Amsterdam. Keep in mind that all of these areas are developed within 7 years and some of them from extreme conditions, such as the waste-dump area in Sydney. This illustrates yet again the magnitude of the event.

Since it is hard to compare the scattered with central organized Olympic areas in terms of their compactness only Barcelona is compared to Athens while Sydney to Beijing. Size-wise the total Olympic areas of Barcelona with 782,5 Ha and Athens with 718,8 Ha are similar, though the area of Athens is slightly more dense. The difference between the Olympic areas of Sydney with 716,8 Ha and Beijing with 1160,7 Ha is much bigger. The difference is mainly a consequence of the large park in the northern part of the Olympic area in Beijing, which almost results in half of the total Olympic area.

<table>
<thead>
<tr>
<th>Scale reference: Amsterdam historic centre</th>
<th>Barcelona</th>
<th>Atlanta</th>
</tr>
</thead>
<tbody>
<tr>
<td>742,4 Ha</td>
<td>1. 118.0 Ha</td>
<td>Park: 8.0 Ha</td>
</tr>
<tr>
<td></td>
<td>2. 406.9 Ha</td>
<td>Village 34.3 Ha</td>
</tr>
<tr>
<td></td>
<td>3. 164.6 Ha</td>
<td>Tot. 42.3 Ha</td>
</tr>
<tr>
<td></td>
<td>4. 93.0 Ha</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Tot. 782.5 Ha</strong></td>
<td></td>
</tr>
</tbody>
</table>
COMPARISON - SIZE AND COMPACTNESS OF OLYMPIC AREAS

<table>
<thead>
<tr>
<th>City</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sydney</td>
<td>716.8 Ha</td>
</tr>
</tbody>
</table>
| Athens   | 1. 100.5 Ha  
          | 2. 141.3 Ha  
          | 3. 295.6 Ha  
          | 4. 181.4 Ha  
          | **Tot. 718.8 Ha** |
| Beijing  | 1160.7 Ha |

Fig. 3.14 Comparison of footprint of preceding Olympic Games
CONCLUSIONS - WHAT ARE LESSONS FOR GOOD OLYMPIC LEGACY?

After analysing the planning strategies and post-game use of the preceding Olympic Games in Barcelona 1992, Atlanta 1996, Sydney 2000, Athens 2004 and Beijing 2008 the findings and the transferable lessons learned are listed in the following scheme. It can be used for future host cities as inspiration and guideline for how to approach and organise the Games.

The scheme explains from where each specific lesson has been learned and on which level: city, area and building (stadium). These corresponds to levels used in the evaluating score boards throughout this chapter. Further is before each lesson a variable factor, that states the topic of the lesson learned. (The London Olympics 2012 is - as mentioned - analysed in following chapter and lessons learned from this event are listed in the end of that chapter.)

<table>
<thead>
<tr>
<th>WHERE</th>
<th>LEVEL</th>
<th>VARIABLES / LESSONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barcelona / Atlanta / Athens / Sydney / Beijing</td>
<td>City</td>
<td>Finance / For a financial healthy Games, the short-term revenue will never be sufficient. Think of long-term benefits such as increased popularity &amp; tourism.</td>
</tr>
<tr>
<td>Barcelona / Beijing</td>
<td>City</td>
<td>Long-term planning / Integrate and fit the required Olympic development with the host city's long-term development strategies. Not the other way around</td>
</tr>
<tr>
<td>Barcelona / Atlanta / Sydney / Beijing</td>
<td>City</td>
<td>Use the chance / Use the Olympic Games to catalyse long-term city objectives: It is an unique opportunity to get (financial) support for major city development.</td>
</tr>
<tr>
<td>Barcelona / Sydney / Beijing</td>
<td>City</td>
<td>Solve an issue / Use the Olympic to create framework for city development (providing good infrastructure by for example cleaning up land etc.)</td>
</tr>
<tr>
<td>Barcelona</td>
<td>City</td>
<td>Inter-related planning / Combine physical improvements with concrete social and economic objectives. Good legacy covers all of those factors.</td>
</tr>
<tr>
<td>Athens</td>
<td>City</td>
<td>Be realistic / If a city doesn't come close to match the development needed for the Olympic Games, it probably doesn't need these facilities in the long-term.</td>
</tr>
<tr>
<td>Atlanta</td>
<td>City</td>
<td>Re-use / Make use of existing venues out-side of the main Olympic areas to minimize impact.</td>
</tr>
<tr>
<td>Barcelona</td>
<td>Area</td>
<td>Release a potential of a site / Use a strategic location in the city: Specific functions require specific locations in the city in order to function.</td>
</tr>
<tr>
<td>Barcelona / Athens</td>
<td>Area</td>
<td>Post-use / Good connectivity is important to generate liveliness in the area(s), else you risk to create &quot;white elephants&quot;</td>
</tr>
<tr>
<td>WHERE</td>
<td>LEVEL</td>
<td>VARIABLES / LESSONS</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Barcelona / Sydney</td>
<td>Area</td>
<td><strong>Multi-functional clustering</strong> / Clustering venues creates a smaller, often more appropriate area which benefits the city integration afterwards.</td>
</tr>
<tr>
<td>Barcelona / Atlanta</td>
<td></td>
<td><strong>Planning for legacy use</strong> / First think of an appropriate after-use, then think how the Olympic venues fit into this.</td>
</tr>
<tr>
<td>Barcelona / Sydney / Beijing</td>
<td>Area</td>
<td><strong>Multi-functional</strong> / Combine functions in after-use rather than an area purely for sports.</td>
</tr>
<tr>
<td>Barcelona</td>
<td>Building - Stadium</td>
<td><strong>Integration</strong> / Densify the Olympic areas with additional buildings after the Games to create a more appropriate public space.</td>
</tr>
<tr>
<td>Athens</td>
<td></td>
<td><strong>Needs</strong> / Don't build what you don't need: think in terms of temporary or transformable venues.</td>
</tr>
<tr>
<td>Barcelona / Atlanta / Sydney / Beijing</td>
<td>Building - Stadium</td>
<td><strong>Down-scaling</strong> / Apply down-scaling after the event if a city cannot fill the 80 000 seats required by the IOC</td>
</tr>
<tr>
<td>Atlanta</td>
<td></td>
<td><strong>Multi-functional</strong> / Create a flexible stadium in terms of use</td>
</tr>
<tr>
<td>Barcelona / Sydney / Athens / Beijing</td>
<td>Building - Stadium</td>
<td><strong>Obstacle</strong> / The Athletic ring is a major obstacle in using the stadium of other sports</td>
</tr>
<tr>
<td>Atlanta / Athens</td>
<td></td>
<td><strong>Transformability</strong> / Don't build a permanent athletic stadium if athletics isn't practiced by the local people: Design a transformable stadium.</td>
</tr>
<tr>
<td>Atlanta / Sydney</td>
<td></td>
<td><strong>24/7 use</strong> / Combine with other (smaller) functions to create a more frequent use throughout the week.</td>
</tr>
<tr>
<td>Atlanta</td>
<td></td>
<td><strong>Functional icon</strong> / Building a world icon helps for revenue for tourists and creating identity, but a functional icon would create revenue in more ways.</td>
</tr>
</tbody>
</table>
LONDON 2012
Image 4.1 London Bridge during the Olympic Games (Peeling, 2012)
INTRODUCTION

The last edition of the Olympic Summer Games was in London, 2012. The city had the ambition of creating the best possible after-use for its citizens and making an example for future host cities. The unique decision and what makes the case of London 2012 very interesting is that they thought about legacy from the very start and in iterations through the whole process. The reason that the London 2012 Olympics is analysed in a different chapter than the other case studies is because this edition of the Olympics was only about a year ago and it is too early to really speak about legacy for London. It is however a perfect moment to reflect on what the ambitions were and to what extend these were realised/alterted. This chapter will use a similar build-up as was used in the previous chapter but will elaborate in a more extensive way and will focus more on the thoughts behind different decisions and the effect of these on the legacy. The goal of this chapter is a twofold: (1) It is trying to elaborate more on the process of hosting the Olympic and what bottlenecks in the process can generate bad legacy. (2) What the advantages and disadvantages are of a compact, central Olympic area.

Planning ambitions & motives for the Games
The city of London has a long history and it was not the first time the event took place there. It has been home to the Olympic Summer Games twice before, in 1908 and 1948. In these times however, there was not such substantial development connected to the Olympic Games as today.

London’s ambitions as an Olympic host city comes from several motives. Like many other cities London saw the Games as a potential to brand the city. Moreover it saw it as a great opportunity to catalyse major city developments, in particular the Lower Lea Valley in Eastern London. The city already had the ambition in developing the Lower Lea Valley for a long time. In the 1940s the city already saw the high potential for recreational activities in the area. The city kept looking into possibilities of developing this area in the ’80s, the ’90s. Though the area came in focus again, when Ken Livingstone was elected as mayor. He had a strong ambition of hosting the Olympics and when this happened the Lower Lea Valley directly became the area of focus for the central Olympic park (Bishop, 2013).

However, the Lower Lea Valley is large, so the next step was to find the right location within the valley. Stratford emerged as a natural candidate because of the connectivity with major A-roads and Stratford international station. The reasoning for the specific location from Ken Livingstone’s point of view was to regenerate one of the most deprived neighbourhoods of not only London but also Europe, in terms of its social structure. It also fitted in the vision of the Thames Gateway development from the early ’90s that proposed the transformation of the old dock and harbour areas of eastern London reaching out to the Northern sea.

All of these arguments came together and made this the natural candidate for the Olympics park.
Organization of the Olympic program throughout the city

The organization of the London 2012 Olympics focused mainly on the area in the Lower Lea Valley. However this area housed only about half of the sport events of the Games. The rest of the events were hosted throughout the city and beyond. The different venues used were either existing sport facilities or spaces nearby famous city icons transformed to temporary sport venues. In the images next to this text are examples of these locations shown: Greenwich Park for the equestrian events and Horse Guards Parade for the beach volleyball events.

This shows that the city is capable of hosting these kind of events within its current structure. The legacy that these venues create is mainly psychological in the sense that the whole world is watching the competitions with London and its icons as a backdrop: The ultimate city branding.

What helps a lot in this case is the fact that the London already has many qualitative and large sport facilities that could be used. As a consequence of this the major construction work could be restricted in the area of the Olympic Park. The Olympic park was the central area of the London 2012 Olympics. Substantial physical legacies was to be created as a part for a new high-quality piece of London, integrated in the surrounding existing city structure. The planning and process towards this goal is elaborated further on the following pages.
**LEGACY ON CITY LEVEL**

**Organisation and focus of the Games**

Organizing the planning and development of such a substantial piece of city requires a large organisation and a lot of different expertises brought together. This part elaborates briefly on the governance of the Games and how this evolved during the process. The text is based on different interviews conducted by the authors with involved parties together with research of R. Rombouts (2013).

The Olympic Games were largely initiated by the Greater London Authorities (in strong relation with the central government) and more specific former mayor Ken Livingstone. From there the whole governmental structure started to develop and take shape. It consisted of different public organs with each their own responsibilities. London was very clear about the fact that the physical legacy was the primary objective in the Olympic development and the planning was built up around this ambition.

The different organs and their responsibilities within the governance of the Games are shown in figure 4.4. The different roles and acronyms are explained in the following:

- **GLA + MAYOR** - Greater London Authority and the Mayor of London responsible for the contact with IOC and focused on developments benefiting the city and its citizens.
- **OB** - The Olympic Board supervising board responsible for the realisation of the Games and its legacy.
- **ODA** - The Olympic Delivery Authority, 2006 responsible for the delivery of the venues, infrastructure and transport.
- **DCMS** - Department of Culture, Media & sports focused on increasing participation in sports, economy and social cohesion.
- **IOC** - International Olympic Committee the main body setting the requirements, selecting the host cities and supervising them.
- **LOCOG** - London Organising Committee of the Olympic and Paralympic Games responsible for preparing and staging the Games.
- **BOA** - British Olympic Association responsible for the selection, preparation and management of the athletes.
- **Boroughs** - Newham (60%), Tower Hamlets (12%), Hackney (20%) and Waltham Forest (8%).
- **LDA** - London Development Agency responsible for acquisition and purchase of the land.
- **OPLC** - Olympic Park Legacy Company a non-governmental organisation focused on private investors participation in the Games.
- **LLDC** - London Legacy development corporation ensuring the delivery of the intended legacy.

![Organizational diagram London Olympics (Rombouts, 2013)](image-url)
In short was LOCOG the organizer of the Games and was established as a non-profit organisation. The ODA was the actual executor for the park and the LDA, followed by the OPLC and LLDC were responsible for generating a good piece of city in the long-term.

The whole process started with the mayor, who commissioned the LDA to find an appropriate location for the Olympics, with strong preference for Eastern London and more specifically the Lower Lea Valley. The LDA acquired the site and plans for the bidding were put together, where the surrounding boroughs were involved and eventually all stood behind the Olympics. Once London had won the bid, the actual work and time pressure started. It came literally as a shock according to Peter Bishop, former director of the LDA: "We now have to actually put the Games up and we've got... 6 years(!!) We've got this awful bit of London with tires and fridges and pollution. We've got to acquire the lands, relocate every business; We had overhead power lines that we had to put underground; We got to decontaminate. That's all before we could even start building (Bishop, 2013)."

This illustrates the magnitude of the assignment and the limited time available for it: on 29 July 2012 the whole world is watching London and failure for this world audience was naturally no option for the city. This had substantial influence for the planning and execution process: Although the whole Olympic bid was built around the idea of legacy and long-term use, The LDA was not allowed in design meetings for the first 2 years after the bid, due to the panic that arose to actually get this park ready in time. The primary concerns shifted from long-term quality to the budget that kept going up and the schedule that was slipping (Bishop, 2013).

When the LDA was brought back in the discussion, the hard wiring of the park was already set in isolation of the thinking of legacy. Peter Bishop considers the eventual outcome of the park quite remarkable in the sense that he believes that it actually has the potential for a good legacy and although the fact that some things weren't quite right, the end result has the potential for generating a good legacy. One thing that is clear though, is the fact that the 7 years that stand between winning a speculative bid and opening the Olympics is a very short period and this time pressure affect the quality of the development.

A key factor in creating the best possible legacy was in fact that London didn't establish one legacy corporation, but let it develop through the process: as specific tasks changed, so did the corporation. This resulted in the summer of 2012, just before the Opening of the games in the creation of the London Legacy Development Corporation (LLDC). This Mayor owned public body now has total control and responsibility for the legacy of the Olympic Park (Rombouts, 2013).

The planning and development of the Olympic Park

The site of the Olympic park was an area that had many difficulties for developing, such as ground contamination, a lack of services, power-lines crossing the site, road-, rail-, sewage- and waterways all crossing on ground level and so on. All these problems originated from the fact that the park had been used as an industrial site for the last 200 years. It always contained functions that didn't go well together with other city functions such as housing and therefore became sort of a backyard to the four surrounding boroughs of Newham, Tower Hamlets, Hackney and Waltham Forest. The area was a quite exceptional place before the Olympics game. Its qualities layed in the beautiful green spaces that originated out of the absence of human interference. From a practical point of view however, it was so inac-
LEGACY ON AREA LEVEL

cessible that it allowed for strange live forms to appear. As a sort of sub live of the city, with for instance car breakers yards, refrigerator recycling parks and so on.

Once it was clear that the Olympic park would be in this area, the city of London put out a competition where different British architects participated in developing a proposal for the future Olympic Park. Many visionary proposals were produced with spectacular sport venues. The winning proposal however, came from planning firm EDAW (that has become the planning department of AECOM since 2005) and it stood clearly out from the other proposals.

EDAW (collaborating with different specialist firms) didn’t present any building design, but a thorough description of the current stage of this area and what it could be by connecting, cleaning up and ensuring the legacy of every permanent or temporary venue and facility. It was something that struck the mayor, because this proposal was more elaborating on the process and how to approach it rather than the end-result. It was creating a framework for good development to happen in and focused on key interventions in order for it to accommodate the whole program.

The proposal was unique in the way that it instead of starting from how the Olympic park should be developed it was based on how an integrated city piece could be developed in long-term, anno 2030 (see fig. 4.7). From this vision the design of the Olympics park developed in a backwards chronology, first designing the long-term and fitting the Olympics into this ambition rather than the other way around. It is very smart and complete way of planning, which formed the basis for the design of the Olympic Park.

The masterplan of the park makes use of existing waterways in order to structure the whole park. The first necessary interventions made were regarding the primary infrastructural lines that ran across the site. Railways were re-situated, high-voltage power-lines were put under ground and the riverbanks were reconstructed. After these primary interventions were made, the next thing was to connect East and West of the valley by upgrading existing roads and introducing new. In combination with the North-South running rivers, this created a natural subdivision of the site in which the different sport venues, the Olympic village and the media centre were situated. Next to these facilities there was a big shopping centre constructed at Stratford International Station.

The different sport venues were connected by very large public spaces that were necessary to accommodate the massive amount of people accounted for during the Olympic Games. Once the Olympics and Paralympics had finished, the park was ready to transform to a piece of city. The planners made use of different strategies to accomplish this.

The first thing that will happen once the Olympics have left London is the removal of the temporary sport venues in the park and the down-scaling of others, to better fit the city's need. This down-scaling doesn't only apply to the build structures, but also in the public space and infrastructure, such as reducing the width of bridges in the park.

Once all these temporary elements are removed the part is ready for new development to take place on empty spots in the park (see fig. 4.6). To attract people already to the park in the transformation period and to avoid dead open spaces, there are several temporary functions planned in the area, such as event spaces for festivals and concerts. Next to this there already a few key (permanent) functions in the park will that open one year after the Olympics, such as the Velopark around the Velodrome that will function as a cyclist hub (Smith, 2013). These empty spaces will gradually be filled with development that is developed according to the demand on the housing market and is expected to be fully filled up around 2030 (see fig. 4.7).

“London used the Olympics to create a framework for development to happen in.”

Concluding can it be said that London used the Olympics to create framework for development to happen in, only possible by using the Olympics as a planning tool. 22 master plans were already produced for the Lea Valley area, but none of them were realized due to the bad conditions of the area. No developer had the financial muscle to really develop this area, but by bringing in the Olympics, the park is now the most attractive location for development in London (Smith, 2013). However large parts of the park will be brown fields for the coming 10-20 years, because the temporary functions most likely will not be able to generate enough liveliness in the whole park, at all time.
LONDON 2012 - LEGACY ON AREA LEVEL

Fig. 4.5 The park design anno 2012 - home to the Olympic Park (AECOM, 2009)
Fig. 4.6 The park design anno 2014 - The transitional period (AECOM, 2009)
Fig. 4.7 The park design anno 2030 - an integrated piece of city (AECOM, 2009)
An interesting question a bit more than a year after the games is, if the planned legacy already works? The Queen Elisabeth Olympic park has opened in the summer of 2013 and the first reactions at this early stage are positive. Some of the sport venues are already open to the public and all the other permanent venues except the Olympic stadium (the Velodrome, the Handball Arena, the Aquatics Centre, the Orbit & Eton Manor) will open in March 2014. The fact that these venues have opened relatively short after the Games allows people to use the facilities and the enormous closed construction site has taken the first step towards the lively park the venues together are aimed to compose. This area is however still far from being an integrated piece of city, as it was intended. The following pages elaborate on the risks of the planning approach that comes with the Olympics.
THE PARK UNDER TRANSFORMATION

Final Legacy Mode

Img. 4.6 From Olympics to temporary, to permanent (LLDC, 2013)
The Olympic park is situated in the Lower Lea Valley between the boroughs of Newham, Tower Hamlets, Hackney and Waltham Forest in the East of London. The reasoning for situating the main Olympic area there was the fact that it was a deprived piece of London with no real spatial and functional quality and lacking connection to the rest of London.

The planners and city argued that with the transformation of this area it would turn from a backyard to a front yard for the boroughs that could grow into the Olympic area and would meet each other at the Olympic Green along the rivers. However it is easier said than done; the brutal and top-down planning approach used to realize the Olympic Park is much less aware of the existing context and one can therefore question if this transformation will happen as described in the masterplan. It is still to be proven and one can only speculate on how these developments will turn out in the future (since the process is on-going).

Olympic park was as described not a total waste area and had some qualities for the people living around it. It was a green space in the city that was unique in London. When London won the Olympic bid the area had to be transformed from this wilderness to a highly specific piece of infrastructure and had to be finished within 6 years (Morrero-Guilamon, 2013). Roads and connections in the surrounding neighbourhoods were shut off and a wooden blue wall was put around the whole park. Finally this blue wall was replaced by a highly secured, 7m high electric fence for protection of the Olympic area (see Img. 4.8).

Now that the Games have ended the area is closed again to transform from the Olympic park to the city park (Morrero-Guilamon, 2013). This leads to believe that the people living around the area will not directly have the affection with the area as the city plans on.

The families living around the park have a general feeling that something that belonged to them was taken away (Morrero-Guilamon, 2013). On top of this they have learned to live life around the Olympic Park, because what happens when people are excluded of an area for so many years: They get estranged with a place. People will have found new directions of moving and it will take time until they are comfortable with such a contrasting piece of city compared to what it is surrounded by.

Op top of all this, the park will not directly be a vibrant new neighbourhood once it opens, but it will mainly consist of brown fields filled with temporary functions until the different plots are developed by the private market.

"What happens when people are excluded of an area for so many years: They get estranged with a place."

There are certain agreements of what type of housing will come where inside the park, in order to connect to the surrounding areas and will complement the housing market. The fact is though that you create such a high-value piece of city that will be popular to live. This will drive up the prices and will result in the fact that the new neighbourhoods in the park will be mostly inhabited by upper-class citizens. This could create a social border between some of the adjacent boroughs (that are inhabited by mostly working-class citizens) and the new neighbourhoods in the park.

Summarizing can it be said that the aimed integration of the park between the four boroughs is to questioned.

It is aimed that the Olympic park will bring regeneration to eastern London and London in general. Though regeneration is not what has happened in this case: Regeneration can be described as a process when a pre-existing community remains in an area and for example more schools, hospitals and in general more public services are added. This will enhance the living quality of the area and therefore regenerate the area (Berremeo, 2013).

In Newham and Hackney something totally different happened: People have been moved from their neighbourhoods and told to leave their community, so that there is space for new big interventions, bring in a completely different economic class (Berremeo, 2013). This gentrification and change of characteristic of the boroughs bordering the Olympic park is one of the main reasons for a certain doubt about if the Boroughs really will grow into the new park as planned or if the park will take over the boroughs retaining this strong border. Both situations are illustrated on the next page. This process is not necessarily a bad development, but it shows that the impact on an area can be totally different than planned or at least proposed and the right choice of terms is essential in the understanding.
INSERTION OF THE OLYMPIC PARK IN THE CITY

Fig. 4.8 The city integration according to the city of London (By Author)

Fig. 4.9 The city integration predicted according to the research (By Authors)

Img. 4.7 Hackney Wick (Hilary Powell, 2012)

Img. 4.8 Fence along Olympic park (Price, 2012)
The success of the physical integration of the Olympic Games is largely depended on how the different sport facilities are used after the Games. When this is not properly thought through, the city will end up with unused facilities that it somehow still has to maintain, although there is no proper after-use for it. The term ‘white elephant(s)’ is used to describe bad city integration of Olympic facilities.

The previous chapter described the case of Athens where the legacy on building level was extremely bad thought through. London knew that in order to create a well integrated piece of city, it cannot only have so many sport venues spread out over a large area; it need a mix of functions. Therefore not all the sport stadiums in the park should be permanent. On top of that there is the fact that London doesn’t need all the sport facilities and certainly not in the Olympic required sizes.

The planning of London’s legacy was largely thought out on a building level. The main legacy concept was to apply down-scaling and use temporary structures. Next to this, all of the buildings were required to have an established after-use and user. This didn’t totally happen on all buildings, but was largely successful. The following pages will shortly elaborate on the main structures in the Olympic park and their desired after-use. Next to this there will be a more in-depth analysis on the process of 3 buildings: The aquatics centre, the Olympic stadium and the Velodrome.
**Temporary buildings**

**The Basketball Arena**

The Basketball Arena is a completely temporary building and was directly demounted after the Games ended. The arena was the largest temporary structure of the park and with a capacity of 12,000 seats it was the fourth biggest venue of the Olympic Park.

The structure was designed to be temporary and had 3 possible after-uses: (1) it would be sent to another Olympics and used there, (2) it could be subdivided into several other sport facilities in the UK, (3) or it could be dismantled and the individual elements could be re-used or re-cycled (Hartman, 2012 p. 132).

The first thing happened: the structure will be sent to Rio de Janeiro for the 2016 Summer Olympics.

**The Water Polo Arena**

The Water Polo Arena is also a completely temporary building and was directly dismounted after the Games had ended. It was located next to the Aquatics Centre and symbolizes the splash created by the Aquatics Centre.

The After-use for this building was the re-use of the stands and seating for future events.

The smart thing that happened here is that all primary components like structure facade and seating were either hired or recyclable (Hartman, 2012 p. 144). This way it was not the responsibility of the city of London to find appropriate after-use for the different elements, but of the manufacturers.

**The Riverbank Arena**

The Riverbank Arena is an open-air hockey stadium, that was constructed in a very functional, minimal way: it were just stands surrounding a hockey pitch. These stands were build up out of standardized elements that were directly dismounted after the Games and went back ‘on the shelf’ for a new event to use.

**Permanent Buildings**

**Eton Manor**

This venues is a permanent sport venues, but with radical differing functions during and after the Games, that are accompanied by a substantial transformation.

During the Games this area will function as an aquatics training facility containing three 50m pools together with training pools for the synchronized swimming and water polo. Next to this it is the venue for wheelchair tennis during the Paralympics with a capacity of 10,500 spectators.

After the Games this area will be transformed into a community sporting complex that will house football, (indoor) tennis and hockey fields (Hartman, 2012 p. 170).
**Copper Box**

This permanent structure was home to the handball competition during the Games and will function in its permanent use as a flexible event space. Its design is focused on creating a compact, efficient design with maximal flexibility. A part of the stands can easily be pushed back to create a larger central area.

**Olympic Village**

The Olympic Village housed all the athletes of the Olympic and Paralympic Games of 2012. The housing is realized by private developers and is directly implemented to the housing-market of London afterwards. The city integration of the Olympic village in a city is a fairly established model that reacts on the deficit of certain types of housing in a city. The London Olympic village will have a good after-use, but one can say that the corporate way that they have been developed is not really generating any special architectural legacy.

**Broadcast & Press Centre**

The 2 main media buildings: the IBC and the MPC housed all studio’s and other facilities for all of the media present at the London 2012 Olympic Games. This requires a lot of space and resulted in 2 enormous buildings. There was no specific after-use found for the buildings also mainly due to the fact that they are located on the edge of Hackney Wick that has no demand at all for such a building. The after-use is still unknown but it is clear that the buildings are not strategically positioned.

**Arcelor Mittal Orbit**

This structure, designed by world famous artist Anish Kapoor served as an observatory during the games and will remain this afterwards. It is highly the question if it will keep attracting visitors since the long-term use of the park is considered to be mainly housing arena with a few of the remaining stadiums. Moreover there are far better viewing platforms in London.

Whether a venue is best suited for being temporary, downscaleable or permanent depends in the most cases on their context and the overall strategy of the host city. In principle all venues could be temporary, though if the host city wants to benefit most possible from the catalysing effect these icons often have, the venues that have long-term functional potential should be kept. If it is in down-scaled or adjusted version doesn't really matter as long it suits its context.
COMPARATIVE ANALYSIS - AQUATICS CENTRE, VELODROME & OLYMPIC STADIUM

To get more insight on what factors contributed to the good and less good/bad legacy on a building level, a comparative analysis is set up of the 3 most noteworthy stadiums in the Olympic Park: The Aquatics Centre, the Olympic Stadium and the Velodrome. The main goal is to show how the Olympic legacy of 3 buildings with the same overall planning & requirements can be so substantially different. The main question asked is how did the resolute top-down legacy planning of the Olympic Games in London 2012 influenced the after-use of each of the three venues? The information in this text is derived from literature studies and conducted interviews with experts. The comparative analysis is done thematically in order to clarify how certain factors influence the design of the legacy. The three themes are: Planning approach, time and scale and transformation.

Planning approach

The Aquatics Centre is designed by one of the most prestigious architects of our time: Zaha Hadid. Its role was to function as one of the main icons for the Games and to act as the gateway to the Park from Stratford during and after the Games.

In post-games function the Michael Hopkins & Partners' Velodrome is planned to be surrounded by a new Velopark serving the local community and creating a cyclist hub in London.

The main Olympic stadium never really got a clear after-use before it was constructed. Its original legacy plan was to be a 20 000 seat athletic stadium by applying substantial down-scaling, but due to political discussion (on the fact that a Olympic Stadium in London is not economically feasible) combined with lack of time, it ended up being one big compromise: It is not really suitable for any of the desired after-uses. This will be elaborated more in depth later in the text. The stadium will now become the home-field of West Ham United the English Premier League football club. The distance of the pitch from the stands was seen as a substantial problem, but the city and the club have come to an agreement.

"The Olympic stadium ended up being one big compromise: It is not really suitable for any of the desired after-uses."

The different interviews with specialists all concluded the relative success between these venues is in the favour of the Velodrome. But why?

Comparing the three venues from their planning approach, it can be concluded that both the Aquatics Centre and the Velodrome had clear after-use functions, while the stadium first got its post-Games function determined in April 2013, a year after the Games. An early determination of post-games function however doesn't equal a successful outcome.

One can wonder what the reason is that none of the 11 interviewed experts has mentioned the Aquatics Centre as the most successful venue?

Before London won the bid on the 6th of July 2005 was the Aquatics Centre was commissioned and won by Zaha Hadid Architects (2004). The project was used to win the bid, but has the issue of being designed before the actual overall planning and sustainability strategy for the Games was made.

After the actual design of the Aquatics Centre was made, it has undergone many iterations in order to fit it into the overall planning and sustainability strategy. Sustainable Sport Specialist at WWF-UK Simon Lewis points this out in the following:

"The Aquatics Centre was one of these buildings where the design tender went out before the sustainability plans for the Games were fully written so in terms of sustainability requirements it was really weak. The fact that this image of the roof was created in the start of the process, resulted in a pursue of maintaining this image throughout all the design changes. This resulted in a very inefficient building in terms of material-use."

So despite the clear after-use function, the planning and timing also plays a huge influence in creating sustainable legacy. In this time one can try to equal a high sustainability rate with a successful legacy, but it depends very much on the aim of the building; in this case the goal was to create an icon and that is what happened and in this way it is a success. Though when comparing it to the Velodrome, which is about the same size there is a big difference in building efficiency: The Aquatics Centre uses 10 times the amount of steel of the Velodrome. This is beside the timing also mostly a result of the choice of priority: expression versus building efficiency.

The Olympic stadium has been exposed to a lot of critics. The good intentions of using a down-scaling principle, never really achieved its potential. In Olympic sport facilities the downscaling principle is relatively well-known such as in the Sydney Olympic stadium of
COMPARATIVE ANALYSIS - AQUATICS CENTRE, VELODROME & OLYMPIC STADIUM

2000 Games (designed by the same company as the London Olympic stadium). In London however this concept was taken to the next level as their approach made it possible to downscale the structure from 80 000 to 20 000 seats. The main reasons for the failed potentials can be narrowed into political struggles which resulted in an even bigger time-pressure which again resulted in compromises. These political struggles were mainly related to finding a good after-use that was also economically feasible.

Time
In the Olympic bid of London the promise was made to make a permanent stadium for the athletics sports, which would be down-scaled to achieve a desired size. It turned out to create a huge economic tension and after a lot of tugging and discussion the ODA was forced to take a decision (due to time pressure) which resulted in the building as we know it. The decision was taken without having a clear user for the post-games stadium, since the designed legacy stadium was not economically feasible. The many iterations in the design brief had drastically decreased the already short time schedule and also resulted in much higher building costs that originally was calculated for.

The stadium ended on a price around £ 600 million, which actually would had been more than enough to make both a 80 000 seats football stadium and a 20 000 seats Athletic stadium.

Comparing the Aquatics Centre, the Velodrome and the Stadium to each other it is clear that the time pressure that comes with the Olympics has played different roles and had different levels of influences on the legacy on a building design level.

It appears that the Velodrome has undergone the least iterations during the hugely time-pressured planning process. This has benefited the stadium’s success in terms of budget, quality and expected after-use.

"The stadium ended on a price around £ 600 million, which actually would had been more than enough to make both a 80 000 seats football stadium and a 20 000 seats Athletic stadium."

Scale and transformation
The Aquatics Centre and the Olympic stadium have both worked with a substantial down-scaling principle, which demands a great deal of planning. Although both venues have many good aspects and a certain level of quality, the balance between being both temporary and permanent seems to be a complex aspect to deal with.

The scale of the Aquatics Centre is over-dimensioned by the fact that it was designed for these two modes. Architectural Rowan Moore describes it as the following:

"For legacy you are probably still going to have a swimming pool that is a bit too grandiose for you know for what it will be. So what you there is sort of not quite right for the Games and not quite right for the legacy, you know it is too small for the Games and too big for the legacy." It can be said that this is the main disadvantage of designing for two substantially different scales. It has the risk to be a compromise between the two. In the Aquatics Centre it can however be seen clearly that the long-term use prevailed over the short-term: the stands were simple constructed elements and the true beauty of the building is only revealed in its permanent form.

Conclusion
While the Olympic stadium still has to prove it self as a valuable asset for the city, the Aquatics Centre and the Velodrome seems to have fairly good perspectives.

The main reason for the success and failure of the different stadiums is related to consistency in the planning and execution process: the Velodrome was a building that London could use in its Olympic capacity. This allowed for a smooth political and planning process and resulted a trouble-free stadium.

The city of London could also use the Aquatics Centre, but not a building with a 17 000 seats capacity. The concept of down-scaling resulted in a good long-term building. Due to the early developed design however, many alterations were needed and in order to keep the icon that London wanted.

The Olympic Stadium didn't have a long-term user when it was constructed and had many alterations during design process. This resulted in a building that is characterized by compromises. This subsequently resulted in very high construction costs. The permanent user was found a year after the Games and is a football club, but the stadium is not really suitable for football.
The Aquatics Centre
Zaha Hadid Architects had never built a sports venue before the Aquatics Centre. The design was always meant to be a icon for London, in order to create better chances during the bidding for the Games. The Aquatics Centre went through many iterations, while the roof expression retained it became more compact, almost half size of the Water Cube in Beijing that is 65 000 m² large (detail.com).

The concept of the centre was due to Associate Director at Zaha Hadid Architects Jim Heverin: "...to create a pavilion in the park, very fluid, open and transparent, encouraging people to come in and use, observe or test out its sculptural diving boards. The landscape is as close as possible, so when you are swimming it feels like you are close to the park. The language fits into the wider park language".

(Source on facts in next column: www.detail.com and www.zaha-hadid.com)

Olympic Stadium
The Olympic Stadium occupies a 40-hectare, pentagon-shaped island in the southern end of the Olympic Park. The Olympic stadium is designed so that the whole roof literally could be taken off. The thought behind all this was to not see buildings as one fixed structure but as several elements that can go together, but also can be easily separated (sheard, 2012).

(Source on facts in next column: www.detail.com)

Client: ODA, Olympic Delivery Authority, London
Architects: Zaha Hadid Architects, London
Structural and services engineers: Ove Arup & Partners
Main contractor: Balfour Beatty Group Ltd
Construction period: July 2007 - June 2011
Opening: July 2011
Construction cost: Approx. EUR 300 mill
Seats (legacy mode): 2 500
Seats (Olympic mode): 17 500
Footprint (legacy mode): Approx. 15 950 m²
Footprint (Olympic mode): Approx. 21 897 m²
Total area (legacy mode): Approx. 29 000 m²
Total area (Olympic mode): Approx. 37 000 m²
Weight of steel construction: 2 800 t
Dimensions (meters): L:160 W:80 H:100
**Velodrome**

The Velodrome is one of the 2 totally permanent buildings in the Olympic park: it will keep its 6 000 seat capacity after the Games and will function as a event venue within the larger Velo park that’s surrounding the stadium.

Its design that combines aesthetics with efficiency: it uses the relatively the least amount of steel for the construction and makes use of smart materials in order to increase efficiency.

Unlike the 1948 Games in London, when the Velodrome was outdoors, the 2012 construction needed to achieve optimum "breathability", acoustics and atmosphere with the geometry of the track bringing the public.

(Source on facts in next column: www.detail.com)

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**Client:** ODA, Olympic Delivery Authority

**Architect:** Populous

**Structural and services engineers:** Buro Happold

**Main contractors:** Sir Robert Mc Alpine

**Construction period:** May 2008-March 2011

**Opening:** 5 May 2012

**Cost:** £ 498 million

**Seats:** 25 000 Permanent
55 000 Temp. places

**Pre-cast units in stadium bowl:** 8 000

**Reinforced pre-cast concrete within stadium bowl:** 9 250 m³

**Roof area:** 24 500 m²

**Roof cable length:** 6 000 m

**Weight of steel construction:** 10 000 t

**Stadium entrances:** 56

**Rooms and spaces in stadium:** 700

**Dimensions (meters):** L:310 W:260 H:62.7

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**LEGACY ON BUILDING LEVEL**

**Client:** ODA, Olympic Delivery Authority, London

**Architects:** Hopkins Architects

**Structural engineers:** Exp. Eng. Ltd., Schlaich bergermann partner, Stuttgart

**Main contractor:** Interior Services Group PLC

**Screens:** Serge Ferrari, Base Structures (execution)

**Construction period:** February 2009 - January 2011

**Opening:** February 2011

**Construction costs:** Approx. EUR 130 million

**Seats:** 6 000

**Footprint Area:** 21 700 m²

**Roof area:** 12 000 m²

**Spiral strand cables:** Dia: 36mm Length: 14 km

**Weight of steel construction:** 1,029 t

**Span width:** 136 m

**Dimensions (Meters):** L:138 x W:130 m H:13.7(16.3)
2012 - LONDON - A PREDICTION ON LONDON'S LEGACY

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>CONCLUSION</th>
<th>SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legacy on city level</td>
<td>Through infrastructural developments have existing and a new high-quality piece of city been connected improving the overall city network</td>
<td>++</td>
</tr>
<tr>
<td>• Physical legacy</td>
<td>The use of temporary venues on several location has improved city image attracting more tourist and international businesses than before</td>
<td>++</td>
</tr>
<tr>
<td>• Economic legacy</td>
<td>The first host city to focus on the after-use from the very start of the planning process</td>
<td>+++</td>
</tr>
<tr>
<td>• Other notable legacy (positive &amp; negative)</td>
<td>Through infrastructural developments have existing and a new high-quality piece of city been connected improving the overall city network</td>
<td>++</td>
</tr>
<tr>
<td></td>
<td>The use of temporary venues on several location has improved city image attracting more tourist and international businesses than before</td>
<td>++</td>
</tr>
<tr>
<td></td>
<td>The first host city to focus on the after-use from the very start of the planning process</td>
<td>+++</td>
</tr>
</tbody>
</table>

This evaluation is in general made being aware of the early stage the legacies are in. By focussing on the ‘after-use’ London has managed to optimize the value of the long term gains for the city by focusing on the after-use from the very start of the planning process. Other infrastructural developments were also realized under the theme of sustainability promoting public transport and realizing pedestrian and cycling routes through the city. Beside this was a strong focus on the city branding where several temporary stadiums were used to promote the city of London.

| Legacy on area level | A compact functional clusters in between four boroughs. Well connected to the rest of the city and built upon a former neglected and polluted waste site. | +++ |
| - Physical integration of site(s) | By planning the legacy ‘backwards’ is the fundamental functions and the base for further urban development ensured | ++ |
| - Morphology | Function-mix | +++ |
| - Public space | User-intensity | ++ |
| - Connectivity | Function-mix | ++ |

With the Olympic Games is the Lee valley transformed into a new attractive and collective neighbourhood. Though the aimed integration of the Olympic park between the four boroughs is still to be proven. The Olympics has left a piece of land to London with great conditions for future development within a certain frame. The park was the first of several strategic planned venues to open after the Games.

| Legacy on building level | The stadium was designed to be "easy" changeable for the after-use though the user was not found before after the Games and therefore is the required change not incorporated into the design. Resulting in stadium that requires large and cost-full changes, opposite of the aimed. | + |
| - Design & Technical | The football club of West ham United will use the stadium as their home field and the stadium will therefore when it is ready create sufficient revenue for the maintenance of the stadium | + |
| - Architectural value to city | Financial | --- |
| - Adjustability/Flexibility | Use | + |

The extensive use of temporary venues combined with downscaleable and permanent venues has been a great success. Many of the venues after-use like the Velodrome and Aquatic centre was determined early and precise, which have been crucial for the quality of the buildings left behind. The athletic stadium was also aimed to be very flexible, though it stranded in political discussions and the after-use was not determined before after the games. This means that the stadium ended up being more expensive to transform into the football stadium it is becoming, than it would have been to tear it down and build a new.

Table 4.1 Overview London’s Olympic legacy (By Authors)
CONCLUSIONS - WHAT ARE LESSONS FOR GOOD OLYMPIC LEGACY?

After analysing the planning strategies and the early legacy left behind in 2012 the findings and the transferable lessons learned are listed in the following scheme, which makes it comparable to the other studied cases. The scheme explains the specific lessons learned on the different levels: city, area and building (stadium). These correspond to levels used in the evaluating score board on the left.

<table>
<thead>
<tr>
<th>WHERE</th>
<th>LEVEL</th>
<th>VARIABLES / LESSONS</th>
</tr>
</thead>
</table>
| London| City  | **Finance** / For a financial healthy Games, the short-term revenue will never be sufficient. Think of long-term benefits such as increased popularity & tourism.  
**Long-term planning** / Integrate and fit the required Olympic development with the host city's long-term development strategies from the start of the planning. |
| London| Area  | **Use the chance** / Use the Olympic Games to catalyse long-term city objectives: It is an unique opportunity to get (financial) support for major city development.  
**Solve an issue** / Use the Olympic to create framework for city development (providing good infrastructure by for example revitalizing and cleaning up land etc.) |
| London| Building | **Inter-related planning** / Combine physical improvements with concrete social and economic objectives. Good legacy covers all of those factors.  
**Be realistic** / If a city doesn't need all the venues required by the Olympics, then make use of a combination of temporary, downscaleable and permanent venues. |

Table 4.2 Conclusions and lessons learned London Olympics (By Authors)
STRATEGY DEFINITION
STRATEGY DEFINITION

This chapter elaborates on the strategy proposed at the research question. It reflects the finding of the previous chapters on the relation between spatial strategies for the Olympic development and integration & the after-use of such development. This chapter will first summarize the problems with the current model for the Olympics. Subsequently it will elaborate on how a decentralized model spread out over more cities could help improve or even solve these problems and what the general advantages could be of organising it in this fashion. Next to the potentials of the model, there are also some difficulties or weaknesses that should be made explicit. The chapter will finally conclude with several different schemes of organising the Olympic development throughout a networked city region and the (dis)advantages of each model. These schemes will be used later on in the research, when the Olympics is projected on a selected region.

Problems with the current model and potentials of decentralizing

The introduction and research definition states the following question: "How can European networked city regions hosting the Olympic summer Games benefit from a decentralized planning scheme in terms of the physical legacy generated by the event?"

The main conclusion on the relation between planning strategies and success of after-use is that the magnitude of the required Olympic facilities is enormous and the 7 years between winning the bid and opening the Olympic Games is an incredible short amount of time for realizing a project of this scale. The conclusions from the last chapters state that time pressure of finishing in time drastically effects the quality of the planning and execution of the long-term objectives. The Olympic program has grown out to something that is hard to manage as a city. Especially for European cities, due to the general smaller size compared to American or Asian cities for example. Strongly related to this, is problem of the spatial integration of the Olympic areas in the city's urban structure. The Olympic areas are so big that they often become dead spaces. London tries to achieve better city integration by densifying the park with new development, but this takes an estimated 20 years to fully develop (at least). In this transformation period the park will have temporary functions, but it is hard to imagine that these will generate substantial liveliness in an area of this size.

What if the central Olympic zone is de-stressed and split into several smaller Olympic clusters? Smaller clusters will be easier to develop in 7 years, have a scale that fits better to its surroundings and can contribute to regeneration of several areas in need of physical changes, rather than focussing all of the investments in a single area.

On top of the fact that the realisation is in the current model hard to achieve in a way that suits the city in the long-term, there is the fact that most cities don't need all of the sport facilities required by the Olympics. Previous Olympic editions have solved this imbalance in demand by using temporary and down-scalable structures. This is a very smart way of constructing, provided that it is fully thought through: There is an after-use for the materials / down-scaled facility and the temporary structure / parts are (cost) efficiently build. This way of constructing is however not creating any positive legacy for a city, but is focusing on minimizing investment. What if all facilities could have a proper after-use, by further spreading them out using the demand for sport facilities of more than a single city? This method was used at the Atlanta Games, creating a very good after-use on building level.

The general idea of the Olympic Games benefiting more than just a single city is also something that a regional organisational model could stimulate. Historically the Games have always been focused around a city and its mayor (Jones, 2013). In London the central government tried very much to not only make this an event for London, but for the whole of Britain. This was very hard to establish due to the fact that 99% of the activities went on in London and this was the only thing the viewer and visitor would see. The rest of Britain didn't feel very much a part of it.

In a regional organisation is it easier to brand different cities, but moreover also stimulate the political, economic, social and physical relations between the different cities in the region. This may be one of the most important incitements of the decentralized model. By focussing on an organisation between different cities, they are forced to collaborate on this major development, which will substantially affect the structure of the region. This creates great opportunities to implement regional ambitions and focus on the connections between different areas & cities. It could also benefit the region in terms of social cohesion and economic collaboration.
Spreading seems like a natural step in the development of the Olympic Games: it started as an event in a single stadium, grew to be an area with different events, to a mega-event hosted by major cities. Now that the event has grown out of the scale of a single city, the Games adapts to this by becoming an event hosted in networked city regions, coordinated by the regional and central government.

Apart from the after-use there are clear advantages of spreading out the event over a larger area. By doing this, the conditions for the logistics are improved and more visitors can visit each event. The public space between the different stadiums can be smaller compared to an area where all of the main sport venues are located. A good example of this is the sailing competitions of the London Olympics that were hosted in Weymouth & Portland. These competitions were held far from the Olympic park in London and were easy to watch from a natural slope along the water. A lot of people spent their day relaxing and at the same time enjoying the spectacular competition.

Important considerations & difficulties of decentralizing
Although a regional decentralized organizational model has many potentials and benefits, there are also some difficulties and weaknesses about the model. These are mapped and discussed in this part. Some of these issues relate to the IOC requirements and would be solved by adjusting these rules. Others are less easy to overcome.

IOC Requirements
From IOC requirements it is clear that their preference is an event hosted within a single city and moreover in a compact organisation. Some of the specific requirements that underline this are the following:

- The Olympic Games is hosted by one city.
- The maximum travel time for the IOC family to Olympic venues is 60 minutes.
- The maximum travel time for the IOC family to the Olympic stadium is 12 minutes.
- The Olympic Village must be a single compact development and has a maximum distance of 40 minutes travel time to all the venues.

The requirement regarding the fact that the Olympic Games needs to a single host city is not a direct issue. It can be solved by just calling it the Games of the biggest city in the region, while the events in reality take place all over the region. Though it is neglecting the requirement and therefore could it be a problem in the eyes of IOC.

The requirements on travel distance do not have to be a problem either. Most networked regions in Europe are of similar size as large centrum-periphery organised city’s, such as London and Madrid. This will be illustrated in the Region Selection chapter. In that sense should it be possible to create a spatial model, where all venues are within the proximity of 60 minutes travel from anywhere throughout the region.

The requirements that relate to the proximity of specific facilities to specific venues are more problematic. The fact that the Olympic village should be within 40 minutes travel time of every venue is something that is maybe possible, but not desirable. The idea of spreading out the sport venues to create optimum after-use doesn’t stop at the stadiums. By realizing two or more smaller segments of the Olympic Village, each in the proximity of a part of the venues, will create a quantity of housing that is easier integrated into the local housing market, rather than implementing approximately 4000 dwellings all at once, at the same place, which always causes as serious imbalance.

Other possible problems or weaknesses of decentralizing the Olympic development are related to practical aspects. Main issues are related to Political complexity, commercial interest, security and preserving the 'Olympic Feeling.' The text below will elaborate on these factors.

Political challenges
The political difficulties that a regional collaboration could generate is mainly related to different cities' objectives and changing governments. A regional vision is needed. It should address the main problems and potentials for every city in the region and a clear transparent reasoning on how to split investments & development.

Next to this it is very important that changing government do not affect the planning process since this has negative impact on the quality of the decision-making mainly regarding the long-term use. As illustrated in Athens Olympics 2004. This is also a consideration in a centralized model, but is complexified in a de-central setting by the three levels of government involved in the project (national, regional and city level).

Branding
In terms of commercial interest it is mainly
relating to the big sponsorship deals that are made by every Olympic edition. The Olympic zone is a 'protected' area and only the brands of the sponsors are available, such as Coca-Cola, McDonald's, Visa, Samsung and so on. The Olympic Games becomes a brand in itself and only these companies are allowed to use this brand. Local businesses in the proximity of the Olympics are not allowed to advertise with for example 'the Olympic Burger' or 'the golden fries.' If they do so, this will result in extremely high penalties. This goes into the extreme: even characteristic products of these sponsors cannot be sold by other businesses. A crazy example is that businesses around the Olympic Park in London were not allowed to 'just' sell fries, because that right was owned by McDonald’s (Marrero-Guillamón, 2013). This is already a complex situation, but becomes more complex when the event is organised in several clusters instead of a single compact zone.

**Security**

Another issue is the security management of the Olympic area(s). The Games is a world stage and therefore also potential target for attacks and terrorism. Examples such as the 1972 hostage, which resulted in the killing of 11 members of the Israeli Olympic team and the bombing of the Centennial Park in Atlanta 1996 are reasons enough to enforce strong security measures around the Olympic areas. Hosting the Olympics in a compact organisation drastically reduces investments in this field and these costs are substantial.

**Olympic experience**

The final factor that should be taken into consideration is the preservation of the 'Olympic feeling.' This is not a direct threat or weakness of a decentralized model, but is something that could be lost, by spreading out the development over different cities. It is of course a hard element to measure since it is fully determined by psychological parameters. The challenge is to make the regional Olympics feel like one tournament and not like different competitions hosted at the same time. Different scenarios are possible. Example: City A has the ceremonial and athletic venues, City B has all the water related sports, City C... Together they form the whole, while ensuring a minimum of travel time between the areas and venues.

**Spatial strategies in a regional Olympic organisation**

The following part described the different possible organisational structures for the Olympic Games in a regional setting. These models are based on the findings of the previous chapters and are translated to a scenario with more than a single city. The spatial organisation will in practice often become a combination of 2 or more of these models, but these 4 models describe the different organisational possibilities.

It is crucial to understand that one of the models isn’t better than the other: It is the context and ambitions that will determine which model(s) is/are suitable for a certain region.

These models will form the base for the strategy definition for the regional Olympic model, elaborated in the chapter Strategy Implementation in this document.

**Mono-clustering combined with satellite venues throughout the region**

This model is based on the compact model used in the Beijing and London Olympics. It focusses on a single cluster that contains the main Olympic venues. Next to this there is a spread throughout the region with additional venues that are used for the Games. This model is basically possible within the current requirements of the IOC as one city houses the main Olympic area and is therefore mainly responsible for the execution. The main physical legacy of this model however is only present in the city with the main cluster. The spread-out sport venues will be able to (and should) generate good legacy on a building level but will not contribute much to the bigger scale. It becomes the Olympics of city A with the support of facilities throughout the region.
Spread throughout the region
This model focusses on creating minimum impact in the region in terms of development and makes as much use as possible of existing facilities. There is no real central area and the ceremonies can be host in the Olympic stadium. It is a model, similar to Atlanta that worked quite well on the level of the building. It is however not really creating substantial physical legacy and doesn’t fully use the opportunity for really changing current necessities. A city is still investing substantially and is not gaining sincere physical legacy other than good sport facilities that are often not even public property.

Inner-city poly-clustering
This model is focusing on de-stressing a single Olympic zone by creating several clusters throughout the region that all house a part of the Olympic facilities. Next to this it is creating smaller area for the different cities to absorb afterwards. It is based on the Barcelona model, but seen from a regional perspective. The connecting infrastructure between these areas becomes a key element that can be included in the development. It leaves the region with an improved connecting infrastructure between the different cities. For it to function it is necessary to split up certain Olympic facilities, such as the Olympic Village and media centre, so that each cluster has their own facilities. Security costs will increase due to the splitting up of the main Olympic areas.

Periphery poly-clustering
This model is also dividing the Olympic development in several clusters, but is focusing the built development more in the periphery areas between the different cities. It connects the cities in a more physical sense and can generate regional functions in these areas. The infrastructure should be integrally developed / upgraded in this model in order to create the best legacy for the region and create integrated extensions of the different cities. It is however not really addressing city regeneration and it will be hard to generate lively areas since the clusters are not surrounded by city fabric. Therefore function-mix in the after-use is essential and more general an idea on how these clusters could function other than just a rural clustering of sport facilities that are used only a few hours throughout the week.
REGION SELECTION
Most of Europe’s economic centres are changing from being the giant mono-centric cities to the poly-centric networked city regions, as mentioned in the theoretical framework.

This chapter investigates specifically these strategic regions that can function as an alternative host for future Olympic summer Games. The regions need to have a certain scale and economic capacity. Therefore the city of London is used as a benchmark and four European regions with a comparable scale and economic prosperity have been selected. These regions are the Ruhr region (Germany), the Randstad region (The Netherlands), the Diamond region (Belgium) and the Øresund region (Denmark and Sweden).

These regions are studied and compared on their size, density, city structures, infrastructure, economic system, governance, potentials and future ambitions. The detailed studies of each of the five regions is to be found in the appendix in the back of this booklet. This chapter is the comparison of the regions. Based on the conclusions, the region with the most suitable characteristics is selected. This region is used to project the decentralized location strategy on that is defined in the previous chapters.

![Satellite photos of urban structures of selected regions in Europe](By Authors)
NETWORKED CITY REGIONS - COMPARISON

City Morphology & scale

Region Size & Density

City Sizes & Densities
NETWORKED CITY REGIONS - COMPARISON

REGION SELECTION

Randstad Region

Diamond Region

Øresund Region

Fig. 6.1 Region comparison part 1 (By Authors)
NETWORKED CITY REGIONS - COMPARISON

London

- Centralized structure
- Biggest city in Europe
- Good public transport network, but transport by car is problematic in the city centre
- Hosted Olympic Games 2012, currently in transformation process

Ruhr Region

- Former industrial powerhouse
- Large transformation process in progress
- Very extensive infrastructural network, but mainly used for the industrial logistics
- High unemployment & shrinking cities
- Strong infrastructural network
- Each city has its own specific function within the region
- Large expected growth in the region
- Plans for Olympic Games 2028 have been cancelled

- Very good connection to France, the Netherlands and Germany
- Complex political situation
- Potential of the regional collaboration is not fully exploited

- Transnational collaboration
- Planning regional high-speed infrastructure
- Shared interests in regional development
- Relatively healthy economic situation
NETWORKED CITY REGIONS - COMPARISON

Current Infrastructural connectivity

Economic prosperity

Usable, existing sport venues

Future regional ambitions

<table>
<thead>
<tr>
<th>London</th>
<th>Ruhr Region</th>
<th>Randstad Region</th>
<th>Diamond Region</th>
<th>Øresund Region</th>
</tr>
</thead>
</table>

Fig. 6.3 Region comparison part 3 (By Authors)
This chapter shows a comparison of different net-worked city regions in Europe. What becomes evident is that actually all of the regions are comparable in scale (also compared to London that was set as benchmark) and have similar characteristics:

The regions are poly-centric and have connectivity between the different cities. Due to this good connectivity the economical, social and cultural systems are well connected. It doesn't matter if a person doesn't work in the same city that he lives, because of this excellent connecting infrastructure.

The different areas are however unique because of their different histories: The Ruhr region for instance, grew to a continues urban sprawl due to the rapid industrialization which triggered the extreme growth of neighbouring settlements; The Øresund region is brought together by free borders and physical connections.

All of these regions could in principle organize the Olympic Summer Games, but not all of them need the Olympics. The Olympics should fit into a development strategy of a city (or region in this case). Therefore is the Øresund region selected to project the event on: Although it doesn't house the biggest cities or the most inhabitants, it has the large and concrete ambitions of strengthening the region by focusing on connecting infrastructure and collaboration on political and economical level and is therefore chosen.
ØRESUND ANALYSIS
Peberholmen and Øresundsbroen, with in front the Kastrup Airport that is the main airport of Denmark (J. Larsen, 2006)
INTRODUCTION

The findings in analyses of the previous chapter resulted in selection of the Øresund region to test the theory of the decentralized Olympic Games on. The characteristics that were briefly elaborated in the previous chapter will be more thoroughly described in this chapter. First, the chapter explores the current state of this region. How is it built up and what are the physical connections. It takes a look into how the region grew and the current problems with this expansion. Next to this it takes a look into the political, economical and demographic structure of the region. After this, it looks at the ambitions and potentials of the region on the large scale. How will this region grow in the future and what in what direction will the regional development go? From these findings the research will define a direction for an ambitious regional development. These findings are translated into a regional strategy in the next chapter where it becomes clear how the Øresund region can use the Olympics as a strategic tool for their regional development.

The Øresund Region consists of the south-western region of Sweden: Skåne, including Malmö, Lund, Landskrona and Helsingborg & the eastern part of Denmark: Zealand, including Copenhagen, Helsingør, Hørsholm, Hillerød, Roskilde, Køge, Næstved, Slagelse, Taastrup, Falster, Brøndby and Holbæk. Our project focuses on the cities located around the straits of the East coast of Zealand and West coast of Skåne surrounding the Øresund sea, marked up in yellow on the map on the left.

The Øresund Region features a unique blend of proximity to both large city environments, with vibrant, cultural diversity and relaxing countrysides with beaches, forests, mountains and open landscapes. The region has a temperate climate. On a bigger scale you can see that the region’s location within northern Europe. It has good connections to Oslo and Stockholm by car, train and boat. The connection to central Europe (Hamburg and beyond) is also fairly good connected, but the slow boat connection between Denmark and Germany creates a bottleneck.

Fig. 7.1 Map of Northern Europe focused around the selected Øresund region (By Authors)
Fig. 7.2 Map of the selected Øresund region with highlighted urban structure (By Authors)
Helsingør had to redefine itself after the industrial times had come to an end. With a certain delay the town of Helsingør came up with an ambitious project: "Kulturhavn Kronborg" (Culture harbour Kronborg, finished in May 2013). The harbour front has been set out to be the first area to de-

GREATER COPENHAGEN

The capital of Denmark grows from the centre into 5 fingers that allow for green areas to reach the inner-city. The city is characterized by promenades and waterfronts. The city currently has many construction sites due to ongoing improvements in infrastructure and expansion of the metro network.

HELSINGBORG

Sweden's third largest city Malmø was one of the earliest and most industrialized towns of Scandinavia. It has struggled with the adaptation to post-industrialism, but since the construction of the Øresund bridge, Malmø has undergone a major transformation.

LANDSKRONA

Since January 2001 Landskrona has a new railway station on the West Coast railway between Lund and Göteborg along the Swedish west coast connecting Copenhagen and Göteborg. This was very important for the town, since the old station was a terminal for southbound trains only.

CITIES WITHIN THE REGION

People: 61 359 inhabitants
Area: 121.61 km²
Density: 380 / km²

Helsingør

People: 1 950 522 inhabitants
Area: 3 030 km²
Density: 644 / km²

Greater Copenhagen

People: 97 122 inhabitants
Area: 37.63 km²
Density: 2 529 / km²

People: 82 800 inhabitants
Area: 12.09 km²
Density: 644 / km²

MALMÖ

People: 61 359 inhabitants
Area: 121.61 km²
Density: 380 / km²

People: 82 800 inhabitants
Area: 25.75 km²
Density: 3 215 / km²

People: 30 499 inhabitants
Area: 12.09 km²
Density: 644 / km²

People: 664 428 inhabitants
Area: 2 522 km²
Density: 264 / km²

People: 97 122 inhabitants
Area: 37.63 km²
Density: 2 529 / km²

People: 30 499 inhabitants
Area: 12.09 km²
Density: 644 / km²

The city's main identity is the Lund University, which today is one of Scandinavia's largest institutions for education and research. Lund is the only city in this area that is not located by the water, though through its qualities is a part of the infra-structural loop connection.
The road network of the region is following two main lines: First of all it is connecting the different cities around the Øresund sea, creating a loop. Secondly is it connecting the areas in the back-land of the region with the main cities along the straits. In Copenhagen you can clearly see the finger-plan in the main road network. The quality of infrastructure is high and is intensively used on a daily basis by commuting traffic.
The railway system in Denmark and Sweden is well working in both countries and cross-country wise. The slow ferry link between Helsingør and Helsingborg slows down and limits the flow of people and products around the Øresund straits. Copenhagen airport, Kastrup, is the largest international airport in Northern Europe and operates direct flights to more than 120 destinations.
REGION STRUCTURE - DEVELOPMENT THROUGH TIME

Throughout history, there have been strong trade links between eastern Denmark and Southern Sweden. Whereas the expression “the Øresund Region” was not firmly established until the bridge link between Denmark and Sweden became a reality in 2000, the idea of a common region much older. During the Viking Age, the region was a central point in Denmark and until the middle of the 17th century the Øresund was a passage between the Baltic Sea and the North Sea. As a result of Sweden’s reconquering of Skåne in 1658, it became the border between Sweden and Denmark and the region lost the central position.

The idea of the Øresund region
In 1872, after putting the hatchet on the shelf, both Danes and Swedes realized that the different cities could benefit from working together cross country wise in a regional collaboration. Even though official collaboration didn’t really become reality before the 1960’ies, due to political obstacles. Despite certain scepticism from both sides, the Øresund Council was founded in 1964, to support collaboration between local politicians on both sides of the sound. The first big achievement was made in 1973, when an agreement on the construction of a permanent link across the Øresund was signed. Though the plans was put on hold due to the oil crisis in the ’70ies (OECD 2003).

The Øresund Bridge
In the meanwhile the Danish government gave priority to the internal links, the Great Belt Link, 1998, connecting Jutland in west with Zealand in east Denmark. This increased the incitement for a bridge linking Scandinavia to the rest of the EU. In 1991, the decision made and the first regional project, the Øresund bridge was finished in 2001.

Individual masterplans
Until the official collaboration and the fixed link was established, each of the cities had their own individual master plans, where the most famous is the "Finger Plan" for Copenhagen. A plan that though seems to have reached its limit today.

More than 60 years after introduction of the Finger Plan, the overall directions and principles for urban development in Copenhagen need to be re-defined, based on the current urban and regional challenges. Since 1947 a significant technological evolution has changed the perception of what the most urgent development issues are. Sustainability has replaced industrialization as the general focus of discussion. One of the key issues related to this is how the suburbs built around Copenhagen in the postwar-period can be renewed and adapted to the expectations of a modern city.

Urban growth in the region
On the corresponding page are the last century’s morphological growth of Copenhagen’s and the others cities’ within the region shown. This diagram is based on historic maps from geodatastyrelsen.dk and lantmäteriet.se.

The diagrams show a clear tendency of growth to happen away from the city centres in both Denmark and Sweden. This is especially clear in the case of Copenhagen where citizens in the ‘Fingertips’ are up to 20 km away from the centre. On top of that there aren’t proper connections between these periphery areas, which results in inaccessible areas.

The other cities don’t have the same morphological structure as Copenhagen, though they also face critical issues with dis-connectivity between the well working city centres and the suburban sprawl. It is in general an issue of the sprawling city phenomenon and mono-functional areas that forces these dis-connections. Therefore all the cities within the region are focusing on urban densification; creating better in stead of more city.
REGION STRUCTURE - DEVELOPMENT THROUGH TIME

Fig. 7.5 Development of the city structure of the region (By Authors)
CURRENT SITUATION AND FUTURE PREDICTIONS

Cross-border political co-operation
As the importance of national borders continues to decline in the new border-less Europe, the Øresund region is an example of an international region that reflects the modern age: two countries complementing one another in a region without borders. The Øresund region has no common governing body and fits the label of governance without government. However, the national governments cooperate on several levels to make the Øresund region politically accessible to its inhabitants. Closest to a governmental organ is the Øresund Committee, a regional forum for political co-operation that consists of politicians from both countries existing since 1993 (oresundskomiteen.org, 2013).

Economic situation
Although not fully established, the region is already attracting the interest of international investors, despite the unreleased potentials from being in the Euro zone’s currency. From 1998–2000, a major share of direct investments in Denmark and Sweden has been directed to Øresund, complemented by the European Union (OECD, 2003). The Union is supporting various community programmes in rural, urban and territorial development in gaining strength. Notably, the INTERREG program contributing with EUR 30 million to the Øresund Region from 2000 - 2006 has benefited the region (OECD, 2003).

Given its focus on market integration, its innovative governance system and numerous cross-border institutions, the Øresund area is a particularly interesting test case for the processes of regional integration within the European Union. The Øresund Region is extremely important for the Danish and Swedish economy. It accounts for 27 per cent of the two countries overall GDP. In 2009 the average Gross Regional Product (GRP) per employed in the region was €69 000, compared to €48 000 in the EU-27 (Interreg, 2012). The standard of living in the Øresund Region is high, and the welfare system is very well developed. A combination that makes the region an attractive location for families, businesses, employees and students.

Demographic overview
The Øresund Region is home to 3.8 million inhabitants and is currently growing with about 15 000 people per year. Over the next 20 years, an increase of 10% is expected (Denmark Statistics, 2013). Approximately 2/3 of the total population lives in the Danish part of the region. The largest cities in the part of the Øresund region this research focus on are: Greater Copenhagen 1 950 522, Helsingør 61 359, Helsingborg 97 122, Lund 82 800 and Malmö 664 428 (Interreg, 2012). The latest and prospected demographic tendency is the fact that Øresund has an aging population.

Infrastructure
With a well accessible international airport, the Øresund region is easily accessible from all parts of the world. Copenhagen airport: Kastrup, is the largest international airport in Northern Europe and operates direct flights to more than 120 destinations. Within the Øresund region itself, travel times are relatively short thanks to an excellent public transport network, as well as large investments in a proper road network.

The Øresund bridge is the longest combined road and rail bridge in Europe and runs between Copenhagen and Malmö. It is a double-track railway and dual carriageway bridge-tunnel. The bridge runs nearly 8 km from the Swedish west coast to the artificial island of Peberholm, in the middle of the Øresund Sea. The remainder of the link is by a 4 km tunnel from Peberholm to the Danish island of Amager. It connects the road and rail networks of Scandinavia with the international European route E-roads. The construction of the Great Belt bridge (connecting Øresund region to the rest of Denmark) and the Øresund Bridge, have connected Central and Western Europe to Scandinavia by road and rail.

Regional cross-border exchange
Øresund is one of the most dynamic regions in Europe. The area generates a quarter of the combined GDP of Sweden and Denmark (unixoresund.org, 2013). Within the region is already a rather well established exchange of raw materials, labour resources, expertise and knowledge. Further is it noteworthy that cheaper housing, cheaper cost of living, DKK/SEK exchange rate and environmental reasons have moved the residence of 13 000 Danes to the Swedish part of the region, though keeping their work in the Copenhagen area, while only around 3 000 have done the opposite (OECD, 2003).

Commuting in the region
The number of cross-border commuters has risen heavily since the introduction of the Øresund Bridge. In 1999, before the introduction of the bridge, an average of 2 600 individuals commuted every day and today this number has risen to 18 000. This trend is shown in table 7.1. What you can see is that although the bridge was completed in 2001, it took some years for people and companies to adapt to this radical change in the connectivity in the region.
FUTURE AMBITIONS

Sustainable growth and innovation are two major topics on the political agenda of both Denmark and Sweden. The cross-border collaboration is gaining importance on both regional and national level. The Øresund Region is already a strong cross-border region, but there are still plenty of potentials to strengthen the collaboration. Many of the regional and local plans made for future urban development in the Øresund region are based on the recommendations of OECD in 2003. OECD is one of the international organizations that focuses on how cities and regions can stimulate economic progress and market economy between the democratically ruled countries. It was founded after the second World War and stands for Organization for Economic Co-operation and Development.

OECD recommendations

In the report "OECD Territorial Reviews on the Øresund, Denmark/Sweden" from 2003 the whole region is reviewed from a development perspective. OECD has furthermore made a review of Greater Copenhagen in 2008 and of Skåne in 2012. The following points are extracted keynotes from the regional report (OECD, 2003). But overlap in many cases with the two other mentioned reports. The keynotes are arranged in two groups: Existing qualities and future challenges.

Established qualities:
- Through it position as a test bench for cross-border regions, the Øresund region has a continuous interest from investors and the EU.

- The Danish and Swedish government consider the project consistent with their regional policies.

- Already well established cross-labor and -country collaboration puts the region in front of many other of the networked city regions in Europe.

Challenges:
- The current connectivity is not sufficient to fully exploit the benefits of the cross-border integration. Despite positive results from the bridge’s opening, the existing infrastructure should be reconsidered and pricing policies revised.

- Another policy challenge is to further facilitate labour mobility by removing bureaucratic and legislation obstacles and developing more active labour market policies cross-nationally.

- On-going initiatives appear promising, but their effectiveness could be increased by also addressing small firms and a wider range of sectors.

- The need for a new tax agreement to tackle asymmetries of the two fiscal systems.

- The Øresund governance structure needs to give voice to all relevant actors, while ensuring managerial efficacy and accountability. Light institutionalization of cross-border co-operation seems advisable.

Densification - Filling up the city voids as a common urban strategy

Looking into the local plans of Greater Copenhagen, Helsingør, Helsingborg, Landskrona, Lund and Malmö has it been found that they all advocate for the compact city or some sort of densification process, as a strategy to obtain a more sustainable future urban development. The compact city policy means regeneration and densification of existing urban area (Skovbro, 2001).

The strategy could be seen as a reaction to the car-oriented urban sprawl with longer distances between urban functions, poor access to facilities and services, less efficient infrastructure provision, loss of open land & social segregation that some of the cities have been and are facing to different extent.

Urban densification can be means to achieve a denser and more mixed city, accessible for pedestrians, cyclists and public transport. It can also be a way to conserve land and infrastructure by gathering what is already there.

An urban densification strategy also poses problems and challenges of congestion and capacity. It will increase the settlement’s density, the frequency of traffic, noise and emissions and it will increase the pressure on the municipal services and supply networks. It is therefore important to maintain qualities such as views, access to sunlight and recreational areas, while the city become denser. Densification requires a holistic approach to an even greater degree than in the new development. Trade-offs between different interests becomes more difficult and the need for compromises. The specific approaches and densification zones for each of the cities in the region are described in the city analysis after the general strategy definition in this chapter.
### MAJOR DEVELOPMENTS IN THE REGION

The previous pages show that there is no such thing as an official regional development plan for the Øresund region. The plans made more on individual strategy levels, while the more specific plans are split into the different “Kommuner” (districts) and subregions in the Øresund region. The map on the left page and the supporting text on the next pages describe the most interesting and relevant development projects. Some of them are being executed, other are still in the progress of planning. The map highlights the major developments that have regional relevance. There is of course more going on in the different cities. These will be elaborated later on in the chapter.

#### 01. Ørestad

The Ørestad in eastern area of Copenhagen and in the heart of the Øresund region has 9 700 inhabitants and 11 300 jobs. When the district is finished, there are 25 000 residents and 80 000 professional and student workplaces. The proximity to Copenhagen airport, metro and regional ensure good relations with the region. While the northern part of the Ørestad is almost fully developed and includes the 51 000m² media city of the Danish Radio, the southern part still to be developed. The aim is to create a dense urban environment with commercial and residential functions, along with sport venues and primary -& high-schools. The hotel Bella Sky from 2011 is with its capacity of 840 rooms meant to kick-start the development of the southern part of the district.

The Ørestad offers opportunities for the creation of architecturally significant buildings, modern housing and urban spaces in interaction with the protected natural areas. The district is particularly attractive for regional and international-oriented knowledge-based.

#### 02. Northern Harbour - Malmö

Malmö northern harbour is a 900 000 m² old industrial area, very attractive for both businesses and residential developments. The strategic location in proximity of Malmö’s freight yard, the largest railway hub in Southern Sweden and the international motorway networks, makes it easy to distribute incoming and outgoing flows of people and products. It is well connected to both to Scandinavian and northern Germany and even Poland, the Baltic States and western Russia.

The area is planned to transform from an industrial harbour area into a great mix of functions securing a pulsing city district. Several projects have already been build and one of the is the 10 000 square meters Media Evolution centre from 2011, which is a meant to be one of the pioneer projects giving character to the new transformed harbour area.

#### 03. Copenhagen Arena

The new Copenhagen Arena is a multi-functional arena with a capacity of 12 500, located just next to the E20 highway that connects Copenhagen and Malmö. It is a part of the development area of the Ørestad presented on the previous page. The arena is going to function as sport facility for both students and professionals and indoor events of both national and international character.

#### 04. European Spallation Source - Lund

Another major project is the European Spallation Source (ESS) in the Lund Campus, planned to open in 2019. Designed by Henning Larsen Architects, COBE and SLA, who won an international design competition in February 2013. ESS will be a research campus with a 600 meter long proton accelerator and a 180-meter-long hall, which gives unique opportunity for research in this field. In addition ESS consist of a number of facilities for researchers: laboratories, offices and an auditorium. While building a total of 100 000 m². The project is predicted to be one of the main buildings, which will produce research with enormous potential for the future that will set a new agenda for Lund as a knowledge city and a global research destination. Research at the ESS is expected to start in 2019, with between 2 000 and 4 000 researchers. A technique relevant for medicine, archeology and sustainable energy sources.
I1. The Fehrman Belt connection
Although not located within the area of focus, this project greatly affects the region development of the coming decades. The new Fehrman Belt Bridge connects central Europe to the Øresund region, which means more traffic and bigger pressure on the existing infrastructural network. More important: an economical stimulation due to better accessibility.

I2. The H-H connection
One of the most critical points in the connectivity of the region is the Helsingør-Helsingborg "slow" boat connection. It works as a bottle neck, slowing down the circulation in the region. As commuting traffic has increased, this has become a very actual point of discussion. From 2010 the Danish engineering companies COWI and Rambøll have investigated the most efficient solution of creating a fixed connection between the two cities. The conclusion is that a tunnel is the optimal solution. The process of this tunnel is however in the planning phase. The biggest issue is the investment needed for this development weighed against the positive impact it could generate for the region.

I3. Copenhagen Ring 5
Ring 5 is intended to de-stress Ring 3 and 4. Ring 5 is of great importance for the future traffic between the city fingers "that without such a link will load the radials and existing ring compounds significantly (Dansk vejdirektorat, 2011)." Ring 5 will be especially relevant in light of a future permanent connection to Germany, Fehrman belt bridge, and any fixed link between Elsinore and Helsingborg. Both projects will increase international traffic across Zealand. The last Road Directorate has stated that there is need another highway around Copenhagen to cope with the traffic growth is expected in the coming years.

I4. BIG Architects’ Loop City
The Copenhagen’s ring-roads are already being updated and Ring 3 is currently being extended with a light-rail train track connecting the western part of Copenhagen. In an attempt to gather an optimize the different new infrastructural projects including the H-H and Fehrman connection, BIG Architects has made an ambitious proposal of a metropolitan loop connection, called “Loop city” on the initiative of the foundation Real Dania. The proposal has been received with great interest from both national ans local governments. Currently, the proposal is still in the conceptual phase of planning, but it seems to be in a proceeding process and several of the involved communes that have declared their support. The complexity and the many involved parties increase the duration of the decision-making process. Once these political issues are solved it is mainly a question of investments for this project to be realized. The proposal contains many interesting perspectives and could very well form the basis for the development strategy that a regional Olympics could support and help realize. Therefore the proposal is described in more detail on the following page.
Back in the 1940ies, when the finger-plan of Copenhagen was introduced it tried to tackle the following issues at that time:

1. Industrialization
2. Migration
3. Mobility
4. Health
5. Energy
6. Nature preservation
7. Food
8. Waste
9. Drinking water
10. Global war

BIG's vision of the future of the region is an extremely inter-connected region, where the border between Sweden & Denmark has disappeared and the Øresund region forms the new economic centre for these two countries. The current infrastructural network is continued at the top between Helsingborg & Helsingør. Next to extending the current infrastructure, the planning of a new light-rail connection looping through the region is proposed. This infrastructural line forms the 'red line' for the new Loop City. The line follows the areas in need of development and connects them. The new development in these areas is related to the contemporary problems above. BIG tries to translate these problems into sustainable ambitions. The different areas each get a specific theme or function.

Fig. 7.11 Icon Loop city proposal (RealDania)

The visionary approach of BIG sketches a very appealing future perspective. Is this proposal also realistic?

BIG sees the infrastructural connection and the whole idea of this well networked region as an attractive business climate for international companies and industries. Next to this they predict an urban growth focusing along the loop instead of a sprawl towards the inner-land. This all could generate the economic input to finance such a development. It is all about completing the loop and therefore needing a willingness from both countries to invest in this region. The willingness is there, as explained earlier in this chapter. However creating this international zone remains complicated on a level of governance. This mainly relates to where is what money coming from and who is benefiting exactly from which investment. Can a mega event, such as the Olympics come into play at this moment of time, in order to create financial support and the political and public commitment/willingness required for this development to be realized?
CONCLUSIONS

The cities within the region of Øresund are all in the process of developing from harbour industry and industrial cities towards more service and knowledge orientated societies. Each city has a certain character and has a more or less established role in the region; Copenhagen and Malmø as vibrant metropoles, Lund as the knowledge centre, Helsingborg, Helsingør and Landskrona as the relaxing countryside with beaches, forests, mountains and open landscapes.

While the cities of Helsingborg, Helsingør, Landskrona, Lund ad Malmø are facing issues with sprawling urban development, are the "fingertips" of Copenhagen also reaching a maximum distance to the city centre. All cities are in need of a new development strategy that focusses more on sustainable densification rather than continues city expansion.

The "loop city" proposal from BIG Architects proposes a way of gathering the already planned infrastructural projects: the Fehrman bridge, the HH-connection, the Copenhagen city ring 5, the light railway improving the Copenhagen city ring 3. The loop is aimed to work as a vein of urbanity running through the suburbs in a decentralized metropolitan region. The proposal has great potentials and combined with the local city issues found in the research and OECD’s recommendations it seems to be a good first step in the process of developing Øresund as a key region in Europe.

The corresponding page shows the potential effect of the infrastructural ambitions. The current situation is put off against the desired future infrastructural connections. By realizing these projects Øresund will form a key point between northern and central Europe, due to increased mobility within the region and improved accessibility from outside of the region (see images).

Realising a project of this scale and complexity takes a certain political willingness, that is already for a large part established. Secondly it is also a project with big economical burden, which has proven to still be a challenge. Though all the commune’s ambitiously have given very positive feedback to the proposal of BIG Architects.

'A mega-event as planning tool for Øresund’s regional development'

At this moment of time, there is a great potential to use a mega-event as a planning tool to achieve the necessary financial and political support. By linking initial and key development to such an event in Øresund, the general planning direction could be guided towards the regional ambitions formulated on this page. Therefore a conceptual implementation of the decentralized Olympic summer Games is projected on the Øresund region in the following part of this chapter.
ØRESUND WITHIN NORTHERN EUROPE

Fig. 7.12 Current infrastructural connections in and to the Øresund region (By Authors)

2013

Fig. 7.13 Future infrastructural connections in and to the Øresund region (By Authors)

2030?
STRATEGY IMPLEMENTATION
INTRODUCTION & PLANNING REFERENCES

This chapter defines a long-term development strategy for the Øresund region, based on the analyses of the previous chapter. It will show how mega-events can be used as a tool in catalysing major urban development by setting a direction and first step in the desired direction. The chapter starts by using the preceding Olympics and theoretical models from this research to base a direction for the spatial strategy of the Øresund Olympics. After this the strategy is presented. It will show how it is implemented over time and what kind of role the Olympics have in this development. It also elaborates on the organisation of the Olympic Games itself and how the venues are distributed over the region. After all of this is elaborated on a regional level this chapter zooms in to the level of the individual cities and shows how their local planning is integrated in the regional approach and how each city uses this development in a different way. This will also show the exact location of the Olympic areas.

Barcelona - 1992
The Barcelona Olympics is the first edition that was really able to use the Olympic Games as a tool for city development. By creating compact clusters with specific functions, the Olympic areas were transformed into integrated pieces of city. A key part in their strategy was that they didn’t focus the main Olympic program in a central park, but instead defined four clusters that would house the different Olympic facilities. These clusters were linked to the new ring road ensuring great accessibility. This resulted in smaller areas that were easy to transform and be integrated into city after the 1992 Games. The poly-clustering of the main Olympic areas along strong infrastructural lines is a key point the strategy for the Øresund Olympics.

Atlanta - 1996
Atlanta is not a famous Olympic edition in terms of the city development that was linked to the event. It is known for its largely privately financed organization that was focused on minimum investment for the public and therefore did not link large city development to the event. The way how Atlanta made use of the existing sport facilities was however quite successful. Atlanta did not merely use the Olympic facilities within the city boundaries, but made use of different facilities within the State and even some cross-State facilities. Distributing the Olympic venues within a region increase the chances for good post-Olympic use. This approach is central aspect in the Olympic planning strategy of Øresund.

London - 2012
The London Olympics was focused from the very start on creating the best possible legacy for the city. The legacy value of the venues and the long-term objectives had higher priority than the event orientated objectives. This led to extensive use of temporary and a few down-scalable facilities. The result of this created a framework for future development to take place: an inaccessible, swamp-like area was transformed into an Olympic park with high-quality public spaces and temporary venues. Now that the temporary venues have disappeared, the park is left with plots ready for new development. The aim is to create an integrated piece of city with a rich mix of functions. While selecting Olympic areas in the Øresund region, focus has been on where the most effect-full post-Olympic legacy can be created.
DECENTRALIZED LOCATION STRATEGY

The empirical studies earlier in this research were concluded in 4 possible theoretical models for an Olympic organisation in a regional setting:
- Mono-clustering combined with satellite venues throughout the region
- Spread throughout the region
- Inner-city poly-clustering
- Periphery poly-clustering

In practice the regional strategy will often be a combination of more of these theoretical models, rather than purely a single strategy.

After analysing and mapping the Øresund region, the greatest potential has been found in the following two strategies as guidelines:
1. The ‘Inner-city poly-clustering’ focusing on de-stressing a single Olympic zone by creating several clusters throughout an area. By regional poly-clustering, dividing the Olympic venues in smaller parts between the six chosen cities in the Øresund region the post-integration will be eased. Distributing the venues strategically could catalyse the cities’ common urban densification ambitions.
2. The ‘Spread throughout the region’ model that focuses on using existing facilities to minimize the construction of new facilities. This will result in a better after-use on building level and a reduced investment.

The combination of these theoretical models form a guideline and base for the regional development model for Øresund.

After the spatial strategy is defined, it is important to further define the direction of the regional development of Øresund. The following pages describe key points on different scale levels, which the strategy should follow.
Currently the region's infrastructural network exists of highways and railways, where the railway always goes through the city's centre and the highways run through the periphery areas. The planned light-rail connection will be focused along the highway and thereby creating optimal accessible areas along these lines for both public transport and cars. The clusters of the regional strategy will be located along these high-speed infrastructural lines in order to create a maximum connectivity.

By inserting acupunctural urban interventions several new transport hubs will appear. The transport hubs will catalyse new development both locally and regionally. This strategy of T.O.D. (Transport Orientated Development) will ensure the accessibility and attractiveness of the new areas for developers and businesses.

Where should these new clusters be located in order to generate the largest positive impact? All cities within region have their own specific characteristic. This is strongest expressed within the central or historic part of the city. The periphery parts of each city lack this identity and are comparable in spatial experience within the different cities. Next to the lack of identity, these areas suffer in many cases from a lack of spatial quality and public facilities. In order to solve these issues, all cities within the region use the strategy of urban densification. This regional strategy applies this densification by inserting the new development clusters in the periphery areas of each city. In this way it preserves the unique qualities of each city, while at the same time exploiting their regional potential and upgrading deprived areas.

### 1. Urban densification in the periphery located areas

Where should these new clusters be located in order to generate the largest positive impact? All cities within region have their own specific characteristic. This is strongest expressed within the central or historic part of the city. The periphery parts of each city lack this identity and are comparable in spatial experience within the different cities. Next to the lack of identity, these areas suffer in many cases from a lack of spatial quality and public facilities. In order to solve these issues, all cities within the region use the strategy of urban densification. This regional strategy applies this densification by inserting the new development clusters in the periphery areas of each city. In this way it preserves the unique qualities of each city, while at the same time exploiting their regional potential and upgrading deprived areas.

### 2. Regional development clusters located along new infrastructure

Currently the region's infrastructural network exists of highways and railways, where the railway always goes through the city's centre and the highways run through the periphery areas. The planned light-rail connection will be focused along the highway and thereby creating optimal accessible areas along these lines for both public transport and cars. The clusters of the regional strategy will be located along these high-speed infrastructural lines in order to create a maximum connectivity.

By inserting acupunctural urban interventions several new transport hubs will appear. The transport hubs will catalyse new development both locally and regionally. This strategy of T.O.D. (Transport Orientated Development) will ensure the accessibility and attractiveness of the new areas for developers and businesses.
On a level of an individual cluster it is essential that these new development sites should be carefully organized in terms of function and density. Generally these periphery located areas, such as business-parks are spatially not unappealing in the sense that they are only used for a certain time period and are often mono-functional. To avoid creating more of these areas there are clear requirements for the new regional development clusters: These areas should have a mixed use with housing, offices and public program. Combined with a certain density of building, this will result in lively areas that will create a functional and spatial synergy among the different land uses. The different clusters can have a specific focus (for example a sport campus), but it will always be combined with housing and public program in order to guarantee liveliness.

In order to create a regional identity for Øresund and to benefit of the catalysing effect of iconic architecture, the strategy proposes the insertion of iconic buildings and structures on strategic points throughout the region. This strategy has already proven to work for the region of Øresund, exemplified by the Øresund bridge, which since it was completed in 2001 has been the main image of Øresund as a collaborating region. A clear requirement for these iconic objects are that they should be of functional use for the region as well the cities, like the bridge that is increasing the connectivity between Denmark - Sweden and Copenhagen - Malmö.
THE ØRESUND REGION ANNO 2047

Regional roads
Railway
Light-trail
Regional orientated development sites

Regional roads
Railway
Light-trail
Regional orientated development sites

Strategic Implementation

THE ØRESUND REGION ANNO 2047

Regional roads
Railway
Light-trail
Regional orientated development sites

Regional roads
Railway
Light-trail
Regional orientated development sites

Strategic Implementation

Fig. 8.9 The Øresund region anno 2047 (By Authors)
The Olympic Games is aimed to fit into the ambitions and strategies of the region. Therefore the Olympic strategy is primarily focused on realizing these long-term ambitions, above the goal of creating a successful sport event. The Olympic Games is merely a moment in the process and functions as a tool to create a framework and define a development direction for the broader regional strategy.

The different cities within the region have the ambition to function more as a networked region on physical, economical, social, political and cultural level. There are a few key interventions necessary to really stimulate this development. These interventions are related to the connections between the different cities and other regions within Europe.

The Olympics will firstly focus on realizing these infrastructural developments. The main projects that will be realized in this phase are the H-H connection, the upgrading of the existing infrastructure and the construction of a new high-speed light rail connection throughout the entire 'loop'.

This creates a high-quality framework for the actual clustered development to take place. Next to this, it is preparing the region for the currently constructed Fehrmann bridge to Germany, that will generate a substantial increase of traffic in the region.

After these connections are established the region is ready for substantial growth or more specifically: densification. The development strategy is to create multi-functional clusters in the periphery voids of the different cities. These clusters are located along the high-speed infrastructure (highway and light-rail).

The Olympics will create a framework for the realisation of the first regional clusters. In the long-term, the Olympic areas will combine high-quality sport venues with other regional functions and housing. Thereby creating excellent connected, multi-functional and vibrant areas that will set the new trend for development in the periphery areas of the cities. These clusters will not only have positive effect on a regional scale, but will locally also create a positive impact by the increased connectivity and more collective functions.

After the Olympics Games have left Øresund the development strategy continues, densifying and connecting the periphery areas of the cities.

This will result in a global competitive Øresund anno 2047. Hundred years after the finger-plan of Copenhagen was first introduced. The region is now characterized by a unique infrastructural connectivity and an attractive area for families, businesses and institutions.

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**Fig. 8.10 Development strategy for the Øresund region (By Authors)**
SPATIAL ORGANISATION OF THE 2028 ØRESUND OLYMPICS

These pages display an overview of the suggested Olympic model. The corresponding page shows a map with the overall distribution of the Olympic Games along the newly established infrastructural loop. The translation of the theoretical models defined earlier this chapter is clear, with several compact clusters and optimal use of existing facilities throughout the region.

The Øresund Olympics is organized in five main Olympic areas in different cities within the region. The main ceremonial venue and location for the Athletic events is located in south-western Copenhagen. The areas of south-eastern Copenhagen and Malmö contain most indoor sports, such as basketball, handball and gymnastics. Landskrona is hosting the equestrian sports and shooting, while Helsingborg is home to water sports and several other outdoor sports. Most of these areas are already sport related and will get the necessary upgrades in order to fit Olympic requirements. More important is that the Olympics will transform the areas into develop-ready plots, ready to be developed as soon as the Games have ended. The areas will be densified with a mix of functions in order to guarantee lively and integrated pieces of city. A large part of the events happen outside of these Olympic areas however. The extensive use of existing sport facilities throughout the whole region will result in minimizing investments and optimizing after-use. These existing facilities will be upgraded to Olympic standards and where necessary their capacity is temporarily extended to match the quantitative requirements of the IOC.

Events that do not require an actual sport facility such as cycling, triathlon and sailing are organized throughout the region and run through existing landscapes and scenery of the region. The Øresund Olympics has two main Olympic Villages, located in Helsingør and Lund. With a maximum travel time of 27 minutes from the village to the furthest sport venue, the max. 40 minutes travel time requirement is easily met. The split of the Athletes Village is done both to facilitate minimum travel time as well to create a more suitable contribution to the housing market after the Games have ended. The Village in Lund is conceived out of large blocks with smaller units inside and will be transformed to student dormitories after the Games. The houses in the Helsingør village are free standing family houses that anticipates the large housing demand for this typology in the city.

The Media facilities are located in Malmö. After the Games it will work as a catalyst for the revitalisation of the Västra Hamnen harbour.
OLYMPIC EXPERIENCE

Hosting the Olympics within a regional setting is something that hasn’t been done before. How the Games will be used in the development strategy of the region is extensively elaborated in the previous part.

In the following is elaborate how the Olympic experience as an event can be preserved in a regional setting. The latest Olympic Games in London was focused around a central Olympic Park, combined with different existing & temporary venues spread throughout the city. This enhanced the Olympic feeling throughout the whole city.

The Olympic Park contained the main sport events and was strictly for the people who managed to get a ticket, VIPs and IOC family. Although this research will not go into the organization and design of each Olympic area within the proposed decentralized model, there are a few key points that are important for the success of the regional Olympics:

The Øresund Olympics use a large amount of satellite events, like it was done in London. Some of them will be open to the public, where others require tickets for entry. The scale of the scattering of these venues is also comparable or even more compact as in London. This is done to generate an Olympic feeling throughout the whole region.

The main experience is however in the Olympic areas. By creating five smaller areas rather than one central park, the Olympics as a whole will be more accessible for more people. Each Olympic area has a certain theme, such as the ceremonial area, the indoor sports and the Athletes Village. A key part in the design of these areas is that there should always be a substantial public part within the park. An area where visitors without tickets can get together and watch the different events on screens. It contains different pavilions with facilities and unique experiences related to the sports and education.

Next to this public area there is a restricted zone for people with tickets that surrounds the main sport venues.

In general this approach will beside making the Olympic Games physically more open also contribute to change the psychological image of this totally closed-off event.
STRATEGY ON CITY LEVEL

To further elaborate on how the regional planning scheme will benefit the local governments and inhabitants, the last part of this chapter will zoom in on the scale of a city. It shows each city’s individual development ambitions and how these are related and fitted in to the regional planning scheme. Next to this the exact locations of the Olympic areas and its potentials are shown.
MALMØ ARENA - Malmo Arena is a multi-use indoor arena with a capacity of 13,000 for sports and 15,500 for concerts. It is the home-field of Swedish Allsvenskan Ice-hockey club Malmo Redhawks and is further used for team handball, floorball, concerts, and other events.

SWEDBANK STADIUM - Home-field of Allsvenskan football club Malmo FF. The stadium is build in 2009 and has capacity of 24,000, and of 21,000 for international games. The pitch is covered by grass and has the dimensions 105 by 68 meters.

MALMØ STADIUM - A multi-purpose stadium with a capacity of 26,500 of whom 14,000 are seated. It is the home-field of athletics club MAI. The stadium facilitates an athletic track of international standard.

MALMØ KANOTKLUBB - Southern Sweden’s largest club with approximately 500 members and offers several different activities; youth and elite activities with a focus on training and competition, kayaking, guided tours and dragon boat and outrigger paddling.
CHARACTERISTICS OF MALMÖ

Malmö was founded around 1275 and is historically an industrial harbour city. For centuries it was Denmark’s second biggest city until it was conquered by Sweden again in the 17th century. Malmö was one of the earliest and most industrialized towns of Scandinavia, but it has been struggling with the adaptation to post-industrialism. Though, since the construction of the Øresund bridge, Malmö has undergone a major transformation. It increased both in size, inhabitants and managed to attract new large biotech and IT companies, especially benefiting from the "Medicon Valley" collaboration.

URBAN STRATEGY

Currently, Malmö is facing three main urban challenges: Increasing population, increasing pressure on local -/ regional public transport and renewal of the harbour area.

In the transition from industrial to service and knowledge society, Malmö's focus within urban planning has gradually shifted: From the development of natural resources towards the attracting of human resources, business and investment. The city has grown by around 5 000 persons per year in the last decade, which is twice the rate of the decade before. If this trend continues Malmö will have around 350 000 inhabitants in 2020 and 400 000 in 2030. The increasing population has resulted in an extending urban sprawl. Further is Malmö currently facing increasing social gaps between different communities, resulting in alienation.

In 2005 a new main strategy was formulated to deal with these two main issues: An urban densification strategy in the means of filling up the city’s voids. Next to this, the traditional master planning approach was replaced by a more ongoing and adaptive long term planning. The process was kick-started by densification of some of the central areas, such as Forsta, Husie, Rosengård, Fosie, Southern inner-city and Hylle.

While these areas are currently being developed, The areas of Nyhamnen, Middle Harbour and Limhamn Bunkeflo are next on the city’s agenda. Focus is on the revitalization of the old western harbour and industry area. Next to these development areas are there also a focus on updating the infrastructural accessibility within and to the city. Especially are the regional connectivity and improvements for pedestrians and bikes traffic in the city of high priority.

SUITABLE OLYMPIC AREAS & SITES

The chosen Olympic area is marked by a red outline and the used facilities have a red text box.

Handball, Boxing, Fencing, Taekwondo, Judo, Westling Greco, - Freestyle, Weightlifting, Hockey, Canoe slalom, Canoe sprint and football are together with the Media centre (The International Broadcast centre and the Main Press centre) planned to be located in Malmö.

The media centre will be located in the western harbour area as a part of the revitalization development of this old industry area. This is a planned development area with a mix of housing, offices and leisure that needs investors. The Olympic media centre can boost this development. Beside these new interventions the newly built will the Media Evolution city also be used doing the Games.

The football event is going to make use of the Swedbank Stadium and the Malmö stadium with certain upgrades. The Canoeing competitions in the Slottsträdgården a nature canoeing canal system. The other sports are organized in one area and will be located in the border zone between the southern part of the district of Hylle and the northern part of the district Limhamn Bunkeflo. The aim is to use the new Malmö arena, 2012, and complement it by the necessary temporary venues. The use of temporary venues can boost the development already started and thereby be a part of the future plan for the urban development of Malmö. The Malmö Arena has this summer 2013 hosted the Eurovision song festival with great success and by this putting themselves on the European map. The Olympics will have the a similar effect, but on a global scale.

Through the Olympic area currently passes two rail ways, the main highway to/from Malmö to/from Copenhagen and local transport to the city centre of Malmö in the borders of the site. The existing infrastructure makes the site very accessible.

To meet the increased needs and ensure the legacy use, the Olympic area will become a station on the new light rail way. This will improve the regional connectivity and especially open up for the commuting for students and staff to Lund.

The arena and the new shopping centre Euphoria (Sweden’s second biggest) are located on a site. These two inventions will through the preparation for new development of the area make the site more attractive. It has the potential to become a gate to the city from Copenhagen.
CHARACTERISTICS OF LUND
Lund was founded around 990 and was a rural settlement until 1666, when the University of Lund was established. Since then the city has been focused around the university. In the 1940s, Lund was a relatively small city with few large-scale industries, covering about a quarter of the current urban area. The city was dominated by the cathedral and the university. Since then, the student population increased about twelve fold; The university has today 42 000 full and part-time students. Around 50% of the students are commuting every day from Helsingborg and Malmö. The university is currently extending towards north east of the city and through bigger catalysing projects like the ESS centre is the new neighbourhood Brunnnshög being developed as a mix-use area for both the university and learning companies collaborating with the university. Many technical and biotech companies have settled down in Lund the last two decades (Lund.se, 2013).

URBAN STRATEGY
Currently Lund is facing four main urban challenges: Rapidly increasing population, lack of student housing, increasing pressure on local -/regional public transport and creating attractive conditions for learning or knowledge based companies, while not creating mono-functional districts.

With an ambition of becoming the learning centre of the region the main focus is on the issues directly related to the learning topic; Student housing and attractive conditions for learning and knowledge companies. Lund aims to achieve this by densification in the means of integrating the suburban areas better and increasing the amount of especially student dwellings in strategic chosen development areas in Lund: Väster, Kobjer, Gunnesbo, Linebo, Klostergården and Östra Tommårtsens fälad. Other than this the focus is on improving the conditions for the many commuters by improving existing and investing in new public transport.

SUITE OLYMPIC AREAS & SITES
The chosen Olympic areas are marked by a red outline and the used facilities have a red text box.

From thorough studies of the characteristics, the location and with the urban challenges in mind, it is decided that Lund is going to have one of the two Olympic Villages. The area found most potential for this purpose is Väster. The specific site is marked by a red line on the map on the corresponding page. The suitable existing sports facilities in the city will be upgraded to a certain extend and used as training facilities for the Athletes living here during the Games.

The Olympic village is located in the North-western part of the city closely to the central station in Lund. Currently the area is dominated by industry and commercial buildings creating undefined open land between two existing residential areas. The sites works as an entrance to the city from North-west. A vibrant mix-used student neighbourhood could create a representative gate to the city and will enforce the identity of the city as the learning centre of the region.

The Olympic Village is conceived out of bigger apartment blocks with smaller units inside and will after the Games be transformed into student dormitories after the Games. The build-ings with a total capacity of around 5 000 beds will be of excellent value to the city’s housing market.

Furthermore there are possibilities for further development to happen in phases, eventually in combination with the two development areas in Gunnesbo and Kobjer north of the side.

By introducing housing for around 5 000 people or 6.1 % of the city’s current population at once will the pressure on the infrastructure especially increase. Therefore will the Olympic village in Lund become a station on the new light rail way in order to ensure the legacy use. Local and commuting students will benefit from this direct line to the University campus of Lund. This will further improve the conditions for the new city district Bruunshög and the university to attract new investors. The light-rail connection prepares the city for long-term growth.
Horse Centre Örebo - The centre's main facility is the arena with a circus ring measuring 20m x 40m and room for up to 400 spectators on the stands.

Landskrona Sports and Athletic Centre - A multi-purpose sports-area with both the Landskrona stadium that can hold 12,000 people, where 3,500 have seats. Further are there 9 football fields and a newly renovated athletic track with several supporting athletic facilities.
CHARACTERISTICS OF LANDSKRONA
Landskrona is a town build up around a natural harbour that origins from the beginning of the 15th century. After the industrial revolution and the urbanization connected to this, the town grew relatively fast. The growth was catalysed by the large shipyard Öresundsværft, which was founded during the World War I. Though Landskrona’s growth slowed down and almost stopped after the war. Around 1975 the shipyard had more than 3,500 people employed: almost 12% of the total population of the city. When the shipyard closed in 1983 a two decade long depression began. The car ferries to Copenhagen closed in 2000 after the Øresund bridge opened in summer of 2000, while at the same time nearby towns like Helsingborg, Lund and Malmö benefited from the bridge and continued to grow. (Landskrona.se, 2013) From around 2001 the town has slowly started to recover and a more ambitious urban planning is currently in progress: The Landskrona 2030 strategy. Exemplified by new railway station on the West Coast railway creating an important stop between Lund and Gothenburg, finished in January 2001. This was very important for the town, since the old station was a terminal for southbound trains only. The new station is along the dual fast railway between Copenhagen and Gothenburg and all trains stop at the station. The connection between the new station and the city centre, "The Station Shuttle," is operated with trolleybuses from 2003. Landskrona is now the only city in Sweden operating trolleybuses.

URBAN STRATEGY
By the moment Landskrona is facing three main urban challenges: How to decrease the amount of mono-functional districts, Increasing pressure on local / regional public transport and create more public spaces that engages people across generations, while benefiting from the intimate conditions in a smaller town.

Though the work on the new strategy is still not published and very little material is available, the local government has set up the following approach and focus points chosen: Densification, mix-use functions and creation of recreational spaces within the city. The densification approach is chosen in order to integrate suburban areas better and to increase the amount of dwellings in strategic chosen development areas in the town: Sabyholm, Vastervång, Karlslund, Notra Industry area, St. Olofs vang, Hylliebycken, Oster and Vastra industry area.

Further there is focus on creating more mix-use function areas that are lively around the clock. How exactly to approach this is though not yet formulated by the city. The initial aim is to firstly optimize the existing public functions. Next to this is there and ambition of creating more recreational spaces within the town in order to improve the intimate feeling and create more interaction and engagement between the inhabitants.

SUITABLE OLYMPIC AREAS & SITES
The chosen Olympic areas are marked by a red outline and the used facilities have a red text box.

Equestrian Eventing /-Dressage /-Jumping, Modern pentathlon, Archery and Shooting are planned to be located in Landskrona. The sports are organized in one main venue re-using and optimizing the existing facilities of Horse centre Örehöv and the Landskrona sports and athletic centre in Karlslund. The facilities will be supported by temporary venues. In post-Game setting the areas of the temporary venues can be used to densify the area with additional facilities or housing. After the Games will Landskrona be left with high-quality equestrian and sports facilities, which will increase the attractiveness of the city both for inhabitants and events.

The Olympic venue also becomes a station on the new light rail way in order to stimulate the legacy use. By expanding and combining the existing public transport, the railway station and the shuttle bus system to the new light rail way the accessibility of the area will be considerably improved through out the whole city. Next to this, the area is easy to reach from other cities in the region.
HELSINGBORG ARENA - Offers together with the integrated house of gymnastics five 20m x 40m fields. The A-hall can hold 4 700 - 5 500 spectators and possible to divide many ways ensuring a good sitting regardless of event size. The B-hall that can hold 300 spectators, C-hall 100 spectators, the D-hall 1 800 spectators and the E-hall 100 spectators. The arena also houses facilities for table tennis, wrestling, archery, pistol shooting, weightlifting, boxing, fencing and three martial arts facilities, including judo and karate.

HELSINGBORG INDOOR ATHLETIC CENTRE - A well-equipped hall for athletics training. The hall is 27 x 82 meters can accommodate 2 pieces 180 m circular tracks with banked curves, 6 pieces of 60 m running tracks, courses for length- and height jump, and throwing events.

HELSINGBORG OLYMPIA SPORT VILLAGE - The whole village contains beside the Indoor athletic arena and the Olympia stadium also the Olympia Hall with 18 badminton courts and seven tennis courts (Clay). Further has it also seven football fields.

OLYMPIA STADIUM - A football stadium with a capacity of 17 200 for National events and around 13 000 for international events. An extension to make the capacity 17 200 also for international events are realized in 2014. The stadium offers a football pitch of grass and a an athletic running track and a wide range of other athletic facilities. The stadium is also frequently used for concerts. Despite the name of the arena there is no actual connection to the Olympic Games.
CHARACTERISTICS OF HELSINGBORG
Helsingborg is a scenic port city, build up around an medieval core from 1085. The port is Sweden's second biggest container port combined with extensive ferry services. Two shipping companies have ferry service across Øresund with frequencies 24/7. Industry in Helsingborg consist of several medium sized companies involved in trade and transport, as well as food, chemical, pharmaceutical technology. The two private owned flagships are Ikea (who have their Swedish headquarter here) and Ramlösa (the biggest spring water brand in Scandinavia). Ramlösa is owned by Carlsberg and they have their tab of natural spring water here (Helsingborg.se, 2013).

Helsingborg began to grow beyond the medieval city walls around the end of the 18th century. The different suburbs and neighbourhoods are named after their location, archaeological sites, major companies or settlements incorporated in Helsingborg as for example Ramlösa. The boundaries of Helsingborg’s different neighbourhoods are not officially defined. Instead has Helsingborg municipality subdivided the city into 32 so-called statistical areas mainly corresponding to the old neighbourhoods or residential areas. The architectural style is a blend of old-style stone-built close to city centre and modern commercial buildings towards the outer-skirts of the city. It is all connected by a variety of wide avenues and small alley-ways (Helsingborg.se, 2013).

URBAN STRATEGY
Currently Helsingborg is facing three main urban challenges: Increasing population, Increasing pressure on local -/ regional public transport and renewal of the harbour area.

Combined with the ambitions of the local government of Helsingborg the following approach and focus points are chosen: In order to integrate suburban areas better and to increase the amount of dwellings in the city a densification approach in strategic areas is chosen: Adolfsberg, Närunda, Planteringen, Elineberg, Högasten, Mariastaden, Berga and Rosengården. Further focus is on creating local and regional hubs connecting especially the out-skirts better to the central city and other cities in the region. On a regional scale includes this also a fixed connection to Helsingør, Denmark.

SUITABLE OLYMPIC AREAS & SITES
The chosen Olympic area is marked by a red outline and the used facilities have a red text box

Rugby, tennis, football and the Swimming events are planned to be located in Helsingborg. The sports are organized in one venue: the central Olympia district.
All the sports except swimming are reusing existing sport facilities in the Olympia district: Helsingborg Arena, - Indoor Athletic Centre, - Olympia Sports Village and - Olympia Stadium and else complimented by the necessary temporary venues.
By upgrading these facilities the Olympia district can increase the quality and attractiveness of the area and potentially catalyse development in the surrounding areas Drottinghög, Fredriksdal and Rosengården. These are all pointed as densification and development areas in the local plans. Furthermore it creates an recreational area, a park, that could connect the surrounding districts and eventually bridge the areas across current sharp high-way border.

Helsingborg houses, as mentioned, two major private companies Ikea and Ramlösa. The companies are known in Scandinavia for being very keen in supporting sport both locally, nationally and internationally. From both the needs of the region and the local conditions it is therefore decided that a permanent Olympic Swimming pool is to be built in the Olympia district in Helsingborg. The venues feasibility is reasoned from a regional point of view. There is currently very few swimming pools in the region of Olympic measurements and the new venue will therefore not only serve the citizens of Helsingborg, but the whole region and both Denmark and Sweden. This is facilitated by the excellent connection of the light-rail connection.
People: 61,359 inhabitants
Area: 121.61 km²
Density: 380 / km²

Olympic area
Development areas regional strategy
Other development areas
Used sport facilities
Main roads
Railway network
Light rail network

Fig. 8.18 Venue distribution Helsingør (By Authors)
CHARACTERISTICS OF HELSINGØR
Since Helsingør's founding back in the 13th century, the countryside has served as a resource for development. First for agriculture and forestry later for the expansion of industrial and manufacturing companies. Most recently it serves as residential areas for the growing population. Urban expansion has always been a convenient solution to many urban planning issues. Instead of adapting the new urban development needs, and integrate them within the framework of the existing city, new areas has been laid out in the city's periphery (Helsingør.dk, 2013). This has resulted in a low density throughout the housing areas of the city.

URBAN STRATEGY
Helsingør today is reaching its limit on how much the city can physically expand and is at the same time in the middle of the transition from industrial to service society: A new urban approach needed. Helsingør is currently facing three main urban challenges: increasing commuting population, lack of families settled in the city, increasing pressure on local-/regional public transport and transformation of mono-functional districts into more lively mix-function districts.

As a reaction to the current status of being a sleeping city the municipality of Helsingør has chosen an urban strategy for the future of the city under the main title: “Close to city - closer” about four years ago.
A densification of Helsingør is on one hand supposed create a closer and more active life and on the other hand to create more space for the landscape, include it and let it come closer to inhabitants. The Municipality’s strategy is to focus on four areas of the city, all marked on the map on corresponding page. Beside creating an overall and local bonding across the city, these four areas are set to accommodate up till 2 000 future homes with very different characters, planned in 2 phases (Helsingør Kommunal plan, 2013).

The goal by developing these four densification areas is to create an ambiguous identity and make Helsingør emerge as a city in motion and change, while the city's well-known qualities are amplified.

Specifically has the commercial area in the western part of the town and the renewal of the Northern harbour together with the new culture centre Kronborg (Opened 2013) been chosen to kick-start the development.

SUITABLE OLYMPIC AREAS & SITES
The chosen Olympic area is marked by a red outline and the used facilities have a red text box.

From thorough studies of the characteristics, the location and with the urban challenges in mind it has been chosen that Helsingør is going to accommodate the second of the two Olympic Villages. The area found most potential for this purpose is in the southern district of Helsingør. The specific site is marked by red on the map on the corresponding page. The existing sports facilities in the city will be upgraded to a certain extend and used as training facilities for the Athletes living here doing the Games.

The site pointed out to host the second Olympic villages is currently a mono-functional industry and commercial area. By upgrading the existing public sport facilities and add new housing, a mix-use area will be created in line with the densification strategy. The site is located at the main entrance to the city and together with the new and upgraded facilities and the Olympic village will act an attraction for the city.

By introducing housing for around 5 000 people or 8.2% of the city's current population ad once will the pressure on the infrastructure especially increase. Therefore will the Olympic village in Helsingør become a station on the new light rail way in order to ensure the legacy use. Combined with the realization of the HH-link will Helsingør get a new improved identity, maintaining the historical characteristics of the city.
COPENHAGEN ARENA - A multi-purpose arena for concerts and the like with seating for 15,000 spectators and at sports events up to 12,500 spectators. Arena will get a size of 35,000 square meters when it is completed in 2016.

BALLERUP SUPER ARENA - A sports and concert arena in the district of Copenhagen. The arena is used every day for cycling and for various events, including the popular six-day race. The total area of the arena is 15,000 square meters, and the concert capacity is of 9,200 spectators, while sports have around 6,500 spectators.
CHARACTERISTICS OF COPENHAGEN
Copenhagen is the capital of both Denmark and the Øresund region. It was founded around 800 and consists of ten smaller municipalities that together form greater Copenhagen. The city is very diverse and holds besides it many canals and historical places all the characteristics of a European metropole: Intense traffic, high density of people, different characteristic neighbourhoods and a very broad range of public functions.

From after the second World War the urban grow has followed the Finger plan from 1947. Though this plan now is outdated and the limit for the "fingers" to grow has been reached (københavn.dk, 2013).

Following the last twenty years development in both the region and in Europe, focus of urban planning in Copenhagen has increasingly become pointed towards the regional collaboration and development in the Øresund region. The "loop city" project by BIG Architects is a great example of this.

URBAN STRATEGY
Greater Copenhagen is facing three main urban challenges: Increasing population, lack of housing, highly increasing pressure on local-/regional public transport and renewal of major industrial and harbour areas.

Combined with the great ambitions of the ten local governments of Copenhagen, the following approach and focus points are chosen:
Through densification is it aimed to integrate the suburban areas better and to create more attractive conditions for new development. The development is to be started in strategic chosen development areas: Nordhavnen, Sydhavnen, Carlsberg, city centre, Ørestad. Beside these, there is a general aim to re-link the suburban parts of the city; the fingers with the inner city. Further focus is on creating local and regional hubs connecting the periphery parts and catalysing development around these hubs.

SUITABLE OLYMPIC AREAS & SITES
The chosen Olympic areas are marked by a red outline and the used facilities have a red text box.

Basket, table tennis, badminton, volleyball, gymnastics artistics, gymnastics rythmics, trampoline, Athletics, rowing, beach volley, sailing, football, cycling BMX, cycling track and Triathlon are planned to be located in Copenhagen.

The sports are organized in two main areas and several smaller temporary venues. Basket, table tennis, badminton, volleyball, gymnastics artistics, gymnastics rythmics, trampoline and cycling BMX located in the central Ørestad district. The Athletics are going to be in the south western district Brøndby that will also accommodate the ceremonial events. The track cycling is situated in the Ballerup Super arena in the north-western part of Copenhagen. While the sports in the Ørestad are to be held in combination of existing sports facilities, the Copenhagen arena and temporary facilities.

The idea is to give the newly developed and relatively anonymous area new identity and characteristic and at the same time upgrade and create a broader spectra of functions allowing the district to start create its own identity. By upgrading these facilities, the Ørestad district can increase its attractiveness both in terms of facilities and development perspectives. The Ørestad is pointed out as one of the main densification area in local plans. Further will it allow further value to added in form of a recreational area, a park, that could gather the surrounding districts and eventually bridge the areas across water border in a more coherent way.

An other future development area is the green vein between Brøndby and Brøndby vester in the suburban part of Copenhagen. This area is set out to be one of the key development areas in the municipality as well as the region. This area is chosen as location for the athletic stadium, which will be designed in more detail as a part of the same project as this research. The site is bordered by the main southern highway and the third ring road. It can be seen as the entrance point to Copenhagen and the Øresund region from the rest of Denmark and Germany. It will become an infrastructural hub, with great support from the new light rail way that in order to ensure the legancy use will become a station on the new light rail way as well as the other venues planned in Copenhagen will be it.
SUMMARY - DECENTRALIZED LOCATION STRATEGY

This chapter illustrates how the Olympic Games could be hosted in a regional setting and moreover how a specific networked city region could benefit from this event by linking it to long-term regional objectives.

By first making a development strategy for Øresund anno 2047 and subsequently reasoning how the Olympics could contribute to this, resulted in an integrated legacy strategy. The legacy strategy is based on the existing local and regional plans and combined those into an integral long-term strategy. This strategy is based on strengthening the inner-regional connections and by this, connecting the periphery parts within the different cities. The cities' ambitions have played a major role in the regional planning scheme and visa versa. The walk through of the different cities specific roles and legacy on city level is an attempt to translate and distribute the specific venues in the most effective way, a kick-start using the existing willingness and potential for development in the Øresund region.

The different cities within the region have the ambition of becoming a networked region on physical, economical, social, political and cultural level. An ambition that will be kicked-started by the hosting of the Olympics in a decentralised organisation model. The Olympic Games however is merely a moment in time and functions as a tool to create the regional framework, especially focused on infrastructure. The establishment of a looping light-rail connection forms the spine for the regional orientated development sites. By developing along this line a perfect connectivity is ensured, which forms the basis for an attractive periphery located area.

Once the Olympics have finished, the region is left behind with excellent intercity connections and develop ready plots on the different olympic areas. The different areas will be gradually densified by a rich and flexible mix-use program that is both functionally relating to its direct context and the bigger scale. Each of the areas will also house certain regional functions related to different branches, such as education, healthcare, culture and of course sports.

The Olympic areas will set the trend for other regional orientated that will follow. Different development sites have been mapped in this chapter that are located along the light-rail and could benefit from these conditions. The cities and regions aimed densification will be catalysed in a substantial and unique way. They can use the new clusters as benchmarks for the creation of better - instead of larger - cities.
REFLECTION
REFLECTION

Approach

Intentions and link to design
This research is made as part of a graduation project at the Explore Lab graduation studio. It was from the start intended as a background for the design assignment that would follow. What the research has resulted in is a highly specific design assignment, with an extensive amount of parameters to test the quality of the design outcome and a unique setting. This doesn't necessarily mean that the design process becomes easier, on the contrary. It is more complex and have much more factors that have to be taken into account in order to be successful. However it makes the whole design much more relevant and actual. Whereas a normal architectural project is often merely based on a desire from a client and a given context, this design is more theoretical, but it deals with many more factors and influences that make the project unique.

Designing an Olympic stadium without this research would have resulted in a totally different project, that wouldn't have the depth and relevance that the design will have as a follow-up on this research.

Research build-up
The way this research is set up is quite unusual for an academic research. This is mainly referring to the context specific part of the research. Where usually a master thesis stays within the theory and is concluded in theoretical conclusions, this research takes these conclusions and tests them on a practical example. Next to being the direct link between the theoretical research and the architectural design, this part also really tests the potential of the theoretical hypothesis on a selected area.

Interdisciplinary work
Although educated as architects, the ambition and focus of this project has been on an interdisciplinary research that touched upon the field of Urbanism, Real Estate and Architecture. This has given a more complete picture of the impact of the Olympic Games on different scales.
Not being restricted to the scale of a building results in seeing phenomena from a different angle and resulting in innovative solutions.
What has been extremely fruitful is the interdisciplinary background of our design tutors and critics that each have been commenting on the research from a different point of view. This forced us to take decisions that took all aspects into consideration.

Use of existing research in the field
Olympic legacy is a subject that is already widely addressed by researchers within the field and also within this faculty. This research made extensive use of these existing researches and their conclusions.
It allowed this research to incorporate the necessary existing knowledge and focus on the central question of this research: The potential of a decentralized model in a regional setting.

Critical position towards literature
The Olympic Games is a fascinating and very commercialised event and therefore a large part of published material is not always reliable. Articles can have a very subjective message due to personal interests of the author.
An extra critical position has been taken when consulting different literature throughout the process and conclusions have always been cross-referenced to other sources to test their validity.

This was especially the case in the literature around the London Olympics. Due to the fact that this edition was so recent, emotions of different stakeholder are high, which often result in non-reliable information.
In order to get the right information this research has conducted 7 interviews with different involved persons and parties of the London Olympics. There was a careful selection process that ensured that all positive and negative voices were heard in the data collection. The interviews have been of crucial importance for the understanding of the unique legacy planning in the London Olympics.

Relevance
This research grasps this specific moment in time of economical recession, with focus on decreasing unnecessary expenses and minimize waste. Developments driven on demands become more and more important, which also counts for the IOC and Olympic candidate cities. Future host cities want more control over their investments and to prevent newly built infrastructure, venues and from falling into decay.

A new pioneering de-central organisation strategy as an urban planning tool and a phase in the development, is proposed. It combines the latest tendency of urban development in Europe with the use of a mega-event as a planning tool.
The strategy is conceptually implemented in a region to give an idea of how it could be de-centrally organised and to show its validity.
The research provides the reader; other researchers, urbanists and architects of future Olympic Games with clear overviews of transferable lessons learned on physical legacy, on different scales. The research provides an example of how these theoretical lessons can be transformed into context specific strategies and designs.

**Limitations**
The research was conducted between February 2013 and October 2013, which is a relative short period for observations of the very complex topic of Olympic planning. Since the research is made for a subsequent architectural design, it has been focused to the **Physical legacy** as defined on page 51. Impact on other levels, such as the financial and political aspects have been considered, but weren’t the primary focus. It should be kept in mind that there is an impact on an area from a lot of different levels, that haven’t been fully elaborated within the proposed strategy proposal.

Another aspect worth to note is the context dependency of the developed strategy and Olympic planning strategies in general. The de-central legacy strategy provided in this research is a result of lessons from different preceding Olympic Games. The applicability is though like all other Olympic legacy strategies limited to a specific urban setting, in this case to European sized networked city regions. Which means that the strategies developed are not directly transferable to other types and scales of regions.

A complete research has been done on the level of legacy strategies of the preceding Olympics (1992-2008). The approach on the London Olympics of 2012 is slightly different: It is a little more than a year ago the Games finished in London and the Queen Elizabeth Olympic Park has just opened. Though it is still hard to really judge about the legacy in this early stage. The real London’s legacy still has to be determined in the coming years. A very interesting process, since the planning of the Olympic park has been focused from the start on creating an integrated piece of city.

**Recommendations for research in the field**
As already mentions in the limitations of this chapter it is clear that there are is large potential for further exploration of this research direction. Where this document is primarily focused on the physical legacy in a decentralized location strategy, it is interesting to explore the effect of decentralisation on other types of legacy.

Another interesting and extremely relevant research direction is to study what the possible economic, political and commercial (dis) advantages are of organising the Olympic Games in a regional setting.

Further and ultimatly could this research be very useful in case the Randstad or another networked region takes up the challenge of becoming host of the Olympics in a regional setting. In order to create a new setting for the Olympics to happen in, it is of out most importance that the model in its general form is transferable to other cities and regions.
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LONDON 2012
(APPENDIX 1)
CONDUCTED INTERVIEWS

For this research 7 interviews were conducted with involved companies and actors of the London Olympics. The main information of these interviews can be found on these pages. The actual transcriptions can be found in the appending document to this research: ‘From Temporary Mega Event To Contemporary City Life - Research on the London 2012’s legacy strategies.’

Andrew Jones:
- AECOM - Managing Director - Planning, Design + Development - April 2008 – Present
- EDAW - President 2004 – 2008
- Chesterton International - Director 1999 – 1999

Tom Smith:
- Architectural Association School of Architecture - Lecturer, Landscape Urbanism, 2009 - Present
- AECOM - Senior Director (Landscape Architect) August 2005 - Present
- EDAW - Director 2004 – 2008

Hattie Hartman:
- Journalist at the Architects Journal, hired before the Games in London 2012 to write the book London 2012 Sustainable Design - Delivering a Games Legacy

Peter Bishop
- Director of Allies & Morrison
- Former Director of LDA
- Former Head of DfL

Chris Schulte
- Associate director of Allies & Morrison

For this research 7 interviews were conducted with involved companies and actors of the London Olympics. The main information of these interviews can be found on these pages. The actual transcriptions can be found in the appending document to this research: ‘From Temporary Mega Event To Contemporary City Life - Research on the London 2012’s legacy strategies.’
**DATE / TIME:** 07/05/2013 - 11:00  
**RECORDED BY:** JK  
**PLACE:** 8 Fitzroy Street, London, W1T 4BQ (London)  
**PRESENT:** Sean Pieters, Jos Reinders & Julius Kirchert  
**NT:** Nina Tabink  
**ED:** Emmanuelle Danisi  
**SP:** Sean Pieters  
**JR:** Jos Reinders  
**JK:** Julius Kirchert

**DATE / TIME:** 07/05/2013 - 14:00  
**RECORDED BY:** JK  
**PLACE:** 200 Jubilee Street London E1 3BP (London)  
**PRESENT:** Sean Pieters, Jos Reinders & Julius Kirchert  
**RM:** Rowan Moore  
**SP:** Sean Pieters  
**JR:** Jos Reinders  
**JK:** Julius Kirchert

**DATE / TIME:** 03/05/2013 - 14:00  
**RECORDED BY:** JK  
**PLACE:** 200 Jubilee Street London E1 3BP (London)  
**PRESENT:** Sean Pieters, Jos Reinders & Julius Kirchert  
**RM:** Rowan Moore  
**SP:** Sean Pieters  
**JR:** Jos Reinders  
**JK:** Julius Kirchert

**DATE / TIME:** 03/05/2013 - 17:00  
**RECORDED BY:** JK  
**PLACE:** See Studio, Soho Office, 25 Lexington St (London)  
**PRESENT:** Sean Pieters, Jos Reinders & Julius Kirchert  
**IM:** Isaac Marrero-Guillamón  
**FW:** Francesca Weber-Newth  
**SP:** Sean Pieters  
**JR:** Jos Reinders  
**JK:** Julius Kirchert

**DATE / TIME:** 03/05/2013 - 16:00  
**RECORDED BY:** JK  
**PLACE:** Cafe Rouge, The Strand, 9-11 Villiers Street, WC2N 6NA  
**PRESENT:** Sean Pieters, Jos Reinders & Julius Kirchert  
**SL:** Simon Lewis  
**SP:** Sean Pieters  
**JR:** Jos Reinders  
**JK:** Julius Kirchert

**DATE / TIME:** 03/05/2013 - 17:00  
**RECORDED BY:** JK  
**PLACE:** See Studio, Soho Office, 25 Lexington St (London)  
**PRESENT:** Sean Pieters, Jos Reinders & Julius Kirchert  
**IM:** Isaac Marrero-Guillamón  
**FW:** Francesca Weber-Newth  
**SP:** Sean Pieters  
**JR:** Jos Reinders  
**JK:** Julius Kirchert

**DATE / TIME:** 03/05/2013 - 17:00  
**RECORDED BY:** JK  
**PLACE:** See Studio, Soho Office, 25 Lexington St (London)  
**PRESENT:** Sean Pieters, Jos Reinders & Julius Kirchert  
**IM:** Isaac Marrero-Guillamón  
**FW:** Francesca Weber-Newth  
**SP:** Sean Pieters  
**JR:** Jos Reinders  
**JK:** Julius Kirchert
REGION SELECTION
(APPELLIDIX 2)
The city of London is build on the banks of the Thames River. Its port is not located in one area, it stretches along the Thames. As the ships have grown bigger the most active harbour parts have moved towards the sea. This can be seen on the aerial map on the previous page.

The London region is composed of 32 very intermingled boroughs. The London region is build up around the old city centre of London. The distribution of the boroughs can be seen on the morphological map on the right.

The highways are arranged in a ring around the region with slower roads leading to the city centre. An overview of the highways is shown in the diagram below.

London has a very dense railway system allowing a high degree of communicating within London, but also to other English cities and Europe. The busiest airport in Europe is settled in the inner-city and it creates a very good connection to the rest of the world. The railway system with the main stations and the city airports are shown on the diagram in the right button corner.

A description of the regions characteristics follows on the next two pages.
GREATER LONDON REGION

Urban history and characteristics
London is the capital of United Kingdom. It is the largest city, urban zone and metropolitan area in Europe. London was founded by the River Thames for almost 2000 years ago by the Romans, who named it Londinium. The city has a rich history, but was also struck by different disaster like the pest and the great fire in 1666, that destroyed most of the city. After this fire the city was rebuilt and grew out to be one of the economic world powers. The city also physically grew exponentially throughout the 19th century, which created many dense suburban areas. The bulk of this conurbation forms the London region we know today. London has historically always been a city with great wealth, but also with large contrasts and there are clear segregations between rich and poor area’s in London’s region.

Political structure, Economic situation & Regional collaboration
“Greater London” comprises 32 London Boroughs and the historic City of London. Most local government functions are carried out by the London borough councils: they are responsible for education, housing, planning, highways, fire, social services, leisure and recreation, libraries, waste collection, waste disposal, and environmental health. They are also “collection authorities”, responsible for collecting council tax. Greater London also has a second tier of local government in the form of the Greater London Authority. The GLA was created in 2000 in order to improve co-ordination between the boroughs and to give London a unified voice. It is headed by the Mayor of London and its work is scrutinized by the London Assembly. The Greater London Authority is a “precepting authority”, which, along with the Metropolitan Police Authority and other bodies, adds a “precept” for its services to the council tax bills issued by the borough councils.

London is a leading global economy, offering a broad spectrum of cultural attractions and is home for a large variety of different business sectors. With its size and status as metropolitan city it is one of the world’s leading financial centres and has the sixth-largest GDP in the world. The metropolis’ 43 universities form the largest concentration of higher education in Europe. In 2012,
London became the first city to host the modern Olympic summer Games three times.

Local and regional mobility and current infrastructure
The public transport network is administered by Transport for London (TfL) and is one of the most extensive in the world established in 1933. London’s bus network is one of the largest in the world, running 24 hours a day, with 8,000 buses, 700 bus routes, and over 6 million passenger journeys made every weekday. In 2003, the network had an estimated 1.5 billion commuter trips per year, more than the London underground. The London metro network is by far the oldest in the world and the first line was constructed in 1863. It is an extreme extensive network and is the best way to get around London fast. The highways goes around and to the periphery of London. Cycling is an increasingly popular way to get around London. Furthermore, London is the world’s most-visited city as measured by international arrivals and has the world’s largest city airport system measured by passenger traffic.

Future perspectives and proposed development projects
In the 20th Century the Thames Barrier and the Docklands Light Railway have, in their different ways, improved London’s security and connectivity. The challenges for London’s infrastructure in the 21st Century are the same as those that have always faced the city, although the Infrastructure Commission’s report point out several cases that should be in focus, like updating the old tubes from the London Underground. A very recent case is the large scale redevelopment of East-London. By hosting the Olympic summer Games of 2012 in this area, a catalysing effect has taken place and the public opinion about the area has improved tremendously.

GREATER LONDON REGION
The existing venues in the region:
Chelsea Stamford Bridge (from 1876, rebuilt 1994, capacity 83,000), Tottenham White Hart lane (from 1899, rebuilt 1998, capacity 36,300), West ham upton park (from 1904, capacity 35,000), Arsenal emirates stadium (from 2008, capacity 60,000)

Beside the mentioned stadiums listed above which are just the biggest, there several more facilities that can host a certain crowd. The quality and amount of facilities has been especially boosted of hosting the Olympic Games 2012. Though the need of new facilities is existing in the region there are still issues with especially with Olympic stadium in Stratford.

Sport popularity, existing and needed sport venues
The national sport of England is football, followed in mentioned order by rugby, cricket, badminton and athletics.
The Greater London has a extensive range of sport facilities both due to scale and functions.
The Ruhr Region is a former industrial powerhouse. The cities in the area have grown into one intermingled structure. This can be seen on the aerial map on the previous page.

The Ruhr Region is composed by 13 more or less merged cities. Düsseldorf is not a part of the region, but is incorporated in the maps for its size and large international airport. The distribution of the cities can be seen on the morphological map on the right.

The extensive highway system ensures high accessibility for both the industry and the inhabitants. An overview of the highways is shown in the diagram below.

The dense railway system connects the region well, also to the surrounding cities in Germany and the Netherlands. The two international airports in Dortmund and Düsseldorf ease the accessibility to the rest of the world. The railway system with the main stations and the regional airports are shown on the diagram in the right button corner.

A description of the regions characteristics follows on the next two pages.
The Ruhr region emerged during the industrial revolution. In this period the different cities in the area grew towards each other creating a continuous urban sprawl. Today, most industry has moved out and the region is transforming slowly into a 21st century economy.

### Urban history and characteristics

Before the industrial revolution the Ruhr region existed out of several rural settlements, that did not have a strong relation to one and another. This rapidly changed after the first industrial revolution in the end of the 18th century. Because of the richness of natural resources in the soil and their strategic location along the Rhine, the region quickly grew till one of the most booming industrial economies of Europe. This resulted in a rapidly growth in population, substantial spatial interventions by the industry and growth of the cities in general, that had to accommodate this increase of population and industry. As an established economic power the Ruhr region played a central role in the revitalization of Germany after the 2nd world war. The region had a more or less continues growth until the 1970s. At this point Germany was hit hard by a world wide economic crisis and the industry in the Ruhr started to collapse.

This caused a lot of unemployment and people started to move out of the region. This shrink is today still ongoing and the region had to drastically change the focus of their economy, spatial planning and social situation. With the Ruhr region having such a specific economy, caused the region to fall in such a deep crisis once this collapsed. Since the crisis there have been some substantial regional strategies developed and implement that try to change this focus on an economical, social and spatial level. The most famous strategy is the ‘IBA Emscher park’, which was initiated in the end of the 1980s. This was a proposal for an international building exhibition in the Ruhr, that was focussing on creating qualitative green spaces along the river the Emscher, that runs from East to West through the different cities. Within this green spaces, the most prominent industrial monuments are preserved and transformed into contemporary function focussed on culture and social gathering.

These ‘flagship projects’ were realised mainly to catalyse new economic activities, which would result in the development of other parts of the city and social improvement. This happened to some extend, but today the Ruhr region is still in the process of losing the industrial character and transforming into a 21st century region.

The urban structure of the Ruhr is characterized by a urban continuation throughout the region spanning from Duisburg to Dortmund. Within this region...
urban structure you cannot really recognize the different cities as they have completely grown together. North and south of this urban chain are rural areas that contain some smaller settlements.

Political structure, Economic situation & Regional collaboration
The Ruhr region is build up from different municipalities that shared strong economic benefits of being settled on top of easy accessible layers of coal. Also in the time of the IBA Emscher Park, the overall planning happened on a regional scale that stated preconditions for the developments and transformations in each municipality. The current economic situation not the same as during the high industry. Cities are still shrinking and many areas are coping with run-down buildings, infrastructure and public spaces.

Local and regional mobility and current infrastructure
The public transport of the Ruhr Region is also organized on a regional level. All public transport can be accessed with a uniform ticket. Next to this local transportation the area is well connected to the national rail network of the Deutsche Bahnen. As you see on the infrastructural maps the area has an extremely dense rail network, but most of these rails are used for transportation of the industry and not of people.

The highway network of the Ruhr is one of the most dense networks in Europe and is built in a grid setup, allowing for good accessibility from all directions. Traffic congestions occur quite often in the area, due to this heavy use. The air transportation mainly takes place through Düsseldorf International Airport, but also Dortmund airport, that mainly flies to domestic and European destinations.

Future perspectives and proposed development projects
The Ruhr region is at the moment still in the middle of an enormous transformation process. At this moment most representative project have been realised and had some effect on the rest of the urbanized areas. This process is far from done and especially infrastructure and living areas are in need of revitalisation. Each city and the region as a whole have some plans for it but a integral concept, like the IBA Emscher Park in the 1990s is missing.

Sport popularity, existing and needed sport venues
The most popular sport in Germany is by far football, followed in mentioned order by Ice Hockey, Basketball, Handball & Motor sport.

The Ruhr Region has an extensive range of sport facilities both due to scale and functions. The existing venues in the region:
Dortmund Signal Iduna Park (from 2005, capacity 67,000), SAP Multi-Arena Mannheim (from 2005, capacity 14,500), Bochum Rewirpower stadium (from 2009, capacity 29,200), Stadium Essen (from 2012, capacity 20,650), Schauinsland-Reisen-Arena Duisburg (from 2004, capacity 31,500), Veltins-Arena Gelsenkirchen (from 2001, capacity 62,000)
The stadiums and arena listed above are just the biggest, there several more facilities that can host a certain crowd. The quality and amount of facilities has been especially boosted of hosting the football world cup in 2006 and other big sport events. Since all these facilities are weekly filled it can be concluded that the market and potentials for adding new are plausible.
RANDSTAD REGION

![Satellite image of the Randstad Region](Image)

*Image: 11. Satellite photo of the Randstad Region (Google Maps)*
The Randstad region is very fragmented region and with several urban knots, which are essential in the network. This can be seen on the aerial map on the previous page.

The biggest cities of the Randstad region are creating a loop around a central area that consists out of smaller settlements and large green areas. The distribution of the cities can be seen on the morphological map on the right.

The Randstad has a very well connected highway system which connects all the cities in the region with the rest of the Netherlands and the neighbouring countries. An overview of the highways is shown in the diagram below.

The infrastructural network and especially the railway system is very dense and there is easy and quick access between the cities. The railways connects the region to both Germany, Belgium, France, while the third biggest airport of Europe: Schiphol, supported by the Airport in Eindhoven, gives access to the rest of the world. The railway system with the main stations and the two main airports are shown on the diagram in the right button corner.

A description of the regions characteristics follows on the next two pages.
Region Selection

Randstad Holland differs from most other European metropolises by being built by a number of independent cities, most of which have retained their character. The many cities are connected by an extensive infrastructural network that forms the base for the region’s interconnections.

Urban history and characteristics
The Randstad got its name in 1958 from “The Development of the West of the Country” report. The Randstad, which already clearly was the most urbanized region and the economic powerhouse in the Netherlands, was conceptualized as a ring of towns and cities, inside this ring is a large rural area that is heavily protected, named the “Green Heart”. Each city in the Randstad is very different and have a strong individual identity and history. However, throughout time the different cities gained their own specific function within the Randstad region: Amsterdam as Cultural/Touristic capital, Rotterdam as the harbour city, the Hague as Political capital, Utrecht as infrastructural centre of the country, Almere as a commuting city, Leiden as specialist on health care & Delft on technological development.

Political structure, Economic situation & Regional collaboration
This poly-centric urban area is home to at more than 40% of the Dutch population. It has the largest port in Europe (the third largest in the world) and is also Europe’s main logistical hub. It has a thriving trade and service-based economy and has also developed a world leading science, technology and business industry. It is one of the most attractive regions in the OECD for foreign direct investment (FDI). Nevertheless, the region is facing significant socio-economic challenges if its want to extend its successful position in the international community. Particularly in improving collaboration between companies and industries within the region. Some of the collaborations are already formed on the educational level, with the merge of Delft, Leiden and Rotterdam’s Universities.

Local and regional mobility and current infrastructure
The Randstad is home to around 3,000,000 jobs, most of them in various kinds of services. The port of Rotterdam is one of the biggest in the world and one of Europe’s most important point of entry and departure for goods transported over sea. All this activity is logistically organized by a dense network of road and railway lines that connect the cities of the Randstad with each other and with other parts of the country and North West Europe at large. Although the Highway network of the Randstad is one of the most dense in Europe there has been a problem with traffic congestion.
for many years.
Next to the regional transport the Randstad has a few high-speed train connections that link the Randstad to other European cities and regions as the Flemish diamond and Paris.
Schiphol Airport, Europe’s fourth largest airport in terms of passenger movements is located just south of Amsterdam. Other smaller Airports like Rotterdam-the Hague Airport and Eindhoven Airport (located South-East of the Randstad) are with in good reach of the region.

**Future perspectives and proposed development projects**
Since the Randstad is the main driver behind the Dutch economy, the central government is interested in improving this region and its strategic position to create international competitiveness.

In the Randstad there is often spoken about the Southern wing (the Hague, Delft, Rotterdam, Zoetermeer etc.) and the Northern wing (Amsterdam, Haarlem, Almere and Utrecht). The Southern wing has always been more interconnected which is stimulating the economies in these cities. Therefore recent initiatives for a stronger Northern collaboration have been made with a proposal of making a giant province from the provinces of Noord-Holland, Flevoland and Utrecht. This would improve decision making on this regional scale. However, this initiative was declined by the Provinces of Utrecht and Flevoland. These regional governments and inhabitants feared that they will lose their own identity when merged together. Another large initiative was ambition for the Dutch Olympic bid for 2028. Many studies have been made on the feasibility of this event and what is could mean for the improvement of the Netherlands. Conclusions from these studies implied that no Dutch city is big enough to host the Olympic summer Games and a regional Randstad Games could be the answer.

**Sport popularity, existing and needed sport venues**
The national sport of the Netherlands is by far football, followed in mentioned order by field hockey, volleyball, Tennis and Ice skating.
The region has a big range of sport facilities both due to scale and functions. Existing venues in the region:

The quality and amount of especially football stadium facilities has been boosted of hosting the European football championship together with the Belgium in 2000. Further are there already plans of making a new stadium 60.000 + for the football club Feyenoord, which could be a potential merge of interest with a new Olympic stadium.
REGION SELECTION

FLEMISH DIAMOND REGION

Fig. A2.16 Satellite photo of the Flemish Diamond Region (Google Maps)
The Flemish Diamond benefit from Antwerp's location on the Mass River and Brussels metropolitan size. This can be seen on the aerial map on the previous page.

The Flemish Diamond is composed by five cities, that shapes a diamond form, therefore the name. The distribution of the cities can be seen on the morphological map on the right.

The highway system in the region is fairly well connected, though the quality of the roads are poor. Apart from this, getting around in the region is quick and easy. An overview of the highways is shown in the diagram below.

The region has a good connected railway system. Because of Belgium's size, is it quick to go by train to France & the Netherlands. Brussels and Antwerp both have an airport that allows for good connection with the rest of the world. The railway system with the main stations and the two main airports are shown on the diagram in the right button corner.

A description of the regions characteristics follows on the next two pages.
Urban history and characteristics
The Flemish Diamond has been the centre of economic power and innovation in Belgium for centuries. In the Middle Ages, this area was among the most highly urbanized in Europe, with a strong urban network between the separate cities. This dates back to the 12th century onwards. In terms of both population and size, Gent was one of the largest medieval cities on the continent. In the 16th century the city of Antwerp was the centre of the entire international economy, serving as the chief commodity market for all Portuguese spices and exotic products from the New World and East Asia.

In 1835, the first railroad on the European continent was built within the Flemish Diamond between Brussels and Mechelen. The next year it was continued to Antwerp and less than two decades later was connected to France, Germany and the Netherlands. Today, the Port of Antwerp is the second-largest in Europe. The name of the region is the result of the position of the different cities, that form a diamond shape.

Political structure, Economic situation & Regional collaboration
The political structure of Belgium is fairly complicated because of the different parts within the country. Next to the central government there are 3 governments for the 3 main regions that all speak a different language (Dutch, French and German). There is an ongoing conflict between the different parts of the country and a separation is not totally unlikely in the future. The Diamond region is primarily located in the part of Flanders, where Dutch is the spoken language. Although in the capital of Brussels, both French and Dutch are spoken.

The borders of the region’s peripheral area extends for more than a hundred kilometres, exceeding Flanders. This connects the area economically to other strong regions in Europe. The economical activities in the larger cities are different in each city, where there is an emphasis on industry for Antwerp, mainly because of its major port and diamond industry. The bigger city of Brussels, the Belgian capital that houses the European parliament and other public institutions. Next to this the city is mainly a service economy. Centrally in the Diamond is the smaller “sleeping city” of Mechelen that houses many commuters working in mainly Brussels and Antwerp.

Apart from Hasselt University in Limburg, the...
Flemish universities are located at the provincial or national capitals at each corner of the Diamond, while Mechelen plays an important role because of its other types of higher education. Though a distant affiliate of the Catholic university of Leuven offers the first few years of some bachelors in Kortrijk, for higher degrees the University of Gent is the nearest for the province of West Flanders, as Limburg lies outside the Flemish Diamond.

Local and regional mobility and current infrastructure
The diamond region has a good infrastructural network modulated by the industry, harbours and a multitude of settlements (urban and rural) in close proximity to each other. Despite the dense road network combined with an extensive railway and waterway network, there issues with the maintenance. Mainly the quality of the roads are poor, but this doesn’t seriously affect the accessibility of the different cities. There are a lot of traffic congestions on the regional highways. Both Brussels and Antwerp have an airport, that are mainly used for flight within Europe.

Future perspectives and proposed development projects
The infrastructural network of the Diamond Region is not considered sufficient for future prospects of the region. There for there are being large investments made to upgrade both local and regional infrastructure in the coming years. Next to the infrastructural improvements and extensions, the central government is also focussing on the urban development of this region, since most national revenue is generated by the Diamond. There are no real big scale initiatives for the region that also manly is a result of the poor economic situation.

Sport popularity, existing and needed sport venues
The national sport in Belgium is by far football, followed in mentioned order by cycling, tennis, athletics, table tennis.

The Flemish diamond region has a wide range of sport facilities both due to scale and functions. The existing venues in the region:

- **Brussel Koning Boudewijn stadium** (from 1995, capacity 50.100)
- **Brussel Constant Vanden Stock-stadion** (from 1917, rebuilt 1991, capacity 21.500)
- **Olympisch Stadium Antwerpen** (from 1920, rebuilt 2000, capacity 12700)
- **Antwerpen Sportpaleis** (from 1933, rebuilt 2011, capacity 25.000)
- **Mechelen Argosstadion Achter de Kazerne** (from 2006, capacity 13.200)
- **Leuven Den Dreef** (from 2005, capacity 9.500)
- **Gent Jules Ottenstadion** (from 1996, Capacity 12900)

The quality and amount of especially football stadium facilities has especially been boosted of hosting the European football championship together with the Netherlands in 2000. Further developments can though soon be a reality. Belgium is trying to be one of the 13 European countries to host four of the Euro 2020 matches. The idea is to make a new national 50.000 + stadium in Brussel in stead of Koning Boudewijn stadium, which is most likely to be demolished.
REGION SELECTION

ØRESUND REGION

Fig. A2.17: Satellite photo of the Øresund Region (Google Maps)

Fig. A2.31: High-speed roads of the Øresund region (By authors)
The Øresund region is formed around the Øresund sea and is a Danish-Swedish collaboration with the Øresund bridge and tunnel as the physical connection. This can be seen on the aerial map on the previous page.

The Øresund region is composed of 6 cities with different size and characteristics. The distribution of the cities can be seen on the morphological map on the right.

The highway system in the region is arranged in the periphery of the different cities with smaller roads as connection to the centres. The Øresund bridge connects the Danish and Swedish side. An overview of the highways is shown in the diagram below.

The railway system in Denmark and Sweden is well working in each country and cross-country wise. The slow ferry link between Helsingør and Helsingborg slows down the traffic and limits the flow of people and products. The railway system with the main stations and the main airport are shown on the diagram in the right button corner.

A description of the regions characteristics follows on the next two pages.
**ØRESUND REGION**

The Øresund region is a transnational region in Northern Europe, with the cities of Copenhagen and Malmö as biggest entities. Located by the shores of the Øresund strait and connected by the Øresund Bridge, the Capital Region of Denmark and Region Zealand constitute the Danish side, while Skåne County constitutes the Swedish side.

**Urban history and characteristics**

In the late 1980s, the Øresund Region, that through the history mainly have been the border between two hostile states, Copenhagen (Denmark) and Malmö (Sweden), was located in periphery of Europe. The Eastern Europe’s political resolution and the Swedish membership of the EU in 1995, made it central. The cities in the region are traditionally harbour cities, that through the last decades have experienced a great renewal great transformations and growth. The region is particular interesting because of the cross-border European region integration.

**Political structure, Economic situation & Regional collaboration**

In 1993 the organization Øresund Committee was established. This organization acts as one of the main political organs for the interests of the region. Economically, the region is one of the richest in Europe and is home to many international company headquarters. Additional knowledge is generated in the region by large universities in Lund and Copenhagen. The regional collaboration in Øresund resulted for example in biotechnology collaboration Medicon Valley. That has a leading role in the bio-technological industry. The fact that the region consists out of 2 different counties causes some tension on the political level, but both countries mainly see the future potential of this area and are willing to be engaged in a intensive economic collaboration in this region.

**Local and regional mobility and current infrastructure**

The Øresund Region is infrastructure well-equipped to compete with other networked regions in Europe. Copenhagen Airport is the largest in Scandinavia. The two major ports of Copenhagen and Malmö combined into one unit, Copenhagen Malmö Port (CM Port), which is the second largest port in Scandinavia (after Göthenburg), highways in the region are well integrated in the European motorways, trains run frequently across the strait, and Bella Centre and Scania Convention Centre has capacity for international trade fairs and meetings. However the whole infrastructural system cannot compete with regions like Randstad or the Ruhr Region. The Øresund Bridge has created substantial commuting traffic between Copenhagen and

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**Demographic Info Øresund region**

<table>
<thead>
<tr>
<th>Region</th>
<th>Population</th>
<th>Area (km²)</th>
<th>Density P/km²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Øresund</td>
<td>3,721,000</td>
<td>12,389</td>
<td>300</td>
</tr>
</tbody>
</table>

**City**

- Copenhagen: 1,213,822 people, 643 people/km², 1,888 people
- Helsingør: 46,300 people, 121 people/km², 381 people
- Malmö: 280,415 people, 77 people/km², 3,642 people
- Lund: 82,800 people, 26 people/km², 3,215 people
- Landskrona: 30,499 people, 12 people/km², 2,523 people

Tab. A2.5 Demographic info (oresundsregionen.org/dk/)

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**Fig. A2.33 People per km² in the Øresund Region (By Authors)**

**Fig. A2.34 Danish-Swedish flag (By Authors)**

The Øresund region is a transnational region in Northern Europe, with the cities of Copenhagen and Malmö as biggest entities. Located by the shores of the Øresund strait and connected by the Øresund Bridge, the Capital Region of Denmark and Region Zealand constitute the Danish side, while Skåne County constitutes the Swedish side.

**Fig. A2.35 Medicon Valley - Companies and universities (mediconvalley.com)**

**Fig. A2.36 The Øresund Bridge: the physical connection between Denmark and Sweden (Jimmy Rehak)**
Malmö as some Danish families have chosen to settle across the border in Malmö, due difference is tax and prices. The bridge has also lead to cooperation between universities on both sides of the water: the Øresund University.

Future perspectives and proposed development projects
The Øresund bridge has since it was finished in 2002 been working as a catalyst for transnational collaboration, though it now ten years later there is a need of reinforcing the infrastructural connections in the region in order from a strategy for population and urban growth of the region, but also for international competition with other regions. This has let to several ideas and initiatives for intensifying the collaboration between the two countries. One of those is the idea for creating a regional high-speed connection.

It propose to upgrade the planned light rail in Copenhagen and extending this across the regional ring or loop around Øresund. This infrastructural development is supposed to take up the expected growth both in people and companies of the next 50 years. It will enforce the economic and political relation between Denmark and Sweden. The 'Loop City' created a framework for future urban development and is connecting the different area’s by a sustainable, 21st century transportation network.

Another proposal is to create both a train- and car tunnel between Helsingør and Helsingborg.

Although these are both promising initiatives, it remains a complex planning process, mostly on the discussion about what country pays what.

Sport popularity, existing and needed sport venues
Sport is in general a national pastime in the two countries. The national sport in both Sweden and Denmark is football, though sport in the two countries else are quite diverse. Top five most popular sports in mentioned order is in: Denmark - Football, Golf, Swimming, Handball and Gymnastics. Sweden - Football, ice hockey, handball, bandy and golf.

The region have big range of sport venues, though there is a small difference between the scale and function of the Danish and Swedish venues. The existing venues in the region is in:

Sweden:
- Malmö football Stadium (from 2009, capacity 14,000),
- Malmö Multi Arena - Ice hockey (from 2008, capacity 12,500),
- Helsingborg "Olympia" stadium (from 1898, rebuilt in 1997, capacity 13,000),
- Helsingborg arena - Handball (from 2012, capacity 5,500).

Denmark:
- Copenhagen, Parken - Football stadium (From 1911, rebuilt 1992, capacity 38,000),
- Farum football park (from 2007, capacity 9,800),
- Broendby Stadium (from 1965, rebuilt 2000, capacity 29,000),

Beside these existing venues are there also new planned. The biggest is the Copenhagen multi-arena with a capacity of 12,500. It is situated between the city centre of Copenhagen and Malmö next to the direct highway. It is open to the public in 2015.