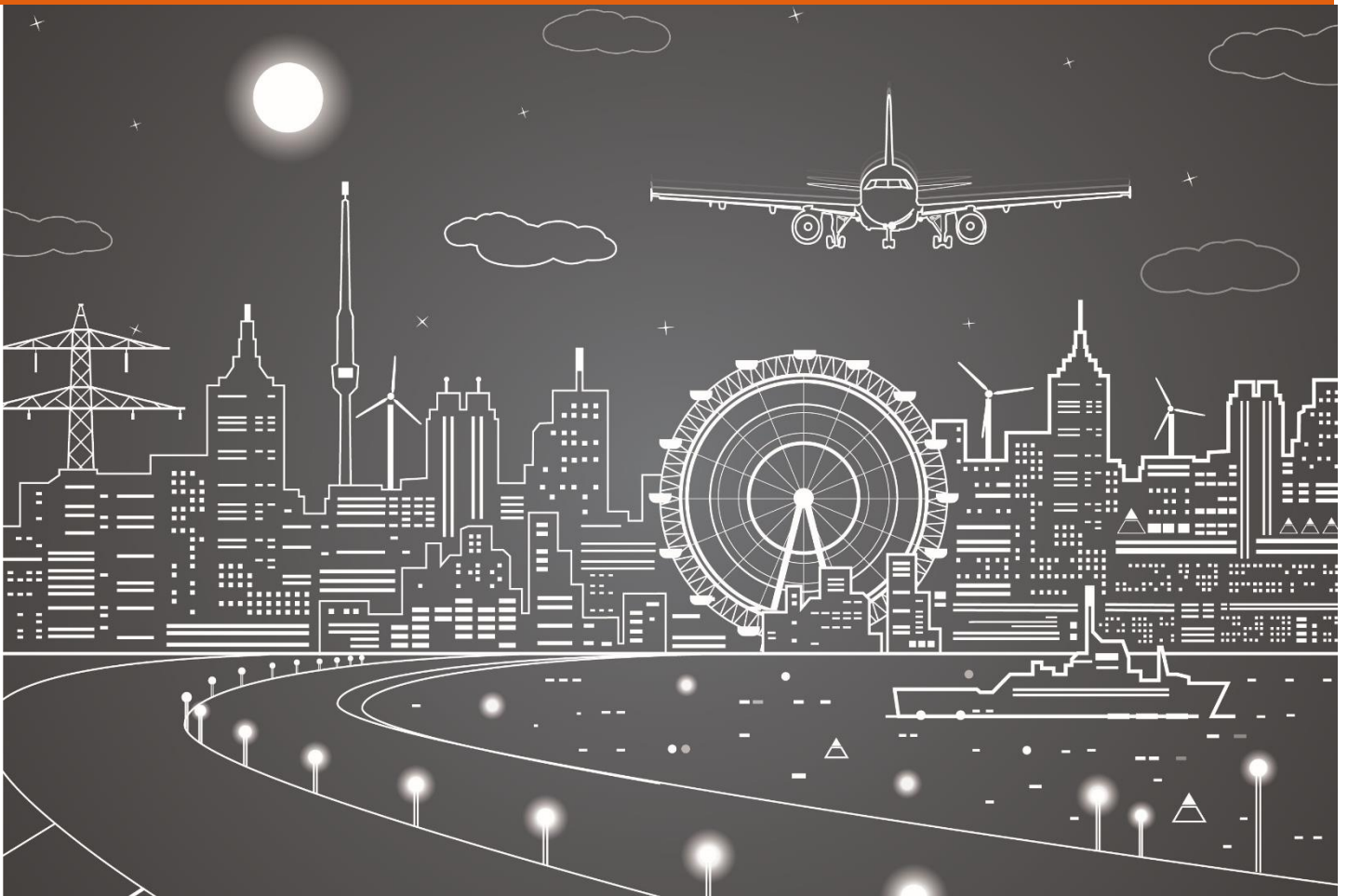


NATIONAL INFRASTRUCTURE COMMISSION

Call for Evidence

Connecting Northern Cities

JANUARY 2016



Incorporating

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Arcadis MODex Report

On the 13th November 2015, the National Infrastructure Commission published a Call for Evidence with respect to three core themes:

- 1. Connecting Northern Cities**
- 2. London's Transport Infrastructure**
- 3. Electricity Interconnection and storage**

This paper comprises the response of Arcadis UK to the first of those themes, *Connecting Northern Cities*.

Introduction

Whilst we absolutely understand the desire of the Commission to seek responses that are grounded in evidence and data, we are also concerned that the quality of evidence in support of the investment themes set out in the Northern Powerhouse proposals are not yet as robust and compelling as they need to be. Whilst the overall vision and strategy contained in the various Northern Powerhouse strategies and plans are exciting and will undoubtedly lead to a step change in infrastructure and therefore economic outcomes, there is a concern that existing approaches to investment appraisal will lead to sub optimal outcomes.

Therefore, rather than answer all the questions as set out in the call for evidence we have instead taken a step back and looked at the strategic question of how to value the benefits of the various competing investment interventions and how to prioritise them in what will inevitably be a constrained funding environment. We have therefore focused on Questions 1 – 3.

We look forward to discussing this submission with the Commission in due course and expanding on both the themes and Case Studies contained within it.

Question 1 – To what extent are weaknesses in transport connectivity holding back Northern City Regions (specifically in terms of jobs, enterprise creation and growth, and housing)?

Question 2 – What Cost-effective infrastructure investments in city to city connectivity could address these weaknesses? We are interested in all modes of transport.

In answering these questions together, we believe we must first look at the framework for appraising transportation projects and the benefits they bring as well as the current preferred transport appraisal methodology is sufficient when examining the costs and benefits of the Northern Powerhouse.

A new Approach to Appraisal

The new Urban Growth model in European cities focuses increasingly on connectivity both between regions as well as within regions. This balancing is critical because the benefits of creating fast, frequent and effective links between regional centres will be undermined if connectivity within those regions is not similarly improved.

Traditional appraisal techniques for transportation projects have focused on the benefits to be derived from the value of time saved from implementing those projects, whether direct user benefits or generalised values of the time saved. It has been argued however that this appraisal framework does not take account of the so called wider economic benefits that are derived from improved connectivity. A study commissioned by the Department for Transport and published in October 2014¹ noted the constraints of traditional cost benefit analysis and recommended the inclusion of significant other effects such as with respect to improvements to Productivity and Investment & Employment.

The study also noted that with respect to Productivity and Investment & Employment, the issue was complex and ambiguous. The Study recommended a number of changes to the existing rigorous (but by definition somewhat inflexible) cost benefit framework including making project appraisal more 'project and context' specific, as well as providing a closer connection between the strategic and economic cases for transport investment. These additional benefits are real and worth capturing.

¹ Transport Investment and Economic Performance (Implications for Project Appraisal)
Venables, Laird and Overman - Commissioned by UK Department for Transport and published
9th October 2014

CASE STUDY – THE BENEFITS OF AGGLOMERATION – HIGH SPEED RAIL IN CHINA

It has been observed that following the building of the High Speed Railway in China between Beijing and Shanghai, the increase in GDP (directly attributable to agglomeration effects) of the intermediate cities of Jinan and Dezhou was very substantial at 0.55% and 1.03% respectively after a relatively short period operation. Furthermore, the same study found that passenger surveys indicated business generated traffic to have increased by between 30-60% on Beijing – Shanghai, indicating a substantial increase in trips due to the higher frequency and higher speeds of the new railway infrastructure. Whilst it is still early days in terms of data capture for that project, the World Bank hypothesised that these factors would point to evidence of an increase in employment and job location changes.

This is all of critical importance because we note that in a key transport strategy document published in March 2015 jointly by HM Government and Transport for the North², the very last page contained the statement:

Given the scale of investment, Transport for the North and Government will work together on how all the relevant impacts are included when appraising schemes as part of the Northern Transport Strategy, in accordance with the principles of HM Treasury's Green Book. This will build on the Transport Investment and Economic Performance report and wider economic appraisal methods to help decision makers understand the full range of possible impacts on productivity, investment and employment from transport investments.

Extract from Chapter entitled "Making it Happen – Transport for the North"

We would recommend the National Infrastructure Commission to take this opportunity to lead on the development of a genuine Agglomeration approach to the appraisal of transport infrastructure so as to capture these wider economic benefits and thereby make the case for investing in the infrastructure that will secure them. We are concerned that should this not be done, there is a risk that rigorous but inevitably inflexible appraisal techniques will be applied that may not take full account of wider economic impacts. This could especially be of concern in the North where notwithstanding concerns around congestion and overcrowding, actual journey time savings and congestion / overcrowding benefits may not be as great as they would be in the South of England.

It is also critical that full cognisance is taken of the wider skills agenda in this appraisal. We note from the IPPR North's paper The State of the North in 2015³ that they identify four key tests that can be used to measure whether the Northern Powerhouse is working. These four tests sub-divide into a total of 11 separate benchmarks. Only one of these benchmarks directly relates to transport infrastructure whereas 6 relate to citizens – 3 with respect to improved job opportunities (importantly both quality and quantity) and 3 with respect to education (from early years). We recognise that the focus of the IPPR report was to create a series of benchmarks that

² The Northern Powerhouse: One Agenda, One Economy, One North - A Report on the Northern Transport Strategy; HM Government & Transport for the North, March 2015

³ The State of the North 2015: Four tests for the Northern Powerhouse, Cox & Raikes, IPPR North October 2015

could test outcomes rather than inputs so this focus is understandable but it also emphasises the wider point that the best transport infrastructure in the world will not of itself cause the private sector to invest in that region and relocate there. That is one factor but a greater factor is the skill level of the labour market. It is important that the prioritisation of which infrastructure to invest in first as well as the balance between inter and intra-regional connectivity are fully taken into account.

CASE STUDY – INTERNATIONAL RAIL PROJECT

Arcadis was commissioned by the Government of a major and rapidly developing country to undertake a socio-economic impact assessment study for a transformational investment in high speed rail infrastructure. Having studied available literature and ex-post assessments of the economic benefits of High Speed Rail (the number and quality of such studies being still limited), Arcadis developed a new methodology to the ex-ante assessment of the economic benefits of High Speed Rail – the Socio Economic Development Plan.

The methodology assumes that rather than simply build the infrastructure and assume the private sector will respond to the availability of infrastructure by investing (which to an extent they will), a more accelerated and optimised approach to stimulating economic growth would come from a structured and proactive approach on the part of Government, whether national, regional or local. By assessing local physical, social and economic opportunities and aligning them to the broader economic and industrial strategy of the Government, we were able to identify for each of the principal economic centres on the line route, the industry clusters most likely to benefit from the introduction of a High Speed Railway and contribute the most to Agglomeration effects.

The opportunities identified through this process included:

- Physical Development – Integrated and Planned Land Use
- Socio- Economic Development – Regeneration of key centres as well as improved mobility / development of talent
- Business Opportunities – dramatic acceleration of the growth of emerging industry clusters (many in advanced and emerging technologies) through links to new customers and markets
- Monetisation Opportunities – Land value increases generally as well as specific development opportunities at transportation hubs

Overall, we determined that this approach could support a doubling of GDP compared to the current forecast for the same corridor over the next half century. Whilst the project was undertaken in a country with different socio—economic characteristics than the Northern Powerhouse region as well as being in a very different phase of economic and industrial maturity, the approach adopted in terms of planned interventions to maximise the Agglomeration benefits from major transport infrastructure has many similarities worth evaluating.

Question 3 Which city – to – city corridor(s) should be the priority for early phases of development?

Prioritisation Framework

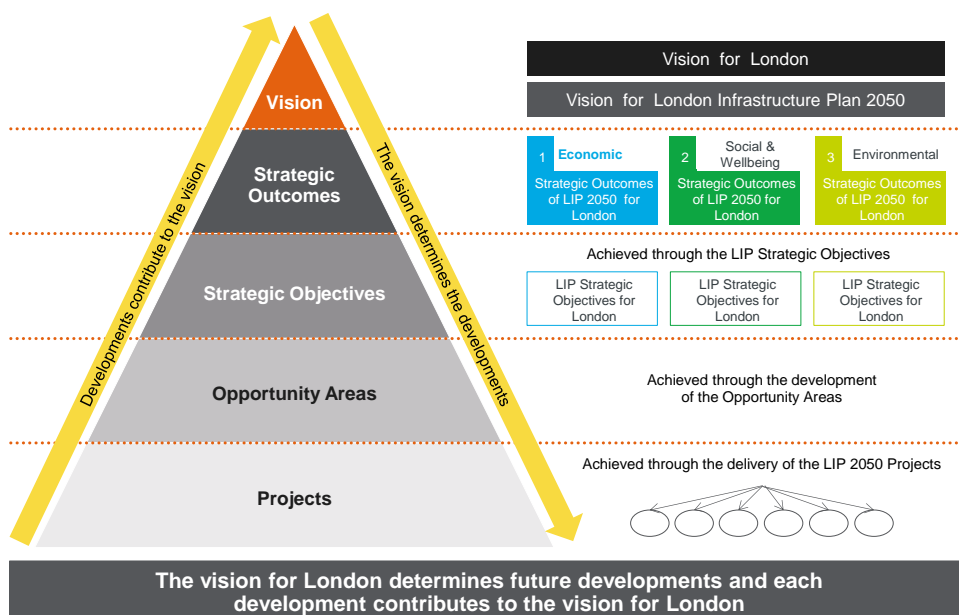
The establishment of a comprehensive appraisal framework that gives relevant weighting on a project by project basis and with appropriate local and regional context to:

- Direct User Benefits;
- Productivity Benefits;
- Investment and Employment Benefits;
- Changes in Land Use Planning.

will result in a more rounded approach to project appraisal. However, the Northern Powerhouse, whilst having at its heart the creation of a pan-regional area that can become genuinely competitive on a Global scale, is still an agglomeration of city regions that are distinct. They are distinct in terms of history, culture and outlook. The priorities in the Humber Region with its North Sea outlook will be different to Liverpool. A 'one size fits all' approach will not work in the Northern Powerhouse, or at least will not deliver the optimal outcomes.

A prioritisation framework that takes account of factors that cannot always be easily quantified is needed. Arcadis has experience of developing such a framework in London where the needs and agenda of the various Boroughs and Regions are often not aligned either economically or even politically, even though they all still see the benefit of functioning as a wider City Region. Below is an illustration of how the model works;

Prioritisation Framework Principles



A series of KPI's are developed for each of the strategic objectives that flow through to the Opportunity Areas to ensure the benefits are delivered over lifetime of the investment plan.

Inter & Intra Regional Balance

The focus of the questions posed by the National Infrastructure Commission with respect to Northern Powerhouse connectivity is “City to City” connectivity, along the core strategic corridors that connect the major regional centres. This is understandable given the nature of the National Infrastructure Commission’s remit and the logical approach of focusing initially on the corridors that are under the most stress and that are likely to generate the most immediate and material benefit.

However, experience from elsewhere has demonstrated two important issues that must also be considered:

1. Each mode of transport has its own strengths and weaknesses – whether rail, bus, light rail, car or cycle. Silo thinking must be avoided at all costs.
2. Feeder networks are critical to maximise the benefit from investment in creating hubs that are connected by high capacity, high frequency and high speed services.

Transport Modality – Strength and Weaknesses

The Report on the Northern Powerhouse Transport Strategy referred to earlier focuses on the key role that rail and road will play in transforming regional connectivity and this is accepted. Rail and road both allow the movement of high volumes of traffic (whether passenger or freight) at relatively high speeds. Both modes are at their most efficient where the number of stops made en-route is kept to an absolute minimum. With rail for instance, a service from Manchester to Leeds will be economically very efficient if running either nonstop or at most with very limited stops. As soon as the number of stops begins to increase, notwithstanding the improved acceleration and braking performance of electric trains, the economic benefit is diminished.

It will be vital, when assessing the infrastructure needs of the Northern Powerhouse and prioritising which investments take place first, to take a genuinely multimodal approach and recognise that each mode has its strengths and weaknesses. Rail performs best when it is focused on high capacity, high frequency, high speed and minimal stops. Bus is best when looking at more intermediate and local services (and at its most efficient when running on dedicated or at least managed road space). Light Rail has proved extremely successful and popular in Manchester and Sheffield but it is expensive when compared to the alternatives. Cycling too has a major role to place in designing a multi modal solution to transport needs and there is plenty of evidence in other major European Cities and City Regions to this effect such as in the Netherlands and Germany.

The importance of mobility oriented development

One of the great features of the Manchester Metrolink network is that it was conceived, and has now been delivered, as a network. It is fast, efficient and frequent and enables commuters to both:

- Access the CBD having arrived at either Victoria or Piccadilly on heavy rail services.
- Use Metrolink as a commuter service in its own right from outlying areas in the Region.

Dramatically improving journey times and frequencies between Liverpool and Manchester will have a very positive impact in Manchester because there is therefore an excellent feeder network to and from the main rail hubs. So in planning the city to city corridor investment strategy, full consideration must be given to investing in the feeder networks of those cities in order to secure the maximum benefit.

One area that seems to be low down the agenda in the Northern Powerhouse Transport Strategy is the role that bus services can play both locally (as part of feeder networks) and regionally (as part of a very cost effective alternative to heavy rail infrastructure). The politics of deregulated bus services in the PTE areas is well known – for some time, the desire across the Northern Powerhouse Cities has been to secure more input (indeed control) over the specification and planning of bus services. Manchester's decision to consult on Bus Franchising as part of its devolution package has certainly raised major concerns in the private sector operators. However, whilst accepting there are complex issues at stake, we believe the bus has a vital role to play in the North's transport strategy where it is often a very cost effective and indeed practical alternative to rail.

CASE STUDY – DEVELOPMENT OF ARCADIS MODEX

Rapid urbanisation has a significant impact on how cities function. Some are positive such as higher property values, greater volumes of quality talent, sustainable innovation and the development of urban cities that are great places to live and work. These are all outcomes consistent with the vision of the Northern Powerhouse.

However, the scale of change presents significant challenges to city planners, designers and developers. If urban growth is not properly managed, it will be incapable of supporting its citizens over the longer term. To create a supportive framework, the priority for City leaders must be to develop multi-functional neighbourhoods with an optimised population density. The population then needs to be able to move around quickly and easily with a choice of how to do so. An efficient transportation system with modal choice is at the heart of the ultimate city / city region of the future.

The scale of the challenge has led Arcadis to develop a transit model called Mobility Oriented Developments (MODE) that can help plan for the future in terms of new capacity, optimised for economic benefits, as well as social and environmental factors. Using MODE, we have benchmarked a selection of the world's leading transit-related developments.

By assessing four main indicators we have measured the quality of key elements that bring value to such developments.

- Transit Hub accessibility and comfort;
- Urban environment;
- Social placemaking;
- Economic Development.

The resulting rankings of these transit hubs is our Mobility Oriented Development Index (MODex). The report outlines our initial MODex results and highlights why taking a MODex approach can unlock the potential of development programmes yet to come, help transform how cities tackle transportation infrastructure and become integral to successful urbanisation. The full report can be viewed in Annex 1 attached.

Summary

The Northern Powerhouse provides a vision for a future that is bold, exciting and, if implemented, will transform the economies, as well the quality of life, for the citizens, of the North. We are concerned however that an outdated appraisal framework may result in ‘long favoured schemes’ being dusted down, updated and then presented as being the solution to the strategic infrastructure need of the North. We doubt very much this would be the right solution. Whilst we believe the various strategies produced by organisations such as Transport for the North indicate a genuinely new approach, we believe that they and others need to be empowered with new approaches to methodology to appraisal and funding of projects.

The National Infrastructure Commission can help unlock the potential of Northern Powerhouse by supporting the devolved authorities and organisations in the North of England in developing a new appraisal approach that for the first time does take full account of the wider economic benefits of such investments and then prioritises them using a framework that is cognisant of qualitative as well as quantitative factors.

Arcadis UK looks forward to working with the National Infrastructure Commission as this project develops and to providing any additional information and analysis from any of the case studies set out in this response, as well as from the rich library of other case studies developed by Arcadis.

Annex 1

Arcadis MODex Report

OUR MOBILE FUTURE:

DELIVERING CITY VALUE
& PROSPERITY THROUGH
MOBILITY ORIENTED
DEVELOPMENTS



FOREWORD: GLOBAL CITIES FACE A BIG CHALLENGE

Cities all over the world have a common concern - the mass migration of people to urban centers. More than half of the world's population now live in urban areas and this trend is set to accelerate, with 75 million more people moving every year. By 2050, 70% of us will live in cities.

This vast, rapid urbanization is having a significant impact on how cities function. Some are positive. We can look forward to higher property values, greater volumes of quality talent, sustainability innovation and the development of urban areas that are great places to live and work.

But the scale of the change presents significant challenges to city planners, designers and developers. If urban growth is not properly managed, cities will be incapable of supporting their citizens over the long term. Support means providing a good quality of life and access to a healthy, vibrant, safe and sustainable environment.

To create this supportive framework, the priority for city leaders must be to develop multi-functional neighbourhoods with an optimized population density. The population then needs the ability to move around quickly and easily with a choice of how to do so. An efficient transportation system with multiple modes of transport is therefore at the heart of the ultimate city of the future.

Yet even today our transportation infrastructure is failing. Developed cities have infrastructure in place but it is often aging and creaking under the pressure of current usage. Cities in emerging markets have little established infrastructure in place. Both require solutions that can accommodate not just large numbers of people, but also future growth and technological advancements.

It is important to recognize that capacity is just one half of the story. Transit-hubs are no longer simply a place where the traveller arrives or departs. The facilities in and around it increasingly make the area a destination in itself, and can provide an appealing ripple effect on the prosperity of, and investment in, the surrounding area. Therefore new transit-hubs cannot be developed in isolation and must be integral to the area they serve.

The scale of the current – and impending future – challenges require fast action. This is why Arcadis has been focussing on developing a transit model that can help our clients plan for the future and access the unrealized potential in their existing transport developments, not only economically but socially and environmentally too.

Our experience has shown us both best practice and missed opportunities in transit-hub development around the world. By using this insight we have developed a next level approach to transit-related developments called Mobility Oriented Developments (MODe).

The MODe approach helps to identify the key values of a transit-hub and by doing so can help unlock its overall potential.

Using the MODe approach we have benchmarked a selection of the world's leading transit-related developments. By assessing four main indicators we have measured the quality of key elements that bring value to such developments:

1. Transit-hub accessibility and comfort
2. Urban environment
3. Social placemaking
4. Economic development.

The resulting rankings of these transit-hubs is our Mobility Oriented Development Index (MODex). This report outlines our initial MODex results and highlights why taking the MODe approach can unlock the potential of development programs yet to come, help transform how cities tackle transportation infrastructure and become integral to successful urbanization – laying the foundations for the mega cities of the future.

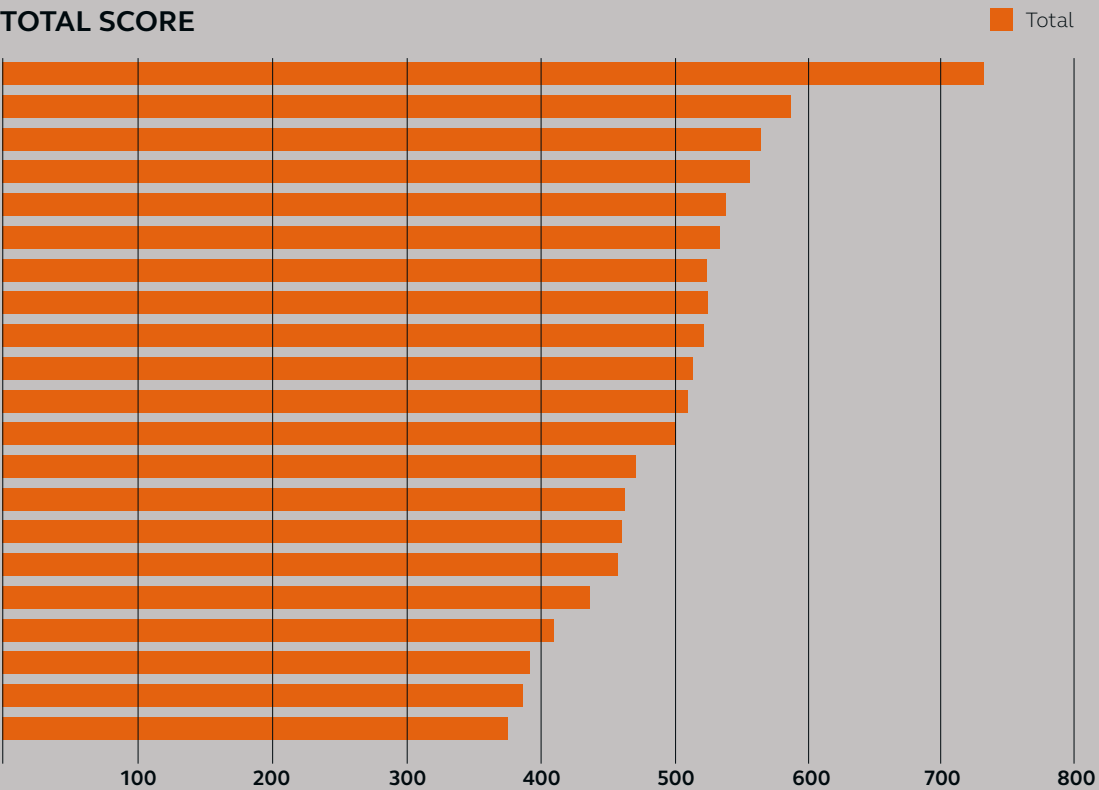


Bas Bollinger,
Global Rail & Urban
Transport Leader
at Arcadis





FIGURE 1: OVERALL MODEX SCORES



“MODE enables our clients to provide their city with next generation transportation, economic growth and social prosperity. It is how the best possible outcomes can be delivered for the wellbeing of people. It helps to maximize social and economic benefits and the return on investment in urban mobility.”

To see a breakdown of the MODex results for the top 21 transit-hubs, go to page 12

MODE: AN EVOLUTION OF TRANSIT-RELATED DEVELOPMENT

Mobility Oriented Development (MODE) is an evolution of transit-related development. It provides transit choices that connect and improve all parts of people's lives and is about realizing the value and potential of transit-hubs as a means of transportation, but also as a key to wider prosperity for citizens and investors alike.

MODE serves both public and private stakeholders looking into (re)developing a transit-hub, by unlocking and leveraging its potential. By attracting additional private investments, a MODE can maximize the return on investment of both the transit-hub and its surrounding area. It can also optimize and accelerate social and economic development.

Our approach gives a better understanding of how multi-modal urban environments can work together and helps us understand what characterizes a multi-modal urban environment, how the aspects of the environment relate and when the area is in balance.

A MODE based approach shifts the emphasis from single-minded rail mobility to providing citizens with a full range of mobility options as they live, work, play and learn in high quality urban environments, from walking, cycling and bus to Bus Rapid

Transit (BRT), Light Rapid Transit (LRT), metro and aviation. Where transit-related developments are traditionally designed to:

- induce ridership
- reduce driving
- increase walking and biking
- add convenience
- increase density
- and overall encourage transit use.

MODE takes it a step further by looking to:

- sustain that ridership
- discourage driving
- make walking and biking safe
- and support convenience.

By taking this approach, developers have an asset that works well within the overall area and is primed for future changes. Furthermore, public authorities can better understand how to realize financial potential from the overall development.

“If you can connect people's lives by designing a place that provides an efficient commute and easy access to places to relax, shop, eat and live, there is no need to use a car. I myself am able to visit my gym, buy gifts and groceries, dine out and commute to work all from the one area around my local station in Hong Kong, so why drive? Whilst ensuring that the station is commercial it has the added benefits of helping the environment and making the development more sustainable.”

Diane Legge Kemp, Vice President CallisonRTKL

“The success of a MODE is mostly determined by how well you plan the complete program upfront, in an integrated way. Success will be judged by how well the development is managed – with all key stakeholders involved – and the opportunities it creates for others.”

Bas Bollinger, Global Rail & Urban Transport Leader at Arcadis

REALIZING THE POTENTIAL OF MOBILITY-ORIENTED DEVELOPMENT:

INTRODUCING THE MODex BENCHMARK

Our MODex defines the overall value of integrated development at and around transit-hubs. It is built using indicators that measure the quality of key elements that bring value to a development. In this way, transit-hubs can be compared before and after development, to increase understanding of how high quality multi-modal urban environments can be created, and the main factors that optimize them for wider social benefit.



MODex reveals the potential of existing developments or plans to open up opportunities for the future development of urban centers. It provides:

- the ability to investigate how far investment in a transit-hub contributes to the success and added value of the multi-modal urban environment, including higher property values, pleasant public spaces and increased revenue for local businesses
- the ability to find out where there is room for improvement
- quantification of qualitative measures
- a global comparison of performance of multi-modal urban environments on different aspects.

MODex addresses four key values, each built from a number of specific indicators, which have their own set of variables to measure the score of the development and benchmark it against others:

1. Transit-hub: accessibility and comfort

Describing the quality of the transit-hub in relation to the connections, variety and quantity of transit modalities, proximity to other important locations and facilities, and providing comfort to the traveller.

2. Urban environment

Informs us about the urban form of the environment within the transit zone and the degree to which sustainability has been taken into account. Indicators such as density and whether a development is mixed-use determine urban form.

3. Social placemaking

Defined by indicators that contribute to a vibrant, cohesive and safe multi-modal urban environment, such as the quality of the public space and the variety of public facilities within the transit zone.

4. Economic development

Defined by the relative prosperity, economic activity and property value of the urban environment within the transit zone.

Using these values we assessed a selection of transit-related developments around the world, of which we show the performance of 21 leading developments.



FIGURE 1: OVERALL MODEX SCORES

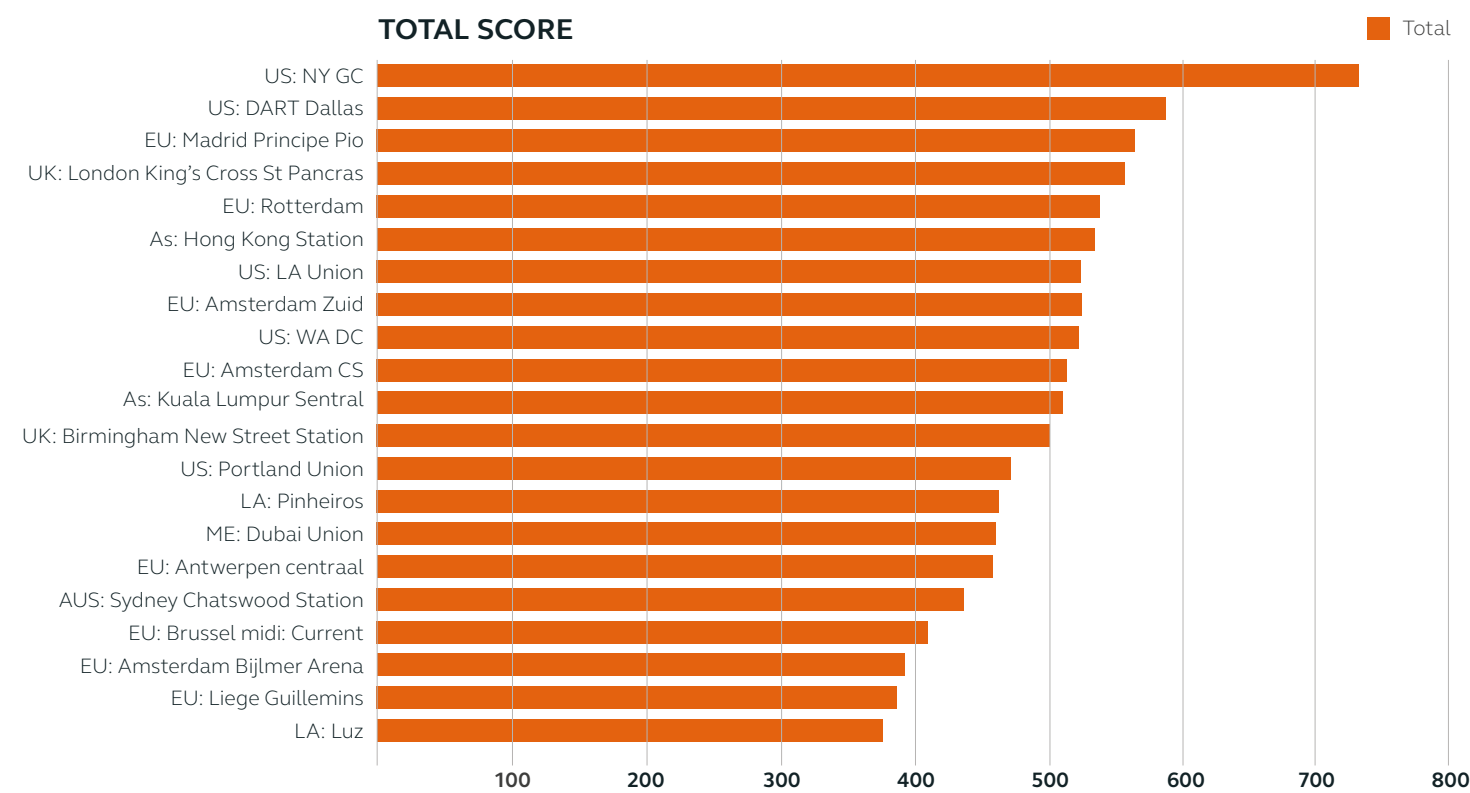
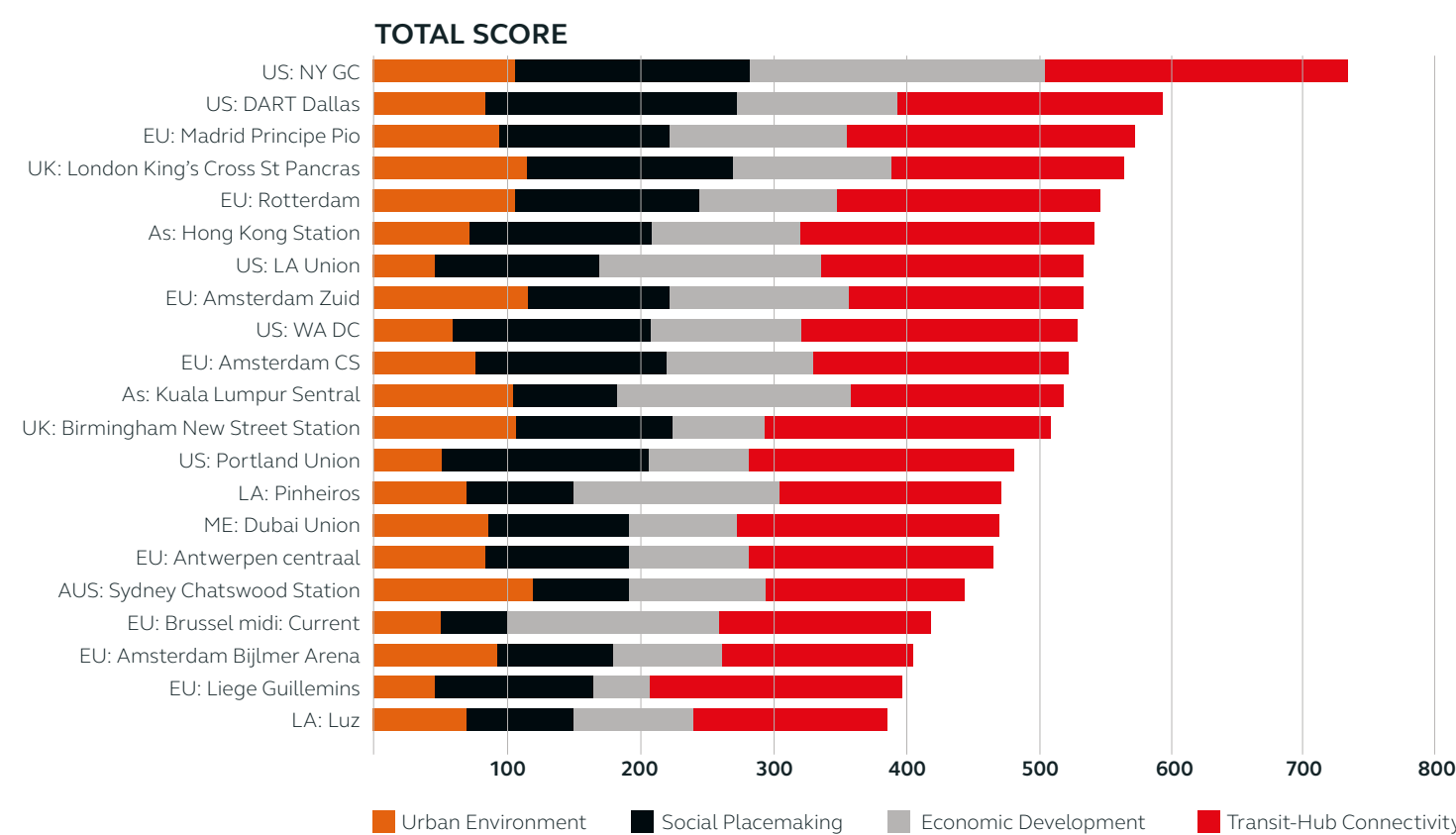
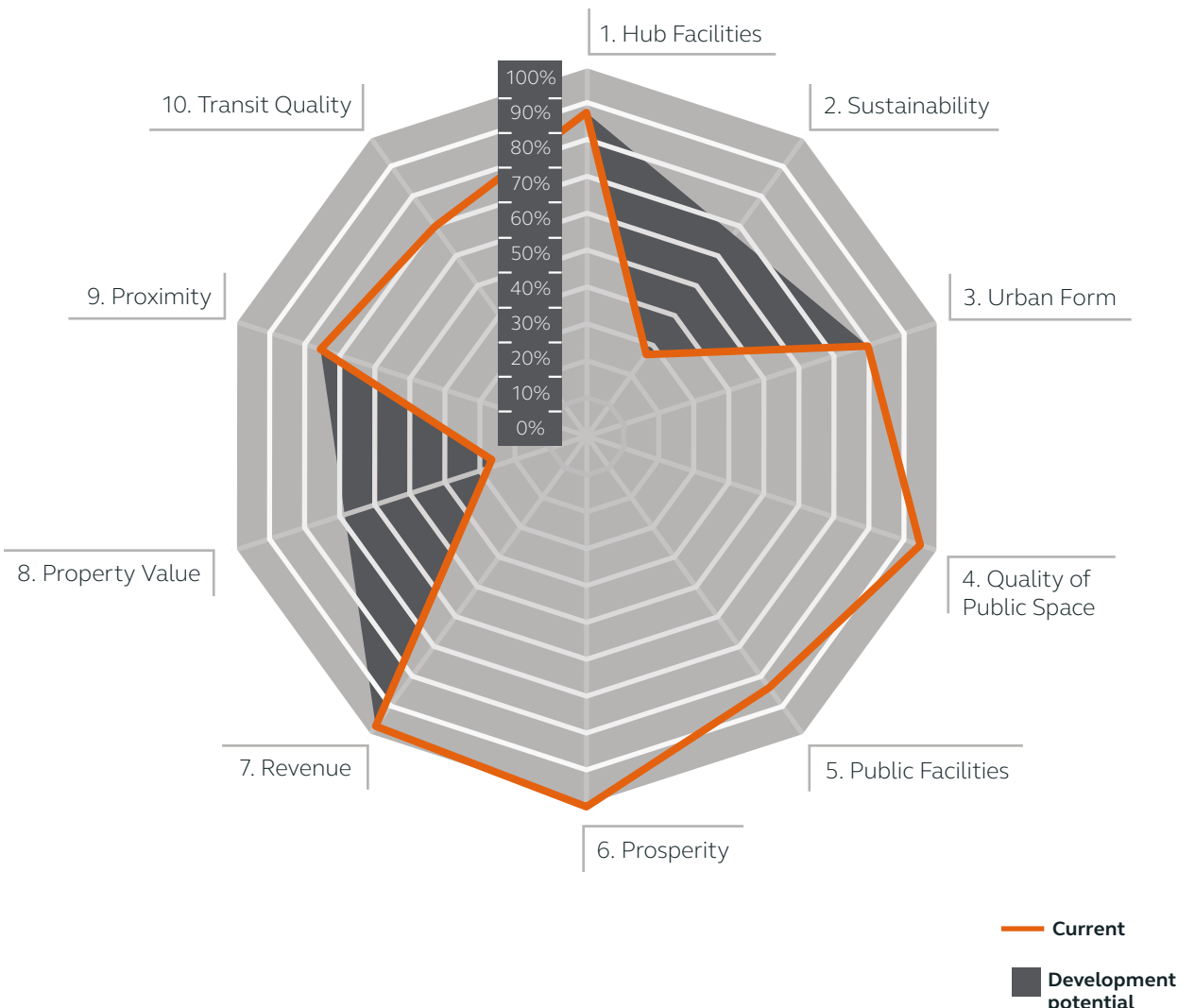


FIGURE 2: SCORE BY VARIABLE



Our findings show that New York's Grand Central Station development ranks highest overall, scoring in the top five in all categories and topping the rankings for transit-hub connectivity and economic development. Grand Central is fully embedded in the surrounding high density environment and adds to it. More importantly Grand Central itself and the area it sits in are socially appealing attracting many types of visitor whether commuters or tourists and contribute economically to the city. All of this contributes to its high score and the result is that it is one of the most high performing transit-hubs in the world. Although Grand Central tops the ranking, our MODE approach highlights that there is further value to be unlocked from the hub to maximize its overall value. While Grand Central's quality of public space, prosperity and revenue all score well, potential remains untapped in sustainability, relative property value and transit quality, if it is to achieve perfection.

FIGURE 3: GRAND CENTRAL MODEX ANALYSIS REVEALS UNREALIZED POTENTIAL





Transit-hub: accessibility and comfort

Grand Central again scores strongly in the transit-hub connectivity category, with consistently high results in hub facilities and transit quality. Hong Kong's station also performs well in second position; the city is known for not only providing dense public transportation, but also developing the urban tissue around the stations for

mixed-use development. Both stations are well connected and offer a lot of transfer possibilities in a highly concentrated area, which contribute to their scores.

Urban Environment:

Sydney's Central Railway Station tops the urban environment ranking due to its high density surrounding built environment. This density, created predominantly from the number of tall buildings in the vicinity, make it a vibrant and engaging social area. Added to this, Sydney Central assists the vibrancy of the area with just the right balance of mixed-use facilities available to citizens. Overall London King's Cross St Pancras came second in the index due to good

performance on sustainability measures.

While LA Union scores lowest in urban environment, this will likely improve as the new station is being designed and the area will transform over the coming years. In general, climate resilience and ambitions in sustainability cannot always be explicitly recognized. These can be seen as one of the key challenges for the near future.

FIGURE 4: TRANSIT-HUB CONNECTIVITY

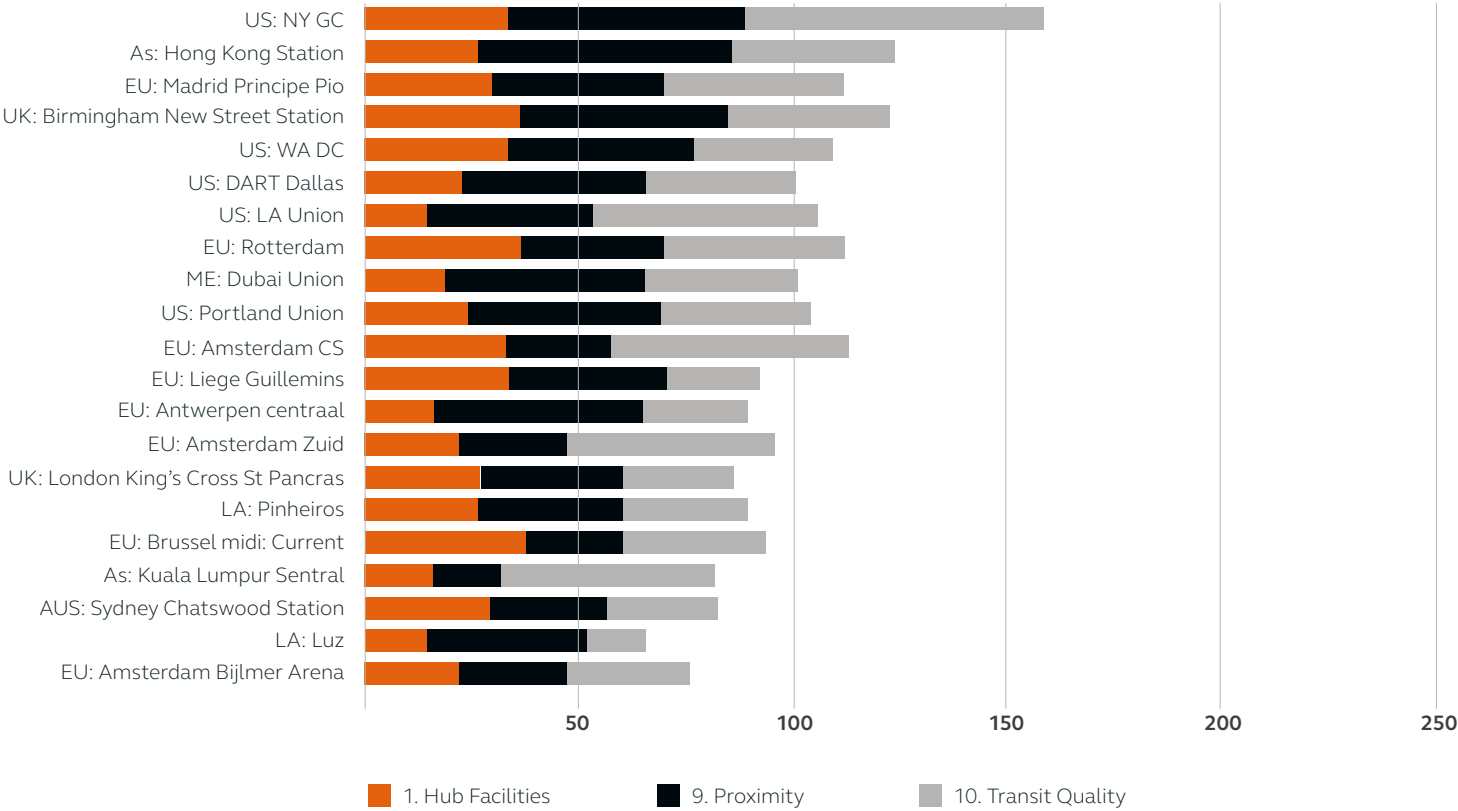
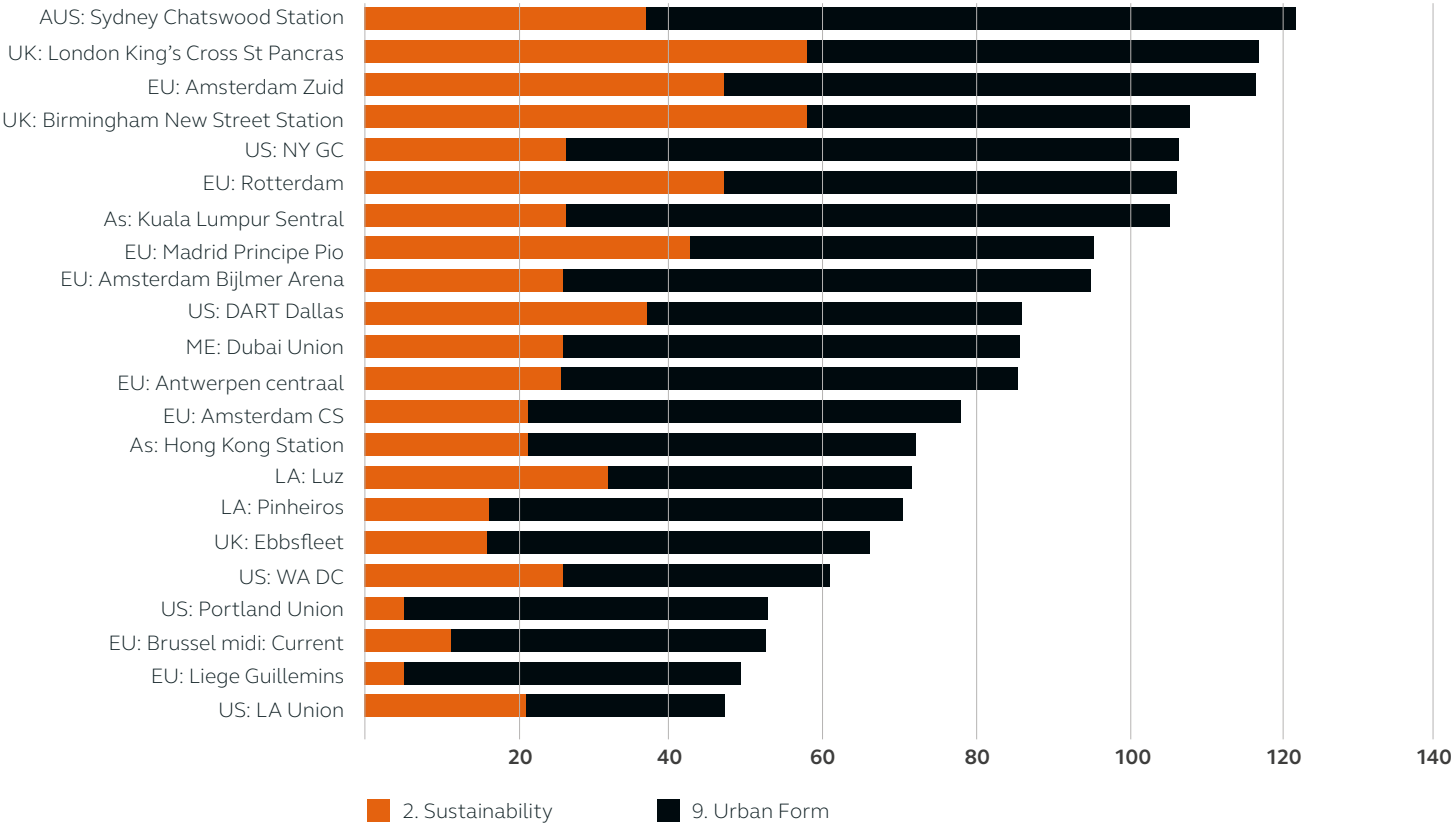


FIGURE 5: URBAN ENVIRONMENT

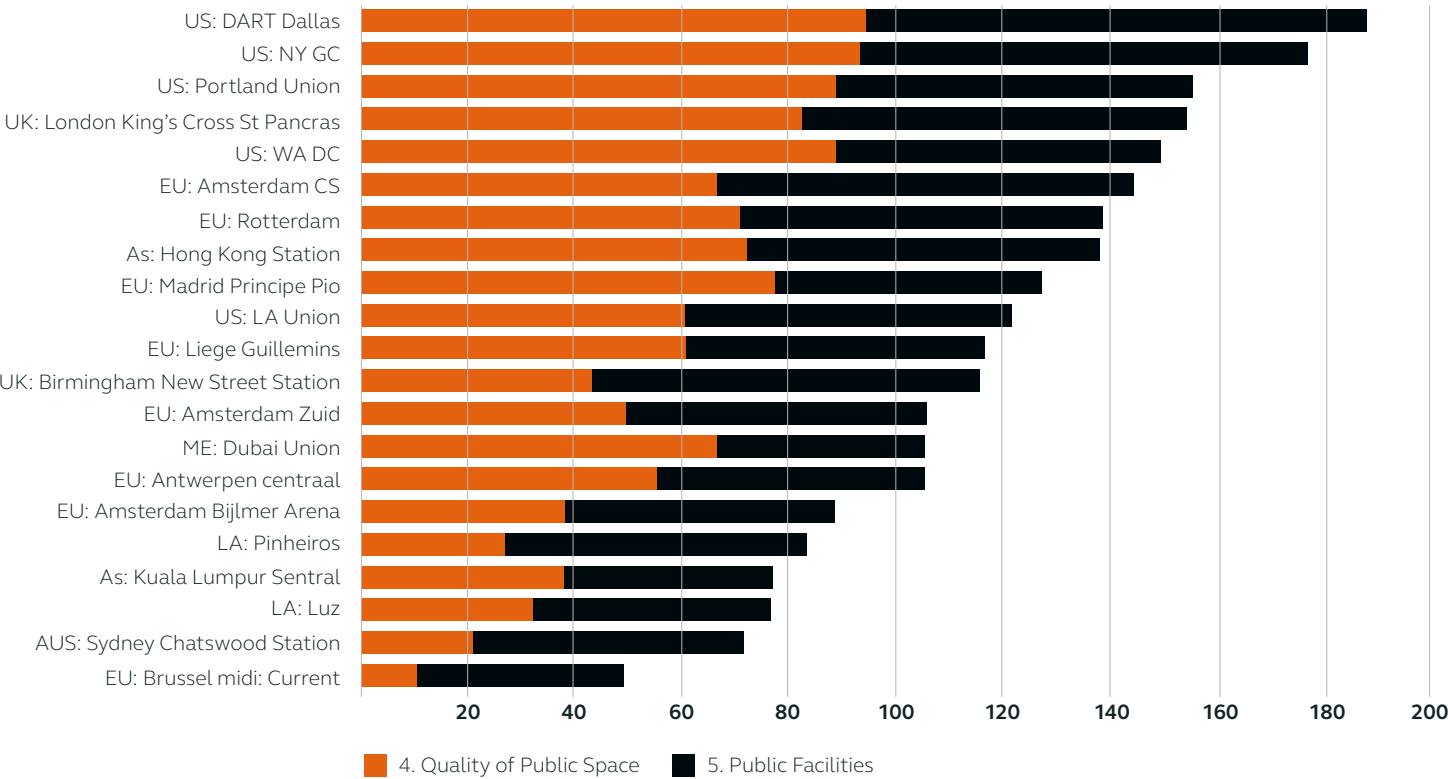


Social Placemaking:

Dallas Area Rapid Transit (DART) in Texas, USA leads the social placemaking rankings, with equally impressive scores for both quality of public space and the public facilities available. Meanwhile Brussels Midi shows a significant disparity in its scores. Although it scores relatively positively for its available amenities for those using the hub, its public

spaces score poorly making it socially an unappealing area at certain times of the day. In Dubai's Union Station the situation is reversed, it has a very high quality of public space available to those frequenting the station but it lacks the public facilities to make it as attractive as it could be.

FIGURE 6: SOCIAL PLACEMAKING

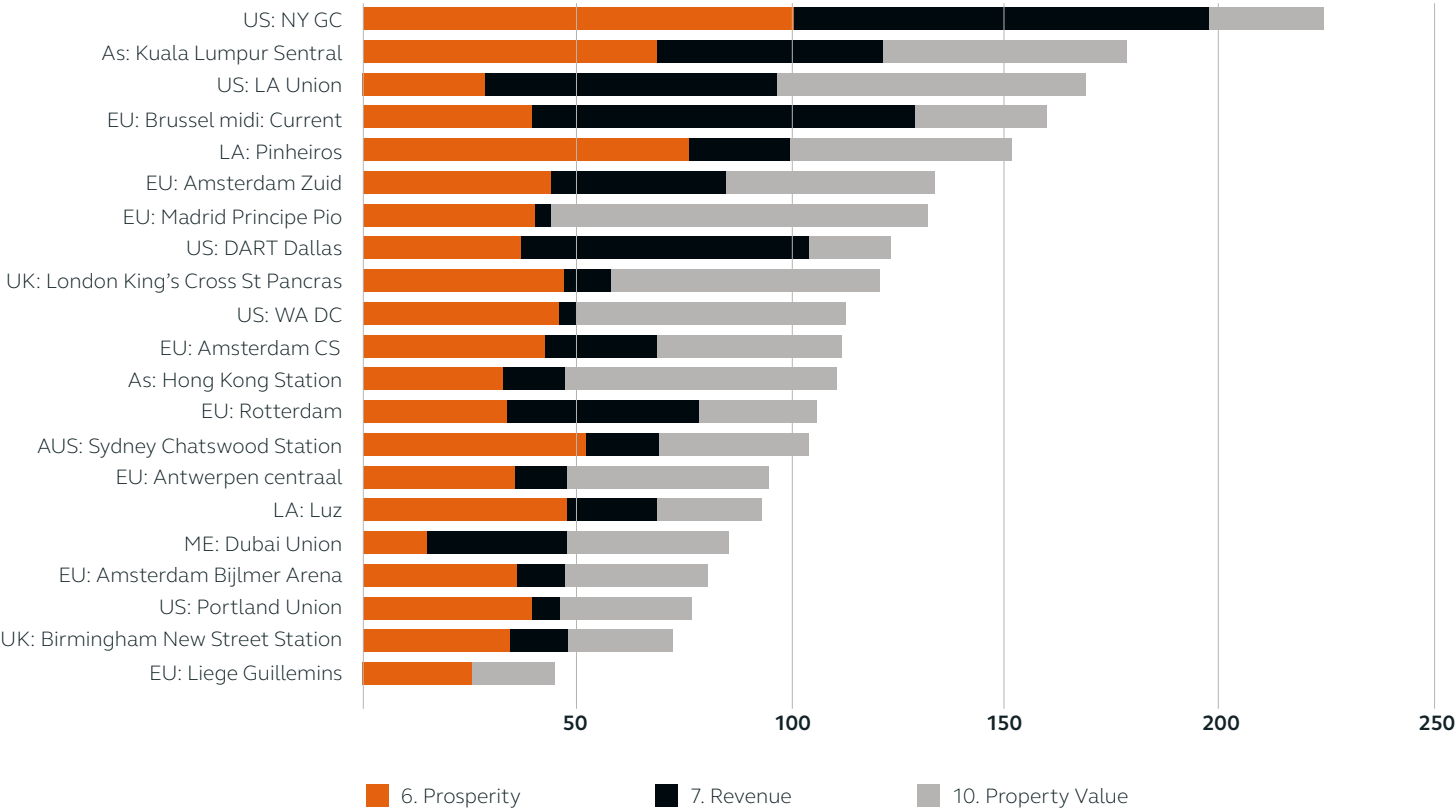


Economic Development:

The economic development category sees New York's Grand Central leading the rankings again, with good scores across prosperity and revenue but a lower score for higher property value around the station, relative to the rest of the city. Madrid's Principe Pio experiences a striking difference in its scores across the

three categories of the economic development indicator, with prosperity and property value performing far better than revenue.

FIGURE 7: ECONOMIC DEVELOPMENT



The MODex highlights that a mobility-oriented policy pays off. Like in many places in the world, for instance in the Netherlands and North America, governments have proactive policies to invest strongly in and around transit-hubs. There are a notable number of developments from these countries that score highly in the MODex as a result. In the Netherlands this is also influenced by the fact that it is a compact country with a dense public transport network.

If you would like to know how your transit-hub performs in our MODex benchmark, get in touch.

A VERY MODERN PROBLEM:

WHY TRANSIT-RELATED DEVELOPMENT NEEDS TO EVOLVE

So why is a new approach necessary and what can MODe bring to the world of urban development? As more and more people flock to cities, we will ask transit-hubs to deliver increasingly high value – economically, environmentally and socially. To meet these demands early planning, collaboration and a truly holistic outlook – not just for the obvious economic and environmental benefits, but also socially for public health, inclusion and quality of life – needs to be a priority.

The accelerating challenges faced by modern cities calls for a next level approach to transit-hub development. To meet the expectations of modern urbanites and contribute to a better quality of life, these hubs must be genuinely mixed mobility-oriented, offering a range of transit modes and encouraging use of sustainable options.

THE BEGINNING OF TRANSIT-RELATED DEVELOPMENT

The integrated approach to the development of a train station and its surrounding area was first established in the USA at the start of the 21st century, when three major trends converged:

1. A resurgence of investment in America's downtown areas.
2. Growth and maturity of the country's suburbs.
3. A renewed interest in transit use and investment.

This combination illuminated the need for a new form of development. One that incorporated walkable, mixed-use areas around transit stops and offered more than one mode of transportation.

This development provided residents with an improved quality of life, reduced transportation costs and reduced environmental impact, while giving the area stable mixed income neighbourhoods and real alternatives to traffic

congestion. This was a powerful proposition and one that took off – not just in the USA but around the world. Attractive transit-hubs alone can flourish, be it because they are well designed to operate efficiently, or have become recognized as an iconic structure in the area. However, taking an integrated approach to developing the area around the hub, as well as the hub itself, produces higher value and extra benefits.

They must incorporate a wider area with more leisure, housing and workplace options – making it easier for citizens to connect all parts of their lives. They need to create neighbourhoods that are destinations in themselves and where the address carries prestige. Urban environments offering a high quality of life also have the added value of attracting new people and businesses. Investment in easily accessible neighbourhoods is attractive, especially in those that become popular in a short amount of time.

Leveraging the value of such a development is a very complex process with a lot of stakeholders, who all have different interests and dynamics. These include city planners, developers, retailers, investors, transit owner-operators and community groups. It may appear easier for each party to only concern themselves with the part of the development that they have direct influence over, and if further developments follow then all well and good. But this limits the overall impact of a hub development and makes it hard to fully integrate it into the wider surrounding area. In these cases, development regularly

happens around a transit-hub as a consequence of it, rather than in tandem with it. The result is really transit-served developments, rather than transit-oriented developments.

This disparate activity leads to developments not realizing their design potential, not efficiently connecting all parts of the development, and not achieving the best value – as passengers continue to merely pass through the hub and not see it as a destination. For example, to attract finance and generate an early return, many transit-oriented masterplans predominantly focus on high-end residential elements and not enough on other components that also add wider social, economic and environmental value to the development. Or, by focusing on road and rail connection plans, the opportunity is missed to encourage use of other, more sustainable options.



CONCLUSION: A LA MODe

A well-balanced MODe has the power to transform how we think about existing transport infrastructure and raise our aspirations for what transit-hubs can achieve commercially, environmentally and socially. Using this holistic approach, we can truly begin to see the full value of our transport assets and how we can leverage them – not just for better returns, but better lives and better futures.

MODe: FIVE KEY OPPORTUNITIES:

1. Integrated planning leads to better outcomes

When not only the main rail functions but also the other connecting transport options are included in integrated planning, it is possible to create a more logical and compact transit-hub. This brings a higher level of comfort to the traveller – even in shorter travel times.

At the new Rotterdam Central and King's Cross St Pancras, all urban and regional connections were brought closer, which makes transfers very attractive. In Rotterdam this was combined with a high quality pedestrian route to the centre.

In contrast, the out-dated separation of taxi, bus, and private vehicles at hubs in China has resulted in unsafe and unattractive environments and missed opportunities for vibrant mixed-use development – all of which can easily be corrected with integrated transit and urban planning.

Integrated planning can only be achieved by full involvement of all key stakeholders. It seems obvious, but in practice it is not. The interests of stakeholders can be very different. But what they have in common is reaping the benefits of a successfully developed plan. As part of this integrated planning, a shared vision, transparency and a clear strategy are crucial for aligning stakeholders.

Time is also a key factor. Time to invest in aligning the initial planning stages and think them through in all aspects. In the Amsterdam Zuid financial district redevelopment, this approach has led to a strong improvement of the business case for investment. In light of variable time pressures coupled with complex and often high-density sites, a clear phased plan is needed to realize incremental steps towards the larger vision for all stakeholders. The transition period itself is one of the key elements of a successful plan.

2. Developers and investors need a clear framework

There are multiple examples proving the upside of a clear framework for bringing plans to life. The transit agency or station owner plays an important role in setting these parameters, but the local authorities are also crucial. They provide the glue between the public space and public transport pieces of the puzzle, which contributes hugely to achieving the envisaged quality.

Getting this relationship right leads to predictability and certainty for developers and investors, which they need to make the high investments as part of integrated planning. In cases where this is not in place, the investors back off.

3. Hubs with international and high-speed connections are more attractive for investors

International high-speed and long distance connections to other cities or international airports contribute to a higher level of facilities, a higher standard of the environment and through that more commercial activities and revenues. When used well, this can be a very powerful component of leveraging the value of the mobility hub.



4. Transit-hub development often is the catalyst for wider urban investment

In many cases, station (re)development is the catalyst for other urban development projects. Often increasing needs for transit capacity and facilities or – on the flip side – aging infrastructure leads to new aspirations and possibilities. When this happens, the additional value for the surrounding city starts to become visible and the urban development processes can start.

A good example is the area around London King's Cross St Pancras. The impact on the city of the redevelopment of the stations has been enormous. This trend could yield new opportunities at railway stations in rapidly urbanizing markets such as China in the future – once the focus moves from initial system build to improving existing functionality and the performance of station area real estate.

5. Down with commuting, up with more sustainable outcomes

Mixed-use 'live, work, play and learn' hubs can reduce strain on urban systems, because more people can live and work in one place without the need to commute. A truly mixed-use development around a station will give people the option to work near home and use transit to connect other parts of their lives.

Communities and countries without public transport often need to see and touch the benefits before choosing to drive less. As transit-hubs become mixed-use, high intensity, high interest destinations in themselves, the choice becomes easier. Added to lower household expenditures of time and money on car ownership and the benefits become hard to ignore. Stations like Grand Central in New York have once again resumed their place in the civic realm of cities as an important place for connecting people, commerce and culture.

“Integrated developments can only be realized by full involvement of all key stakeholders. Developers and PPPs need predictability and certainty to make an investment. Knowing what works and what doesn't only comes from the trial and error of having been there before. Through years of experience in bringing parties together to optimize results, we know what can be achieved.”

Bas Bollinger, Global Rail & Urban Transport Leader at Arcadis



CASE STUDIES

DALLAS AREA RAPID TRANSIT (DART)



The DART authority connects 13 cities in Texas, North America – operating transport in Dallas and 12 of its suburbs. David Leininger, Executive Vice President & Chief Financial Officer, explains their multi-modal approach and how they put the community at the center of this exciting development:

“With DART we managed to integrate a multimodal system which includes 90 miles of light rail, 130 bus routes, 34 miles of commuter rail, 84 miles of HOV lanes, paratransit, rideshare and ITS in one project. By planning all of these interchanges together we have been able to deliver a much better end result for users. Being able to transit quickly and easily between train and bus means that travel becomes an enjoyable experience, not one that the traveller dreads.

“Our project also took account of individual local communities when constructing its stations. We deliberately did not go for a ‘one size fits all’ station. Each and every one of our stations was designed to complement the community it serves and the area around it. It was important to us to fit into what already existed and enhance that, not detract from it.

“DART has invested into the locations that we predict will generate most value. The local area and public authorities benefit from changes to the area and find ways to earn further public funds from the increased value. We also encouraged thinking outside of the box, as championing partnership between stakeholders is essential to any such development. Our success was due to working in conjunction with other stakeholders to realize the entire development.

We have developed an evaluation methodology to assist cities, developers and landowners in understanding the potential for any given location and this methodology is generally applicable to most urban markets.

“This methodology also allows us to prioritize developments and find the best ways to invest around that station location. In the USA, large corporates are looking to align their name with railway lines and stations in the same way that they do with stadiums or other large venues. This is a whole new way of raising revenue on a station, but it also encourages people to start referring to the area with a familiar name, subsequently giving kudos because such a brand wants to be associated with that area.”

“Development near to a transit-hub is not the same as development oriented to the transit-hub. The two should not be confused. Planning the total development and leveraging the revenue that the transit brings ensures that it positively impacts on and becomes part of the whole community.”

David Leininger, DART

HIGH SPEED 1 (HS1)



St Pancras International Station in London, UK, is home to HS1, Britain’s only high speed rail line and its rail connection to the Continent. It is also home to three major domestic train services. The general public have voted St Pancras International the UK’s favourite station every year since it reopened in 2007. Nicola Shaw, CEO of HS1 Ltd, explains how they have created an award-winning and transformational transport hub:

“St Pancras was built in 1863 to serve the transport needs of a different age; its redevelopment required a radical rethink for the needs of travellers, workers and residents now. The redesign extended the number of platforms and the range of connections available, opened up the unused area beneath the station to create a light and airy retail and circulation space, and transformed the iconic Grade I listed building – including the restoration of the 5 star hotel at the front entrance. The result is an aesthetically beautiful and efficiently functioning station which sets a new standard for rail destinations.

“The station redevelopment has been an important factor in the rapid regeneration of the wider St Pancras and King’s Cross area. The area is now a high quality environment where locals are proud to live and work and in which multiple international businesses have relocated, including Google’s new European Headquarters. It is also now the location for London’s leading art University – the University of the Arts London.

“As an important transport hub, the station connects trains, buses and metro, but also provides public space where art and music has flourished. This is one of the reasons the Academy of Urbanism gave

St Pancras its ‘Great Place’ award for 2015. Many of the station’s visitors say that it is a destination in itself; in fact, one in four of our visitors come to enjoy all that the station has to offer, not just to travel. Retail is an important part of this, combining well-known brands with boutique and luxury retailers. We are always looking for ways to improve our offer – in early 2014 we were the first UK train station to launch our own consumer app, allowing our customers to capitalise on new shopping trends. We have retail spending levels in line with medium sized European airports and those in the vicinity of the station have also benefited. We have seen retail space within a quarter of a mile of the station experience a 13.4% return.

“Traveller experience is key to our strategy. From making sure our trains run on time to ensuring that helpful staff are always on hand, from providing clear signage and free toilets to staging an extensive program of art and music activity, we make a conscious effort to ensure that we remain best in class in everything we do.”

“St Pancras International sets new standards. As home to HS1, the UK’s only high speed line and international rail connection, St Pancras is a unique transport hub with a fresh and distinct personality. It is proof that a coherent vision of both connectivity and public space can cultivate growth and prosperity”

Nicola Shaw, HS1

METHODOLOGY:

ABOUT MODex

The index originates from Arcadis' original approach to transit-related developments known as Mobility Oriented Developments (MODe).

The MODex is a result of global collaboration between Arcadis and CallisonRTKL (a Design Consultancy of Arcadis). We have worked closely together in order to develop and apply the benchmark.

Despite the fact that most indicators of the MODex are based on theoretical concepts and scientific literature, the benchmark itself is not scientific. The MODex contains both quantitative and qualitative measures. Qualitative measures are quantified where possible by adapting proven theoretical frameworks. In cases

where data was not available, we made use of the expert judgement of our specialists and consultants in urban and transportation planning, economy and sustainability. For the quantitative parameters, which mainly included socio-economic and real estate data, we made use of the available sets of data.

In contrast to other global benchmarks, where data is mainly conducted on country or city level, the MODex demands data on district and neighbourhood level or even lower. Quantitative data at this level is not always available in every country, and often when it is the data is subject to its own local guidelines and regulations.

SOURCES

We have conducted the following types of data sources, not limited to:

- International databases (GDP, average income & property prices);
- Statistical year books of cities and municipalities;
- Transportation schemes;
- Google Maps;
- Site observation.

Depending on the indicator, the maximum score is based on two different aspects:

- Maximum points that can be achieved with a normative checklist;
- Calibration of the maximum score based on the case with the highest performance.

PIONEERS OF NEW APPROACHES:

ABOUT ARCADIS

Arcadis is the leading global Design & Consultancy firm for natural and built assets. Applying our deep market sector insights and collective design, consultancy, engineering, project and management services we work in partnership with our clients to deliver exceptional and sustainable outcomes throughout the lifecycle of their natural and built assets. We are 28,000 people active in over 70 countries that generate more than €3 billion in revenues. We support UN-Habitat with knowledge and expertise to improve the quality of life in rapidly growing cities around the world. Please visit: www.arcadis.com

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