The Rebranding of Newcastle as a Smart City. Cui Bono?

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Introduction

In 2018, the northern city of Newcastle upon Tyne became home to the UK’s smartest street. Mosley street – whose claim to fame until then had been to stand as the first street in the world to get electric lighting in 18791 – won the distinction as a result of the deployment of digital sensors and cameras able to monitor traffic congestion, pollution, lighting, parking and waste, a project led by Newcastle City Council in association with the computer giant Cisco, as part of the Great Exhibition of the North2. The following year, the city of Newcastle went on to become the recipient of the “UK smart city of the year” award, an achievement which the City Council and its academic and corporate partners were eager to publicise in a flurry of glossy reports. The push continued with the launch, in the autumn of 2021, in association with smart city consultancy Urban Foresight, of a dedicated “smart city” website to showcase Newcastle as “a test bed for new technologies and services for cities” (Urban Foresight).

Figure 1: “Newcastle named UK’s smartest city” (screenshot)
Although just one of the many aspects of contemporary urban development, the smart city provides a very interesting lens through which to observe and analyse cities as a crucible for technological change. The long-running debate on the impact of new technologies on cultural, social and political practice is polarised between an optimistic view which focuses on new technology’s potential to solve human problems and a pessimistic view, wary of technologies’ potential to alter the nature of human relationships (for a summary of debates on the liberating potential of new technologies and the origins of smart urbanism see for example Cugurullo 2018). As cities today are increasingly relying on technological innovation to strengthen their reputation and global relevance as dynamic, adaptive places, the “smart city” stands as the latest urban utopia (eg Hollands 2015; Townsend 2013) and thus provides an opportunity to reappraise the relationship between new technologies and urban development.

As Viitanen and Kingston have suggested, the smart city is best understood as “an urban strategy that seeks advanced technological solutions to the pressing issues facing policy makers” (2013: 1). Smart urbanism is presented as the response to almost every aspect of contemporary urban living (Marvin, Luque-Ayala and McFarlane 2016). Thus the world’s leading high-tech companies are promising to conduct a new “soft” revolution to address the negative consequences of the first industrial revolution – the traffic congestion, dirt, pollution and insecurity which blight the lives of city dwellers – and to deliver more efficient and environment-friendly infrastructures and services. As McFarlane pointed out, the concept of “smart” is a highly “seductive one” as it comes “charged with positive and aspirational connotations” and “pulls across a range of different discourses – economic growth, optimization, sustainability, efficiency, better service provision, greater and more transparent citizen access, security, and so on” (2015: 90). But there is a need to look behind the label and to stress “the difficulties in substantiating the smart city imaginary” (Buck and While 2015: 1). The growing body of literature on the contradictions inherent in “techno-utopian visions of smart urbanism” (2015: 2) (eg Luque et al. 2014), tends to focus on general and abstract assessments of the benefits and dangers of the smart city, so that there is still a gap in the research as to how smart cities are actually implemented and perceived in specific contexts (Kitchin 2014).
This article therefore aims to contribute to the discussion on smart cities by confronting official discourses with “actually existing” practices, through the case of the mid-size city of Newcastle, drawing primarily from a range of published material such as policy documents, newsletters, working papers, announcements, websites, and brochures produced by the key players of the smart city, which collectively articulate the vision of policy makers, consultancies and academics about the future of Newcastle’s city centre. The value of such material, as Rogerson and Giddings point out, is that they constitute “discursive documents designed to mobilise and align other actors to engage collaboratively towards a shared reality.” (2020: 1971). Analysis of this official output needs to be triangulated with the views and perceptions of a range of ordinary residents about the smartening of their city so as to identify potential discrepancies. To explore these tensions, the first section of the article will set out the elements of the smart city to show how the characteristics of the city of Newcastle made it an ideal terrain for experimentations of this kind; the second section will then analyse the deployment of the smart city agenda in the city, focusing on the discourses and perceptions of the range of players involved. The third and final section will seek to understand who is set to benefit the most from Newcastle’s transition to a “smart city”.

The smart city is presented by its promotors as essentially “enabling”, that is, encouraging citizens to become more active members of the community, and as such is connected to the notion of participatory governance expected to replace the top-down approach. Yet while ubiquitous in political and academic discourse, the idea of “smart city” is strikingly absent from general public discussion, with very low awareness among those whose lives are supposed to be most improved. Despite the absence of observable organised resistance to it at present in Newcastle, the concept of smart city is therefore a highly contentious one. Other cities in the world, such as the Canadian city of Toronto, where local authorities have pushed for smartening the infrastructures, have witnessed significant pushback from residents (on this case see Green 2019). Criticisms of smart cities tend to focus on the fact that the services associated with smart cities are a very lucrative market, on the lack of residents’ involvement in changes that will directly affect their everyday life, as well as on the potential for misuse of the data collected as the advent of the Internet of Things means that “billions of sensors [are] tweeting from our pockets, the walls, and city sidewalks, reporting on minutiae of every kind” (Townsend 2013: 3).

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Newcastle as “smart” city: concepts, components and context

The concept of “smart city” has become ubiquitous yet remains fuzzy; to be of use in this analysis of the case of Newcastle, it needs to be conceptualised, substantiated, and set in context. In general terms, “smart cities” refers to “places that incorporate a range of technologies (especially those that collect and use data) to address economic, social, and environmental challenges” (UK Parliament 2021: 1). A smart city is defined as one that deploys new technologies in order to transform core systems through innovations such as broadband, analytical software, real-time sensing and feedback, and the “Internet of Things” to increase citizen interaction and greater connectivity between services (Buck and While 2015; Dirks and Keeling 2009; Hooper 2010). In short,
it collects and uses data to provide “smart” infrastructure connecting the supplies and demands of people, organisations and objects in supposedly new, more efficient ways.

Indeed the argument is that smart technology will improve the lives of the 45 million people living in the UK’s towns and cities, making urban areas at once more efficient, more sustainable and safer, since smart cities will be able to monitor air quality to reduce pollution, use real-time traffic data to ease congestion and tackle crime using analytic software (Los Angeles Police Department has been using social media monitoring tools provided by tech start-up Voyager Labs to predict criminal behaviour, Los Angeles Times 3 July 2019). The 2013 European Parliament report “Mapping Smart Cities in the EU” develops the concept of smart city along six dimensions: smart economy; smart mobility; smart environment; smart people; smart living; and smart governance (European Parliament 2013). This reflects the claim, central to official communication on the promise of the smart city, that smart cities will be better able to balance economic growth and social development. The smart city thus seems to stand as the silver bullet to solve all major problems linked to city life.

The concept of smart city has been promoted heavily by major global players and is being subsidised by national and local governments as well as the EU, which is reflected in a push by cities across the world to acquire the status of “smart” cities, a branding which local authorities see as increasing their ability to attract what urbanist Richard Florida calls the “creative class”, a global urban middle class who share high expectations regarding the provision of public services, the quality of urban infrastructures, as well as environmental concerns (Florida 2003). This means that cities wanting to attract this category of affluent residents have to generate the high value jobs and the kinds of services that may draw them in, for example by ensuring citizens can access services through digital interfaces rather than through offices with long queues (Florida 2008). The smart city, which combines economic competitiveness, quality of life and a dynamic image, therefore stands as a key urban imaginary for the contemporary city (Luque, McFarlane, Marvin 2014).

Yet although these trends are seen around the world and provide the backdrop against which to conceptualise the smart city, the variegated nature of cities, which have very different histories, sizes, and resources, makes it “difficult to develop a comprehensive framework that conceptualizes different smart city components and the strategic steps for implementation” (Bennett, Pérez-Bustamante and Medrano 2017). Therefore, any attempt to arrive at a workable definition needs to understand how “globalised smart city logics and discourses are translated into national and local contexts” (Caprotti and Cowley 2019: 33) and look at the deployment of the smart city in specific cities.

In the UK, the smart city agenda, which is supposed to reflect policy priorities at the local level, has been initiated by central government (Caprotti and Cowley 2019: 10). But the government has not set out a smart city model for cities to follow, so that responsibility for smart cities policy is spread across several departments. In 2013, the Conservative-Lib Dem coalition government established, through Innovate UK, a quango which stands as the “UK’s innovation agency” (innovateuk.org), the Future Cities Catapult as a global centre for urban innovation to encourage cities engage with smart cities technologies and help UK businesses “turn urban innovations into commercial reality” (futurecities.catapult.org.uk). In 2015, the government and Innovate UK offered up to £10 million for an Internet of Things Cities Demonstrator, a collaborative research and development project to demonstrate the capability of
applications across a city region. Other government-led initiatives associated with the smart city agenda include the Northern Powerhouse and, more recently, the Levelling Up Fund. The Northern Powerhouse was initiated by the coalition government and continued by the 2015 Conservative government (Department for Transport 2015) to create better connected urban areas through technological advances (for a discussion see for example Martin, Schafran and Taylor 2018). The Modern Transport Bill, included in the 2016 Queen’s Speech, laid the legislative framework for a revolution in transport technology, including plans to invest in driverless vehicles and zero-emission vehicles (Department for Transport 2016). The Digital Economy Minister then explained that the government wanted the UK “to be a place where technology ceaselessly transforms the economy, society and government” (UK Government 2016). The “Transforming Cities Fund”, launched in 2017 and expanded in the 2018 Budget, set up a £2.45 billion capital grant transport fund aimed at “driving up productivity through investments in public and sustainable transport infrastructure in some of England’s largest city regions” (UK Government 2018). This was followed by a “Future of mobility: urban strategy” review into transport, launched in March 2019 to “transform the way people and goods move around our cities” through the use of innovative forms of transport, “making travel in towns and cities more convenient, more reliable and cheaper” (UK Government 2019). These various government initiatives, which paved the way for smarter cities, also included efforts to devolve power to local authorities across England, with a promise to bring both greater prosperity and autonomy to the deindustrialised North. The Johnson government’s £4.8 billion “Levelling Up” Fund, announced at the 2020 Spending Review, which has made it possible for local authorities to bid for funding through their local MP to “support town centre and high street regeneration, local transport projects, and cultural and heritage assets”, was also pitched first and foremost as a means to reduce geographical inequalities by targeting “ex-industrial areas, deprived towns and coastal communities” (UK Government 2021).

These initiatives reflect the fact that socio-economic conditions in the North – and its future prospects – have become central to national debates in the UK. The North of England, the old industrial epicentre, has been suffering from a range of social and economic ills, particularly since the 1980s, increased in the 1990s and the 2000s. Studies by the think tank Centre for Cities have shown that these regions have suffered disproportionately from austerity measures in the wake of the 2008 financial crisis and from the fallout of the Covid-19 pandemic (centreforcities.org). Therefore, the status of Northern regions and their local economies is intimately associated with efforts to “rebalance” the economy away from the South East and London, while at the same time London has played the leading role in directing debates about the North (Martin, Schafran and Taylor 2018). Northern cities have suffered, since the 1970s, from the decline of heavy industry and have striven to find ways of regenerating themselves, with Manchester’s city centre regeneration earning the UK’s second city the nickname of “London of the North”.

For a Northern city such as Newcastle upon Tyne, there was a strong incentive to “smarten up”. This north-east city sits within the Tyneside urban conurbation and has, according to the latest available ONS population estimates (Office for National Statistics 2019), a population of just over 300,000 people, which makes it the 8th most populous city in of England (Newcastle City Council April 2021). According to UN figures, the total metro area population of Newcastle upon Tyne in 2021 was 814,000 and has been
growing by an average of half a percentage point every year since the beginning of the
2000s. Newcastle has become relatively more deprived between 2015 and 2019 – moving
from an overall position of 42, in the second most deprived quartile, into the most
deprived quartile (rank 32), i.e. dropping by 10 places (Newcastle City Council 2021). In
2018-19, 23% of children lived in absolute low income families, placing it in the top 20
highest-proportioned local authorities in this category. The most recent data (for
2017-2019) shows that average male life expectancy at birth in Newcastle is 77.9 years,
lower than the England average (79.8 years) by 1.9 years (1.5 for women). Official
Labour Market Statistics show that the employment rate in Newcastle stands at 69.5%
of the working-age population, lower than the national employment rate of 75.7%
(nomisweb.co.uk). In this context and in the absence of significant resources, the desire
of the local council to regenerate the city through attracting businesses and upscale
residents is highly understandable. The expected economic benefits of smart cities
range from “job creation, efficiency and productivity savings, export opportunities for
UK businesses”, to “making the local area more attractive to live and work in” (UK
Parliament 2021: 2).

Thus Newcastle has made efforts to promote itself as a centre for hi-tech and low-
carbon industries. Membership of the Core Cities Group, a self-selected collaborative
advocacy group of large regional cities in the UK outside Greater London, formed in
1995, is also part of this effort to push for greater devolution of powers and resources.
In 2010, Newcastle and Gateshead jointly published an economic and spatial long-term
strategy plan entitled “Planning for the Future Core Strategy and Urban Core Plan for
Gateshead and Newcastle upon Tyne 2010-2030”, finally adopted in 2015, setting out the
ambition to become a “low-carbon city” region, with a view to playing a “leading role
in developing low-carbon technologies for the world” (Newcastle and Gateshead
Council 2015). In 2012, Newcastle agreed a City Deal as part of the national
government’s broader devolution strategy, which accorded it the policy status of “low
carbon pioneering city”, including a carbon reduction target of 34% by 2020 (UK
Government 2012: 16). Thus the ability to put forward its smart city credentials can be
seen as key part of the drive by the local authorities to rebrand the city and restore
civic pride.

Who is involved in making Newcastle “smart”?

When Newcastle was named Smart City of the Year at the Digital Leaders Awards in
June 2019, this generated a spate of triumphant announcements by Newcastle City
Council and its partners. Yet confronting the prominence of this achievement in
promotional documents with the lack of public resonance of the event suggests that
there is a wide gap between the official discourse and perception by residents, which is
characterised mainly by a lack of awareness, and highlights the existence of conflicting
objectives.

Official communication hailed the fact that the award distinguished Newcastle as a
major player in the digital world. Thus Pat Ritchie, Chief Executive of Newcastle City
Council, stressed the status of Newcastle as “a leader in the digital field”, stating that
“Newcastle has always had an ambition to become a smart city and we see ourselves as
enablers of digital growth in the city”. The award, he went on to explain, “recognises
the great work we have already done to support digital development across Newcastle
and acknowledges our ambitions to do more to put digital at the heart of our city in the future” (Newcastle City Council 2019). The announcements recalled that Newcastle City Council had already been working with high tech giant Cisco in the ground-breaking Internet of Things project which had turned Mosley Street in the city centre into the smartest street in the UK the previous year, when it was fitted with additional CCTV cameras as well as sensors placed on lampposts, bins and car parking spaces through which data could be captured to control and monitor street lighting, parking availability, air quality, bin collection and road maintenance services. Newcastle City Council Leader Nick Forbes also stressed the city’s digital credential, stating: “We continue to be a city that harnesses the power of technology and data [...] and this award recognises that we are a connected, innovative and pioneering city that is looking to the future” (Newcastle City Council 2019). These words located the innovations brought to the city within a long-term trajectory of technology-driven change, looking both to the past and the future.

The project leading to the award was the Science Central development, described as a “state-of-the-art city centre quarter” to attract investment from around the world. The area was later rebranded the Helix through a marketing campaign launched at the time of the 2018 Great Exhibition of the North (Evening Chronicle 22 March 2018). Newcastle Helix was then billed as the “UK’s biggest urban development site outside London” (newcastlehelix.com). From a PR perspective, the choice of the name “Helix” seemed to suggest that the city had technology in its DNA. The development consisted of a 24-hectare flagship project in the city’s industrial heart, aiming to create a global centre for urban innovation, dedicated to the development of digital and low carbon technologies, “with a strong urban sustainability innovations framing” (newcastlehelix.com). The original project promoted itself as a “living laboratory” in which smart technology could be trialled (Newcastle City Council 2016); the rebranded Helix was described in the online promotional brochure as a “testbed and collaborative ecosystem” (newcastlehelix.com). The Science Central-Helix development was also backed by Dynamo, an industry-led initiative to promote the regional tech sector (dynamonortheast.co.uk).
The range of stakeholders involved in the project and funding it is a key dimension as illustrated by Pat Ritchie’s insistence that the smart city drive rested upon “technological partnerships between businesses, universities and public services” (Newcastle City Council 2019). The 2018 public consultation “Your views on the Northumberland Street area in 2018” (letstalknewcastle.co.uk), which ran from 12 March 2018 to 06 April 2018, had an accompanying video explaining the Council’s approach: “We’ve engaged with a wide range of stakeholders from the universities, the cultural institutions, from businesses, from retailers, from the local authority”. Organisations partnering on infrastructural research projects included Northumbrian Water, Northern Powergrid, and the Tyne and Wear Urban Traffic Management Control Centre, while private sector technology partners include Siemens, Philips, Microsoft and Zero Carbon Futures (Caprotti et al. 2016). As well as being backed by national government through the 2012 Newcastle City Deal, the project received further funding for infrastructural projects from the Chancellor in 2015, and had a total budget of £250 million. The flagship building The Core was partly funded by the European Union Regional Development Fund which “aims to strengthen economic, social and territorial cohesion in the European Union by correcting imbalances between its regions” (European Parliament 2013).

The Core building was opened in November 2014 and reported as almost fully occupied as of March 2016. The initiatives based at the Helix-Science Central today include the Cloud Innovation Centre and a National Innovation Centre for Data. Crucially, the Urban Sciences Building houses Newcastle University’s Urban Observatory, which collects the largest set of publicly available real-time urban data in the UK “to inform decision making and improve outcomes for people in the city” (urbanobservatory.org). This builds upon an existing long-term “Science City” partnership between Newcastle University and the City Council established to “maximise the North East’s scientific potential, raising awareness of the region’s scientific expertise across the world” (newcastlesciencecity.com). The relationship between the local councils and
universities is seen as a two-way traffic as universities not only provide “graduates for the knowledge intensive jobs which a smart city creates”, but also use their skills “to provide advice to the city authorities on the impact of different approaches to tackling specific challenges”. Indeed, universities are seen to have become influential actors in the co-production of smart cities (Karvonen, Martin, Evans 2018) and the strength of the links between “town and gown” are seen by the government as a key dimension of the move towards smart cities (UK Government 2013: 17). The smart city agenda is thus being driven by the overlapping interests of academia, government and industry.

In addition to office spaces, the Helix also includes a residential area and amenities (bars and restaurants). The promotional documentation describes the new area as providing “inspirational city centre living”, populated by “hundreds of innovators, businesses and progressive homeowners living and working side by side”, and living in “hundreds of innovative homes – some so smart you can run them from your phone”. The solar-powered smart homes are also advertised as providing “an exemplary sustainable development, in the middle of the only city centre neighbourhood of its kind in the UK” (newcastlehelix.com), clearly designed to appeal to the “creative class”.

It is significant that policies and promotional materials relating both to the Science Central-Helix project and the broader economic strategies for the city region mobilise a narrative of continuity with, but also transformation of, the city’s industrial heritage, starting with the symbolic decision to develop the Science Central project on the site of Scottish & Newcastle brewing company, which closed in 2005, and itself built on the site of the former North Elswick Colliery which operated throughout the 19th century. Thus the “smartening up” of the Newcastle’s city centre is part of a wider project of urban regeneration which includes the renovation of historic buildings for new uses.

The official narrative is that of inclusion of the different groups of residents. On its public consultation hub (letstalknewcastle.co.uk), the Council stresses the fact that they are “making sure that our city is fit for purpose – for residents, businesses and visitors”, because “different users of the city centre have different requirements”, so that there is a need to “create a balance for everyone”. The Council insists that the benefits drawn from the upgrade will not be limited to residents of the new area, and that “the creation of jobs, income and business will help to unlock other parts of the city so the benefits can be shared, with the effects felt further afield than just the immediate city centre”.

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The Rebranding of Newcastle as a Smart City. Cui Bono?
In 2021, Newcastle was ranked 21 in a list of leading cities in the Smart City Index, up two ranks from the previous year, and overtaking London (number 22) and Manchester (number 26). The index ranks 118 cities based on citizens’ perceptions and both economic and technological data and claims to offer “a balanced focus on economic and technological aspects of smart cities on the one hand, and “humane dimensions” of smart cities (quality of life, environment, inclusiveness) on the other (Smart City Observatory 2021). Importantly, it asked residents the question: “What does it mean if your city is ‘smart’?”, so as to assess their perceptions of the impact technology on their lives, looking at issues such as health and safety, mobility, activities, opportunities, and governance. The report showed that citizens’ concerns seem to change as their cities become “smarter”. For example, the cost of housing tends to be a dominant concern in the top-ranking cities whereas residents of lower-ranking ones tend to grant a higher degree of priority to solving issues related to health and safety. Environmental concerns are also comparatively higher in richer cities.

Yet although the smart city is a big agenda for both the City Council and Newcastle University, there is little awareness of this outside the key partners. Discussions with residents conducted in the autumn of 2021 highlighted conflicting perceptions ranging from complete unawareness, to cautious optimism, and to very strong scepticism, although on balance they leant towards a negative view as the improvements to the city are not seen to be designed for them or are offset by some negative consequences. In fact, few local residents had even heard of Newcastle as a smart city, with a typical response being: “To be honest I didn’t even know it was a ‘smart city’”. This lack of awareness is confirmed by a survey conducted by the Institution of Engineering and Technology which indicated that less than (18%) members of the public have heard of the term “smart city” (Institution of Engineering and Technology 2016), and that those who have tend to see it as a gimmick. One resident had heard of smart bins but considered this was all “corporate bullshit” and mainly an excuse for not collecting rubbish, and saw the technological advances as fixes for lack of money. A local journalist questioned the bidding process and suspects that the Council had to pay to obtain the award and suggests putting in a freedom of information request. A local academic confessed that “The smart city stuff in Newcastle has been a bit off my radar”.

Source: Newcastle City Council https://www.letstalknewcastle.co.uk/
Overall therefore, the smart city is strikingly absent from public debate. An internet search of topics related to Newcastle as a smart city brings up mostly websites and documents by consultancies aiming to help businesses, and there are very few mentions of the smart city agenda in the local newspaper, the *Evening Chronicle*. Talking to a range of people who reside in the city revealed that very few were aware that their city was “smart”, and that those who had heard of the concept were either unable to explain what that meant or were dismissive that this was something significant or positive.

In addition, the smartening agenda seems to be contradicted by other constructions, such as the very controversial £100 million project called Giants on the Quayside, which includes the “Whey Aye” wheel, to be built by the World Wheel Company at the Spillers’ Tyne Mill site on Newcastle’s quayside, which was home to flour production from the 1930s until 2007, before being demolished in 2011. The wheel, which will stand five meters taller than the London eye, will be Europe’s tallest observation wheel when it finally opens after many delays. How such projects fit in with the Council’s policy of sustainable development is very much in question. Critics are also concerned that it will distract from other features such as the millennium bridge and alter the image of the city. Indeed, the local newspaper reported that “Newcastle City Council’s planning committee voted in favour of allowing a giant LED advertising screen to be attached to the wheel, despite criticisms that the wheel would be a “blot” on the city”, with a councillor complaining to the planning committee about the “cheap and nasty” wheel (*Evening Chronicle* 30 October 2020).

![Figure 4: The Whey Aye Wheel project (screenshot)](https://world-wheel-company.com/)

According to the official and corporate literature therefore, Newcastle has successfully transitioned from a struggling old industrial city to an internationally recognised smart city, which provides an opportunity to change the narrative and the image. But even if the literature claims that smart city initiatives are people-centred and aiming to improve the everyday lives of local residents, the smart city in practice stands first and foremost as a political and economic issue. The absence of discussion of the issue outside political, business and academic circles in the wider public sphere means that
“concerns persist that the smart city is little more than a marketing label or a hollow urban imaginary in search of meaning” (Buck and While 2015: 4). The smart city may stand as the new urban panacea yet it continues to be a highly ideological concept.

Newcastle as smart city: for whose benefit?

This section looks behind the glossy brochures at the “actually existing” situation. Townsend (2014: 12-13) points out that there is concern that smart technologies may have many unintended consequences, while Buck and While (2015) stress the fact that the smart city concept has attracted growing scepticism, as smart city technologies are seen to generate new problems such as the risks linked to increased surveillance, the outsourcing of power and control to private-sector providers whom local authorities are not able to reign in, and the increased marginalisation of excluded citizens with a view that smart cities might actually widen existing societal gaps (Hollands 2008; UK Parliament 2021; Vanolo 2013).

Indeed, the smart city may for example contribute to worsening the gap between poor and affluent residents. According to the Universities and Colleges Admissions Service (UCAS) which operates student applications in the UK, Newcastle is now home to a large temporary student population totalling 42,000 which has transformed the city centre. One resident explained how the central area around football stadium St James’ Park has been “radically altered, from the old brewery being knocked down and now tons of high rise student housing replacing it.” More specifically, Newcastle also has the highest proportion of STEM (Science, technology, engineering, and mathematics) and computing students in the country (Smart City Business 2022). The growth in the numbers of affluent international students drawn to the city has led to the emergence a new luxury student accommodation market, while affordability at the lower end of the market remains a huge problem. The smart city ranking survey (Smart City Observatory 2021) indicates that affordable housing is now the main concern of residents, as 68.2 % of Newcastle residents rated this as their first priority for the city, well ahead of unemployment, 52.8%, or health, 30.7%. The building boom had generated so-called “town vs gown rows”, leading to a push back against “studentification” of the city centre. As one resident put it, “a large part of new accommodation is for students and key workers, more transient by nature and therefore less likely to integrate into the wider community”. The smartening of Newcastle has also had some negative effects on the quality of life in the new areas, as several residents stressed the deterioration of the city centre where they now saw “a lot more beggars and drug addicts” and “a huge increase in homelessness and poverty across the city”. This led several residents to say that they did not like the city centre for that reason. Clearly, the feeling is that the city centre has not been developed with their own needs and priorities in mind, but to attract a different category of people.

Overall, the feeling is that the hi-tech clusters such as the Helix are aimed at business and innovation rather than the needs of the average person. The smart city may therefore contribute to increasing geographical inequalities between the city’s “hyper centre” and more peripheral areas. Indeed, one major issue is that of spatial inequality and the emergence of “sensor deserts” (Robinson and Franklin 2020), since not all areas benefit from the new features to the same extent. The same goes for different categories of residents and the existence of the digital divide, which some of the
innovations are designed to solve by increasing the council’s ability to respond quickly to the needs of at risk, digitally excluded residents (such as old people at risk of falls). One such project, developed in 2021 by IT firm Trench Networks in association with innovation consultancy Urban Foresight and Newcastle university, aimed to address this problem after user research conducted for the project showed that 46 per cent of service users did not have an internet connection in their home. After it won £15,000 from the national Digital Shift Channel fund in March 2017, the Council developed Chatbots – chat apps, such as Skype, Slack, Messenger and Outlook – using Microsoft’s BOT Framework, to improve “the responsiveness and efficiency of frontline council services” (Urban Foresight 2021). These online services are said to have reduced calls to the Council from about 60 per month to three and saved the equivalent of about £25,000 per year in staff time (Newcastle City Council 25 May 2018). But the smart cities agenda presupposes both the availability of the new technologies in all areas of the city and the readiness of residents to use them. As one resident asked: “who accesses the App to find parking?”.

This in turn raises the issue of the use of the data collected. Indeed, one of the foundations of the smart city approach is that it gives access to real-time information at the level of individual citizens’ choices and actions. The development of information systems in urban environments has created opportunities to capture information which was not previously accessible. The government’s argument is that “[leading cities] are examining how to generate more powerful insights and value by using potentially more sensitive datasets (including data on vulnerable groups) in order to improve their understanding of citizens’ needs and to provide better services, while respecting data privacy and security” (Department for Business, Innovation and Skills 2013: 37). This can be very useful in enabling the detection of patterns of behaviour, as demonstrated by innovations to tackle the impact of the Covid-19 pandemic, for example with the creation of www.howbusyistoon.com, a web-based application developed by Newcastle University’s Urban Observatory in partnership with the National Innovation Centre for Data (NICD), which used real-time data to check how easy it was for residents to maintain social distancing in the city centre.
But this ability also raises serious issues of privacy and protection of personal information. Indeed, ongoing improvement to surveillance technology is one aspect of smart cities that presents both an opportunity and a challenge. For example, new crime fighting innovations have become a battleground in the continued debate over public safety and individual freedom. One the one hand, the ability to collate big data to help police identify trouble spots and distribute resources accordingly is something which Newcastle residents showed a high acceptance of. Indeed, 73.3% of the Smart City survey respondents declared they were “comfortable with face recognition software to lower crime” (Smart City Index 2021). A local resident confirmed this view by stating that “given the lack of police on the street cameras do sound as if they might provide useful data and also act as a deterrent”). Yet the use of cameras and analytic software to identify and intercept potential suspects raises major concerns among privacy campaigners such as Liberty, the largest UK civil liberties organisation, which has been fighting in the courts against the deployment of a technology they describe as a ‘discriminatory, intrusive and oppressive’ mass surveillance tool. Public acceptance of such technologies is conditioned upon levels of trust in law enforcement authorities, something that may be lacking. One Newcastle resident summed up the tension between the understandable desire for increased safety on the streets and an awareness of the potential for misuse: “Of course I understand that cameras can make more vulnerable groups feel safer. But it is predicated on a trust of the police and the authorities more widely which, especially given the Met’s atrocious record, recently in the media spotlight, is pretty hard to come by at the moment.” Some US cities, such as San Francisco in 2019, Boston in 2020, or Minneapolis in 2021, have banned facial recognition software over concerns that local authorities were stealthily collecting data on citizens through video surveillance (New York Times 14 May 2014), while in the UK the Surveillance camera code of practice is currently under review “to enable operators of surveillance camera systems to make legitimate use of available technology in a way that the public would rightly expect and to a standard that maintains public trust and confidence” (UK Government 2021). The Urban Observatory recognises this risk and
promises that “data authority and governance will be an important point of discussion in future Smart City development”. It underlines the accessibility of the data it collects to the wider public claiming that it “applies an ethos of openness and transparency by publishing all the data in real time.”

**Figure 6: Interactive map of digital sensors**

![Interactive map of digital sensors](https://urbanobservatory.ac.uk/)

Source: Urban Observatory https://urbanobservatory.ac.uk/

31 Indeed, the data collected through its 50 or so sensors, which residents – or anyone else – can “view, graph and download”, represent “the largest set of publicly available real time urban data in the UK” (Urban Observatory 2021). This conveys the view of city inhabitants as active producers of and contributors to smart cities rather than simply as “users” or “consumers” of smart infrastructures that are being implemented by policy or corporate actors. Yet it is not clear what the data can be used for and who by. One resident stressed the fact that “we haven’t been asked if it is OK to monitor us in the city at all times and for any number of purposes which may or may not be acceptable to people”, and another pointed out that while the data is available to anyone “it would be particularly useful for Central government, Councils, urban developers”, confirming the notion that the smart city remains part of a professional agenda which is reluctant to integrate voices from civil society.

32 The competitive dimension of the smart city agenda is also pointed as a major issue, since projects to improve city life are forcing cities to compete for limited funds to compensate for their lack of resources, generating tensions between various actors with competing interests. Following years of funding cuts as a result of austerity measures, many local authorities are forced to do much more with far fewer resources. Impoverished local councils therefore seize these funding opportunities to try and restore their image. Jenny Nelson, Digital Lead at Newcastle City Council, pointed out on receiving the smart city award that the council’s budget has been reduced by £300 million over the past ten years, leaving it with some difficult decisions to make about where best to allocate its more limited funds. Despite a general narrative to increase devolution, and with the government considering that “meeting the needs of urban communities will be a key driver of growth in the decades to come” (Department for...
Business, Innovation and Skills 2013: 39), the national government’s drive to achieve smarter, more connected cities in the UK is in fact placing the responsibility on individual councils to take the initiative.

Thus, as Buck and While recall (2015), the 2012 Future Cities Demonstrator Competition, launched by the Technology Strategy Board (the UK government’s national innovation agency) to stimulate technological innovation in urban management, gave 30 municipal authorities £50,000 each to develop feasibility studies, with a further £24 m available for implementation of the winning idea (Technology Strategy Board 2012). More recently in October 2020, the government launched a Public Sector Decarbonisation Scheme for which Newcastle City Council prepared six bids and went on to win £27.5 m in March 2021 to decarbonise a whole range of public buildings including libraries, leisure centres, and a wide range of schools\textsuperscript{14}, as well as historic cultural venues like the Theatre Royal, a listed building located on Grey Street, which will benefit from “smart” heating, solar panels, a heat pump, new windows and new wall insulation. The project also included work to connect The Core at Helix, and the old Co-operative Wholesale Society building Blandford House, which is home to the Discovery Museum, to the District Energy Centre network, a centralised energy system for the entire site. Newcastle has also put a bid for some of the Levelling Up Fund, set up in June 2021, to upgrade central shopping areas such as Newcastle’s historic indoor market Grainger Market and Eldon Square’s shopping centre.

For cash-strapped Councils, these competitive bids constitute a potential boon that cannot be ignored. In this context, cities are encouraged to promote low-carbon transitions “as a means of reinforcing their competitive economic advantages, recasting neoliberal inter-urban competition as an ‘eco-competitive race’” (Hodson and Marvin 2010: 98). But while this can be regarded as a healthy incentive to get local authorities to solve some of the problems of contemporary urban living and be imaginative about ways to make residents’ lives better through a technologically enhanced smart city, it also leads to councils having to work with professional, private players, as well some of the numerous consultancies which have mushroomed to provide their much-needed services. Although some of these, such as Urban Foresight and Dynamo, have developed at local level and have good knowledge of the specific environment in which the projects will be implemented, this nonetheless means that the language and narratives used to pitch the projects in the promotional documents is often alien to residents’ immediate concerns. In addition, the fact that the smart city market is dominated by a handful of global high tech companies leads to a high degree of uniformisation of the projects themselves. Thus Buck and While stress the “potential tensions between the goals of delivering benefits to cities and enhancing the UK’s capability in the lucrative international smart city products and services market” (2015: 4).

This tension between potentially competing interest leads to one of the major reservations regarding the design of the smart city agenda, which is that “the adoption of technologies within cities has traditionally been driven by a ‘top-down’ approach, with often little involvement from the public at the concept or design stage” (Institution of Engineering and Technology 2016). Since the smart city label is frequently used as a marketing strategy to attract private sector economic development (Shelton, Zook and Wiig 2015), the work of collecting local residents’ views tends to be conducted on the side-lines, in the shape of often opaque public
consultations, a process unlikely to produce outcomes that reflect local residents’ ideas of the changes which should be brought to urban infrastructures. The concern is that, despite the claims that the smart city projects are “people-centred”, citizens are not sufficiently involved at the development stage.

More generally, public consultations do not seem to be raising public awareness, which is a result of the way they are conducted and how their results inform policy. The NCC website states that “following the consultation, all feedback shared will be reviewed ahead of a final decision being made on implementing the plans”, but browsing through its public consultations pages shows that this promise is not always kept, as many consultations show the results as “pending”, sometimes several years after they were closed (in one case the consultation had closed in October 2017 with results still pending in November 2021). Nick Kemp, councillor for Byker, one of Newcastle’s most deprived areas, is reported to have accused the Whey Aye Wheel’s developer of “smoke and mirrors”, lamenting the “fundamental lack of consultation” with locals (Evening Chronicle 30 October 2020). As the authors of the “Newcastle City Futures 2065” explain, public consultations are not a good enough tool if one really wants to involve local residents: “Traditional public consultation methods are very much on the terms of those initiating the consulting – small timeframes within which society and individuals can express their views on pre-defined policies and proposals” (Tewdwr-Jones, Goddard and Cowie 2015: 47). The report goes as far as to consider that even more innovative participatory approaches tend to increase scepticism because of the feeling that they will not really affect the outcome.

This generates a feeling among residents that the Council will just not listen to local residents. One resident explained that while “there are lots more things/places that I am enjoying going to”, she was wondering how much support some of the independent businesses were getting from the Council and that “the building of things like the Whey Aye (even against backlash from the public) show that they don’t really listen to what people are wanting for the city, and that profit is still the most important thing to them”. Technology companies are thus seen to be forming opaque partnerships with city-level agencies to profit from projects at the expense of citizens. Another resident, who had heard of smart city but was unsure of what the personal benefits might be, felt that there was a failure to communicate the positive impact – if any – of the smart city on the general population: “Mosley Street may be a smart street, but how does that benefit me?” This resident could not see how the digital sensors would contribute to actually bringing any improvement: “They may be monitoring pollution, but the simple fact is that for most of the day, Mosley Street has two lanes of slow moving traffic in each direction. It doesn’t require a monitor to confirm that pollution is serious”. It should also be noted that Mosley Street is only 222 meters long.

Overall, criticism of the smart city tends to focus on the notion of a “corporate power grabs, entrenching surveillance, private control over urban management, and repacking neoliberalism in the dressing of seductive technologies” (McFarlane 2015: 89-90). An analysis of the UK’s 34 most developed smart eco-cities suggested that as planned and operational activities most typically focus on environmental, economic and mobility issues, “the relative lack of consideration given to social sustainability would appear to be at odds with the ‘citizen-centred’ rhetoric often mobilised within policy documentation” (Caprotti et.al 2016: 4). Since the smart city model is driven by private companies who aim to showcase their technological know-how, the areas which
concentrate digital innovation are in fact criticised as the reflection of a trend towards uniformisation and a one-size-fits-all model led by private actors, to the detriment of local residents' actual needs (Hollands 2015). The top-down, techno-centric, multi-stakeholder model is seen to be serving the interests of corporations and governments rather than substantially improving the quality of life of actual citizens (eg Cardullo and Kitchin 2019; Greenfield 2013). This raises questions as to the potentially conflicting objectives of the drive towards smart cities. A key dimension therefore is that of who is included and excluded from the planning of smart cities (Robinson and Newell 2019; Rogerson and Giddings 2020).

Conclusion

In the context of increased pressures on urban living and diminishing resources, the smart city stands as a source of hope for the future of cities, holding the promise of addressing meta-problems such as the rising costs of urban life, climate change, as well as the issue of democratic deficits, by empowering residents to co-create their cities through civic technology tools. In promotional documents and government discourse, the smart city is thus extolled as an opportunity to reinvent the relationships between urban infrastructures and residents. Yet residents' testimonies show that they tend to be pessimistic about the ability of technology to bring about major positive changes to their lives. This pessimism is compounded by the realisation that policies to “level up” the regions of the UK have not delivered on their promise, with figures showing the North East to be the child poverty capital of the UK. This was confirmed in November 2021, when the government announced the scaling back of the Northern Powerhouse Rail project, which local leaders across the region branded a “hammer blow for the North East” (Evening Chronicle 10 November 2021). Indeed, a Rebuilding Britain Index, created by financial group Legal & General, found that less than a quarter of people in the UK agreed that investment was making a noticeable impact where they live, with rates in the North East, North West and Yorkshire and Humber even lower. This is a concern since the report concluded that “the essentially economic focus of these ambitions would appear to be in tension with an ongoing awareness that top-down technology ‘fixes’ are unlikely to have convincingly transformative effects if they are not met with enthusiasm within society more generally” (Legal & General 2021) and are perceived as mere tinkering which cannot compensate the central government’s general disregard for cities such as Newcastle. The ideal vision of a re-engaged citizenry, reconnected to local democracy through technology, is still a distant dream.

There is a tension between residents’ aspirations and that of the big companies, whilst councils sit in the middle of this battle, at the interface between companies and ordinary people. Townsend talks about a “backlash” against “some of the corporate vision brought about by the development of smart cities” (2014: 9), stressing the potential for distrust resulting from the spread of technology such as CCTVs. As one resident said, “my sense is that there hasn’t been much of a protest against smart cities ideas, probably in part because there’s been very little effort to involve or inform local residents about any of these initiatives.” But even if residents’ engagement and empowerment is lacking from the smart city agenda, citizens are not passive subjects. There is therefore a battle for shaping the technology towards a more progressive, people-centred agenda, as seen in other cities such as Toronto where resistance by
residents led to a turnaround. The case of Newcastle points to a situation where groups of citizens have not yet managed to take over, but residents may be able to take control of the new tools or even to subvert them to design their own environment to suit their own priorities, for example by using access to open data, and rethink government on a more open, transparent, democratic, and responsive model (Karvonen, Cook and Haarstad 2020; Townsend 2014:10; Vanolo 2015: 31).

McFarlane stresses the lack of “clear vision” around what “smart” entails, and “more a sense of bumbling through, a sense that ‘smart matters’ but without any real clarity about why and how” (2015: 90). Indeed, a recurring feature of smart urban initiatives run by city councils is “the level of contingency and uncertainty sometimes found around what smart is and how it might evolve”. Smart cities are therefore best understood as “urban imaginaries”, underpinned by a set of hopes and fears (Vanolo 2015). The case study of Newcastle as a smart city shows how national governments are positioning cities as laboratories for wider public or commercial projects. In this sense, far from the depictions found in the promotional documents, the “smart city” does not provide a model of the future city, but is a “messy” process (Buck and While 2015: 4). Comparative studies of smart cities also stress “the experimental tendencies of the smart city (Cowley and Caprotti 2016; Evans, Karvonen and Raven 2016); one such study concludes that “rather than constituting traditionally ‘planned’ programmes of investment, they are typically driven by ad-hoc partnerships involving city councils, universities, private sector actors and non-governmental organisations, and exemplify the broader contemporary phenomenon of ‘urban experimentation’ as a mode of effecting urban change” (Caprotti et al. 2016: 2-3). As such, the smart city may thus be seen as “a flexible agenda that allows actors across different cities to insert a wide range of different strategies and agendas into it” (Haarstad 2016: 197). This is a key dimension since the criticisms of the smart city narrative overlook “the necessarily experimental and emergent nature of smart city restructuring” (Buck and While 2017: 4). Problems and their solutions are specific to each city, which means that the most imaginative innovations tend to be taking place at a local and small scale. Overall therefore, a nuanced assessment of the benefits and risks associated with the smartening of Newcastle would lead to the conclusion that, despite its current shortcomings, the smart city agenda, which promises to deliver greener, safer cities, the potential of smart city technology to improve urban environments should not be dismissed too quickly, even if it is not reflected in current implementation.

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NOTES

1. This was thanks to inventor Joseph Swan’s invention of the incandescent carbon lamp.
2. The Great Exhibition of the North was a two-month exhibition held in Newcastle and Gateshead between 22 June and 9 September 2018 to celebrate the history of the north of England through its innovators, artists, designers and businesses.
3. Being written at the time of the Covid-19 pandemic, travel restrictions have made it impossible to conduct on-site fieldwork. Perceptions by local residents were collected through semi-structured conversations conducted between July and October 2021 mainly through a social media chat group created for the purpose of this article, as well as through some written exchanges via email. The respondents were selected through mutual acquaintances with the only condition that they were current ordinary Newcastle residents (i.e. not involved in the smart city agenda). This added up to a small group of about twenty individuals, male and female, of varying ages (ranging from 28 to 61) and backgrounds (including an academic, a nurse, a pensioner, a mental health charity worker, etc.) to provide an initial feel of residents’ perceptions. The conversations were structured according to the following line of questioning: “What I would like to know is your perception of how Newcastle has changed in the past few years (if it has). What changes have you noticed (if any)? Do you think they are making the city better to live in (how? Or why not?). Have you heard about Newcastle winning the "smart city" award in 2019? And about Mosley street being named "UK’s smartest street"? Is this relevant to you at all? How do you feel about the use of cameras to identify potential suspects? Do you have any concerns? Regarding the data collected through sensors, who do you think might use it and for what?” Residents’ responses were complemented with data from the IMD SCO survey of 120 residents (Smart City Observatory 2021).
4. The Sidewalk Labs (urban innovation company) project in Toronto is associated with tech giant Alphabet, the parent company of Google. After Sidewalk Labs released plan to extend
beyond the original scope in 2019, some Toronto residents created #BlockSidewalk which lead to the Quayside project being permanently stopped.

5. Departments involved in the smart city agenda include the Department for Digital, Culture, Media and Sport (DCMS), the Ministry of Housing, Communities and Local Government, the Department for Business, Energy and Industrial Strategy, the Department for Transport, the Department of Health and Social Care, and the Cabinet Office (UK Parliament 2021: 3)

6. The Future Cities Catapult and the Transport Systems Catapult, launched at the same time, were merged into the Connected Places Catapult in 2019.

7. The partnership includes the eleven city councils of Belfast, Birmingham, Bristol, Cardiff, Glasgow, Leeds, Liverpool, Manchester, Newcastle, Nottingham and Sheffield (corecities.com).

8. Newcastle City Council is the local government authority for the city and metropolitan borough of Newcastle upon Tyne. The council consists of 78 councillors, three for each of the city’s 26 wards. It is currently controlled by the Labour Party, led by Councillor Nick Forbes since 2011 (since the May 2021 local elections, 52 of the 78 councillors are Labour).

9. The Great Exhibition of the North was held in Newcastle and Gateshead between 22 June and 9 September 2018 to celebrate the North of England through its innovators, artists, designers and businesses.

10. The name is a pun on the perceived archetypal Geordie phrase “wey-aye” (also spelt “why aye” or “wey aye”), which means “of course”.

11. As the time of writing the opening was due for Spring 2024.

12. Liberty (www.libertyhumanrights.org.uk) led the world’s first legal challenge to police use of facial recognition technology which resulted in a judgment handed down the Court of Appeal on 11 August 2020, agreeing with Liberty’s submissions on behalf of a Cardiff resident and finding that South Wales Police’s use of facial recognition technology breached privacy rights, data protection laws and equality laws.

13. Amazon and Microsoft have both suspended facial recognition product sales to police, and Facebook has announced in November 2021 that it will no longer use facial recognition software across its platforms (such as Instagram and Whatsapp) (BBC News, 2 November 2021).

14. City and Fenham libraries, Gosforth and East End pools, Walker Activity Dome, Newcastle Trampoline Park, Gosforth Junior High, St Mary’s Catholic, West Jesmond Primary are among the beneficiaries.

15. The smart eco-city can be defined as “an experimental city which functions as a potential niche where both environmental and economic reforms can be tested and introduced in areas which are both spatially proximate (the surrounding region) and in an international context (through networks of knowledge, technology and policy transfer and learning).” (source: smart eco-cities project, https://www.smart-eco-cities.org/?page_id=12).

ABSTRACTS

The city of Newcastle, regional capital of North East England and home to “the UK’s smartest street” located a short distance from its brand new Helix district, is described as having successfully transitioned from a traditionally industrial city to a “smart” city, able to use digital tools to address issues such as congestion, pollution, waste reduction and parking, with the dual objective of “helping people to live better lives” and of making the city more attractive to businesses, investors, international students, and tourists. While ubiquitous in political and
academic discourse, the idea of “smart city” is strikingly absent from general public discussion, with very low awareness among those whose lives are supposed to be most improved. Criticisms of smart cities tend to focus on the fact that the services associated with smart cities constitute a very lucrative market, on the lack of residents’ involvement in changes that will directly affect their everyday life, and on the potential for misuse of the data collected. Drawing primarily from a range of published material such as policy documents, newsletters, working papers, announcements, websites, and brochures produced by the key players of the smart city, as well as from conversations with ordinary residents, this article aims to contribute to the discussion on smart cities by confronting official discourses with “actually existing” practices, through the case of the mid-sized city of Newcastle. It explores the uses of smart city tools and discourse to rebrand the city of Newcastle and revitalise civic pride, setting the smart city promises against actual improvements to the lives of local residents as well as their perceptions of their city. The first section of the article sets out the elements of the smart city to show how the characteristics of the city of Newcastle made it an ideal terrain for experimentations; the second section analyses the deployment of the smart city agenda in the city, focusing on the discourses and perceptions of the range of players involved. The third and final section seeks to understand who is set to benefit the most from Newcastle’s transition to a “smart city”. The conclusion presents a nuanced assessment of the potentialities and limits of the smart city.

La ville de Newcastle, capitale régionale du nord-est de l’Angleterre et dans laquelle se trouve “la rue la plus intelligente du Royaume-Uni”, non loin du tout nouveau quartier de l’Helix, est décrite comme ayant réussi la transition du statut de ville industrielle traditionnelle à celui de ville “intelligente” qui mobilise les outils numériques pour régler des problèmes tels que les embouteillages, la pollution, la réduction du gaspillage, et les problèmes de stationnement, dans le double objectif d’« aider les gens à vivre mieux » et de rendre la ville plus attractive pour les entreprises, les investisseurs, les étudiants internationaux et les touristes. Bien que le terme de “ville intelligente” soit omniprésent dans le discours politique et académique, cette notion est curieusement absente du débat public et très peu connue de ceux qui sont censés en bénéficier le plus. Les critiques de la ville intelligente portent sur le fait que les services qui lui sont associés constituent un marché très lucratif, sur le faible engagement des résidents dans les changements devant affecter directement leur vie quotidienne, et sur le risque d’utilisation abusive des données collectées. S’appuyant essentiellement sur des publications officielles – telles que les documents de politique stratégique, bulletins officiels, documents de travail, annonces, sites internet, et brochures – produites par les principaux acteurs de la ville intelligente, ainsi que sur des conversations avec des résidents, cet article vise à contribuer au débat sur la ville intelligente en confrontant le discours officiel aux pratiques observables, à travers le cas de la ville moyenne de Newcastle. Il explore la façon dont les outils et discours de la ville intelligente servent à façonner la nouvelle image de la ville de Newcastle et à restaurer un sentiment de fierté civique, et confronte les promesses de la ville intelligente avec les améliorations réelles apportées à la vie des résidents ainsi qu’avec leur perception de leur ville. La première partie présente les différents éléments de la ville intelligente pour montrer comment les caractéristiques de Newcastle en ont fait un terrain d’expérimentation idéal ; la deuxième partieanalyse la mise en œuvre de la ville intelligente pour mettre en lumière les tensions entre des objectifs contradictoires. Enfin, la troisième et dernière partie s’attache à comprendre qui sont ceux à qui la transformation de Newcastle en une ville « intelligente » profite le plus. La conclusion propose une évaluation nuancée des apports et limites de la ville intelligente.
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**Mots-clés:** ville intelligente, Newcastle upon Tyne, développement urbain, big data, démocratie locale

**Keywords:** smart city, Newcastle upon Tyne, urban development, helix, big data, local democracy

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