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THE IMPACT OF SPACE SYNTAX ON URBAN POLICY MAKING:

Linking research into UK policy

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ABSTRACT

Space syntax as a discipline has important potential to influence urban policy making in a number of different fields, ranging from economic development to crime, urban sustainability and health. However, relatively few urban policy makers are aware of the potential of the discipline to both help diagnose urban problems, and to offer practical responses. Where space syntax policy does have influence, it is usually in the narrower context of specific urban design solutions in cities. This paper looks at the potential for space syntax to influence a wider set of policy fields, while considering what might need to be done within the discipline itself to make it more 'policy facing' – both by producing more robust evidence that is inter-disciplinary and timely, and by conducting follow-up impact evaluation, where space syntax-based recommendations have been applied in practice.

The UK is used as a case study for this research. Recent devolution to city government in this country has generated a need for new mayors and city authorities to develop ambitious, evidence-based and spatially-grounded strategies for future growth. There is significant appetite from national government officials, as well as elected city leaders and senior council officers, to think about the long-term future of the largest UK cities and to better understand their interrelationships with their surrounding city regions. However, initial discussions with policy makers reveal that in order for space syntax methodologies to contribute further to urban policy making, a series of challenges must be addressed including: 1) a lack of clear messages and user-friendly literature setting out the rationale behind space syntax, and bringing together an evidence base linking the spatial configurations of cities with priority policy issues such as crime, poverty, economic development, health and environmental sustainability and; 2) a lack of evidence on the impact of space syntax interventions on the ground, with a dearth of long-term evaluation.

While the first of these issues is arguably a practical question of 'translation' (which could be addressed, for example, through the development of policy briefs), the second issue presents a more important challenge to the academic discipline of space syntax itself. In particular, how can the discipline become more effective at using research techniques that policy makers value

(e.g. regression analysis, meta-evaluations and cost-benefit analyses) and at documenting and analysing the impact of space syntax interventions?

KEYWORDS

Space syntax, evidence, devolution, policy, cities

1. INTRODUCTION

Since its development in the late 1970s, space syntax as a discipline has developed through both academic theoretical exploration, and through the practical testing of theories in ‘real world’ design problems through architectural projects. Its methodologies have therefore influenced practical design applications within architecture and planning. However, contact between space syntax and the broader urban policy world has been more limited. Given that space syntax reveals how spatial factors underlie urban policy areas – economic development, social inclusion, environmental policy, crime prevention, health and many others - it arguably has potential for wider influence on policy makers, beyond the context of urban design projects.

This paper looks at the potential for space syntax to influence a wider set of policy fields, while considering what might need to be done within the discipline itself to make it more ‘policy facing’ – in terms of producing robust evidence, that is inter-disciplinary and timely, and that also includes follow up impact evaluations of where recommendations born from space syntax have been applied in practice.

While there is a potential for space syntax to have greater policy impact on an international scale, the UK is used as a case study for this research. In this country, cities are gaining new, devolved powers from national government, creating increased interest from central government officials, council officers, local authority leaders (and future ‘metro’ mayors) in developing long-term urban strategies. Space syntax theories, methods and tools could influence these new UK policy audiences.

Initial conversations with UK policy makers have explored the way in which research influences policy beyond a spatial context, drawing in lessons that are applicable to space syntax. These conversations suggest that work is needed to increase the policy reach of space syntax and to ensure its research is policy-friendly. There is a lack of non-specialist literature, or papers available to audiences outside academia, exploring the rationale behind space syntax and its relevance to particular policy domains. The space syntax evidence base is also fragmented, and has not been synthesised for policy dissemination. Nor is there long-term evaluation for many urban design projects informed by space syntax, with a shortage of locally-relevant impact evidence. The latter is a particular problem, as policy makers seek reassurance before embarking on policy interventions through both quantitative evidence – changes to indicators over time (e.g. health statistics, crime rates, economic deprivation indices) – and qualitative case studies.

While arguably a number of these problems can be resolved through better ‘translating’ and consolidating the findings of the international space syntax academic community for a policy audience (through for example preparation of policy briefs), the above concerns also represent a challenge to the academic community itself. In particular, there may be a need for space syntax researchers to build ‘credibility’ with urban policy makers through more consistent use of research tools that are widely accepted in the policy community (such as multiple regression analyses and meta-analyses of literature); and making reference to other methodologies that the policy makers already finds credible (such as transport modelling). There is also a particular need for impact evaluations and international case studies that will help policy makers to understand the potential impact of space syntax informed interventions.

In order to further explore these issues, this article is divided into four sections: defining the problem – identifying where space syntax currently has policy influence, and where it does not; defining the opportunity for research in relation to policy making; reviewing space syntax evidence and potential influence in three policy areas (crime, health and social inclusion); and

recommending how the space syntax academic community might evolve towards becoming more policy facing in the future.

2. DEFINING THE PROBLEM

As a discipline, space syntax currently has most policy influence in relation to the planning and design of the built environment, particularly in the UK and on large urban projects internationally. The official submission to the UK's national Research Excellence Framework (REF), for example, primarily demonstrates the impact of space syntax through case studies on urban master planning and UK public spaces (REF, 2014).

Outside planning and urban design, space syntax has been less consistently influential on broader strategic policy development, city-level strategies, economic policies, inclusion/inclusive growth, health, crime or environmental policies. Despite the insistence of space syntax on the importance of linking parts of cities to the wider picture wholes, its influence is often piecemeal. Space Syntax Ltd. for example (a University College London spin-out company) has undertaken more than 1000 consultancy projects globally since it was founded in 1989. However, it tends to be consulted at project level, with the wider picture beyond the influence of a single project. Despite the size of the Space Syntax Ltd project archive, investigation has revealed limited evidence of direct policy influence via the many projects it has undertaken. Space syntax as an academic discipline has also traditionally been stronger in diagnosing spatial causes rather than demonstrating solutions. This does not automatically translate into policy impact, and the reasons for this are examined below.

3. WHERE IS THERE POTENTIAL FOR SPACE SYNTAX TO FURTHER INFLUENCE POLICY?

Spatial factors are integral to most urban policy areas. In all the fields discussed below, urban policy makers could arguably benefit from a clearer picture of how the built environment creates patterns of accessibility in cities, and how accessibility influences movement, and hence social and economic activity. Policy potential and challenges are summarised for a number of different sectors below, while this is followed by a more in-depth review of the literature for three policy areas: crime, health, and social inclusion. The list of policy areas is illustrative, not exhaustive, and indeed the potential for space syntax to influence policy will of course increase as the academic discipline itself evolves.

One area where space syntax could have a greater policy influence is economic development. For example, space syntax can show where economic development is more likely, revealing how economic and social activities tend to develop according to patterns of movement. Urban planners increasingly see the importance of mixing residential and commercial uses to create vibrant communities, and recognise that a polycentric distribution of economic activities, services and amenities across a city can promote greater social inclusion. For example, the Portland Development Corporation in Oregon, USA has made the development of 'complete neighbourhoods' central to their city strategy – areas where residents have safe and convenient access to essential goods and services, transport, connections to employment centres, community and open spaces within a 20 minute walk (Green et al., 2016). However, urban policy makers are not always aware of the role of the spatial configuration of the underlying street network in making such forms of 'pervasive centrality' possible. Space syntax can also help in the assessment of economic growth potential at the national scale through, for example, analysing the connectedness of places within the urban system (GO for Science, 2016). Serra et al. (2015), for example, find clear statistical associations at the scale of the entire UK between network structure, vehicular movement and the spatial distribution of several socio-economic variables, including productivity, affluence and employment. Such research could help in planning new housing, through revealing the areas of cities where accessibility to economic opportunity would suggest that housing density could be increased (GO for Science, 2016).

Space syntax analysis can also inform the policy drive to create more sustainable forms of urban living in tackling climate change. Hillier (2009) suggests that the generic spatial form of self-organised cities may minimise the movement needed to get from one part of the city to

the next, creating “naturally sustainable forms relating economic and social activity to space in a way which minimizes travel distances.” Such ideas may inform future investment in housing and infrastructure, reducing the development of car-dependent urban forms.

Space syntax analysis routinely identifies areas of cities that are more segregated, and less connected to urban movement flows, which urban policy makers could take into account when planning public transport investment. This is not a straightforward process – public transport networks tend to follow already accessible routes (see Scheurer and Curtis, 2008; Vieira and Medeiros, 2012) and Bertaud (2004) points out that it can be difficult to bring public transport to less dense areas of the city, with too few passengers to be cost-efficient – but space syntax could help to better inform the debate.

Space syntax analysis may also help to guide urban regeneration projects, shedding light on the reasons that some physical regeneration schemes are more successful than others. In particular, a focus on how space is organised between buildings may be more important than changing the aesthetics of the buildings themselves. Space syntax also suggests that any local intervention should be complemented by looking at how more deprived areas are linked into the broader city. This means that urban regeneration needs to be carried out as part of more comprehensive city level strategies, which for example also promote accessibility to employment and education across the city as a whole.

Given that space syntax reveals spatial issues arising from the built environment, it is often assumed that its only impact can be through changes to this built environment. However, this is not necessarily the case. Major redevelopment is not the only tool available to policy makers. Funding for capital investment is limited, and Bertaud (2002) points out that changes to the underlying street structure of cities are relatively rare, with a strong degree of path dependency associated with city spatial configurations. However, by recognising how spatial dimensions influence city phenomena, policy makers may be better placed to counteract or compensate for spatial effects, perhaps using non-spatial solutions. One example would be the employment of park wardens, for example, to increase surveillance in spaces that are not well-served by national surveillance from surrounding residences.

4. SPACE SYNTAX EVIDENCE AND POLICY – LITERATURE REVIEWS

Three areas where space syntax would seem to have a particular potential to influence urban policy making are crime and safety; health and social inclusion. A summary of the evidence that might usefully inform urban policy is included for each area below.

4.1 CRIME AND SAFETY

There are two competing schools of thought on how urban design influences crime and community safety (Hillier and Sahbaz, 2009, 2012): ‘new urbanism’, influenced by Jacobs, who felt that open and permeable mixed use environments were the safest (1961); and that of Newman, who developed a concept of ‘defensible space’ (1973), arguing that through movement should be restricted so people could gain more ‘control’ over their territory.

Space syntax has shown that both these perspectives have their strengths and weaknesses, with the relationship between crime and urban morphology complex and subtle. Evidence for policy makers has been sporadic and inconclusive (Hillier and Sahbaz, 2009), with the situation complicated by the many different types of crime, likely to take place in different urban environments. A breakthrough came in 2009 when a large-scale, multivariate space syntax study of crime in a London borough, provided detailed findings that could be particularly helpful to policy makers (Hillier and Sahbaz, 2009, 2012). However, the authors acknowledge the need to follow this study up in other locations.

Some key findings emerge from the literature which could be pertinent to urban policy makers. The more neighbours on a street segment, regardless of street type, the safer you are according to Hillier and Shu, 2000; Hillier and Sahbaz, 2009; Hillier and Sahbaz, 2012. The existence of a local ‘virtual community’ of people who regularly use the same spaces (Hillier, 1999) appears

to be important in reducing crime risk. Dwelling type is a critical factor in vulnerability to residential burglary, with flats being the safest type of residence, and detached houses the least (Hillier and Sahbaz, 2009). Street robbery and violent crime occur more in busy city streets and in their adjacent streets (Hillier and Sahbaz, 2009; Summers and Johnson, 2016), but for street robbery this effect varies with time of day (Hillier and Sahbaz, 2012). Mixed-use streets with few residents are particularly at risk (ibid). Local movement reduces risk, while larger-scale movement can increase it. For this reason, residential areas need to be designed to structure local movement, while managing larger-scale movement. Safer dwelling types can be used to balance 'eyes on the street' with 'eyes from the street' (Hillier, 2004; Hillier and Sahbaz, 2009, 2012).

There are 'flip over effects', however, where normally safe types of urban design become dangerous in particular contexts – for example, more integrated streets usually have lower burglary risks, but with secondary exposure through alleys or adjacent open areas, or basement access, they can become vulnerable (Hillier and Sahbaz, 2012). It is also not easy to make categorical assumptions about the relative safety of particular urban configurations. Earlier space syntax analysis found that traditional street patterns outperformed more 'modern' hierarchical layouts (Hillier, 2004). However, simple linear culs-de-sac with good visibility between dwellings, in a through-street pattern, can be very safe (Hillier, 2004, Hillier and Shu, 2000).

4.1.1 POLICY RELEVANCE

One factor which may make it easier for space syntax to have an influence in this field is that spatial vocabulary is already accepted. The 'secure by design' idea is well known, and the built environment is acknowledged to be important for crime and community safety. Ideas such as 'permeability' have been broadly picked up in policy literature, even if the complexity of the issues is not always well understood. Another enabling factor is that space syntax has produced robust large-scale studies, including multivariate and regression analysis, which helps to identify the relative importance of space syntax against other variables (e.g. Nubani and Wineman, 2005; Baran et al., 2007; Hillier and Sahbaz, 2009; Sohn et al., 2010; Hillier and Sahbaz, 2012), in addition to meta-analyses of the existing literature (Marzbali et al., 2010). One paper has completed a cost/benefit analysis (Chiaradia et al., 2009).

Similarly, it can be relatively easy for policy makers to both measure the problem and to assess the impact of proposed solutions (i.e. through a reduction in crime rates). For example, an initiative in Gosnells, Australia set the target of a 10 per cent crime reduction over three years following the use of space syntax techniques¹.

A further enabling factors is that policy responses do not necessarily need to involve investment in changing the built environment, but could include, for example, an increased focus on policing or surveillance in at-risk areas.

A barrier to policy adoption is the fact that policy makers often rely on statistical analysis of crime which shows 'hot spots', based on area analysis, rather than streets and dwelling level research, which is only accessible, anonymised, with special permissions (Hillier and Sahbaz, 2012).

A further barrier, as identified above, is the complexity of findings. Previously in the UK, Newman's ideas about defensible space dominated policy discussions, strongly informing the popular 'Secure by Design' scheme (Cozens and Hillier, 2008). Cozens and (David) Hillier (2008) bemoan the fact that the 'Crime Prevention through Environmental Design' (CPTED) approach often represents conflicting views, drawn on piecemeal by policy makers and police without reference to local circumstances or an understanding of wider connections to the city. For example, while Hillier and Sahbaz (2009, 2012) highlight the benefits of local through movement, Armitage (2011) continues to advocate its restriction, even by gating local communities.

¹ http://www.gosnells.wa.gov.au/Your_property/Community_safety/Safe_City_initiative/Designing_out_crime

4.2 HEALTH

Space syntax researchers have engaged extensively with the causes of poor public health. Wineman et al. (2012 and 2014) worked with public health authorities in Detroit, USA, to show how space syntax could help assess the contribution made by street networks to complex social problems, including levels of physical activity. Zimring et al. (2005) showed how space syntax could help address obesity levels in the USA, by designing in physical activity, as did Nicoll (2007) through building layouts.

Researchers have demonstrated the direct relationship between the spatial characteristics of street networks and pedestrian movement in locations including London (Hillier et al. 1993; Desyllas and Duxbury, 2001); Seoul, South Korea (Kim and Sohn, 2002); Greek cities (Peponis et al. 1989); Atlanta, USA (Peponis, Ross, and Rashid, 1997); Dutch cities (Read, 1999).

Space syntax measures have been applied to understanding how design can encourage walking. Baran et al. (2008) used space syntax to compare walking patterns in two USA neighbourhoods, one a conventional suburban layout and the other a more 'walkable' New Urbanist development. They showed that the more integrated routes in the latter were better used by walkers.

Research has applied this understanding to public health. Watts et al. (2015) and Sarkar et al. (2013) in Wales, have linked more walkable, connected neighbourhoods with lower cognitive decline and psychological distress - important for understanding how the built environment can help manage illnesses such as Alzheimer's. Joseph and Zimring (2007) showed how routes could be designed to enable walking in US retirement villages.

Physical activity is frequently associated with proximity to public space, but Koohsari et al. (2013) demonstrated that proximity to public open spaces did not predict use, but a more sophisticated understanding of how public spaces relate to the street network could predict public health benefits.

Space syntax has been used for many years to analyse healthcare buildings. Researchers have modelled hospital users' wayfinding, from selected hospital corridors to entire hospital complexes in Atlanta, USA (Peponis et al. 1990; Peponis et al. 1996; Haq, 1999); anonymised American cities (Haq and Zimring, 2003); virtual American hospital environments (Haq et al. 2005); and in Minnesota, USA (Lu and Bozovic-Stamenovic, 2009). Tzeng and Huang (2009) used space syntax to designing signage systems for deep hospital layouts. Alalouch and Aspinall (2007 and 2009) measured privacy in UK hospital wards spatially, revealing that patients unexpectedly prefer rooms with more surveillance. Hanson and Zako (2005) quantified links between the layout of care homes in the UK and activity among residents.

Researchers have investigated how hospital buildings can support staff (Hendrich et al., 2009; Heo et al. 2009; Cai and Zimring, 2012), showing that space syntax can predict the movement of nurses in US hospitals, providing information to design for more effective communication. Lu (2010) demonstrated the importance of visibility on the operation of nursing units. Haq and Lo's (2012) guide helps non-specialists apply space syntax to hospital layouts.

Pachilova and Sailer (2013) showed how different UK layouts affect the way that staff and patients communicate, and linked quality of care with smaller, simpler hospital campus layouts (Pachilova and Sailer, 2015). Setola (2009) showed how space syntax could be used to improve hospital circulation, increasing efficiency and reducing costs. Kim and Lee (2010) recommended hospital layout typologies most likely to deliver best whole life value.

4.2.1 POLICY RELEVANCE

Building scale findings could change hospital and care homes design, and at the urban scale, space syntax could contribute to the policy drive to improve health outcomes for an ageing population. In particular, the creation of 'walkable' healthier cities is becoming a policy priority, as tackling cognitive decline among older people (Watts et al., 2015).

The breadth of space syntax research on public health policy is both a strength and a weakness. The strongest evidence relates to the design of healthcare buildings, where substantial work

evidences the importance of spatial factors in creating the best environment for patients and staff. However, international evidence is not collated, nor is it influential beyond the countries where it was produced with senior NHS practitioners sceptical of international best practice examples (Simmons, 2015). In the UK, the NHS Health Building Notes series provides best practice design guidance for many types of hospital building and building elements. Formalised guidance is a clear opportunity to establish spatial analysis as a required feature of UK healthcare design.

Healthy urban design can also be informed by space syntax. At building scale, developers and landowners may gain commercial advantage from healthier spatial layouts, perhaps in combination with other space syntax evidence on productivity benefits for office design.

At urban and neighbourhood scale, work on more sophisticated methods of understanding green space usage would, if more widely known, be relevant to many local authorities who are facing budgetary pressures to justify the upkeep and management of parks and green spaces. Space syntax research into the spatial factors influencing distribution of poverty is historically specific, but could be more persuasive if also applied to contemporary data.

4.3 SOCIAL INCLUSION AND DEPRIVATION

4.3.1 POLICY RELEVANCE

Data available from the Office of National Statistics (ONS) provides detailed information on deprivation and ethnic mix (which by extension may be used to describe BAME residential clusters) at the level of Lower Layer Super Output Area (LSOA). While this provides a spatial overview of the distribution of deprivation etc., it misses granular phenomena i.e. the way the socio-economic character of a street may differ considerably from another adjacent to it in the network. Space syntax methods are equipped not only to analyse space at a street by street scale but also to relate social data to spatial configuration. This allows better understanding of how spatial form influences accessibility, which effects the use of space, the distribution of urban services and the economic well-being of a community – all areas of clear relevance to city leaders.

5. DEFINING THE INSTITUTIONAL CONTEXT

The UK has been chosen as a case study for this research, and in particular for an exploration of the institutional context for how space syntax findings might have more influence. Although the potential for Space Syntax to become more policy making is obviously international, the UK seems to offer particular current promise given recent devolution of new responsibilities to UK city mayors. The existence of Space Syntax Ltd., Spacelab and other spin-off consultancies also provides a potential link between academic researchers and policy makers.

5.1 WHAT IS THE URBAN POLICY CONTEXT IN THE UK?

The UK has traditionally been amongst the most centralised OECD states (Centre for Cities, 2014). However, in recent years the constitutional and policy context, particularly around cities, has moved towards decentralisation. The process, which started with City Deals in 2011, means that substantial changes continue to take place in the way the UK's metropolitan areas are run and financed. The speed and scale of change has placed the UK at the forefront of international urban policy discussion.

The recent period of decentralisation began with two 'waves' of City Deals, totalling 26 cities across the UK. Initially these provided limited devolution of powers or funding for discrete projects, without any devolution of fiscal responsibility. By 2014, these had been succeeded by a total of 39 Local Growth Deals which provided funds to Local Enterprise Partnerships for projects that benefitted the local area and economy (Department for Communities and Local Government et al. 2014).

Most recently, Devolution Deals have begun transferring powers, funding and accountability for policies and functions previously undertaken by central government. Devolution Deals have two particularly notable features: firstly, they are based on functional economic areas, causing an aggregation of local authorities into new combined authorities at city-region or 'metro' scale. Secondly, a condition of Devolution Deals was the implementation of an elected Metro-Mayor to provide accountable leadership for new responsibilities.

Each agreement is bespoke, based on local proposals and geography (NAO, 2016), and progress is difficult to track. Nor is it known how many regions will elect metro-mayors in 2017 (Elledge, 2017). While the 'deals' have commonalities, there are also substantial differences and some areas are without any sort of deal, resulting in more fragmented governance structures across geographies and policy spheres.

Alongside decentralisation there is a partial re-emergence of regional-scale strategic planning and thinking in England, undertaken by central government instead. Bodies such as the National Infrastructure Commission have already begun to think across boundaries at the regional scale in specific areas, and the Government's 'place-based' industrial strategy could enhance this trend (National Infrastructure Commission, 2016; PM's Office et al. 2017).

The overall direction has been towards decentralisation of powers; the interventions described above could create an entirely new pattern of subnational government in England, with ramifications not yet fully understood by policymakers or by academics.

5.2. HOW DOES EVIDENCE INFLUENCE UK POLICY MAKING?

As a case study, the UK provides examples of the way that evidence, such as that produced by space syntax researchers, can fit into the decision-making processes and frameworks used by policy makers. Public servants in the UK have been obliged to practice evidence-based policy-making for 20 years (Schweber et al., 2015). An evidence-based approach has been championed by successive governments, and the Coalition established What Works Centres to support evidence-based interventions in the social policy arena (Cabinet Office, 2013). Evidence-based policy has been defined as where "good evidence is put to the forefront by those designing or implementing a policy or intervention to inform the decisions that they make ... considering all of the available evidence" (The Alliance for Useful Evidence, n.d.). Cairney (2016) describes it as a "vague aspirational term, rather than a good description of the policy process."

Despite years attempting to make policy more evidence based, it is still regarded as an area of weakness by ministers and civil servants (Rutter, 2012). Rutter identifies both supply and demand issues in relation to evidence-based policy making. From the supply side, a lack of timely research and good data, as well as academics experiencing difficulty engaging in the policy process, were identified as contributory factors. Conversely, on the demand side the culture and incentives of ministers and civil servants militated "against more rigorous use of evidence and evaluation" (Rutter, 2012, p.4).

Some policy areas appear to be more open to evidence than others, perhaps making it easier for disciplines such as transport modelling or economics to achieve policy influence. Warwick (2015) notes that built environment policy-making in particular can be "messy", while Simmons observes that in relation to the built environment "expediency, emotion or ideology play a role as often as the systematic and rational application of evidence" (Simmons, 2015, p.407).

It is therefore unrealistic to expect evidence to be drawn on wholeheartedly in all policy decisions, as there are "many subjective forces [to] counterbalance objectivity", particularly where the built environment is concerned (Simmons, 2015, p.407). These forces could be caused by factors including cultural differences, ideologies, political considerations or risk aversion. In recognition of these political and subjective limitations, it may be more effective for space syntax to engage with the 'policy process' of policy formation and definition, rather than with particular policies or policy decisions (Simmons, 2015).

Discussion of evidence-based policy is strongest in relation to national government policies, and much less prominent in relation to metropolitan strategy, policy and practice. However,

the emergence of new forms of metropolitan governance and leadership in the UK are an opportunity to consider how more evidence-based approaches to policy formation and governance could be introduced at the urban scale.

6. CONCLUSIONS

This paper has assessed the scope for the discipline of space syntax to increase its policy influence, setting out ways in which the discipline could become more 'policy facing'.

There is clear potential for space syntax to influence many urban policy areas. However, translating analysis into policy will not always be straightforward. Space syntax often produces nuanced findings, which do not always create clear policy messages. Further, policy making is not a simple process, with new policy interventions often the result of trade-offs between competing priorities, including cost.

As a research methodology, space syntax has many strengths: its versatility, its cross-cultural relevance to urban form, its extensive and growing research base, and its youth as a discipline. However, space syntax also needs to address weaknesses that reduce its impact on policy. Some are common academic problems: self-contained conversations, work hidden in academic journals, a reliance on specialist language, and a lack of material designed for practical application. The space syntax community is both a strength and a weakness, with many international projects but also a lack of focus on objectives beyond them, and a failure to evaluate space-syntax based interventions. The term space syntax itself is also a barrier, implying exclusive, technical, academic and proprietary characteristics.

This paper identifies opportunities as well as problems. The UK policy landscape case study identifies new audiences with a particular interest in understanding urban dynamics in new ways and at different scales to traditional policy audiences. Simple literature reviews from the perspective of policy audiences clearly demonstrate the wide relevance of the existing research base. They highlight a research agenda for space syntax; knowledge gaps which, if filled, would contribute to the impact of space syntax on practice. There is also a clear need for evaluation of urban design projects already applying space syntax techniques, to provide persuasive, policy-focused evidence of impact.

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