

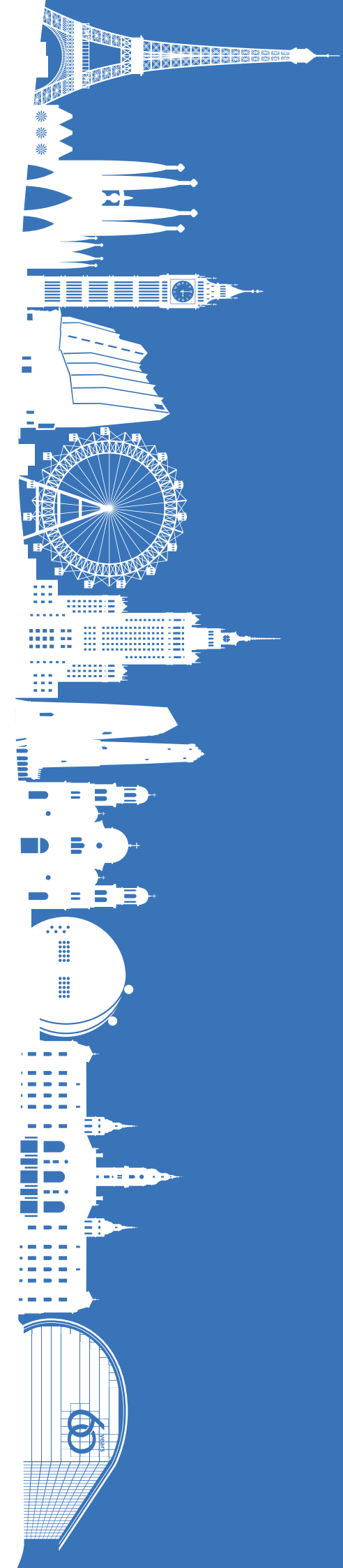
city, transformed

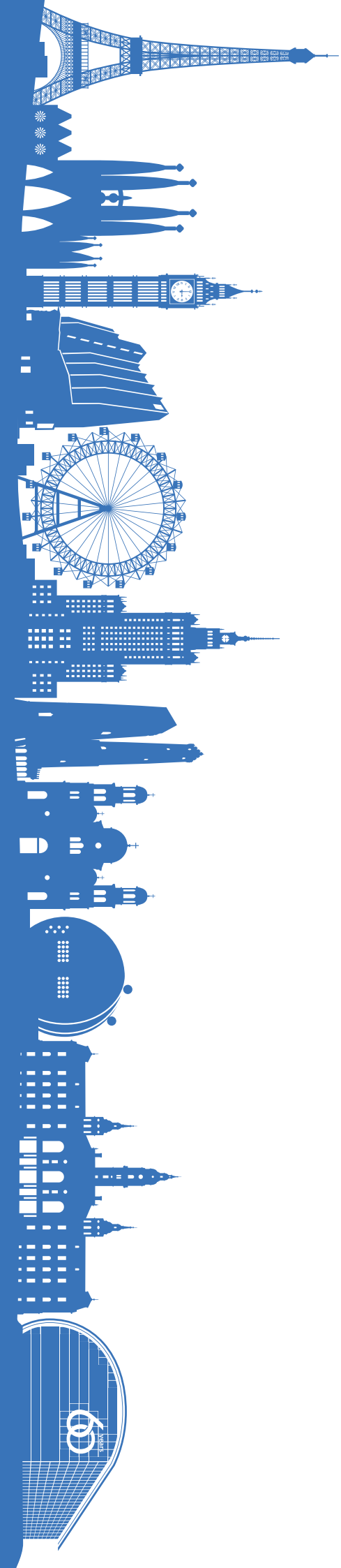
# LONDON

Mobility City

Greg Clark  
Tim Moonen  
Jake Nunley

 European  
Investment  
Bank *The EU bank* 





97

97

# LONDON

Mobility City

---

Greg Clark  
Tim Moonen  
Jake Nunley

**London: Mobility city**

© European Investment Bank, 2019.

All rights reserved.

All questions on rights and licensing should be addressed to [publications@eib.org](mailto:publications@eib.org)

The findings, interpretations and conclusions are those of the authors and do not necessarily reflect the views of the European Investment Bank.

Get our e-newsletter at [www.eib.org/sign-up](http://www.eib.org/sign-up)

pdf: QH-06-18-218-EN-N ISBN 978-92-861-3895-9 doi:10.2867/631170  
eBook: QH-06-18-218-EN-E ISBN 978-92-861-3894-2 doi:10.2867/214300

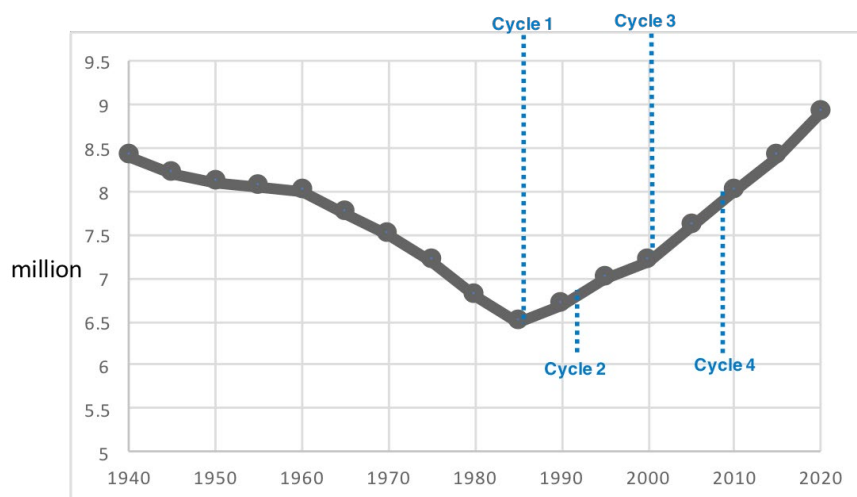
## Rail lines, tunnels, a revamped Underground, and bigger, better airports were decisive in London's transformation into one of the world's great global centres. Direct project loans from the European Investment Bank worth £7.3 billion between 2006 and 2016 have also been of fundamental importance.

Despite the uncertainties of Brexit, London continues to be rated as a leading location in Europe and the world for business, knowledge, and talent. It is routinely benchmarked among the top performing large cities globally in terms of quality of life, infrastructure and accessibility.

But 30 years ago, when London had no citywide government, a transport system in crisis, and no successful track record of continuous large-scale upgrades to the urban fabric, this scenario would have seemed highly unlikely.

In this essay we examine how London's unpromising 1980s gave rise to three decades of reinvestment and we explain how the European Investment Bank played an essential catalytic role in successive cycles of London's evolution from an under-governed de-populating national capital into a diverse global centre benefiting from integrated urban systems management.

**Figure 1: Timeline of EIB's cycles of investment and London's population change**



### London's development: the back story (1945 to 1985)

The 40 years between 1945 and 1985 saw London take several steps to reorient its spatial and economic composition in accordance with new global political and economic trends.

Following World War II, with extensive derelict areas in the city, London had an opportunity to amend the perceived failings of unplanned and haphazard development that had occurred as a result of rapid industrialisation over the course of the nineteenth century. With over 50,000 inner London homes having been completely destroyed and more than 2 million having experienced at least some form of bomb damage, the London County Council (LCC) was presented with a unique chance to plan and rebuild vacant parts of the city on a scale not witnessed since the Great Fire of London almost three centuries prior.<sup>1</sup>

In 1944, the *Greater London Plan* ("The Abercrombie Plan") pointed out the main directions for the development and reconstruction of the city. Founded on the realities of industrial dispersal and a stable population with low levels of growth, the plan demanded not only the creation of large-scale affordable housing, including tower blocks, but also the dispersal and relocation of populations into New Towns beyond a newly established metropolitan green belt.<sup>2</sup> By the mid-1960s, London had witnessed the creation of eight satellite New Towns, a viable green belt, and more than 1,000 high-rise blocks of flats scattered across the urban fabric.<sup>3</sup>

Moreover, the emergence of several significant and enduring phenomena signaled that London had reached the end of this first cycle of post-war development. The "leapfrog" of development over the green belt had seen New Towns become heavily dominated by commuter living, while high-rise blocks had begun to decay, physically and socially. Moreover, London's inner-city boroughs had begun to witness rapid depopulation, as white working-class inhabitants started to migrate to distant suburbs or adjacent counties in search of a better quality of life and new job opportunities.<sup>4</sup>

In this context, where deindustrialisation, urban blight and land contamination hit London hard, urban redevelopment (or renewal) gradually came to be identified as the task of re-engineering the city for new forms of economic activity and job creation. It was increasingly accepted that economic activity had to be re-galvanised on sites where it had declined most, namely in the rapidly deindustrialising waterfront areas in the east and south of the city that had suffered due to the movement of cargo to deeper ports in Tilbury and Folkestone. Infrastructure interventions came to be seen as an initial solution to these imbalances, helping to concentrate development in the east of the city and offset the traditional advantages of the west. But the city's governance arrangements, still based on the geographically constrained London County Council (usually known as "inner London"), were not up to the task.<sup>5</sup>

In 1965, the Greater London Council (GLC) was created to address London's fragmented and uncoordinated local government and deliver on the need for new infrastructure development. Replacing the LCC, the GLC became responsible for running strategic services such as waste disposal and emergency planning, and shared responsibility with London boroughs for providing roads, housing, planning and leisure services. The GLC was also required to produce a *Greater London Development Plan*.<sup>6</sup>

A draft Development Plan was published in 1969 and approved in 1976.<sup>7</sup> In contrast to the Greater London Plan of 1944, this Development Plan focused on inner-London regeneration, assumed a decline in population, and established clearly defined density limits.<sup>8</sup> A key focus of the plan was the regeneration and comprehensive redevelopment of Covent Garden and the creation of a central London motorway loop in order to enhance connectivity to the suburbs. Following the movement of the Covent Garden market to Nine Elms, the GLC proposed the construction of a new road system through the area, which would involve demolishing over three-quarters of the area's homes to make space for new and more expensive flats. Residents and community groups met the proposal with criticism. As a result, the plan ultimately became mired in controversy and dispute.<sup>9</sup>

In 1961, the UK had applied to join the European Economic Community. It became a member in 1973, a situation that was then ratified in a 1975 referendum won by 67% to 33%.

In 1981, the Labour Party took control of the GLC and pledged to implement an interventionist *Industrial Strategy* capable of producing 10,000 jobs by 1985. This was a direct response to the massive scale of the decline in the city's manufacturing base that had been occurring since the 1960s. Between 1959 and 1975, the rate of manufacturing job loss in London was more than double that in other UK conurbations put together. In the decade from 1971-81 Greater London lost 36% of its manufacturing employment compared to 25% nationally.<sup>10</sup>

Together with the *London Labour Plan*, which aimed to combat discrimination, enforce equal opportunities, and strengthen unionisation, the London Industrial Strategy was highly novel in nature. It introduced a publicly appealing notion of democratic planning into the heart of economic policy. It also placed for the first time an emphasis on individual industrial and service sectors and the pursuit of particular production priorities.

By 1984, Labour Party leadership of the GLC had established borough housing targets, a 70% public sector housing target, and the objective that 80% of the capital's houses would have gardens.<sup>11</sup> In pursuit of a new "rainbow coalition" base for the London Labour Party, the GLC had also subsidised an array of community groups and minority support activities. A radicalised GLC therefore found itself increasingly at odds with the economically liberal ideals espoused by Margaret Thatcher's central government – a factor which ultimately led to the council's abolition in 1986 (see below).<sup>12</sup>

## The first cycle – (1985-1992): the teething pains of post-industrial London

The 1980s was a decade in which London's industrial sector mix and its long-term population trends experienced a dramatic shift. The opening up of the Eurodollar markets, and the rise of the dollar as the global currency of choice for international transactions had seen London begin to emerge as an offshore banking centre for dollar deposits. The abandonment of exchange controls in 1979 allowed foreign banks in New York, Tokyo and Paris to lend, borrow, buy, sell, merge and acquire assets in London, while reforms to equity markets meant funds could now look for the best possible return across global markets. London's financial sector was poised for growth, and the London economy substantially de-coupled from the UK national industrial pattern.

The subsequent reforms that comprised the final "Big Bang" of deregulation in 1986 saw many financial firms double or triple their workforce within a year, and London quickly established itself as one of the world's three global financial centres, benefiting from its strategic location in the European and African time zone and proximity to European markets.<sup>13</sup> The growth in size and number of financial and commercial institutions demanded a supporting ecosystem of professional and technology services. This caused a long-term shift in London's employment geography that persists to this day. The re-urbanisation of jobs back into central London triggered wider processes of urban regeneration. Meanwhile deregulation in the TV, newspapers and film sectors saw London develop a highly specialised and flexible set of media roles which would drive further economic diversification and re-urbanisation.<sup>14</sup>

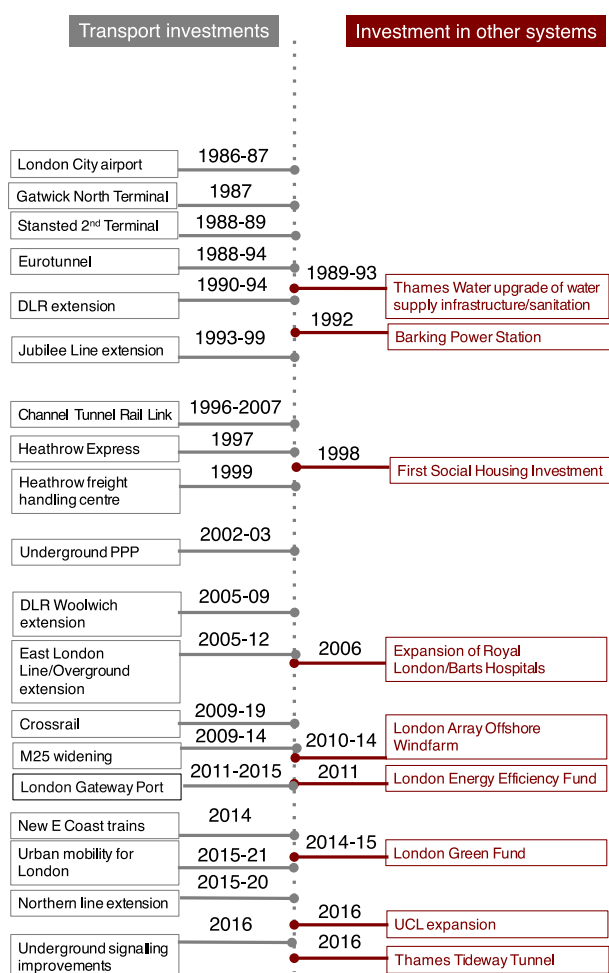
Most of London government and business did not anticipate the scale of opportunities that the Big Bang in financial services, the deregulation of media and information, and the associated new technologies, would bring. London as a whole was largely unprepared, economically, spatially and infrastructurally, for the growth that would follow. Although the economy was growing strongly, and London's population was stabilising after more than 40 years of steady decline, the city's governance system was entering a period of crisis. As one of the crucibles of entrenched political division between Labour and Conservative politicians, Greater London was the victim of the tensions between the defiant Labour leadership of the GLC and an uncompromising Conservative central government. Service delivery and decision-making became increasingly paralysed.<sup>15</sup>

In 1986 the UK central government took the decision to abolish the GLC, dissolving the institution notionally best placed to coordinate London's metropolitan growth. It left London to be governed by 33 weakly coordinated local boroughs, each with their own short-term agendas, and a centralised national government reluctant to substantiate its occasional strategic guidance with more robust powers of implementation.<sup>16</sup> The abolition represented a high watermark in the centralisation of UK government, and a low point in London's self-governing capacity.

It was in this context that the EIB's contribution in London began to pick up. In the first 12 years of the EIB's investments in the UK, the main London project had only been a modest €17 million investment in the **Second Dartford Tunnel**, but in the mid-1980s London's infrastructure deficits began to appear more urgent.

The initial focus was on London's transport to other European countries, as part of a step up in the priority accorded to European transport connectivity. The EIB had observed the European Community's urgency to establish a multi-modal network for the free flow of goods and services, and London's airports were a key part of this equation.<sup>17</sup>

### Timeline of EIB investments in London, 1986-2018



Between 1986 and 1987, the EIB provided a loan of €11.2 million to help fund the construction of London **City Airport** in the Royal Docks area of East London.<sup>18</sup> In 1987, the EIB loaned €210 million to help fund the construction of a second terminal at **Gatwick Airport**.<sup>19</sup> And between 1988 and 1989, the EIB loaned a further €304 million to help fund the construction of a second terminal at **Stansted Airport**.<sup>20</sup> These airport projects substantially improved London's international connectivity. They also supported London's development as a polycentric region where many of the R&D, innovation and high-end services functions are located beyond the M25 near the city's airports, especially in the M4 corridor and the London Stansted Cambridge Corridor.<sup>21</sup>

Meanwhile the long-awaited **Channel Tunnel** project finally got going through a new financing solution. Beginning in 1988, the EIB lent €600 million to co-fund the construction of the **Eurotunnel** connection between the UK and France. At the time this was the first build-operate-transfer project in UK history and the country's most expensive tunnel construction project ever proposed. The EIB was initially an instrumental partner. It became more significantly involved when the UK government refused to subsidise the project and instead agreed through the Anglo-French Treaty that it would be funded entirely with private equity. The EIB was one of five banks plus ten

contractors. The British Channel Tunnel Group consisted of two banks and five construction companies, while its French counterpart, France-Manche, consisted of three banks and five construction companies.<sup>22</sup>

In the end, the UK government granted a debt guarantee and agreed a concession for a period of 55 years (later extended to 65 years).<sup>23</sup> A Railways Usage Contract provides Eurotunnel's only committed source of income. Under the contract, Eurotunnel is required to make half of the tunnel capacity available to British, French and Belgian railways for Eurostar and freight trains, and in return the railways pay a fixed charge and tolls based on the volume of traffic plus a contribution to operating costs.<sup>24</sup> In 1985 prices, the project was forecast to cost £5.5 billion, but the final cost came in at £9 billion, even though the 1987 financing package contained a 25% cushion.<sup>25</sup> Cost overruns were attributed to slow tunneling and underestimation of the cost of the rolling stock.<sup>26</sup>

The EIB also began what would become a two-decade investment in the regeneration of the **London Docklands**, the largest redevelopment site in the city. It was overseen by London Docklands Development Corporation, an agency financed by UK central government. The property firm, Olympia and York, decided to build Canary Wharf in 1987, and the Development Corporation had already fast-tracked a new road strategy to build some £650 million of new roads by 1993, including the one-mile **Limehouse Link** tunnel, the most expensive road ever built in Britain.<sup>27</sup> The EIB's involvement was key to expanding the role of public transport in the area.



The **Docklands Light Railway** had already opened Stage 1 in 1987, and powers were granted for the Beckton extension in 1989 to trigger development further east, with the EIB making an important initial investment amounting to over €300 million. A city extension to Bank station was also under way, funded by the emerging Canary Wharf project. Campaigning led by South London Lewisham Council triggered a Light Railway extension providing direct cross-river access to Canary Wharf. In the absence of a citywide government, the willingness of local boroughs and new City Challenge agencies to find £10 million helped to persuade Roger Freeman MP (Minister of State for Transport) to allow a parliamentary bill for the Light Railway Lewisham project in 1990.

The other major project begun during this phase was **Barking Power Station**. Constructed between 1992 and 1995, it was the first large generating station to be built in London for decades. It became one of the largest independently owned generating plants in the UK, capable of generating 1,000 MW of electricity, well over 10% of the peak electricity demand in London.<sup>28</sup> The EIB investment of £200 million thereby ensured that London's power capacity needs were met for a significant time.

In a period in which London was experiencing benign neglect and the infrastructure deficits had become quite severe, the EIB's initial surge in investment in airport, rail and power projects was a source of important momentum even before the transformational effects of the demise of the Soviet Union, German re-unification, and deeper European integration. Much more was to come as more of London's distributed leadership system began to recognise a changed context of opportunities for London and an urgent set of competitive risks and investment imperatives.

## The second cycle (1992-2000): preparing for a global and competitive London

Five years after the abolition of the GLC, and in the midst of a new recession, London saw the emergence of a number of institutions and leadership platforms with a new perspective for the city: conscious of the need to compete, aware of the new population growth and internationalisation, and concerned about the ever-growing infrastructure deficit.

A sequence of reports focused attention on potential reforms to London's infrastructure model. The 1989 **Central London Rail Study** highlighted the collapse in infrastructure spending in the face of growing demand, and two years later the **London Planning Advisory Committee**, set up to advise central government, produced a seminal report entitled *London - World City Moving in the 21<sup>st</sup> Century*. The report articulated the aspirations and needs of London as a city with global functions, which required improved infrastructure, quality of place, culture, and international promotion.<sup>29</sup>

These reports were purely advisory, but they influenced central government to provide more targeted support for its capital. The Conservative Party was encouraged to feature London in its manifesto for the 1992 election for the first time, and since then the needs of London have featured in all of the winning manifestos in UK elections. In 1991 a Cabinet Committee for London was set up to improve central government coordination, and this was then followed by a Government Office for London, and a Minister for Transport for London.<sup>30</sup>

While the Government Office for London had a limited budget of around £1 billion and rarely made policy initiatives, it helped to allocate regeneration funds and capital expenditure. The Office acted as a key point of contact for private and public actors in London, including the EIB, and encouraged a positive approach to the new cycle of economic opportunities.<sup>31</sup>

In these years the upswing in demand to live in London caught the city's governing institutions unaware, given that the city's population had previously been forecast to fall to just six million. Re-urbanisation pressed the city's neglected transport infrastructure and disinvested public services. After decades of largely failed experiments in high-rise social housing, London also faced the imperative to physically and socially renew much of its urban fabric.

What followed was the gradual triumph of a new attitude of pragmatism and informal partnership among local and national governments and the private sector. Inner city boroughs controlled by the Labour Party recognised the opportunities of using business growth and new sources of investment for social objectives and public goods (housing, amenities, jobs and transport).<sup>32</sup> Local councils became more supportive of accommodating professional talent and began to lobby for investments in place-making, education and infrastructure, hoping to use them to fulfil broader social goals. During the 1990s, the boroughs began to cooperate with each other again and articulate common positions, leaving behind the bipartisanship of the 1980s.

The 1990s also saw business and civic leaders organise themselves more effectively to fill some of the governance vacuum. London First was established in 1992 as a business membership organisation that advocated new solutions for the city. It was invited to produce a strategic vision for London in partnership with business and the boroughs. This resulted in the prospectus called the London Pride Partnership. While non-binding, the vision heavily influenced government thinking on London and inspired a policy agenda focused on place-based regeneration that was persuasive to the EIB and other investors. By raising awareness of London's strategic weaknesses and providing viable pathways and solutions, these organisations created the context in which there was an opportunity to pursue megaprojects in London.<sup>33</sup>

One of the most important, the **Jubilee Line Extension** to Stratford, catalysed the growth of Canary Wharf. In the early 1990s the isolated Docklands project had gone bankrupt and the ability of London's new "second central business district" to meet its high job targets was considered to rest on much improved connectivity to central London, well beyond the additional capacity provided by the Docklands Light Railway. Olympia and York, the developers in charge of the multi-billion-pound office development, had been one of the principal proponents of an underground link between central London and the Docklands. In 1993, O & Y reached an agreement with London Underground Ltd to provide £398 million in private funding towards the Jubilee Line Extension – almost half of the £800 million private contribution that was initially required for the project to get the go-ahead. But a property market slump soon put O&Y into administration, meaning their contribution to the project had to be significantly reduced. A new source of finance was critical.<sup>34</sup>

In 1993, the EIB came up with a £98 million loan to the Canary Wharf developers to help cover the first private sector contribution towards the cost of the project. This EIB loan was ultimately hailed as the final piece of the jigsaw that allowed the Jubilee Line Extension to go ahead.<sup>35</sup> The extension lengthened the Jubilee Line from Green Park to Stratford through the South Bank and to the East End of London.<sup>36</sup> It was one of London's largest engineering projects to date. It involved the construction of six completely new stations and the enlargement or rebuilding of a further five. At its final cost of over £4 million per metre, it was one of the most expensive construction projects in the world at the time.<sup>37</sup>

The Jubilee Line Extension had a number of important immediate urban development benefits:

- It provided two extra strategic river crossings for the area, firmly anchoring it to the rest of the Docklands.
- It catalysed the wider regeneration of the Docklands by encouraging and supporting the proposed housing and office scheme.
- It relieved road traffic on river crossings, particularly the Blackwall Tunnel.
- It provided the large SE London population with access to the growing employment north of the river.<sup>38</sup>

The project also achieved several notable effects on the economy and commuter times along the line. Upon opening, the extension removed approximately 3,300-person trips per day from the local road network and saved 14.4 million hours in travel time in its first full year of operation. From 1991 to 2001, the population in the catchment area of extension stations rose by 31% compared to 11% in the inner East London area as a whole. And by 1998 employment in the extension catchment areas was growing at nearly twice the rate of the rest of Greater London.<sup>39</sup>

The extension marked a watershed moment in the development of a co-financing approach to London's redevelopment projects. The ability of local actors and business to persuade central government to support investment in the Docklands Light Railway and the Jubilee Line Extension was critical to convincing the EIB to contribute alongside other private investment. This period of the mid-1990s was also one of increased negotiation and pragmatism in London leadership. As such the London Dockland Development Corporation also became more receptive to calls for mixed land uses in the Docklands development, with more of the residential, cultural and service amenities sought by the local boroughs. As a result, the Docklands redevelopment project gained vibrancy and gathered momentum, and by the late 1990s Canary Wharf had fully established itself as London's "second central business district". This experience powerfully demonstrated the benefits of private and public cooperation, especially around the advocacy and assembly of investment, with the EIB playing a central role.<sup>40</sup>

Throughout the decade London's newly confident growth coalition successfully lobbied central government to fund many other high-profile projects to support the city's growth, via national regeneration programmes and lottery funds. Although not fully anchored in a wider strategy, the model of using public infrastructure investment to unlock private finance helped deliver a sequence of "Millennium projects", including the Tate Modern, Millennium Bridge, Millennium Dome and Millennium Wheel (London Eye). Areas of the 'City Fringe' were also upgraded with public funding, paving the way for the cultural and creative revival of Hoxton and Shoreditch.

Alongside these cultural projects, London's new financing approach helped to accelerate many initiatives, including rail connections to airports, airport terminal expansions, station redevelopments, new shopping districts and market places. Put together, these projects secured much needed infrastructure and amenity improvements, helping to shift more people onto public transport, reduce congestion and enable London's new job clusters to spill over beyond the historic central business district.<sup>41</sup> One of the most important projects was the rapid airport link, the **Heathrow Express**. In 1997, the EIB lent £125 million for the construction of the project (as did the Export-Import Bank of Japan), a £300 million, 70:30 joint venture between BAA and British Rail. The project involved the upgrading and electrification of 18 km of existing railway, plus the construction of a new 7 km spur, two new stations and a maintenance depot, new signaling and communications works and the purchasing of new high-speed trains. The project helped cut the journey time from Heathrow to central London to 15 minutes. Given that before its construction 80% of travelers to and from the airport used road transport, the Heathrow Express also had a significant impact on reducing congestion and air pollution on surrounding roads.<sup>42</sup>

*"The EIB is pleased to support this key project which will improve access and travel conditions for passengers at Europe's busiest international airport. The Heathrow Express will add yet another crucial link to the trans-European communications networks – whose development is a European Union priority – and it will also improve the London urban environment by helping to reduce road congestion."*

**Sir Brian Unwin, EIB President 1993-1999.**<sup>43</sup>

The improvement of London's connectivity to the trans-European rail network had been a major EIB priority for more than a decade, and this effort was eventually realised through the **Channel Tunnel Rail Link**. From its initial design phases in 1996 to the final phase of construction and opening in 2007, the EIB invested £700 million in the high-speed project. Section 1 of the rail link, from the Channel Tunnel to North Kent, opened in 2003.<sup>44</sup> For this stage, the EIB loan to concessionaire London and Continental Railways had a maturity of up to 30 years, while other key shareholders included Bechtel Ltd., London Electricity plc, National Express Group plc, SNCF, and UBS Warburg. The completion of section 1 resulted in an immediate jump in London's international connectivity, reducing the journey time to reach Paris and Brussels by 20 minutes, and thus impacting on the overall time to reach other key European cities such as Amsterdam and Cologne that can be accessed via onward connections.<sup>45</sup> By providing international rail users with time savings and increased service reliability, it has also contributed to improving the competitiveness of rail relative to air and road transport.<sup>46</sup>

Section 2 of the project involved the construction of the line from North Kent to the central London terminus at St. Pancras, so that there is now a 109 km twin track high-passenger and freight line between London and the Channel Tunnel.<sup>47</sup> This part of the project was especially complex as it involved the construction of 25 km of tunnels under London and the River Thames, as well as a new international station at Stratford that has contributed to urban regeneration in the East London and East Thames areas and major reconstruction works at St. Pancras. The completion of section 2 also provided a further 15-minute time gain on the journey between London and Paris/Brussels and released scarce capacity on South London commuter routes. The Tunnel Link now has the capacity to carry up to between 40 and 45 million passengers per year and has contributed to the rise of long-distance inter-city and international commuting in Europe.<sup>48</sup>

## The first pilots of social housing investment

In 1998 the EIB began providing support in the social housing sector as part of an integrated approach to urban development and renewal. Its finance to The UK Housing Finance Corporation enabled the debt aggregator to on-lend at no charge to a number of London's Registered Social Landlords in deprived areas of London (e.g. initially Tower Hamlets and Hackney) and other UK cities. This resulted in the creation of thousands of units of replacement social housing, as well as "foyer" buildings to shelter and train jobless young people, and "live-work" units for start-up businesses.

This new role for the EIB allowed it to provide highly cost-effective long-term finance for housing associations to underpin the delivery of very energy efficient affordable homes as part of wider urban renewal processes in the city, offering confidence for providers to embark on new projects. This had a transformative impact on regeneration projects across Inner and Outer London over the subsequent 20 years (see Section 4). By the 2010s, the financing of social housing as the anchor of a larger urban renewal process had become mainstream, with the EIB as the key source of financial innovation in the sector. By 2016 this investment had totalled £4.2 billion spanning 40 projects in the UK, an outsized share of which were in London.

## The third cycle (2001-2008): London's new metropolitan functions and the opportunity for financial innovation

In 1997, the incoming New Labour government decided to restore metropolitan government for London. This reflected a newfound confidence that the capital had moved on from an era of political hostility and brinkmanship and could now be trusted to manage its relationships and its finances prudently.<sup>49</sup> The government's Green Paper confirmed that a directly elected Mayor would feature in the capital's new governance arrangements. London was set to gain a new kind of governance system that had never been seen in a British city.

In 2000 the Greater London Authority (GLA) was set up, with a Mayor at its head, coordinating the work with the 33 boroughs. Importantly, the Mayor gained powers over transport through the new subsidiary agency, Transport for London, as well as strategic planning and economic development powers via the London Development Agency. Policing and fire services were also transferred. From 2002 a Sustainable Development Commission was established, advising the Mayor on environmental strategies and priorities.<sup>50</sup>

The Mayor-Assembly model of the GLA initially had a modest staff (around 400), and its powers were at first focused on city wide strategy and the management of transport and policing. Although the GLA and Mayor elaborated transport, spatial, economic and housing strategies, the institution's financial and legislative autonomy was somewhat limited. However, the integration of functions increased the capacity of Transport for London to borrow money and convene PPPs. This resulted in a rapid sequence of major investments with the EIB playing a core role.

In March 1998, the British Deputy Prime Minister announced a **public-private partnership (PPP) for the London Underground**. The objective was to develop a better underground system through an efficient public sector

operator working with an enhanced infrastructure managed by the private sector. A PPP was thought to be best suited to reversing the deterioration of the system caused by a sustained period of underfunding. (By 1998, the value of the backlog of work arising from past under-investment amounted to £1.2 billion).<sup>51</sup>

Under the PPP, London Underground was divided into a publicly owned operating company responsible for delivering services to the public, London Underground Limited, and three private sector infrastructure companies to provide services under contract to the system. Each Infraco, as the infrastructure companies were known, was responsible for a set of three groups of underground lines. 30-year contracts were signed with the Infracos to maintain, improve and upgrade these lines; the private sector was invited to bid for the acquisition of shares in the Infracos.<sup>52</sup> As such, while the operator remained publicly owned, the maintenance and renewal programmes were carried out by privately run companies.<sup>53</sup> The overarching idea was that instead of having conventional contracts whereby the public body, the Underground, simply specified the work and put it out to tender, contractors would be incentivised to take a longer-term view of the assets.<sup>54</sup> In 2002 and 2003, London Underground Ltd signed three 30-year agreements with the Tube Lines and Metronet consortia.<sup>55</sup>

With very few private sector bidders willing to participate, the cost of setting up the contracts rapidly increased.<sup>56</sup> The EIB committed to supporting the consortia, loaning £300 million to Tube Lines and £600 million to Metronet.<sup>57</sup> In the case of Metronet, the underlying financial structure included £70 million in equity from five shareholders, commercial bank loans worth £1 billion, and a further £1 billion of bonds alongside the EIB loan.

The PPP model was soon extended to other transport projects. For Transport for London, loans from the EIB have often proved cheaper than alternatives such as the UK's Public Works Loan Board. In 2005, the EIB agreed to provide a loan of £100 million to **extend the Docklands Light Railway** to provide a new transport link across the River Thames and connect North Woolwich to Woolwich Arsenal in South London. The project was delivered by means of a PPP. EIB funds were lent directly to the private concessionaire Woolwich Arsenal Rail Enterprises Ltd., which was responsible for designing, constructing and maintaining the extension under as part of a 30-year concession granted by the Light Railway, itself owned by Transport for London. As with other projects at this time, it was financed by a combination of commercial bank loans, the EIB loan and junior subordinated loan stock/ordinary shares.<sup>58</sup>

The emergence of an integrated planning capability for London heralded a larger scale set of projects to come forward than at any time in the 1990s, especially for the activation of East London. In 2004, London's first comprehensive spatial strategy since 1945 was published, entitled the *London Plan*. With a strong focus on managing population growth, it became a "strategy of strategies", identifying more than 30 "Opportunity Areas" where London could increase housing supply, mostly in the East and North-East. The London Plan has not only enabled a dramatic increase in housing densities in London and has enshrined the principle of sustainable transport-oriented development.<sup>59</sup> It also set the framework for a number, of transport, urban development, regeneration and housing projects to come together, many with EIB assistance.

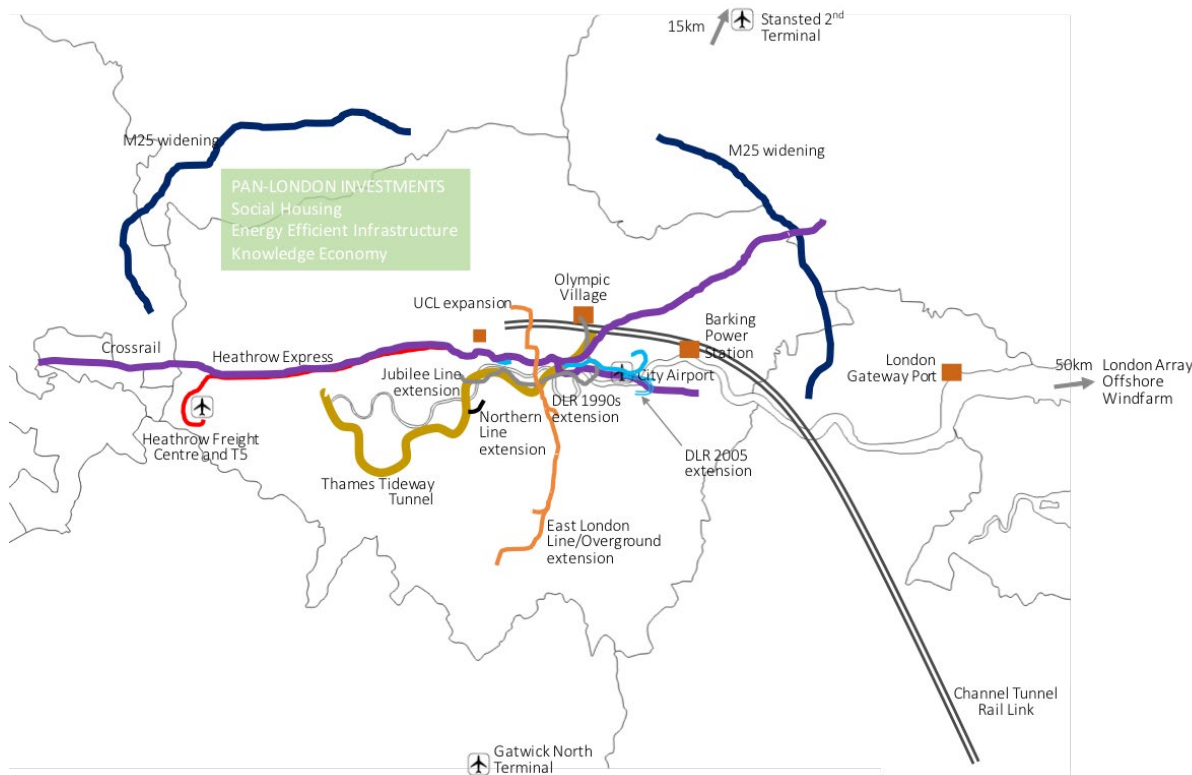
Soon after the London Plan was released, the EIB signed off on a £450 million loan to help cover the cost of an extension to the **East London Line** and overall upgrading of the **London Overground orbital network**.<sup>60</sup> This project involved the construction of a 4 km new trackbed from Whitechapel to Dalston, four new stations (at Shoreditch, High Street Hoxton, Haggerston and Dalston), the refurbishment of 14 stations, replacement of 7.5 km of track, and installation of signaling equipment.<sup>61</sup> The project cost around £1 billion in total and was completed in two phases. Phase 1 funding came mainly from the EIB loan, while the second phase was co-funded by the Department for Transport, which contributed £64 million, and Transport for London, which contributed £11 million.<sup>62</sup>

The EIB's involvement in the project was intended to promote the regeneration of the deprived areas of East London through which the line runs. The project was also designed to enhance inter-suburb connectivity, as demand for this kind of travel has been steadily rising since the mid-2000s. As of the completion of the project, the overground network also connected 20 of London's 33 boroughs.<sup>63</sup>

*“The EIB has been an incredibly important source of funding for us over the years. We have credit lines with them worth over £3.5 billion, of which we have drawn £2.5 billion, and they have also been a lender into the majority of PFIs or rolling stock leases over time, so very, very important.”*

**Simon Kilonback (Director of Group Treasury, Transport for London), 2017.**

**Map of key projects co-financed by the EIB, 1986-2018**



Other private finance initiatives were also agreed for hospitals and road infrastructure. In 2006, the EIB signed off on a £250 million loan to support the redevelopment of the **Royal London Hospital** in Whitechapel and Bart’s Hospital in West Smithfield as part of the largest hospital redevelopment project in the UK. The project itself was delivered through a PPP. The project’s promoter was Bart’s Hospital and the London NHS Trust, while EIB funds were provided to the special purpose company Capital Hospitals Ltd., the concessionaire which, through subcontractors, was charged with providing building facilities, non-clinical services and maintenance over the lifetime of the concession. Overall, the innovative financing for the project was derived from a mixture of £1 billion in senior bonds, the EIB loan, a mezzanine loan and junior subordinated loan stocks and ordinary shares provided by the shareholders of Capital Hospitals.<sup>64</sup>

The EIB also agreed a loan for £400 million to help cover the cost of **widening the M25** motorway over 60 km between junctions 16 and 23 and 27 and 30 to four lanes, and maintenance works on the M25 network and associated strategic road links in and out of London totaling 400 km.<sup>65</sup> The project itself was delivered as a PPP. Connect Plus, a special purpose concession, procured £185 million directly from the EIB and a further £215 million that was counter-guaranteed by commercial banks in the construction period. The Highways Agency awarded Connect Plus a contract worth £6.2 billion to design, build, finance and operate the motorway for 30 years. The improvement of the M25 was seen as essential to securing the future economic prosperity of the London region and the country as a whole. The project was also designed to result in improved and more reliable journey times, a reduction in congestion, and faster-flowing traffic at the Dartford Crossing.<sup>66</sup>

## The fourth cycle (2009-present): larger scale and diversified investments to manage the consequences of London's success

The most recent cycle has seen EIB investment in London become even more diversified and on a larger scale than ever before. This partly reflects the incremental adjustments to the GLA's powers in 2007, 2011 and 2015 that have given more powers to the Mayor and GLA in climate action policy, planning and housing. Since 2012, a London Enterprise Panel comprised of boroughs, leading businesses and Transport for London representatives has provided intelligence, forecasting and advice to the city's economic and skills strategies, and has allocated a wide range of higher tier funds to projects across the city.<sup>67</sup> Over time, London has been able to prepare the most ambitious set of strategic plans of any British city – from economic development, to spatial to environment and cultural strategies. This has provided the confidence to long-term investors to consider a wider range of projects and asset classes.

In 2009, the EIB committed to providing its largest loan in London, a £1 billion loan to help fund the construction of **Crossrail**, Europe's largest infrastructure project. The EIB loan was to be drawn down over six years by Transport for London to provide funding to its Crossrail Ltd. subsidiary.<sup>68</sup> The total project cost is around £15 billion and is a new kind of financial package for transport megaprojects in the UK in that it is being met partially by London business rates, developer contributions, and future fare revenue. Over 60% of the project's funding is to come from Londoners and London businesses that benefit substantially. The EIB loan has helped Transport for London be an effective co-financing partner.

Crossrail is providing London with a 10% boost to its rail capacity. With a capacity of 36,000 passengers per hour, the line is set to accommodate an estimated ridership of 200 million passengers per year. It will also reduce congestion and pollution and connect businesses in the three central business districts of the West End, the City and Canary Wharf with the outer East and West suburbs and with Heathrow Airport.

*"Crossrail is the largest construction project in Europe and will make an important contribution to London's economy. By providing a much-needed boost to rail capacity in London and the South East, Crossrail will help to develop London as a sustainable world city by reducing congestion and pollution for the benefit of Londoners, commuters and visitors. It will also link London more efficiently into the European and global transport networks."*

**Simon Brooks, EIB Vice-President, 2006-2012.**<sup>69</sup>

The second phase of Crossrail's development involved the purchasing of a new fleet of high-capacity, air-conditioned trains and the construction of a new train maintenance depot. To help fund this second phase, in 2013 the EIB committed to providing a further £500 million loan.<sup>70</sup> The overall £1 billion bill for Crossrail trains is to be met entirely by the public purse. The government decided that attempts to secure private financing risked delaying the project beyond its projected end date of 2018.

## The mainstreaming of support for social and affordable housing

In the first decade of London's new governance system, the role of the Mayor and the GLA was largely to win investment and policy support from central government and the private sector that aligned with the city's broader strategies. This was achieved to great effect when London won the right to host the **2012 Olympic Games**, which unlocked a whole cycle of investment to deliver substantial regeneration around Stratford and the Lower Lea Valley already under way.<sup>71</sup>

In 2009 the EIB offered a major loan to build the Olympic Village and social housing after the Olympic Delivery Authority failed to raise the £1bn needed from the private sector. The EIB signed a £95 million loan to Triathlon Homes LLP to support the pre-purchase and retrofit of 1,379 athletes' flats into affordable new homes for East London residents under the auspices of the Delivery Authority, backed also by national housing agency funding.<sup>72</sup> This funding added much-needed stock to the London housing market.

*“The creation of sustainable communities is a key lending objective for the EIB. The Bank is particularly encouraged by the high environmental standards in place in the Athletes’ Village development and we are confident that this project will have a significant positive impact on the quality of life of the families and individuals who will live there following the Games in 2012.”*

**Simon Brooks, EIB Vice-President, 2006-2012.**<sup>73</sup>

In many respects the EIB’s role in the Olympic project illustrates how, in London, the more recent generation of projects has become oriented to social and environmental outcomes to a greater extent than the original Docklands redevelopment had been. Physical change in many cases has been recognised as a means to raise the aspirations and expectations of whole communities and the governance system as a whole, and regeneration projects have become sites of public debate about what the desirable future for London is.

Social housing has grown as a key EIB area of activity in London. The Olympics social housing investment was far from the only project of its kind. As well as continuing its partnership with the Housing Finance Corporation established in 1998, the EIB expanded its direct lending to the largest and most creditworthy social landlords in London where investment programmes best matched its priorities. This was especially welcome as Housing Associations had been more eager to borrow from the EIB – historically, the availability of Public Works Loan Board funds had supplied councils with highly competitive “quasi-gilt” interest rates, but an increase in rates made the EIB’s interest rates more attractive.

The scale of EIB investment increased. In 2016 the EIB invested two tranches of £500m funding into social housing in the UK which was matched by a further £1 billion from the Housing Finance Corporation. The initiative offered finance to some of London’s largest housing associations in order to accelerate the building of affordable homes in the city.<sup>74</sup> The £2 billion loan was granted over a 30-year term and represented the largest ever support for social housing by the EIB anywhere in Europe.

The EIB also began working directly with leading housing associations. Home Group secured £75 million for the Rayners Lane regeneration in 2008, and later Sanctuary Housing Association applied for a £350 million direct loan from the EIB to a UK housing association – the biggest direct loan since 2008. The latter project allowed Sanctuary to build 5,000 social and affordable housing properties and refurbish and retrofit many others. Throughout this process, the EIB’s representatives took steps to reassure the Housing Associations that they were easy and pragmatic to work with.<sup>75</sup> Meanwhile a number of London councils also benefited directly from EIB funding in this period for their housing schemes combined with other projects – they included Enfield Council for its high profile £1.5 billion Meridian Water project.

## Innovating to support London’s growth management

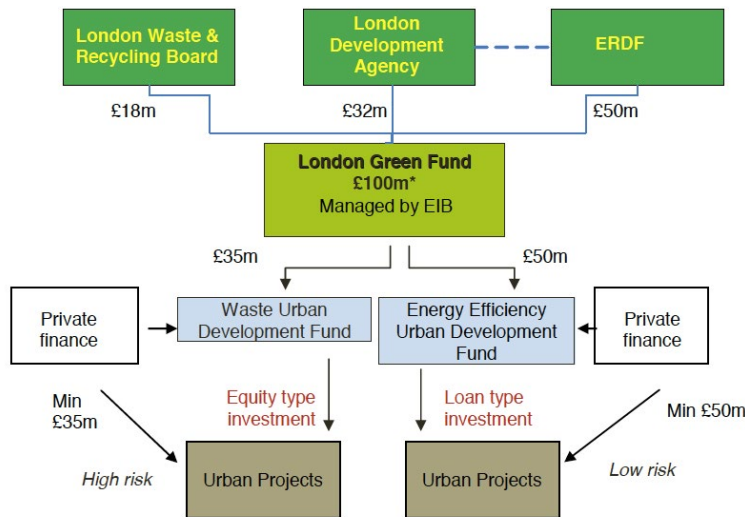
During the two decades of London’s maturing negotiated governance of the 1990s and 2000s, the EIB played a critical role in enabling London to upgrade its transport, improve its systems, and unlock new corridors and centres of growth. But the weight of demand London has experienced means that new growth management issues have arisen over time that have required further investment and innovation. The expansion and maturity of London’s metropolitan government powers has enabled an extension of the EIB’s investment portfolio in the city. In particular, a focus on the green economy, enterprise, housing and the knowledge economy has become prominent to support London’s sustainable development.

A big landmark was reached when the EIB agreed its first multi-sector engagement with a group of local authorities in London, supported by the GLA. The **London Green Fund** is a £120 million fund set up to invest in schemes that help London to reduce its carbon emissions while also creating jobs. The fund was launched in 2009 by the Mayor of London and the European Commissioner for Regional Policy, and it is managed by the EIB on behalf of the GLA and the London Waste and Recycling Board. The co-invested fund is made up of £50 million from the London ERDF programme, £32 million from the GLA, £18 million from the Waste and Recycling Board, and £10 million from private funding at the project level. It provides capital for three Urban Development Funds that invest



directly in waste, energy efficiency, decentralised energy and social housing projects. They are essentially revolving investment funds, where money invested in one project is repaid and then reinvested in other projects. As of the end of 2015, the London Green Fund had committed all of the funds allocated and invested in 18 projects with a value of over £500 million, with EIB co-financing of around £200 million.<sup>76</sup>

**The original London Green Fund financing model**



At the same time, the EIB’s relationship with Transport for London continued to advance and mature. Transport for London already had several corporate loan agreements with the EIB as well as EIB loans to its PPP/PFI project companies, before in 2015, it agreed with the EIB a record £1 billion loan to **upgrade the capital’s transport network**.<sup>77</sup> The five-year, £10 billion investment programme will involve upgrades at Victoria and Bank stations, renewal of tracks and points of drainage on over 60 miles of the underground network, including 11 miles of tunnels, the construction of a network of cycle paths throughout the capital, and modernisation of signaling systems.

The project is transforming passenger access to two of the capital’s busiest stations and interchanges that are set to increase much further in demand. The EIB loan is being paid back over a period of 35 years.<sup>78</sup>

*“The European Investment Bank is committed to supporting investment to improve sustainable urban transport across Europe and around the world. Continued investment in London’s transport network is essential in addressing the changing and increasing transport needs in Europe’s largest and fastest growing city.”*

**Jonathan Taylor, EIB Vice-President.<sup>79</sup>**

The overhaul of London’s aging utility systems has been area of attention in recent years. In 2016, the EIB committed to providing a £700 million, 35-year loan for the construction of the **Thames Tideway Tunnel** – the largest ever infrastructure project undertaken by the UK water industry, and the largest ever loan provided for water investment worldwide.<sup>80</sup> The project involves the construction of a 25 km long tunnel from West to East that will directly intercept the discharge from more than 30 combined sewer overflow points, in response to the urgent need to tackle overflows of untreated sewage into the Thames.<sup>81</sup> The overall project cost is £4.2 billion, £1.1 billion of which will be financed by Thames Water, and £3.1 billion of which will be financed by Tideway, a new regulated company set up to design, build, commission and maintain the tunnel, through a joint venture model. The project is being delivered by a special purpose investment vehicle funded by a number of institutional investors, represented by Allianz, Dalmore, and UK pension funds. Thames Water’s contribution will fund development costs, enabling works, and interface works, with customers paying for the project through higher water bills.<sup>82</sup>

The EIB has also begun to support university development and expansion in London. In 2016, it agreed a £280 million loan to help co-fund the expansion of UCL’s Bloomsbury and East campuses. The loan represents the largest sum ever lent by a bank to a university, with plans to upgrade the Bloomsbury campus, refurbish the Bartlett School of Architecture and build a new student centre.<sup>83</sup> This is part of a wider 10-year programme of “transforming UCL” worth £1.25 billion.<sup>84</sup> The EIB loan has a maturity of 30 years and is being used by UCL alongside loans of £150 million over five years from a consortium of commercial banks and its own reserves and philanthropic donations.<sup>85</sup>

## Housing supply

While London's public-private collaboration to regenerate under-optimised sites has become more proficient, housing demand has continued to exceed supply. London's population has now surpassed its pre-war peak of 8.6 million and will probably reach 10 million within 10-15 years. Difficulties and opposition to assembling sites, limited borough finance and capacity, and skilled construction labour shortages have been key obstacles. As the Opportunity Areas identified for densification are built out in the 2020s, London will need to find new sites to settle people.<sup>86</sup> With the shortfall in housing supply has come affordability issues, with many low-income groups becoming locked out of the housing and labour markets. The scale of challenges has seen the GLA and Mayor create several initiatives with support from central government to facilitate land acquisition, including housing zones and a public sector brownfield land commission.<sup>87</sup>

In 2016, the EIB agreed to provide £1 billion for new social housing investment across the UK, in partnership with the Housing Finance Corporation. Over 20,000 new affordable homes backed by the EIB are expected to be built under the initiative, including by large London-based housing associations.<sup>88</sup> The EIB loan responds to several interlinked concerns regarding the provision of affordable housing. Firstly, it addresses the difficulty of social landlords to secure long-term funding for the development of new housing, as banks, previously the sector's biggest providers of loans, have scaled back their lending. Secondly it aims to assuage the reduction in the amount of public funding available for the construction of new homes.<sup>89</sup>

## Capturing value and new fiscal tools

Financial challenges have been an important spur to London proposing new tools to enhance its growth management abilities. The Mayor and the London Enterprise Panel have pressed hard for greater fiscal devolution to help London finance more of its own projects. A London Finance Commission was set up in 2013 to put forward suggestions for fiscal devolution. It recommended that London should be allowed to keep 12-13% of the revenues it generated, instead of the current 7%. Although the retention of business rates revenue will increase the predictability of the funding stream and provide a firmer foundation for large infrastructure projects, other larger fiscal concessions are not currently forthcoming.<sup>90</sup> In the meantime, London's governing institutions have been trying to make more of their property portfolios and expand the use of value capture mechanisms such as Tax Increment Financing in order to accelerate infrastructure development.<sup>91</sup>

In support of fiscal innovation, in 2015 the EIB committed to providing a £480 million loan to Transport for London to help cover the cost of a £1.2 billion project to **extend the Northern line to Battersea** via Nine Elms, involving the construction of two new stations.<sup>92</sup> It will be the first major extension to a tube line since that of the Jubilee Line in the late 1990s.<sup>93</sup> The loan will account for nearly 50% of the cost of the project and is to be repaid through a combination of contributions from developments in the area that will benefit from the extension – e.g. the company rejuvenating Battersea Power Station – and business rates from the property developed as part of the Nine Elms Enterprise Zone.<sup>94</sup> The extension is enabling the construction of tens of thousands of new homes and offices and helping to regenerate the last major underdeveloped site in the vicinity of central London – Vauxhall, Nine Elms and Battersea.<sup>95</sup> It will also improve connections to Battersea, cutting journey times to the City and West End to 15 minutes, and unlock further regeneration in Wandsworth, Lambeth and Southwark.<sup>96</sup>

Meanwhile to continue to improve investor confidence, London has also set up an Infrastructure Delivery Board to identify long-term infrastructure needs through evidence-based scenarios. Its London Infrastructure Plan 2050 is more than a wish-list of projects, and provides clear evidence of London's future needs, and potential routes to achieve them, to signal to central government what needs to be done to manage London's growth. A Smart London Board has also convened to identify and coordinate developments in "smart infrastructure", and to leverage London's tech sector to address growth and infrastructure challenges in the coming cycle.<sup>97</sup> These innovations are small, incremental steps towards a more integrated and fiscally sustainable system of governance in London. They have gained further momentum on the back of political devolution and decentralisation in the UK, as regions (such as Scotland) and cities (such as Manchester) are experimenting with greater devolved powers.

## The future?

The cycle of projects brought forward under London's new governance model since 2000, and co-financed by the EIB, means that London is currently experiencing a welcome increase in capacity to catch up with existing demand. The EIB's direct project loans in London between 2006 and 2016 are worth a total of £7.3 billion, and this has had a remarkable impact. This capacity has been at the heart of London's recent ability to unlock new destinations, enhance liveability, and pursue a more compact and sustainable development model.

Transport will also need ongoing investment as the city grows further towards 11 million and even 12 million people by mid-century. The London Infrastructure Board estimates that there is a need to spend 3% of London's GVA on infrastructure, with a total of £1 trillion in capital investments by 2050. London will also need to find new ways to meet its sustainability targets around emissions and modal split.<sup>98</sup>

Despite the progress still to be made, it is worth reflecting on London's achievements. It has achieved world-class air connectivity through incremental, independent and market-driven capacity building at its five airports. The city's internal infrastructure has benefited from consistent and incremental improvement to manage a constantly growing system. Cumulatively this has resulted in a system with significantly higher rail capacity and corridors of improved rail (rather than road) mobility.

Meanwhile the civic consensus about how London could and should be competitive and sustain specialist roles in a European and global system has grown stronger. The ability of London's governing institutions to enter into productive lending arrangements with long-term investors has improved vastly. The EIB's contribution to the historic turnaround of Europe's largest city has been indispensable.

## References and Citations

- 1 [https://en.wikipedia.org/wiki/Greater\\_London\\_Plan](https://en.wikipedia.org/wiki/Greater_London_Plan)
- 2 <https://www.westminster.ac.uk/file/65006/download>
- 3 Clark, G. (2015). London: Wiley Blackwell.
- 4 Ibid.
- 5 Ibid.
- 6 [https://en.wikipedia.org/wiki/Greater\\_London\\_Council](https://en.wikipedia.org/wiki/Greater_London_Council)
- 7 [https://www.gardenvisit.com/landscape\\_architecture/london\\_landscape\\_architecture/landscape\\_planning\\_pos\\_public\\_open\\_space/draft\\_greater\\_london\\_development\\_plan\\_gldp](https://www.gardenvisit.com/landscape_architecture/london_landscape_architecture/landscape_planning_pos_public_open_space/draft_greater_london_development_plan_gldp)
- 8 [http://www.rtpi.org.uk/media/882342/london\\_planning\\_history\\_february\\_2014.pdf](http://www.rtpi.org.uk/media/882342/london_planning_history_february_2014.pdf)
- 9 [http://www.coventgardenmemories.org.uk/page\\_id\\_\\_37.aspx](http://www.coventgardenmemories.org.uk/page_id__37.aspx)
- 10 <https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1468-2427.1986.tb00023.x>
- 11 [http://www.rtpi.org.uk/media/882342/london\\_planning\\_history\\_february\\_2014.pdf](http://www.rtpi.org.uk/media/882342/london_planning_history_february_2014.pdf)
- 12 <http://eprints.lse.ac.uk/37032/1/London%28lsero%29.pdf>
- 13 Budd, L. & Whimster, S (eds.) (1992). . London: Routledge; Hamnett, C. (2003). . London: Routledge.
- 14 Clark, G. (2015).
- 15 Ibid.
- 16 Travers, T. (2004). . Basingstoke: Palgrave MacMillan.
- 17 <http://www.eib.org/attachments/general/reports/ar1988en.pdf>
- 18 <http://www.eib.org/projects/loan/loan/19852140>
- 19 <http://www.eib.org/projects/loan/loan/19870440>
- 20 <http://www.eib.org/projects/loan/loan/19872960>
- 21 LSCC Growth Commission, 2016; Thompson, 2007
- 22 [http://www.jrtr.net/jrtr11/pdf/f46\\_gra.pdf](http://www.jrtr.net/jrtr11/pdf/f46_gra.pdf)
- 23 [http://www.jrtr.net/jrtr11/pdf/f46\\_gra.pdf](http://www.jrtr.net/jrtr11/pdf/f46_gra.pdf)
- 24 [http://www.jrtr.net/jrtr11/pdf/f46\\_gra.pdf](http://www.jrtr.net/jrtr11/pdf/f46_gra.pdf)
- 25 <http://www.dtic.mil/dtic/tr/fulltext/u2/a276860.pdf>; <https://www.eurotunnel.com/build/>
- 26 [http://www.jrtr.net/jrtr11/pdf/f46\\_gra.pdf](http://www.jrtr.net/jrtr11/pdf/f46_gra.pdf)
- 27 [http://www.omegacentre.bartlett.ucl.ac.uk/wp-content/uploads/2014/12/UK\\_JLE\\_PROFILE.pdf](http://www.omegacentre.bartlett.ucl.ac.uk/wp-content/uploads/2014/12/UK_JLE_PROFILE.pdf)
- 28 [https://en.wikipedia.org/wiki/Barking\\_Power\\_Station](https://en.wikipedia.org/wiki/Barking_Power_Station)
- 29 Clark, G. (2015).
- 30 Ibid.
- 31 Travers, T. (2004).
- 32 Clark, G. (2015).
- 33 Ibid.
- 34 [http://www.omegacentre.bartlett.ucl.ac.uk/wp-content/uploads/2014/12/UK\\_JLE\\_PROFILE.pdf](http://www.omegacentre.bartlett.ucl.ac.uk/wp-content/uploads/2014/12/UK_JLE_PROFILE.pdf)
- 35 <http://www.independent.co.uk/news/uk/extension-of-jubilee-line-faces-axe-banks-lose-government-guarantees-over-funding-of-docklands-tube-2324348.html>
- 36 <https://www.railway-technology.com/projects/london-jubilee-line-extension/>
- 37 [http://www.omegacentre.bartlett.ucl.ac.uk/wp-content/uploads/2014/12/UK\\_JLE\\_PROFILE.pdf](http://www.omegacentre.bartlett.ucl.ac.uk/wp-content/uploads/2014/12/UK_JLE_PROFILE.pdf)
- 38 Ibid.
- 39 <https://tfl.gov.uk/info-for/media/press-releases/2004/october/tfl-publishes-report-into-impacts-of-jubilee-line-extension>
- 40 Clark, G. (2015). 41 Clark, G. & Moonen, T. (2016). WoOxford: Wiley-Blackwell.
- 42 <http://www.eib.org/infocentre/press/releases/all/1997/1997-052-ecu-186-mio-for-the-heathrow-express.htm>
- 43 Ibid.
- 44 <http://www.eib.org/infocentre/press/releases/all/1998/1998-099-ecu-290-mio-for-channel-tunnel-rail-link.htm>
- 45 Ibid.
- 46 <http://www.eib.org/infocentre/press/releases/all/2003/2003-050-ecu-560-mio-for-completion-of-channel-tunnel-rail-link-ctrl.htm>
- 47 <http://www.eib.org/infocentre/press/releases/all/1998/1998-099-ecu-290-mio-for-channel-tunnel-rail-link.htm>
- 48 <http://www.eib.org/infocentre/press/releases/all/2003/2003-050-ecu-560-mio-for-completion-of-channel-tunnel-rail-link-ctrl.htm>
- 49 Travers, T. (2004).
- 50 Mayor of London, 2016a
- 51 <http://www.justice.gov.md/file/Centrul%20de%20armonizare%20a%20legislatiei/Baza%20de%20date/Materiale%202013/Legislatie/32002D0264.pdf>
- 52 <http://www.justice.gov.md/file/Centrul%20de%20armonizare%20a%20legislatiei/Baza%20de%20date/Materiale%202013/Legislatie/32002D0264.pdf>
- 53 <https://www.theguardian.com/commentisfree/2009/dec/18/tube-ppp-upgrade-london-underground>

54 Ibid.

55 <https://bankwatch.org/public-private-partnerships/case-studies/london-underground-ppp>

56 <https://www.theguardian.com/commentisfree/2009/dec/18/tube-ppp-upgrade-london-underground>

57 <http://www.eib.org/infocentre/press/releases/all/2003/2003-033-eur-1-3-bn-for-london-underground-modernisation>

58 <http://www.eib.org/infocentre/press/releases/all/2005/2005-030-gbp-100m-for-dlr-woolwich-arsenal-extension-ppp-project>

59 Mayor of London, 2015a, 2016b

60 <http://www.crossrail.co.uk/news/articles/tfl-agrees-1bn-loan-for-crossrail-from-european-investment-bank>

61 <https://www.railway-technology.com/projects/eastlondonlineextens/>

62 <https://www.railway-technology.com/projects/eastlondonlineextens/>

63 <https://www.railway-technology.com/projects/eastlondonlineextens/>

64 <http://www.eib.org/infocentre/press/releases/all/2006/2006-041-eib-loan-for-the-royal-london-and-barts-hospitals>

65 <http://www.eib.org/infocentre/press/releases/all/2009/2009-088-eib-supports-m25-widening-project-with-gbp-400m-loan>

66 <http://www.eib.org/infocentre/press/releases/all/2009/2009-088-eib-supports-m25-widening-project-with-gbp-400m-loan>

67 Travers, T. (2014). *Evolving London – The Future Shape of the Capital*. Presentation. GVA. One Wimpole Street, London. Feb 6.

68 <http://www.crossrail.co.uk/news/articles/tfl-agrees-1bn-loan-for-crossrail-from-european-investment-bank>

69 <http://www.crossrail.co.uk/news/articles/tfl-agrees-1bn-loan-for-crossrail-from-european-investment-bank>

70 <http://www.eib.org/projects/regions/european-union/united-kingdom/project-crossrail-europes-biggest-construction-project.htm?f=search&media=search>

71 Clark, G. (2015).

72 <https://www.insidehousing.co.uk/news/news/olympic-village-granted-225m-european-loan-15090>; <http://www.eib.org/infocentre/stories/all/2014-april-01/affordable-housing-in-londons-former-olympic-village.htm>

73 [http://europa.eu/rapid/press-release\\_BEI-09-120\\_en.htm?locale=en](http://europa.eu/rapid/press-release_BEI-09-120_en.htm?locale=en)

74 <http://www.eib.org/infocentre/press/releases/all/2016/2016-100-gbp-1-billion-european-investment-bank-backing-for-uk-social-housing.htm>

75 <https://www.socialhousing.co.uk/comment/comment/eib-broadens-funding-but-stays-watchful-of-welfare-reform-impact1-22310>

76 <https://www.london.gov.uk/what-we-do/funding/european-regional-development-fund/london-green-fund>

77 <http://www.eib.org/infocentre/press/releases/all/2015/2015-196-billion-pound-european-investment-bank-backing-for-london-transport.htm>

78 <https://www.railmagazine.com/news/2015/09/23/european-investment-bank-backs-london-transport-upgrade>

79 <http://www.eib.org/infocentre/press/releases/all/2015/2015-196-billion-pound-european-investment-bank-backing-for-london-transport.htm>

80 <https://uk.reuters.com/article/uk-britain-eib-sewer/european-investment-bank-to-back-londons-super-sewer-with-700-million-pound-loan-idUKKCNOY800M>

81 <http://www.eib.org/infocentre/press/releases/all/2016/2016-114-gbp-700m-european-investment-bank-backing-for-thames-tideway-tunnel.htm>

82 <https://www.out-law.com/en/articles/2015/august/financing-model-for-thames-tideway-super-sewer-gets-regulatory-approval/>

83 <http://www.ucl.ac.uk/news/news-articles/0416/280416-european-investment-bank>

84 <http://www.ucl.ac.uk/news/staff-news/0516/030052016-provosts-view-transforming-ucl>

85 <https://www.ft.com/content/ee759cbe-0c6f-11e6-b0f1-61f222853ff3>

86 Mayor of London, 2014; Clark, G. & Moonen, T. (2016). 87 GLA, 2015c; Mayor of London 2015b

88 <http://www.eib.org/infocentre/press/releases/all/2016/2016-100-gbp-1-billion-european-investment-bank-backing-for-uk-social-housing.htm>

89 <https://www.ft.com/content/4489efe0-97e9-11e3-8dc3-00144feab7de>

90 HM Government, 2014, 2015; London Finance Commission, 2013; London LEP, 2016

91 Sell, 2014

92 <http://www.eib.org/infocentre/press/releases/all/2015/2015-022-european-investment-bank-agrees-gbp-480m-backing-for-northern-line-extension.htm>

93 <https://tfl.gov.uk/info-for/media/press-releases/2017/november/breakthrough-for-northern-line-extension-tunnelling-machin>

94 <http://www.railtechnologymagazine.com/Rail-News/eib-to-invest-480m-in-northern-line-extension->

95 <http://www.eib.org/infocentre/press/releases/all/2015/2015-022-european-investment-bank-agrees-gbp-480m-backing-for-northern-line-extension.htm>

96 Ibid.

97 BBC, 2016; Mayor of London, 2014, 2016e

98 Mayor of London, 2014.



**Professor Greg Clark CBE** is an honorary professor at University College London and Chairman of [The Business of Cities](#), an urban intelligence firm that works in more than 100 cities worldwide each year. He holds thought-leadership roles at The Brookings Institution, the Urban Land Institute, and JLL Cities Research Centre, and is a Board Member of Transport for London and the London LEP. He is author of ten books including *Global Cities: A Short History* (Brookings Press), and *London 1991–2021, The Making of a World City*. With a PhD from the University of Bristol, **Tim Moonen** is responsible for the strategic management of The Business of Cities research and advisory projects. He has co-authored more than 50 reports, books and chapters on global city competitiveness, governance and performance. **Jake Nunley** is a lead researcher at The Business of Cities. He studied at the University of Cambridge and Harvard University.



Moonen, Nunley, Clark (left to right) © The Business of Cities

