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WORKING PAPER

Measurement of social and cultural infrastructure

Vision and approach

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Background

The Bennett Institute for Public Policy has been commissioned by the British Academy to deliver a project on the measurement of cultural and social infrastructure. Through supporting this project, the British Academy is looking to "*understand what a measurement framework and approach to social and cultural infrastructure would look like*."

The project forms part of the British Academy's Social and Cultural Infrastructure programme. This explores the importance of social and cultural infrastructure for society and probes the implications of understanding and measuring its value for policymaking. Of particular interest is how social and cultural infrastructure policy interventions can address deepening spatial inequalities and the range of economic and social shocks, including the ongoing impact of COVID-19 as set out in the British Academy's COVID Decade report (British Academy, 2021), the Russian invasion of Ukraine, and the cost-of-living crisis.

The measurement of social and cultural infrastructure project has been commissioned by the British Academy as an independent research project and is part of the Academy's public policy programme on social and cultural infrastructure. This Inception Report is an independent research output published by the Bennett Institute. The report represents the Bennett Institute's thinking in the initial stages of the project, prior to the conducting of project-specific research.

1. Vision

In the broadest terms, the concept of infrastructure denotes those human-made structures that support the flourishing of individuals and communities. From the traditional examples of physical infrastructure such as road and rail networks to emerging areas of interest such as the social and cultural infrastructures that are the subject of this project, all infrastructure reflects collective decisions and choices. The fact that infrastructure consists of relatively long-lived assets also means that decisions about infrastructure that are made today reflect views about the social fabric of the future, and indeed, will help shape the societies of tomorrow.

And yet infrastructure is relatively under-studied and hence poorly understood. Despite its prevalence and ubiquity, there is a lack of an overarching theory of infrastructure to help define the concept, create the boundaries in which the concept functions, and understand the ways in which it contributes to society. As we set out in this paper, some of the prevalent characteristics of modern infrastructure, such as its amorphousness, interconnectedness and partial invisibility, make it difficult to pin down both its economic benefits and the contributions it makes towards growth and living standards.

The concepts of social and cultural infrastructure are relatively recent additions to the categorisation of infrastructure in public policy circles, and they are typically taken to refer to a distinct subset of the wider category of infrastructure that supports activities that are central to the identity, function and cohesion of communities. Thinking of the social and cultural assets that help create and maintain our communities as types of infrastructure is an emerging area of study within the broader concept of infrastructure, but one that we strongly believe needs to be nested within the wider conception of infrastructure if it is to be of any value.

In this short, initial report, we look to set out some of our early thinking on these questions and we welcome feedback and ideas from readers in response to it.

First, why infrastructure? The use of the concept of social and cultural infrastructure has gained traction with policymakers in recent years, with the UK government's Levelling Up White Paper being particularly notable for its use of the language of social infrastructure, and suggestion that it is a key source of social capital. One of the key questions raised by this project is why should the assets that contribute to the social and cultural lives of communities be considered as types of infrastructure? Is this simply an attempt to tie a broader class of assets conceptually to the underpinning infrastructures that support modern life, and hence promote their importance? Or, does thinking of them as types of infrastructure cast a useful light on how these assets function, how they should be managed, and most importantly for this project, how their impact can be measured.

We then consider measurement itself. Perhaps one of the reasons why infrastructure is poorly understood is because it represents what philosophers call a 'thick concept', one which both describes and evaluates at the same time, and hence makes it difficult to define in a way amenable to measurement. We also draw attention to other key characteristics of infrastructure – above all, its amorphousness, interconnectedness, and

partial invisibility – and explore how these contribute to the difficulties of measurement. We argue that an understanding of the potential traps that the characteristics of thick concepts in general, and infrastructure in particular, represent, will help to develop measures that reflect the multiple and complex roles that social and cultural infrastructure plays in the lives of people and communities.

Finally, we set out to develop a rudimentary definition of the increasingly familiar term, cultural infrastructure. While social infrastructure is a better-understood concept, having received more attention from policymakers and academics, we set out several dimensions relating to cultural infrastructure that we intend to explore. We ask whether cultural infrastructure is purely a sub-set of social infrastructure or if there are particular characteristics that distinguish it from its social counterpart? Should we adopt a definition of cultural infrastructure that leans upon assumptions about the particular value of artistic or 'high' cultural activities, like opera or art galleries, or do we take a more expansive view and seek to understand how a broader conception of cultural infrastructure might help the attainment of such policy goals as social cohesion, pride in place and a sense of belonging, as well as contributing to the shaping of future communities? We also consider whether the scope of cultural infrastructure should consist only of those places where culture is consumed, or whether it should also include those places where culture is produced.

1.1. Why infrastructure?

Infrastructure is indispensable both for economic growth and for people's quality of life. Without the traditional physical assets that make up the foundational types of infrastructures, such as energy networks, transport, water, waste treatment, and communications, there is no modern economy or society.

Similarly, it is increasingly recognised that the economy will not prosper without adequate social provision in fields like health, or the cultural infrastructure required for the flow of ideas in a knowledge-based economy.

Even conventional 'hard' infrastructures, such as roads or railways are in any case socially- and culturally-determined. For instance, the operation of an electricity network is not simply an engineering challenge; many societies do not have the institutional or social frameworks to use the 19th and 20th century technologies involved to deliver a reliable energy supply.

As part of the development of an enriched understanding of infrastructure, we seek to challenge this binary division between 'hard' and 'soft' kinds of infrastructure and the implicit hierarchical approach inherent in these terms, and instead look to develop a language and terminology that more accurately reflects the societal and economic contributions made by all assets that display the characteristics of infrastructure.

Despite the importance of infrastructure to the modern world, there is a striking paucity of data and a lack of definitive evidence on how the availability and quality of infrastructure affects living standards and growth.

Some data, particularly on physical stocks, is included in national accounts and the World Bank database. A number of interesting datasets have been constructed by researchers, for example on the historic evolution of railways in Sub-Saharan Africa (Jedwab & Storeygard 2019) or India during the British Raj (Donaldson 2018). Closer to home, research has shown the impact that the 'Beeching Axe' of unprofitable railway lines had on rural areas and peripheral towns. (Gibbons et al, 2018)

Some newer types of statistics are now becoming available, such as satellite images of built structures (Donaldson & Storeygard 2016) or data on mobile networks (Bahia et al 2019). Still, the picture is dramatically incomplete. Little is known about the impact of innovations such as data compression or better software on physical assets; about the availability of social and cultural infrastructure in different localities; or about the extent to which different types of tangible and intangible infrastructures either complement or substitute for each other.

There is also surprisingly little empirical evidence on the relationship between infrastructure and economic growth, or productivity. Doubt about its importance was triggered by Robert Fogel's famous (1964) assessment that US railroads made only a small difference to 19th century economic growth in aggregate. Yet the cliometric tradition based on growth accounting which Fogel's study launched, runs counter to the bulk of non-quantitative evidence from the time, such as the ample contemporary documentation, on the dramatic consequences of these infrastructures. As such, the approach has been hotly debated. However, the counterfactual makes a big difference to such empirical assessments. Fogel's counterfactual was that resources and goods would continue to have been transported by canals and roads, with the implicit assumption that the initial allocation of factors of production was efficient. Yet Hornbeck & Rotemberg (2019) show that the rail network not only altered the scope of markets but also enabled a more efficient allocation of capital and labour. Infrastructure can bring about structural economic reallocation as well as embedding new technologies with qualitative consequences, thus changing input costs and output prices.

More recent surveys of the link between infrastructure and growth, typically based on cross-country regressions, find a generally positive relationship, while noting the simultaneity of the relationship, as more affluent societies can afford to invest more (Romp & de Haan 2007). A more cautious assessment is that the macro evidence is inconclusive (Välilä 2020). Yet standard econometric approaches omit spillovers, which are a key feature of infrastructure (Agénor and Moreno-Dodson 2006).

Introducing the role of spillovers highlights the role that social infrastructure plays as a complement to more conventional infrastructural elements, yet despite its increasingly acknowledged importance, there is little direct evidence available on the impact that it has on economic growth (Van Ark 2021). Legal infrastructure has been found to play a role (Leaven & Woodruff 2007, Tsintzos and Plakandaras 2020), and Agénor (2010) proposes several channels through which infrastructure can promote productivity and growth, including the particular impact of forms of social infrastructure such as health and education services on the quality of private inputs, affecting firms' choice of

technologies, operational scale, and factor mix. The extensive literature on the role of institutions in economic development encompasses core elements of social infrastructure (see Acemoglu and Robinson 2013 for a survey). The importance of the co-ordination of infrastructures and infrastructural assets is another theme that therefore emerges for this project.

One way of conceptualising this is the so-called O-Ring production function, involving a range of complementary inputs, all of which are needed to produce final output (Kremer 1993). Carlin et al (2010) for example apply a function of this form to estimate the extent to which inadequate infrastructure and institutions constrain output, finding that these variables can account significantly for productivity differences across countries. The importance of complementarities for economic growth has been under-appreciated outside the development economics literature but is clearly key to understanding the role of social and cultural infrastructure in addition to the traditional physical networks. There is a clear need for an integrated understanding of the role of all types of infrastructure in society.

Whilst not featuring as a theme in and of itself, the importance of infrastructure cuts across all of the issues identified in the British Academy's work on the COVID decade. Being comprised of long-lived assets, infrastructure also plays an important part in contributing to greater economic and societal resilience. Resilience has been defined as the "ability to absorb and adapt in a changing environment" (ISO 2018), and also in more evaluative ways such as, "the ability to understand and anticipate the risks – including new/emerging risks – threatening the critical functionality of the infrastructure, prepare for anticipated or unexpected disruptive events, optimally absorb/withstand their impacts, respond and recover from them, and adapt/transform the infrastructure or its operation based on lessons learned," (Jovanović et al 2020).

Resilient infrastructure also forms part of Goal Nine of the Sustainable Development Goals, which states that "a functioning and resilient infrastructure is the foundation of every successful economy". In the UK, the National Infrastructure Commission's recent *Anticipate, React, Recover* report presented a framework for testing resilience across the UK's energy, water, digital, road and rail infrastructures (NIC 2020). And it is important to note that resilience is a system property, not a feature of a single infrastructure component (Gallego-Lopez and Essex 2016).

Towards a definition of measurement

If infrastructure is so important to modern societies, why is it so poorly measured? Some of the reasons that we explore in the following section include its amorphousness, interconnectedness, and partial invisibility; other contributing factors include its geographic specificity, and the time taken for measurable outcomes to be observed – all ideas familiar from the British Academy's framing of *Place, Scale,* and *Time*. (British Academy 2021) Underpinning these challenges of measurement is the lack of a clear

definition of what counts as infrastructure and what does not, as well as the uneven disciplinary attention given to infrastructure in social sciences.

We believe that it is important to develop strong theoretical foundations on which to build an appropriate measurement framework and associated useful metrics. Our starting point is the economic definition of infrastructure because this is where the theory is most developed (see box).

Economic characteristics of infrastructure
In terms of supply, they are ***long-lived assets*** expected to be of use for many years and sometimes involving a high upfront cost of investment.
They are ***non-rival*** (up to the scale where congestion occurs), and their ***marginal costs of supply*** are low relative to fixed costs.
They provide ***generic capital services*** that can be used as inputs into a wide range of other activities.
On the demand side, demand for their use is ***derived***, with their economic value created by downstream activities that require them as inputs.
Relatedly, as they involve ***spillovers or externalities*** (often due to network effects), there will be non-linearities in demand when ***tipping points*** are reached.

Following and expanding Frischmann (2012)

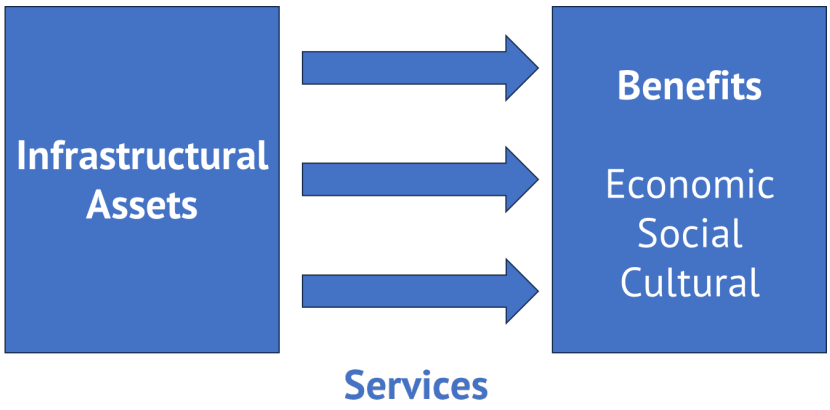
As a result of these characteristics, there is often a legal and/or social obligation to provide universal and non-discriminatory access at a minimum service level. This universal service obligation requirement is most often applied to traditional forms of physical infrastructure – the large-scale physical systems such as transport, communications or electricity networks. However, given the strong evidence of their growing importance in the economy other assets, such as intangible assets, and in particular data and digital public infrastructure (Coyle, Deshmukh & Diepeveen 2023), are increasingly being included in the broadening definition of infrastructure. (Coyle, Deshmukh & Diepeveen 2023)

Discourse in the policy world has also increasingly included social infrastructure. Social sectors such as healthcare, education, justice, have significant externalities and hence their provision is generally in large part organised, regulated and/or provided by the state (Coyle 2020). Following Fransen et al (2018), Corrado, Hulten & Sichel (2005) and Corrado, O'Mahony & Samek (2021), this definition of social infrastructure includes both tangible assets, such as hospital buildings, MRI scanners, ambulance fleets, research or diagnostic laboratories, and intangible ones, such as research and development, health software, management capabilities and other organisationally-embedded knowledge. Some other definitions focus on the built environment of publicly-accessible places where people can come together (Klinenberg 2018), whilst others draw attention to the informal spaces and places where social capital is often generated (GLA 2015, Kelsey & Kenny 2021).

These reflections lead us towards a more capacious definition of infrastructure, including this broader collection of asset classes. A related topic on which this research aims to

shed light is whether those co-ordinating features that connect infrastructural assets together, encompassing everything from laws and regulations to the more intangible 'ways that things are done,' should also be included in such a definition.

However it is defined, there are direct and indirect channels through which infrastructure can influence economic and societal outcomes. The capital services provided by infrastructure are a direct and indirect input into a wide range of activities both economic – raising productivity – and social – contributing to strong and inclusive communities.



But too little is known systematically about:

- What infrastructure is there and what is its quality?
- Who can access it and where? – how far are we from Universal Basic Infrastructure (Coyle, Erker & Westwood 2023)?
- How should different types of infrastructure be categorised?
- Do different types of infrastructure complement or substitute for each other when considered as part of the nation's portfolio of inclusive wealth?
- Is the scope of the infrastructure needed for growth expanding as the structure of the economy shifts towards intangibles and knowledge, characterised by multiple spillovers and extensive non-rivalry?

It is through developing an approach to measuring social and cultural infrastructure that we intend to develop a measurement framework that starts to address questions such as these.

1.2. Questions of measurement

Measurement is the activity of representing a phenomenon by assigning numerical values to its different manifestations in a way that enables comparison, interpretation, and subsequent action.

Measurement always requires potentially arbitrary boundaries being drawn that enable practical and usable quantifications; in other words, decisions need to be made about what is included, and, just as importantly, what is excluded. The more complex a concept is, the harder it is to justify specific boundaries and yet in some ways the more necessary

they are. Without these boundaries and an understanding of the different dimensions present, complex concepts may be placed in the 'too hard to measure' box, or reduced to an overly simplistic measure that fails to reflect the inherent complexity. Some metrics are much better than others at capturing complexity, so the exercise of developing metrics is worthwhile.

So far in this report, we have described how infrastructure in general, and social and cultural infrastructure in particular, are relatively under-studied and as a result, are poorly measured and understood, in part because of the difficulties of defining and characterising infrastructure. Here we build on ideas in the philosophy of science and metrology – the science of measurement – to unpack these considerations further.

Philosophers use the term 'thick concept' to denote concepts that have a special complexity due to being both descriptive and evaluative. That is, rather than just being a descriptive term (such as water) or an evaluative term (such as good), these concepts are both. Infrastructure is a thick concept in that it picks out the enabling conditions of valuable activities, which does not exclude the possibility that infrastructure can also be oppressive. But, as set out in the previous sections, because these activities are many and because they relate to each other in unexpected ways, in addition to being a thick concept, infrastructure has further features that raise distinct challenges to measurement – amorphousness; interconnectedness; and partial invisibility.

Amorphousness

The boundaries of infrastructure, and between different typologies of infrastructure, are not sharply defined. The characteristics set out in the previous section apply in varying degrees to different types of assets and can change across time and with use. This is especially true if we include those institutions or practices that contribute to the quality of life and/or productivity. Functioning laws, regulations, and implicit norms are certainly essential, but are they properly infrastructure? The same goes for the geopolitical or climate stability that undergirds all societies.

The definitional challenge is to hit the right balance between being too restrictive and too open. Different fields of research resolve this challenge in their own ways. As set out in the previous section, economists draw the line by reference to specific economic characteristics, whereas anthropologists see infrastructure as "the arteries of our contemporary world" that "offer exciting insights into the processes that make up social life." (Knox & Gambino, 2023) Since one of the goals of this project is to define a distinct category of social and cultural infrastructure, we shall face this dilemma too.

Boundaries can only be set if we are clear-eyed and specific about the goals of the exercise. If the goal is to create the knowledge base for policy-making and advocacy concerned with place-based inequalities, then there will be certain constraints – legal, political, geographical – that we will have to take for granted, and thus the parameters of our task will determine how we draw the boundaries around infrastructure.

Interconnectedness

Another challenge is interconnectedness. Infrastructures are made up of a range of different infrastructural assets, each of which depends on each other. Whilst this creates opportunities for scaling and substitution, it also raises the risks of unintended consequences, where removing one part, say transport links, makes another, such as a hospital, less usable or valuable. The lesson for measurement is that you cannot represent the whole by only representing its parts. Relations and connections between parts matter too. Therefore, as well as counting infrastructural assets, like libraries, museums, community centres and concert halls, it is important to understand the things that connect, regulate, and provision them.

As well as challenging the dichotomy between 'hard' and 'soft' infrastructure, as set out in the previous section, we also intend to explore how new conceptual tools focusing on networks and flows can more effectively describe these connections between different types of infrastructure and infrastructural assets.

Partial invisibility

Finally, we have the challenge of partial invisibility. It is partial because the common perception of infrastructure, even in its social and cultural modes, is of something very much visible and tangible, like a museum, a library, or a musical competition. But there is more to infrastructure than meets the eye, even going beyond the notion of institutions such as the law as infrastructure. After all there are many ways of running a museum and museums differ tremendously in whether communities feel they own them. This aspect of infrastructure is understood particularly well by researchers from ethnographic traditions who are committed to exploring, "A relational view of infrastructure as a continuous coordinated networking of social organization, moral order, and interweaving layers of technical integration." (Niewohner 2015, page 2)

In this tradition, infrastructure is not something the government or private sector provides, but rather a web of choices by users of systems that builds up certain practices, naturalises them, sediments them, so making them less revisable. For example, any welfare, health, or education system needs to classify people, problems, and information as they come in (Bowker and Star 1999). Each step is a moral choice but once embedded in infrastructure, it becomes a technical choice and as such has the power to alienate and control its users and stakeholders. Hence, the necessity of understanding the underpinning normative presuppositions of those developing measures of social and cultural infrastructure.

Invisibility is also a function of the temporal scale. The 'things' of infrastructure may be readily visible, say a library. But less visible is its quality, its connection to other 'things', and its downstream effects over time on the community which uses it. Invisibility motivates this project's ambition to move beyond the enumerative approach to defining and measuring social and cultural infrastructure. It is not the number of museums or libraries that need counting, but their special ability to be welcoming, inspiring, and safe.

We intend to research these varieties of infrastructural invisibility so that the measures of these systems are either enriched or else shown to be incomplete in specific ways.

Overcoming challenges to measurement

Amorphousness, interconnectedness, and partial invisibility may look like impossible obstacles to measurement. And it is true that they challenge the conventional idea of well-behaved metrics. But so do many other thick concepts, and our plan at this definitional stage of research is to err on the side of richness and complexity. If social and cultural infrastructure cannot be represented on a scale, then we will have to update what measurement means to fit this object.

A starting point for this work are the several different frameworks related to cultural and social infrastructure that already exist. Some of these measure 'things', some measure networks of 'things', some measure outcomes associated with 'things', and some measure a combination of all three. Some of the most familiar frameworks are set out in the table below.

Index	Geographical coverage and scale	Scoring scale	Sub-categories	Key data sources	Moral / philosophical underpinning
Social Fabric Index (Onward)	**United Kingdom** Local Authority Districts	1 – 10	Relationships, Economic value, Positive norms, Civic institutions, Physical infrastructure	Used over 50 different publicly available data sources	One Nation Conservatism, communitarianism
Life in the UK 2023 (Carnegie UK Trust)	**United Kingdom** NUTS-1 Regions	0 – 100	Social wellbeing, Economic wellbeing, Environmental wellbeing, Democratic wellbeing	Based on survey of over 6,900 people conducted by Ipsos.	Sustainable development, Collective wellbeing
Broken Britain (The New Britain Project)	**England** Lower Tier Local Authorities	Local authority ranking	Healthcare emergency, Forgotten generation, Crumbling communities	18 key indicators, mostly national statistics.	Social democracy
Place Satisfaction Index (Demos & Legal and General)	**Great Britain** Parliamentary constituency	-100 – +100	Housing, Jobs, Communities, Shopping, Going out, Fresh air, Exercise, Transport, Internet access	Survey of over 20,000 people commissioned by Demos.	Everyday democracy, radical centrism
Thriving Places Index (Centre for Thriving Places)	**England** Local Authority Districts	1 – 10	Local conditions, Equality, Sustainability	Data collected from 'established national data agencies' such as ONS.	Sustainable development; wellbeing economy
Community Needs Index (Local Trust & Oxford Consultants for Social Inclusion)	**England** Local council wards	Identification of 'left behind places'	Civic assets, Connectedness, Active and engaged community	Publicly available data from government agencies and third-party surveys.	Social capital, communitarianism

Index	Geographical coverage and scale	Scoring scale	Sub-categories	Key data sources	Moral / philosophical underpinning
Civic Strength Index (Greater London Authority & The Young Foundation)	**London** Local council wards	0 – 100	Relationships and social capital, Democratic engagement, Public and social infrastructure	Data collected from a variety of sources such as the Charity Commission, 360Giving and the Community Life Survey	Social capital, communitarianism

Several features of these studies deserve further comment. Each framework operates on a different geography, with some covering the United Kingdom, and others focussing on some combination of its constituent countries. The frameworks then all sub-divide these geographies differently, with some using parliamentary constituencies as their scale of measurement, and others focusing on local authority wards or local authority districts. Equally the ways in which numerical measures are applied to these units also varies, with scoring scales ranging from – 100 to + 100 to 1 to 10. The data that has been used to populate the measures also differs across frameworks, with some drawing on existing sources of data and others using bespoke survey data. The categories in which these measures have been grouped also differ across all of the frameworks.

All of these differences in existing measurement frameworks highlight the fact that the normative perspective of researchers invariably play a role in their decisions about which connections between different elements of infrastructure should be centred and emphasised. An analysis of these existing measures could identify data sources, methodologies for measurement, ways of presentation, and the underpinning normative framings and preconceptions and biases – either conscious or unconscious – associated with each measure.

A further analysis could focus on individual asset types – village halls, pubs, religious establishments as possible examples – that form part of social and cultural infrastructure, to understand how value has been assigned to these different types of assets and in particular what sort of data, qualitative or quantitative, is required. What is being measured, and the boundaries that are being drawn to construct those measures, will reflect the political and normative views of those making these decisions on both the present and also the view of the future inherent in all infrastructure. For example, depending on whether the primary focus is social cohesion or creativity, researchers would foreground a village pub or an art studio.

The key to addressing all three of the challenges outlined above, is to be clear on the context of use of the measures we are exploring. Depending on the role the measures will play, different solutions and trade-offs will make sense. The key here, we believe, is to be clear and open about the trade-offs that need to be made when designing and implementing measures. As the Moral / Philosophical Underpinning column in our table of indices above shows, different measures are linked to different political outlooks and traditions. The value-ladenness of existing measures of infrastructure usually stays under the radar and needs more clarity and systematicity.

As we have set out, infrastructure, in both its broadest sense, and with reference to social and cultural infrastructure in particular, plays an important role in supporting the ability of individuals and the communities in which they live to flourish. One notion in particular can serve as a good starting point for capturing the diverse values invested in infrastructure – the capabilities. Capabilities refer to various positive freedoms people have (Robeyns, 2016) and these may include anything from being able to start a business, to political representation, to ability to form social connections. Different capabilities are enabled (or harmed) by different bundles of infrastructure. When describing infrastructure, capabilities may serve as a useful unifying framework – a good survey of infrastructure is that which captures the enabling conditions for the relevant set of capabilities. What this relevant set is must remain a political decision and must depend on context of inquiry. We do not have a special insight into how it should be made. But it makes sense to start by asking what capabilities are supported by a given infrastructure and what further infrastructure is needed to enable more of them or to enable them better.

Whenever evidence leads us to explore a particular aspect of social and cultural infrastructure, we endeavour to perform a series of checks:

- what normative perspective or set of capabilities does this element encode and whether this connection is accidental or intended and justified.
- Is this element of infrastructure responsive to change via intentional policy-making?
- What is the network of relations in which this element is a node?

It is by exploring the boundaries associated with the measurement of social and cultural infrastructure and the often-hidden value judgements that mean that all seemingly objective measures contain a degree of subjectivity, that we will be able to move towards a more robust and reflexive robust measurement framework.

1.3. Towards a definition of cultural infrastructure

Within the broader category of infrastructure are the concepts of social and cultural infrastructure that are the focus of this project. Our previous work has focused on the importance of social infrastructure (Kelsey & Kenny, 2021; British Academy, 2023). Indeed, this concept is one that has become increasingly used in policy debates since its appearance in the Levelling Up White Paper (2021).

The concept of 'cultural infrastructure' is perhaps less familiar. Our initial sense is that cultural infrastructure merits its own distinctive treatment alongside social infrastructure within the wider framework we are developing for the interpretation and measurement of the two categories of infrastructure. Cultural infrastructure is often treated as a specific sub-category of the facilities, places and amenities that sit within the wider compass of social infrastructure, and which can therefore be identified, measured and counted in distinct terms. And there is undoubted value in such an approach, and the analysis of

geographically rooted differences between levels and forms of cultural amenity in different places which arises from it.

But, as indicated above, it is central to our project to examine the relationships between different modes of infrastructure and explore the interactions between them, and the ways in which they are integrated (or not) in different places. We propose also to bring to bear some of the more general insights into the properties of infrastructure which are set out above, including how an understanding of the economic characteristics of infrastructure helps to set the boundaries of what could be included in definitions of social and cultural infrastructure (Frischmann 2012, British Academy 2023).

Equally, we need to be sensitive to the risks we run if we treat different kinds of cultural institution and facility *solely* or *mainly* as forms of social infrastructure. Doing so means that we may well neglect or marginalise the distinctive properties and rationales flowing from the core purposes of the cultural entity in question. Museums (as we are arguing in a separate, forthcoming report) may well share some of the same functions and generate similar social goods to other forms of social infrastructure such as libraries and community centres, but treating them solely as social infrastructure means that we neglect the very distinctive kinds of 'use value' which they promote, in particular the unique place which they occupy within the wider cultural landscape, and their crucial public role as sources of stories and arguments about nation, community, place and forms of collective identity.

Certainly, drawing tight or precise boundaries around which pieces of infrastructure count as 'cultural', and which do not, is an inherently fraught and contestable enterprise. While including museums, cinemas and art galleries in such an exercise would be uncontentious, what about those many other types of facility, space and building that are designed around the pursuit of purposes in such neighbouring fields as leisure, sport, civil association and religion, and which are clearly also highly significant (to their users and others) for the production, negotiation, circulation and contestation of cultural meanings. Should they also be included in headcounts of those pieces of infrastructure that create the conditions for, and support, culturally rooted forms of creativity? And who should be the arbiter in adjudicating on this question? Should the views of local communities, for instance, on which are the most important forms of cultural infrastructure in their own place, count more highly than they currently do in making such determinations?

The fuzzy boundaries that sit around the category of 'the cultural', when it is applied to specific entities in this way, are unavoidable, and are better acknowledged than wished away. One of the key issues that we will be exploring through this project is the often-unacknowledged tension between the need for arbitrary boundaries being drawn for purposes of quantification in any measurement framework and the inherent difficulties in establishing hard and fast boundaries, particularly around such thick concepts as infrastructure. Analysts seeking to understand and measure the contours of the cultural

infrastructure of an area need to be transparent about the assumptions behind choices that are made around inclusion and exclusion, and ready and willing to justify and argue for these. And central to this is the question of how culture itself is defined and bounded.

What is culture?

The question of what counts as 'culture' in modern societies is one of the pre-eminent, and most strongly disputed, themes across the fields of knowledge contained within the academic disciplines gathered under the headings of the Humanities and Social Sciences. We lack the space here to do much more than identify our own broad orientation within these well-trodden intellectual paths and draw from it some implications for our own examination of cultural infrastructure.

Cultural theorist Raymond Williams advanced a widely cited distinction in his writing between two distinct understandings of culture. On the one hand, he talked about a sense of culture as "a whole way of life – the common meanings," and, elsewhere, delineated culture in terms of "the arts and learning – the special processes of discovery and creative effort" (Williams, 1989, p.3-14). While these two ideas are not necessarily incompatible, each of these definitions underpins a different understanding of the scope and nature of 'the cultural', and points towards different notions of cultural infrastructure. The latter, more closely defined sense, is the most dominant notion amongst cultural policy-makers, with 'culture' typically considered in relation to the arts and heritage 'sectors' of the economy (DCMS, 2016). We believe, however, that there is more analytical value, and policy benefit, in trying to engage with his more expansive, first understanding. This leads us towards a broader and more situational conception of cultural infrastructure, which as well as including the elements included in the 'narrower' definition of culture, also includes the resources, networks and spaces which are integral to the cultural lives of communities and places.

Such an approach steers away from the bias towards a privileged set of artistic and 'high' cultural forms and mediums, which has long been an object of criticism in relation to arts funding and provision and encourages the recognition that a much wider range of spaces and places are integral to the cultural lives of communities and the creative potential of its members. And it enables us to engage with long established debates about the role played by cultural sites and spaces in relation to the key social and policy objectives associated with belonging, community cohesion and cross-community engagement. Exploring the impact of different kinds of cultural infrastructure in relation to these goals requires an examination of the histories and make-up of particular places and communities. This is a focus that we would like to explore in more depth in the case study pilots which may come after this initial project.

A few observations about these potential relationships are worth registering at the outset. First, a good deal of the extant literature on the cultural infrastructure required for cities to flourish in economic terms, is insensitive to the social and cultural divides which prevail among their residents. There is a real imperative to conceptualise cultural infrastructure in more socially and culturally nuanced terms - whose 'culture' and whose 'meanings' are authorised and afforded greatest priority within the cultural economy of different places is a key issue which needs to be more fully explored. Equally, the question of which kinds of institutions, gatherings and practices are deemed to count as germane to the cultural life of a community, necessarily requires an analytical lens which has ethno-cultural diversity, social class and geographically rooted inequality as its compass. Would for instance a local football club, which may create a sense of community and cultural connection, count as cultural infrastructure? These are issues which we plan to make prominent within our discussion of the character and future of cultural – and social – infrastructure in the UK context.

How do these initial reflections map onto some of the emerging usages of the term 'cultural infrastructure', and how might policy-makers most fruitfully and meaningfully employ this category in their own thinking and planning?

In recent years there has been an increase in the use of the term 'cultural infrastructure' by policy-makers in the UK and internationally, as the concept has been appropriated by a number of policy stakeholders and governing authorities keen to demonstrate that they take cultural provision seriously and are willing to think strategically about their cultural assets.

A number of reports produced by public bodies focused on cultural infrastructure have tended to claim a wide set of economic and cultural benefits as justification for the investment or interventions they propose. Thus, the Greater London Authority argues that "London's cultural infrastructure help strengthen local identities and bring communities together, provide for cultural and creative business and employment, visitor destinations for tourism, and places where Londoners can take part in cultural activity." (Mayor of London, 2019, p.16)

In October 2023 the British Labour Party made a headline commitment to develop a National Cultural Infrastructure Plan, should it win the next general election – an objective that appears to be closely modelled upon the GLA's plan (Seymour, 2013). Internationally, a number of city and regional authorities -- including Amsterdam and New South Wales -- have set themselves the task of mapping the key sites of cultural "production" within their borders (City of Amsterdam, 2022; Create NSW, 2023).

That it is city-level authorities that have often taken the lead in this area testifies to the influence of figures like Richard Florida (2002) and Charles Landry (2000), who have stressed the value and impact of cultural creativity upon the economic prospects of cities. On this view, cultural infrastructure is defined in terms of its contribution to various forms

of entrepreneurship and artistic creativity, with the boundaries of 'the cultural' drawn fairly narrowly around practices and sites typically associated with bohemian, artistic endeavour, such as art exhibitions, studios, theatres, museums and music venues that contribute to a place's cultural life and are integral, as Glaeser (2011) argues, to the prosperity of cities. Studies in this vein reflect an ingrained bias towards large urban centres and seek to express the value of the creative activities in terms of a city's overall competitiveness in the global market economy – an assumption which requires critical re-evaluation in the context of the marked urban-rural political divide apparent in many western countries.

This 'creative economy' position stands in some contrast to the approach taken by those researchers and commentators who have sought to evoke the potential value of cultural infrastructure in relation to other social goods, such as civic pride, social cohesion and/or individual wellbeing (see Jeannotte, 2008). This is an emergent focus in research terms, and the literature attracted to this topic as yet lacks the breadth and depth found in the more extensive treatment of 'social infrastructure'.

Two notable debates figure in these studies. One concerns whether the concentration upon sites and places of cultural consumption should be supplemented by a broader focus upon where culture is produced. (Bingham-Hall and Kaasa, 2017) Consumption will sometimes happen in the same space where it is produced - for example in theatres or music venues - but if consumption is also included within the framework of analysis, then a much wider array of sites and spaces -- including the most personal and intimate, such as the home and the mobile phone and associated digital platforms – come into view. Equally, considering sites of cultural production also opens up a range of different spaces, including artists' studios, workshops and theatrical wardrobes, other spaces such as cafés that are often the sites of cultural production for freelance or digital producers, as well as sites distant in space and time as demonstrated, for example, by the collections of many museums.

There are also debates over whether the term cultural infrastructure should be used to reference physically bounded places and spaces where culture is produced and consumed, or whether it should also incorporate underpinning forms of 'soft infrastructure' such as those social and governance relationships (including planning laws) that undergird and regulate the physical infrastructure and amenities where culture is created and consumed (Jeannotte, 2008; Bryson, 2017). A definition that pushes in this direction may well help us appreciate the integral importance of the legal and institutional 'plumbing' - what Deb Chachra calls the "ultrastructure of collective decision-making" - that makes cultural life possible, but also makes issues of definition – and quantification –more complicated. (Chachra, 2023, p89)

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