

Research Report

How a 'Smart City' approach could influence future
regeneration of Walthamstow Town Centre

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1. Terms of Reference

- 1.1 This report has been prepared for Waltham Forest Council to explore how 'smart city' initiatives and insights may influence the future development of Walthamstow town centre.

2. Executive Summary

- 2.1 This report first considers the current environment found within Walthamstow Town Centre, and how the area is set to change further through a number of key redevelopment projects. It then explores the concept of a smart city, highlighting some of the opportunities and challenges with such initiatives.
- 2.2 Having considered the context relevant to a smart city approach in Walthamstow Town Centre, and general features and principles of this, London's approach is then specifically reviewed in search of key insights to guide the town's future.
- 2.3 In light of all of this, the report makes a number of recommendations as to how such an approach can guide the redevelopment of Walthamstow Town Centre, particularly regarding citizen participation and safety.

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3. Introduction

- 3.1 The smart city concept is seemingly increasingly influential to a number of aspects of urban life and, in particular, planning. It is evident that cities are “infused by technologies” (Willis & Aurigi, 2020: 1), with digital and technological advancements central to urban management and regeneration. Thus, the smart city approach to development serves as one of a multitude which have the potential to positively influence the regeneration of Walthamstow Town Centre.
- 3.2 This report will first consider the context of Walthamstow Town Centre to help better understand what strengths the area may look to build upon, alongside any key opportunities which may be considered particularly pertinent to its future.
- 3.3 Set against this backdrop, the report will then look to the smart city concept, starting with a broad overview of the various approaches to the smart city and then, more specifically, within London. This will necessitate the consideration of several critiques of the approach, in order to ensure the provided recommendations are suitable to effectively improve Walthamstow Town Centre.
- 3.4 Whilst it is evident that improvements could be achievable in relation to all components of the smart city concept (see further discussion in section 5), the report will mainly focus on initiatives which will emphasise the importance of a community and citizen-centric approach.
- 3.5 The report will then explore how smart city initiatives might be implemented in Walthamstow Town Centre, providing recommendations specific to the application of relevant aspects of the smart city approach to the redevelopment of the area.

4. Current Context of Walthamstow Town Centre

- 4.1 Waltham Forest Council have made efforts in order to better understand the specific opportunities and weaknesses of different areas within the Borough. An Area Action Plan (AAP) was adopted in October 2014 for Walthamstow Town Centre, looking to coordinate the “development, regeneration and growth of the town centre” (London Borough of Waltham Forest, 2014).
- 4.2 The AAP looked to provide specific goals and objectives to ensure implementable proposals were brought forward, which specifically addressed local issues and aspirations.
- 4.3 Building on the AAP, the Council have looked to continually improve Walthamstow, with several notable redevelopment projects since the document’s adoption. For example the redevelopment of the shopping centre on Walthamstow High Street, renamed 17&Central, is set to secure “£200 million of private investment” (London Borough of Waltham Forest, 2024(c)), alongside numerous residential and commercial units. This is set to be one of a number of redevelopments which “could change the face of the East London town” (My London, 2022).
- 4.4 The recent investments within the town centre reflect the fact that Walthamstow is the largest centre within the Borough, which also features a younger than average population when compared to the London and national averages (Office for National Statistics, 2022).
- 4.5 This has also likely contributed to the more recent focus on the night-time economy, with the Walthamstow Night-time Enterprise Zone (NTEZ) established in 2019, featuring several free events along the high street. This is in line with the Council’s desire to enhance the evening economy in an attempt

to increase footfall on high streets and ensure a range of demographics visit and enjoy such spaces (London Borough of Waltham Forest, 2024 (a)).

- 4.6 Working with residents to understand what truly matters to them, such as seen with the 2020 NTEZ Pilot Project Findings and Recommendations publication, has undoubtedly helped identify a number of opportunities for the use of smart city solutions. For example, the use of smart government initiatives to provide easy access to relevant training for businesses and the collation of data to provide an online map and calendar of local events and activities (Matter Architecture, Griffin & Make, 2020: 58) demonstrate some of the ways in which smart initiatives are already being implemented in Walthamstow.
- 4.7 It is clear that there are, however, still a number of challenges, with safety repeatedly identified as a key concern for local residents. The Safe Streets pilot forms part of the Council's approach to tackle several issues, ranging from health inequality to community safety. In particular, the pilot hopes to address anti-social behaviour and crime, with 40% of residents of Waltham Forest referring to a "fear of crime and violence" as a key concern (London Borough of Waltham Forest, 2024 (b)).
- 4.8 Thus, whilst it is evident that substantial efforts are being made to ensure future redevelopment within Walthamstow Town Centre reflects the needs and wants of local residents, there are still several opportunities for smart city initiatives to be deployed to further guide the area's future.

5. What Makes a Smart City

5.1 Whilst the smart city label is utilised increasingly frequently within planning, there is a limited understanding about what exactly the term refers to (Hollands, 2008). Furthermore, there are a variety of approaches and understandings from across the globe, which are undoubtedly driven by the fact that the concept now features prominently in a range of discourses, including political, governance, and industry (Evans et al, 2019: 557).

5.2 Despite this, the concept can generally be considered in relation to an urban space in which technological and digital progress is utilised to address social, economic and environmental challenges. Thus, smart solutions can be applied to all aspects of life within urban environments, as displayed in Figure 1 below.

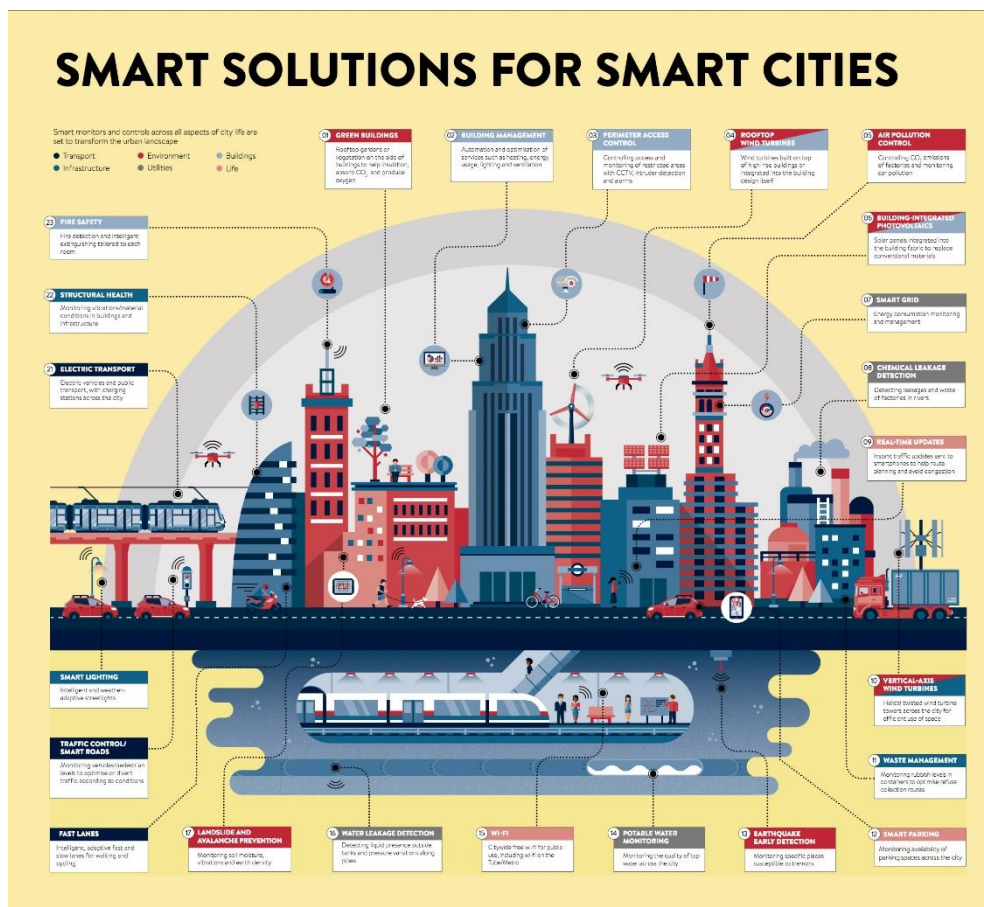


Figure 1: Smart City Examples (Desjardins, 2019)

- 5.3 A fundamental aspect of a typical smart city is the collection of information from an array of components within the city, ranging from data on users of different vehicles, to leaks in water pipes. Thus, IT infrastructure can be used to increase the efficiency of public services, typically through a top-down approach.
- 5.4 This characterisation of cities increasingly featuring extensive technology to collect data, whilst providing the foundation for a variety of improvements, also poses several challenges. For example, privacy is often regarded as a key concern, with the use of easily accessible and often hard to distinguish technology leading to the excessive deployment of ‘smart security’. However, this not only concerns directed surveillance, but also automated surveillance and the collection of data.
- 5.5 Some critiques of smart cities also highlight how such advancements typically tend to serve economic and commercial interests in the first instance, “while giving scant attention to environmental and social concerns” (Evans et al, 2019: 561). However, it is also recognised that there is the possibility that smart urban development may be made accessible for a broader range of people and goals.
- 5.6 To facilitate this, it is necessary to continue (or begin) the shift from a solutionist, top-down approach, to a bottom-up and citizen-centric approach which looks to become fundamentally more inclusive. This would, in turn, ensure that smart solutions are deployed to tackle the issues most important to a newly informed community which is both engaged and empowered. For example, a pilot in China (the Shuangjing International Sustainable Development Community Pilot) highlights the need for “intermediary actors” which are aware of top-down politics and future visions, as well as the power of bottom-up knowledge (Zhou, et al, 2023: 120).

5.7 It is therefore considered that the emphasis on corporate and governance advancements is likely contributing to the social (and potential ethical) consequences of smart cities. Thus, beyond the abandonment of bottom-up initiatives, fundamental concerns regarding “the social, ethical and human-rights implications and risks of smart solutions” are also at risk of being overlooked (Galdon-Clavell, 2013: 722).

6. London's Approach to the Smart City Concept

- 6.1 London is frequently considered to be one of the smartest cities in the world, with “more 5G towers, EV charging stations, and green infrastructure than any other European city” (Puttkamer, 2023). However, it is also clear that emphasis is continuing to be placed on ensuring that data and smart technologies are used to advance the city.
- 6.2 Greater London Authority (GLA)'s 2018 Smarter London Together 'roadmap' sets out a number of goals to enhance London's smart city status. Explicit throughout is the focus on using such technology to “meet the needs of our citizens” (Greater London Authority, 2018: 3). The 5 'missions', if successfully implemented would help bridge the gap between bottom-up approaches from citizens and top-down from powerful actors.
- 6.3 For example, whilst focus is placed on increasing data sharing and collection, this is proposed in tandem with an “open ecosystem to increase transparency and innovation” (Greater London Authority, 2018: 5), with digital leadership and skills to also be enhanced to ensure citizens best utilise such services.
- 6.4 This is further reinforced by the London Office of Technology and Innovation (LOTI), London local government's innovation team. LOTI helps ensure that local government teams are aware of potential use cases for smart city initiatives to help them achieve their goals, also providing guidance as to which smart city approach is appropriate (Saggar & Copeland, 2023). This approach is shown in Figure 2 below, demonstrating the different steps within the process to ensure the desired outcomes are achieved.

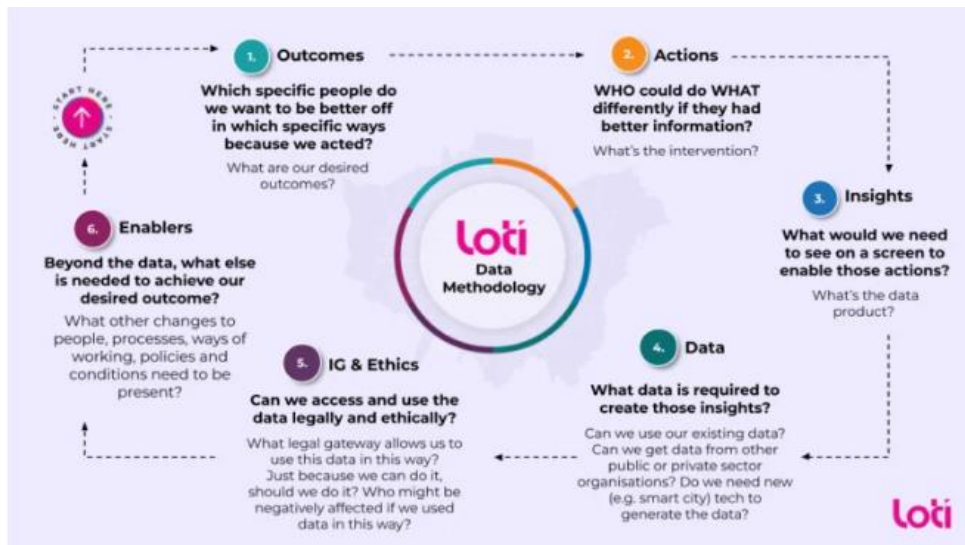


Figure 2: LOTI Data Methodology (Saggar & Copeland, 2023)

6.5 LOTI also recommend that any smart city project follows five key principles to ensure they are entirely fit for purpose and are implemented in a manner which benefits citizens. These principles, shown in Figure 3 below, ensure that smart city initiatives are only deployed where required to attain desired outcomes, and that such aims are genuinely in citizens' best interests.

Principles	Practice
Smart city projects should...	To fulfil this principle, boroughs should...
1 - Be driven by achieving outcomes that meet the needs of citizens, not the desire to use a specific technology.	Use LOTI's outcomes-based decision tool and methodology to help identify if a project lends itself to using smart city approach.
2 - Be conducted openly, transparently and ethically.	Use our recommended data ethics frameworks and the guidelines in London's Emerging Tech and Data Charters.
3 - Enable collaboration between different boroughs, systems and service providers.	Use open standards, standard contract terms and share non-personal data with the London DataStore by default.
4 - Be secure by design.	Follow NCSC, DSIT & CPNI guidance and accurately assess and mitigate current and future risks.
5 - Recognise that technology and data alone are rarely the whole solution.	Ensure smart city projects work alongside wider organisational innovation.

Figure 3: LOTI Smart City Design Principles (LOTI, 2021)

6.6 It is also evident that London is aiming to use smart initiatives to become a more sustainable city. This focus has only seemingly strengthened in a post-pandemic world, with the growing impetus on sustainability and digitalisation “pushing the infrastructure sector to evolve towards a new model”, more focused on a system rather than a product (Webuild Group, n.d.).

- 6.7 Sustainability has not only become a focal point in the infrastructure sector, but across all aspects of the built environment. Thus, smart initiatives are being deployed to help reach the goal of completing 80% of journeys by a sustainable mode of transportation by 2041, aided by investment in key projects such as the Elizabeth Line (We Build Value, 2022).
- 6.8 However, there have been numerous challenges in turning London into a smart city. One of London's largest obstacles is also one of its greatest assets in becoming a smart city, the existing infrastructure network. This is due to the fact that 'retrofitting' new technology onto existing systems is often "the only viable and cost-effective option" (Point6, 2020). Thus, there is the possibility that such retrofitting may occur predominantly in more affluent areas, where investment is greater, potentially conflicting with LOTI's first smart city design principle.

7. Recommendations

- 7.1 It is evident that Walthamstow Town Centre's future regeneration provides a brilliant opportunity for the deployment of smart initiatives and infrastructure to help shape the new built environment. Not only can such initiatives benefit political and economic actors but, if introduced successfully, can ensure that citizens are able to fully participate in their area's development. This would have a wide array of benefits for all parties, whilst initiatives can also help secure the area's future environmental sustainability.
- 7.2 The following suggestions should be considered during any future redevelopment projects, whilst efforts should be made to collaborate with actors such as the GLA and LOTI. Not only will this ensure proposals are consistent with the desired region-wide approach to the smart city, but also that best practices are followed. The suggestions also provide a combination of 'top-down' and 'bottom-up' approaches which, if introduced together would see the benefits of wide-spread data collection, management and sharing, with the production of data 'on the ground' which is most relevant to citizens. Finally, there is a clear focus on enhancing safety and preventing crime.
- 7.3 - Enhanced communications networks to allow the integration of a range of information sources for use by law enforcement, such as other public or private surveillance systems.
- An increased quantity of CCTV cameras in easily visible locations as a form of both surveillance and deterrence
 - Smart lampposts and other lighting sources to reduce anti-social behaviour and crime rates, particularly on the high street
 - Smart building technology for all proposed development and sensors installed in all water pipes

- Explicit engagement with the GLA and LOTI to shape all future regeneration projects via the use of smart initiatives
- Creation of a platform to enable citizens to record, distribute and understand key environmental information about their area
- The use of technology to promote the creation and strengthening of local communities and groups
- Sessions and initiatives to enhance digital skills

8. Conclusions

- 8.1 Smart city initiatives are incredibly varied in both their aims and implementation. However, there is a general focus on the enhancement of everyday life for citizens. It is essential that such solutions are not decided upon and enacted solely by government and powerful actors, instead best introduced collaboratively with citizens where possible.
- 8.2 This helps ensure citizens feel connected to and comfortable in their area, and also helps build trust with more powerful actors due to enhanced transparency and trust. This is particularly important in Walthamstow Town Centre, where citizens have already expressed their concerns regarding safety and crime.
- 8.3 As such, the recommendations of this report have aimed to focus on both community participation and safety enhancements. Given the broad consistency with the GLA's adopted approach to the smart city in London. And their continued efforts in this respect, it is suggested that a collaborative approach be taken with the GLA and LOTI.

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