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Article

Designing the Urban Smart Futures Agenda for Lancaster, UK

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Abstract: The smart city concept has garnered a lot of interest; however, it often falls short when it comes to providing clarity on the benefits it can offer. Discussing smartness in the context of cities and their inhabitants requires the involvement of a wide range of stakeholders in decision-making. Similarly, the decision-making process is often unclear and can lack integrity. For this reason, in this research, we clarify this process and establish a smart agenda for urban areas. Specifically, this study focusses on the existing research in truly smart cities (where liveability is at the heart of decision-making). The research team implemented the assessment model (SMART) during a facilitated workshop under COVID-19 restrictions. Taking societal, environmental, health, economic, and governance liveability perspectives into account, the results yielded a set of recommendations for designing the smart urban agenda, which can support cities that aspire to become smart.

Keywords: smart cities; liveability; governance; decision-making

1. Introduction

A smart city agenda is an expensive undertaking for local governance. This is likely the main reason that often only capital cities, such as London, Copenhagen, and Singapore, have the resources to develop them. However, recent research argues that cities that are considered smart do not always explicitly provide evidence for overall liveability benefits [1–3]. For example, discussions regarding smart cities can be considered innovative; yet, there is great confusion about what smart is and how it can benefit those who live in smart cities [4]. In the context of cities, Jong et al. [5] explored smart as a contemporary concept that can address urban issues beyond sustainability. Academics recognise that a collective concept can encourage collaboration and the design of solutions for the city challenges [6]. However, as Angelidou notes, smart city solutions are often product-based, which means they are shaped by market forces that can come into conflict with the people-focused ideologies of liveability presented in this paper. In other words, the ideological structure of smartness is still perceived to have a heavily profit-orientated approach [7]. Additionally, technology is a persistent term used in fundamental smart design; however, the way it impacts wider audiences remains unclear [8].

Beyond conceptualisation, understanding what constitutes smart requires an assessment methodology, which can also serve to clarify the confusing agenda [9]. For this reason, attempts have been made to define and conceptualise smartness in a structured manner [10,11]; however, these attempts did not reach a broad international audience. A city being truly smart is when it provides measurable liveability outcomes, which benefit people and the cities as judged according to societal, sustainable, economy, governance, and health perspectives [12]. Additionally, due to a lack of resources and the efforts needed to develop a smart agenda, medium- and smaller-sized cities can yield uncertain outcomes and risk existing resources [13]. Nevertheless, regardless of city size, smartness can bring about local benefits in terms of well-being [14]. This study supports the idea that smart

cities should benefit people's health and well-being, and, for this reason, smart city initiatives must develop out of collaborative decision-making processes with liveability at the heart of decision-making, involving local government, academic institutions, and civil societies [15]. In support of this idea, we identified an ecosystem of local stakeholders and collaborators: universities, City Council and County Council policy officers, and members of civil society [16]. Medium-sized cities should adopt a collaborative ecosystem approach as part of all future smart agendas. This will support the design as a system from a well-being perspective [17,18]. To this end, in this research, we explore and develop a design approach for future smart medium-sized cities involving a collaborative decision-making process.

To achieve this Urban Smart Future vision, in this research, we explore the challenges inherent in the smart agenda across many areas, such as digital, societal, and policy design [19–22]. To understand how to overcome these challenges, we developed a set of objectives for the study as follows:

- To map the policy context in Lancaster.
- To assess whether existing policy aligns with the smart cities agenda.
- To disseminate research and develop discussions and agreements with local stakeholders.
- To prioritise collaborative action and initiatives.

The outcomes of this research can be used to set the priorities for smart urban agendas. However, we also recognise the study's limitations. These were mainly related to the concept, involvement, and design of the local policy and included the following:

- The understanding and involvement of the urban smart future vision by all.
- How smartness can positively impact liveability in Lancaster.
- COVID-19 as a factor in the discussion and design processes.

To fulfil the objectives and minimise the limitations of this research, we evaluated current Lancaster urban policy with reference to national and international policies that might affect policy decision-making. Existing research on smart cities supports this part of our research [4]. Analytical tools were used in the discussions, analysis, and decision-making to define future goals and initiatives [23].

There is a general approach to an environmental scope in future visioning that often involves how humans can relate to the physical environment around them [24]. We designed a process for participation and decision-making to support the urban smart future in Lancaster. Therefore, in the next step, we explore the urban policy context in Lancaster to understand the opportunities and limitations of the smart agenda.

2. The Urban Policy Context

This section offers insights into the policies affecting the urban context that may impact the development of smart cities from a local and national perspective. We conducted policy mapping to explore whether local urban policy can support the overarching smart urban vision and the opportunities for designing future policies within this.

2.1. Policy Mapping

Previous research has shown that smart cities embrace new technologies to offer solutions for many urban challenges. One example is that of the Smart London reports [25]. These new technologies form part of a service provision provided by large corporations. For example, ARUP [26] published a report to establish digital business opportunities in the agenda. However, academic research has evaluated whether the smart cities concept and the digitalisation involved therein improved urban living, concluding that even the early conceptualisation did not provide clarity on a local or international scale [4]. Furthermore, these technologies are not incorporated into local policy [27]. The overall smart cities agenda is a complex issue; all cities are different, both in terms of size and aspirations; furthermore, stakeholders involved in the agenda represent different needs. For these

reasons, a4edium-sized city needs to adopt a vision that is in line with local requirements, those who live in the city, and the people who experience the city. In addition, smart policy often changes over time because of the local governance. For example, London updated its published plan on Smart London [28].

A shared smart vision can bring in local stakeholders and de-risk the decision-making process with the need for minimal resources from local government. In this research, we focus on Lancaster's needs and aspirations. Herein, we developed collaboration between local stakeholders, local councils, and the university. The research team received funding from Beyond Imagination Research England to conduct the research. Specifically, the research team (led by a researcher working alongside a Professor, Project Manager, and PhD student) sought ethical approval on 17 February 2021 from the Faculty of Arts and Social Sciences and Lancaster Management School Research Ethics Committee to organise a workshop with local stakeholders to discuss previous research on smart cities and prioritise actions related to the agenda for the Urban Smart Future of Lancaster. The academic team developed a series of discussions with local policy members from the City and County Council. These conversations were based on previous collaborations between Imagination Lancaster and the local councils. These discussions helped us develop a further understanding of the plans for the local urban future and how the partnership between academia and local governance can create local benefit. Our research into policy across national and local agendas is reviewed in the next section.

2.2. National

In 2020, the UK National Government published the 'Planning for the Future' white paper, which aimed at transforming the urban future in England. The Planning for the Future white paper suggests changes in planning, for example, focussing on place-making, new policy schemes, and a digital systems implementation process [29]. Some of the areas, however, are not explicitly explained and are, thus, not easy for wider audiences to understand. This is particularly true for the implementation of these new agendas. For example, this white paper aspires to support the development of beautiful places, which is a vague concept and requires further detail. Beauty is subjective, and what makes a beautiful place is not outlined; thus, designing one will be challenging. In addition, it is unclear how to develop or design policies that can support the development of beautiful places. The white paper also emphasises rebirth, revitalisation, and growth, which takes the emphasis away from urban development being beautiful or even liveable.

The 'Planning for the Future' document focusses on the overarching vision of updating the planning system. Emphasis is placed on doing so using digital systems for planning. This move to digital and innovative systems increases efficiency and data gathering in the planning processes. However, this is ambitious; updating such systems (which is likely to be on a national level) can be a long process in terms of delivering the infrastructure, the skills available, and user familiarity with these changes. In addition, it refers to certain conceptual notions such as democracy, homeownership, land supply, and business expansion, which seem broad and are not specific to an area, policy, or strategy. It is not mentioned that opportunities exist for digital implementation to happen on a smaller, more effective scale. For Lancaster, the 'Planning for the Future' vision might affect urban development in many ways, for example, in terms of health, funding, and private developers. Various examples are shown below.

- Support for changes in the local planning system (funding, strategies, and digitalisation).
- Support for the development of local policy to support further urbanisation (housing).
- National strategies that promote new developments that are not sympathetic to Lancaster's urban character (commercial or housing).
- Lancaster's Local Plan (policies and strategies).

National policies have an impact on local policies. This means that medium or small cities are affected differently by the national policy. Stakeholders need to collaborate to

minimise the impact and de-risk changes that result from national policy implementation. For this reason, policy design for urban matters (for example, the smart urban agenda) needs to explore, design, and make decisions collaboratively and consider local, national, and transnational agendas [30–32]. In the next section, we explore what these local policies contain and how a truly smart agenda might impact them.

2.3. Local

The 'Planning for the future' white paper also informs changes to the local planning system. For example, the 'Lancaster Local Plan (Local Plan and Planning Policy https:// www.lancaster.gov.uk/planning/planning-policy (accessed on 15 January 2021))' (LLP) justifies any local planning decisions based on the 'environmental, social, and economic value'. This coincides with the priorities as set in the National Planning Policy Framework (National Planning Policy Framework https://assets.publishing.service.gov.uk/government/ uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf (accessed on 15 January 2021) (NPPF). The main priority in the NPPF for Local Planning Authorities (LPAs) is to develop their local plans following the Sustainable Development principles of people's future needs. As mentioned, the LLP includes three objectives: the economic (building the economy, land allocation, innovation, growth, and infrastructure), the social (healthy communities, housing, built environment, green space, health, and social and cultural well-being), and the environment (the natural, built, and historic environment; biodiversity, minimising waste and pollution, and climate change, including moving to a low carbon economy). In this research, we considered the LLP documents as the most appropriate for exploring and evaluating the possibility of the Lancaster Urban Smart Future agenda. The LLP includes the primary document, namely, Strategic Policies and Land Allocations (DPD); this is the main component of the Local Plan. We explored and assessed these local policy and strategy documents. Specifically, our approach to developing a vision for Lancaster is to provide a comprehensive plan that includes these policies and strategies. Our initial perception was that the policies and strategies are not explicitly linked and that they were created and exist in silos. We explored the interconnectedness between policies and strategies to identify gaps and enable Lancaster City Council to provide a holistic view of future urban policy to support a truly smart agenda. To do so, we read and analysed the LLP to understand and identify key aspects. Here, we provide an overview of Lancaster local policy and strategies. We used this to map the interconnectivity between them.

2.4. Lancaster Policy and Strategy Analysis

We investigated the policies and strategies included in the LLP to understand the interdependencies between them and to obtain an overall understanding of Lancaster local policy and the potential for local policy to be used in the development of the smart urban agenda. As shown in Figure 1, the policies are as follows: Policy T: Transport; Policy DOS: Development Opportunity Sites; Policy EN: Environment; Policy E: Economy; Policy SG: Growth Areas; Policy SP: Towns, Villages, and Economy; Policy SC: Sustainable Communities; Policy H: Housing; Policy TC: Centre and Retail. The strategies we explored are the Transport Plan, Digital Strategy, Corporate Plan, Economic Business Recovery Plan, Key Documents, Climate Emergency, and the City Centre.

Overall, we observed that there are local strategies that can co-exist with local policies in overarching areas, for example, the economy (red), environment (green), and digital (yellow) strategies, as shown in Figure 2. This overarching view of the policies and strategies supported our policy assessment for Lancaster Smart Urban Vision, which aimed to understand how the smart urban agenda can inform existing policy. In the next section, we analyse the strategies included in the LLP. The Strategic Market Assessment and Climate Emergency and Critical Documents are part of the additional documents used for public consultation for the local plan; therefore, they are considered.

Figure 1. The Lancaster Local Plan: policies and strategies.

- **Policy T**: Transport
- **Policy DOS**: Development Opportunity Sites
- **Policy EN**: Environment
- **Policy EC**: Economy
- **Policy SG**: Growth (Areas)
- **Policy SP**: Towns, Villages and Economy
- **Policy SC**: Sustainable Communities
- **Policy H**: Housing
- **Policy TC**: Centre & Retail

Figure 2. Overarching interdependencies of policies and strategies.

2.5. Policy Mapping Exploration

We identified links between the policies and the strategies. As seen in the main aspirations, the three areas of connection are the urban, sustainability, and economy areas as follows in Table 1:

Table 1. Areas of potential connection in policy documents.

URBAN	City Centre Movement and Public Realm Strategy	T, TC, H, SC
SUSTAINABILITY	Climate Emergency Strategic Market Assessment Key Documents	Most Policies aim to adopt sustainable approaches
ECONOMY	Corporate Plan, Digital Strategy, Transport Plan	Policy EC Local Plan Policies often aim at the protection from growth and development.

The Digital Strategy aims to influence the five aspirations (a smart, healthy, clean, and fair district), which is an overarching concept. Other aspirations are related to the Corporate Plan (a sustainable district, an inclusive and prosperous local economy, healthy and happy communities, and a cooperative, kind, and responsible council). In detail, a 'fair district' can also mean an 'inclusive, prosperous, and responsible council,' as mentioned in the Corporate Plan. In terms of the Local Plan Policies, the Digital Strategy could be fully integrated. For example, it can be part of the Centre and Retail TC, Growth SG, Towns, Villages, and Economy, Housing H, and the Economy EC. These connections can provide investment and connectivity opportunities, creating digital and community hubs. However, these actions should be discussed between the community and council groups before a decision is made.

In the next section, we explore the strategies as set in the LLP. Both the Strategic Market Assessment and Climate Emergency and Key Documents were part of the additional documents used for public consultation for the Local Plan; however, at the time of our resear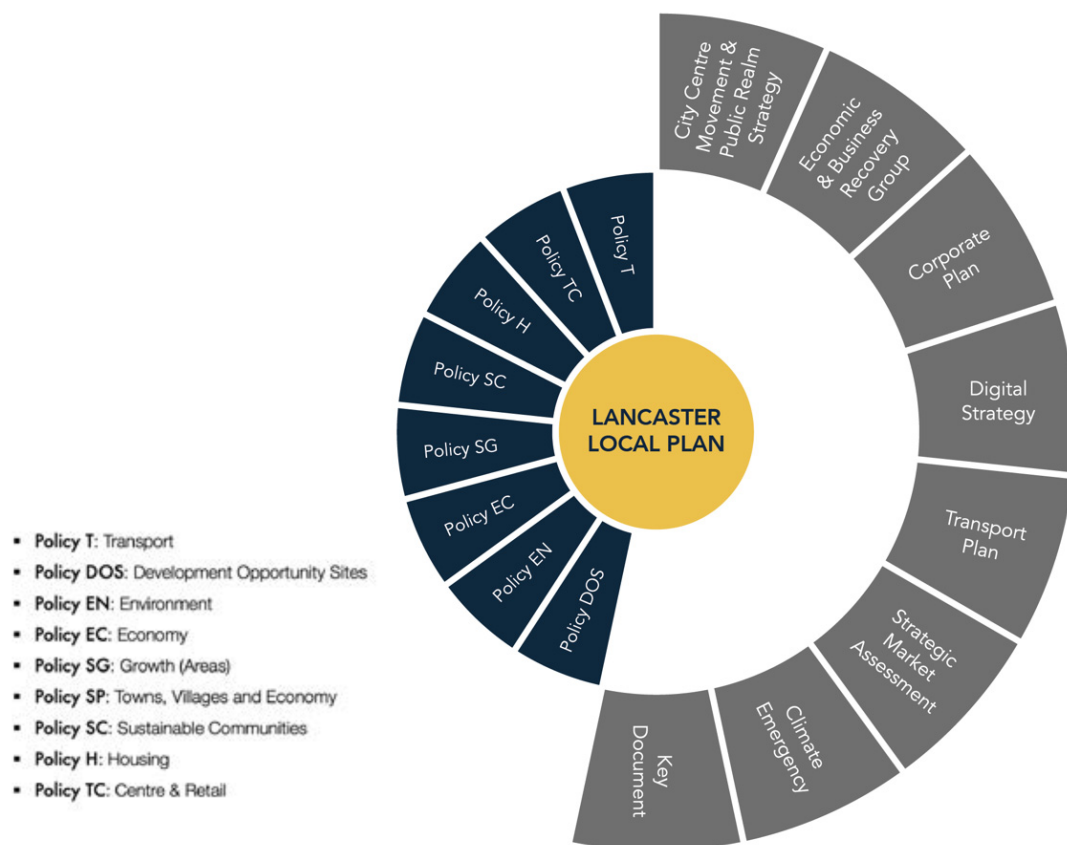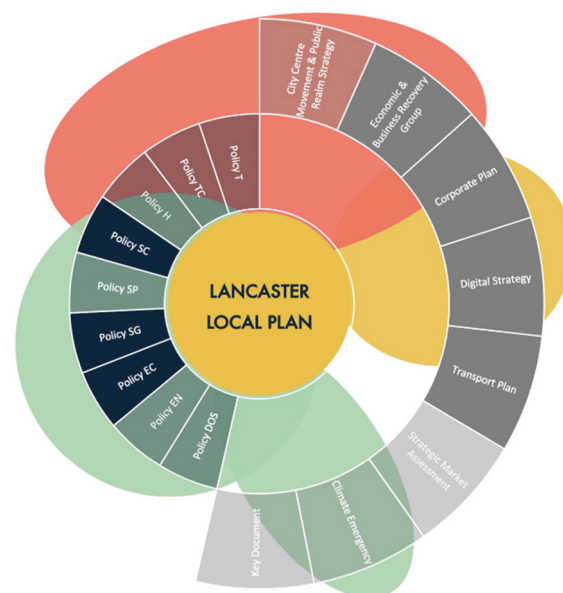ch, this was ongoing. For this reason, they were not taken into consideration during this pilot research project. Additionally, Lancaster's Climate Strategy was heavily impacted by the Council's move to declare a Climate Emergency [33]. However, policies are under consideration for updating. The Corporate Plan contains a set of ambitions and actions, for example, engagement, infrastructure, and intervention. The Digital Strategy seems to have shared actions with the Corporate Plan. An infrastructure approach can combine all these into a shared vision to develop shared ambitions or actions. Additional suggested policies and current issues connected with transport should be further considered in terms of how they impact the Local Plan as a whole. Therefore, the following strategies are discussed in more detail.

2.5.1. Transport Plan

The Lancaster District Highways and Transport Masterplan (Lancaster District highways and transport masterplan. https://www.lancashire.gov.uk/council/strategies-policies-plans/roads-parking-and-travel/highways-and-transport-masterplans/lancaster-district-highways-and-transport-masterplan/ (accessed on 25 February 2021) vision for 2031 aims to make mobility more sustainable in the city centre and in nearby towns (Morecambe, Carnforth, and Heysham). It also aims to link its key economic assets with others across Lancashire's 'Arc of Prosperity' and deliver new opportunities for housing growth. This recognises the importance of the area's educational, healthcare, and economic assets (such as the universities, the NHS hospitals, and Heysham Port) as a magnet for jobs and future housing growth. Following the M6 Heysham link road, which aimed to address the traffic problems and poor air quality associated with the gyratory system around the city centre, the Masterplan sets out a vision for the district that seeks to develop public transport, cycling, and walking networks that link the city centre, Morecambe, the universities, and villages in a more streamlined way. This will give residents and visitors options other than their cars, which adds to the difficulties associated with the gyratory system that currently dominates Lancaster City Centre.

2.5.2. Digital Strategy

The Lancaster City Council Digital Strategy was agreed upon around 2020. It is a 10-year collaborative strategy with several aims. At the forefront is transitioning the Lancaster area into a 'gigabyte district' using digital technology, health, innovation, nature, and knowledge methodologies to benefit local businesses and the community. Emphasis is also put upon improving the council's services, access to the internet (WIFI), and mobile digital communications for council teams and officers. There will be collaboration between the council and other stakeholders, most prominently the universities, the NHS, and other councils, to share best practices. The Lancaster Digital Strategy seems separated from the Local Plan, as it currently does not connect to any of the policies in the LLP.

2.5.3. Corporate Plan

The Corporate Plan 2018–2022 sets out the overall ambitions and goals of Lancaster City Council. The 2018 version of the Corporate Plan has now been superseded by the Corporate Priorities 2018–2022 agreed in January 2020. This document sets out the council's four main priorities:

- A sustainable district: these ambitions focus on carbon neutrality by 2030, and other sustainable plans for waste, energy, flood resilience, transport, and biodiversity.
- An inclusive and prosperous local economy: this is an environmentally sustainable local economy, developing new skills and fair employment practices to reduce inequality, sustainable innovation, and secure investment.
- Healthy and happy communities: supporting well-being and addressing inequalities that contribute to ill health and poor well-being, improving housing and access to arts and culture, and maintaining our shared public spaces.
- A co-operative, kind, and responsible council: this sets out the priorities for the council as a public-facing organisation, to listen to the community, work in partnership with communities, develop skills among its workforce, and provide value for money.
- The priorities are cut through by three themes: Climate Emergency, Community Wealth Building, and Community Engagement. These themes primarily centre on ensuring actions that will lead to sustainable, inclusive, and fair results for the future.

2.5.4. Economic Business Recovery Plan

Lancaster City Council is currently working on the Business Recovery Plan (BRP) to support local businesses in the post-COVID-19 era. The plan aims to work holistically to build a non-siloed approach and develop priorities to support business activity in the area. This is considered a strategic document and is currently under development by Council Officers.

It contains actions in three main areas:

- Urban interventions.
- Physical and digital infrastructure.
- Engagement and education.

Each action comprises a list of action points that describe how the action is prepared, designed, and delivered and the areas of impact. We concluded that the (BRP) aligns with the aspirations of this research and that we can support the BRP.

2.6. Movement and Public Realm Strategy

This local strategy is outlined in the Transport Plan (Lancaster City Centre Movement and Public Realm Strategy https://www.lancashire.gov.uk/media/920691/2517-id-001-08-movement-strategy_compressed.pdf (accessed on 20 January 2021). The Movement and Public Realm Strategy is the realisation of this vision and is now going through a period of consultation in the district. A new M6 Junction 33 exit route was decided upon (February 2021). Rush-hour traffic and poor air quality are expected to improve in the village of Galgate as a result, alongside the development of an agri-business development area. The

new motorway exit will also improve links for people commuting from South Lancaster and from new housing development areas (e.g., Bailrigg Garden Village). The main issue explored in the MPRS is how to realise the vision of the Transport Masterplan for Lancaster City Centre. It states that its vision for 2031 is a city centre that is essentially free from polluting congestion, where cyclists and pedestrians are safe to move around, and is an attractive destination for residents and visitors. To that end, the document puts forward eight alternative plans to arrive at this vision based on the following framework:

An inclusive environment, ease of movement, quality of place (public realm), safety, public health economic benefit (Lancaster City Centre Movement and Public Realm Strategy https://www.lancashire.gov.uk/media/920691/2517-id-001-08-movement-strategy_ compressed.pdf (accessed on 8 October 2024), and adaptations for integrated spaces to tackle excessive car use and support sustainable methods of travel, for example, in Dalton Square, Penny Street Bridge, and Spring Square. This document is under review at the time of writing. A plan was to be presented during the workshop by local policy officers from Lancaster City Council and/or County Council.

In this research, we examined whether policy can support the smart urban vision. We did this by providing a basic understanding of the overall UK national urban policy. Furthermore, we mapped the policy context in Lancaster as published in the Local Plan. Specifically, the Local Plan policies and strategies offer opportunities for connections, such as shared goals, an overarching impact, and sustainability. The three main areas of connection identified are urban, sustainability, and economy, with a smart vision potentially aiming at these three overarching areas of connection. Subsequently, smart initiatives can be designed to impact these areas of connection rather than the separate policies and strategies outlined in Lancaster's Local Plan. In the next section, we assess the policies and strategies in more detail in relation to a smart vision. The results were disseminated and discussed in a workshop designed by the research team.

3. The SMART Assessment for Lancaster Policy and Strategy

We implemented the Smart Model Assessment Resilient Tool (SMART) to assess the overarching policies and strategies in the Lancaster Local Plan, as shown in Figure 3. There are four liveability criteria (society, environment, economy, and governance), which link the thematic areas of almost 350 criteria to measure liveability [34]. The SMART was used to assess and compare liveability from a smart perspective in four cities (Birmingham, London, Copenhagen, and Singapore) according to the Liveable Cities research project [35,36]. This research, which was conducted in large cities and capital cities (or city states in the case of Singapore), was easy to access due to the existing smart agendas. In the Lancaster City case, the smart agenda is still in an early stage; thus, we conducted collaborative study with the SMART.

Within the Liveable Cities project, a health assessment was developed to assess well-being in smart cities [35,36]. Due to COVID-19, which was mentioned as one of the limitations of this project, it was crucial to explore health as a main criterion for a smart vision. The pandemic demonstrated that health has a huge impact on working conditions, mobility, and governance, which represent just three of the affected areas [37,38]. Thus, we implemented the SMART to assess local policies and strategies in Lancaster. Moreover, we mapped the Local Plan against the criteria to understand which of these policies and strategies fulfilled the criteria.
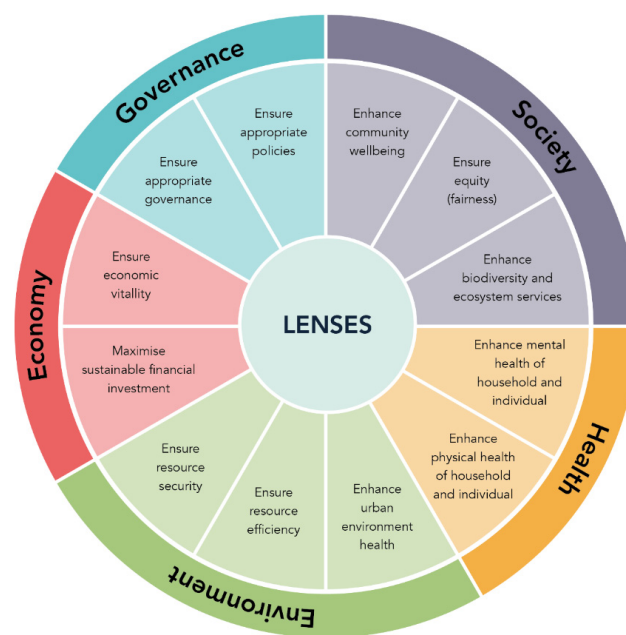
Figure 3. The SMART criteria and areas of research.

3.1. SMART Assessment Results

The overarching mapping results showed that two of the criteria (Society and the Environment) were prominent, one was lower (Health), and two (Economy and Finance and Governance and Policy) were lower again.

Mapping followed the same process as in the smart city assessment. According to the SMART assessment, the mapping analysis concluded that local policy in Lancaster needs to improve the Economy and Finance and the Governance and Policy criteria. This academic assessment can provide overarching support for smart city agenda development. We consider this the primary indication and discussed the findings with local experts in an open and transparent manner as outlined in the SMART process. Mapping explored where each policy and strategy fulfilled each criterion, i.e., whether the policy/strategy satisfied the given criterion (and action). As shown in Figure 4, the SMART result for the Societal Impact criterion scored more than a third. Similarly, the Environment criterion reached above one-third. Not surprisingly, the Health criterion had a somewhat higher impact than the Economy and Governance criteria. In detail, Economy and Governance together achieved an 11% impact.

These results were discussed in a workshop organised by the research team. We invited academics and local policy officers who had participated in a previous workshop (Making Lancaster Fit for the Future: Holistic Place Making, 13 March 2019), which was also held by Imagination Lancaster and included Officers from Lancaster City Council and Lancashire County Council. We did this because we wanted to create continuity in the urban research. Participants were expected to have some ground knowledge of local urban matters. Additional attendees included researchers from the Beyond Imagination project. COVID-19 limitations led to an online workshop, which took place on the 9 April 2022.

The workshop was designed by the research team and included three steps:

(i)   Presentations by the Imagination Lancaster team (Urban Smart research) and Lancashire County Council and City Council (Lancaster Mobility Strategy);
(ii)   Dissemination and discussion on the Urban Smart Futures findings.
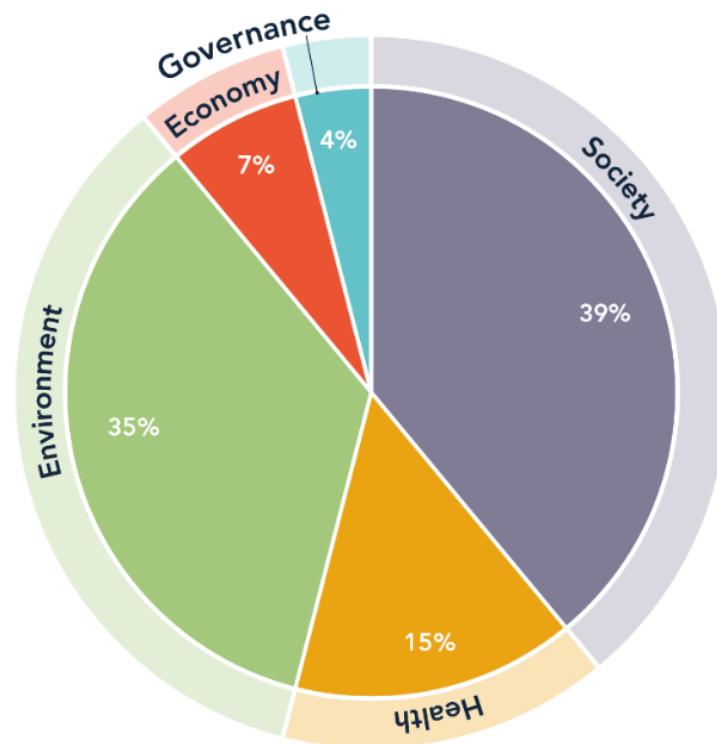(iii)   Workshop discussion and recommendations for the Smart Urban Future Agenda.

Figure 4. SMART assessment of the Lancaster Policies and Strategies.

There were twenty-six participants, five of whom were from Lancaster City Council and County Council, one officer worked between Lancaster Council and Lancaster University, and there were twenty academic participants. In particular, the presentations by the research team and the policy officers offered insights from academic and policy perspectives. This ensured an impartial view of both points of view. The academic participants were part of the Beyond Imagination (BI) project and from the five clusters making up BI. Despite the low workshop attendance, we concluded that it was easy to develop discussions, and group facilitation was efficient in allowing the conversations to develop in greater depth. The research team prepared a Miro board to disseminate and discuss the findings in four steps:

1. Presentation of the activities taking place during the workshop.
2. Whole group activity—high and low priorities between the five SMART criteria.
3. Breakout rooms according to their primary criteria selection (five breakout rooms);
4. Reflection on the matters discussed during the groups' discussions.

Designing the smart agenda is an iterative process, and the participation process is an opinion generator and a form voting process. However, the value generated from all stakeholders must be considered while designing policy or other city-wide activities [34]. The research methodology explores this process, i.e., how to develop conversations for mutual understanding between a group of academics and policy officers. Participants are introduced to the SMART, which was designed to explain the assessment process and the main priorities according to the criteria. During the workshop, the SMART methodology allowed participants to realise their priorities according to their needs and wants and prioritise initiatives that would bring a positive outcome for the local area. Additionally, the SMART elements (criteria, priorities, and assessment) describe the evaluation process, which can guide participants in understanding the terminology used in smart conceptualisation. In the next section, how participants are familiarised with the prioritisation process and criteria and other parts of the process are described.

3.2. Findings on the Truly Smart Assessment through the Liveability Lens

Following the presentations, the participants were asked to rate the five SMART criteria according to their idea of how high or low a priority they should be. In total, 130 criteria were placed on the board. Initially, it was obvious that the group considered a large portion of the requirements to have a high priority. In particular, the breakdown happened as indicated in Figure 5.
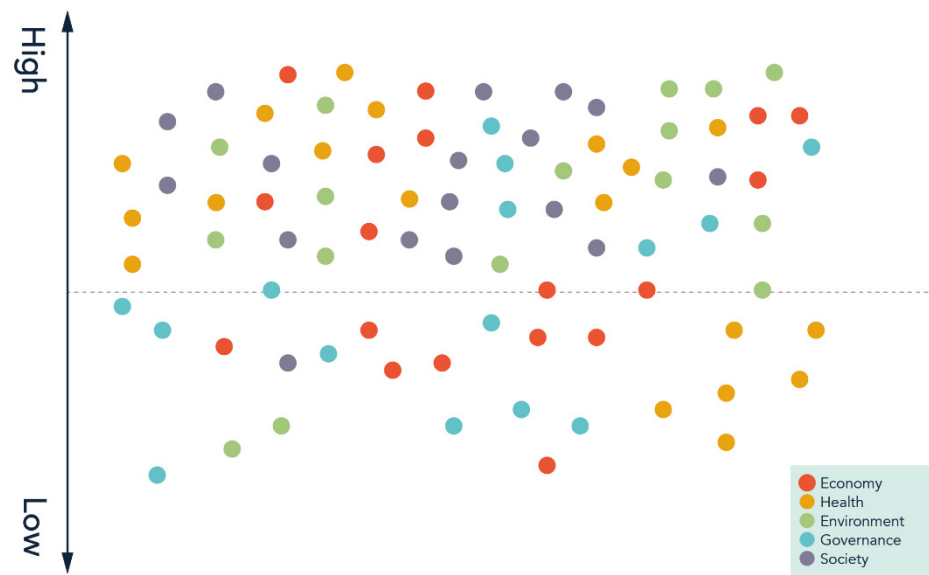

Figure 5. High and Low Priorities according to the participants' views.

We noticed that three responses were intentionally placed on the border between the high and low priorities, which indicated that participants probably did not have a strong opinion on these. We noticed that the Economy and Health criteria were sometimes considered to be low priorities. In general, participants thought that all the criteria should be high priority. This meant that it was difficult to distinguish which, if any, of these criteria were important or not. In this prioritisation task, we anticipated 130 responses and collected 84 (+/−3), which means that 64.2% and 66.92% of the total responses were collected. The initial prioritisation process introduced participants to the assessment process and familiarised them with the five liveability lenses. As indicated, this first step did not provide accurate findings on the priorities. It proved to be a positive exercise, however, to enable the first discussions on the lens's priorities. In the next part, together with the participants, we explored each criterion in detail. Here, participants were ready to choose a sub-group according to their lens preference. Their choice indicated the area that they desired to develop in discussions with their peers. These processes are described below. The main points of the conversation are presented in a table.

3.3. Liveability Criteria within the Sub-Group Discussions

All workshop participants were asked to join one of the five sub-groups based on the criteria of priority choice. The facilitators kept no record of the participants' first choice, allowing them to join a different group discussion from their first choice. Each sub-group was facilitated by a research group member who directed the conversation. All group conversations happened in two parts: a discussion on the main goals for the criterion and the kind of initiatives we need in Lancaster City to achieve each of the five criteria. This section analyses the discussion that took place within the five groups according to the five SMART criteria. The facilitator of each group gathered the main points of the discussions. These are shown in the tables in the following sections (Tables 2–6). Some areas were only mentioned and not discussed. These are marked as 'not applicable' and were not analysed further.

Table 2. Societal Lens discussion notes.

THE PRIORITY LENS	GOALS FOR THE PRIORITY		INITIATIVES
Public Spaces	Keep safe	Making cycling safe	• Community centres located at the heart of Lancaster City Centre • Making sure pavements are accessible • Indoor spaces that people can just walk in
	Ensure diversity needs	Nighttime economy that does not involve pubs	
Space for events	Provide accessibility	Considerations to different abilities and access	
Age groups	A lack of places to socialise for young people	Connect these spaces throughout public transportation	
		Free for all	
Technology	n/a		n/a

Table 3. Environmental Lens discussion notes.

THE PRIORITY LENS	GOALS FORT HE PRIORITY		INITIATIVES
Better air quality	n/a		• Covered bike shelters • Better and more bike lanes
Green as service	Access to green spaces		• Resource integration with focus on environment and health
Green infrastructure	Connection to the bioregion	Utilise technology for a holistic environment	n/a
Resilience to climate change	Co-housing and co-living projects		n/a
	Ban of plastic bags and packaging in local retailers		
	Net zero Fridays (for education and exhibitions)		
	Natural urban carbon sinks		
	Resilience to flooding		• Permeable surfaces • Rain garden (to replace the bus station)
Biodiversity	n/a		• Green corridors • No-mow areas • Preserving and caring for wildlife

Table 4. Health Lens discussion notes.

THE PRIORITY LENS	GOALS FORT HE PRIORITY		INITIATIVES
Active travel	Physical activity	Walking	• Active travel campaign • Wearables to track our activity (at the individual level) • Understanding duration of pandemic impact on public transport
		• Inclusive adapted cycling infrastructure	• Access to storage of bikes • Safe cycling for children • Inclusive paths for pedestrians with moving difficulties
Reducing air pollution	Air pollution exposure	Support public transport	• Clean air campaign
Access to clean water	n/a		n/a

Table 5. Economy and Finance Lens discussion notes.

THE PRIORITY LENS	GOALS FORT HE PRIORITY	INITIATIVES
Decentralisation of town centre	Eden Project	• Procurement for local materials
	Tourism economy	• Plan and involve visitors into local economy
	Transport	• Building local economy • Flow of transport, housing for economy • Provision for electric cars • Infrastructure transport planning, sourcing of supply chain

Table 6. Governance and Policy Lens.

THE PRIORITY LENS	GOALS FORT HE PRIORITY	INITIATIVES
Better communication across different levels	Communication including grass roots	• Shift in political cultures • New division of responsibilities/powers between national, local, government and citizens
Educating citizens	Education about the city and the way to make the place better	• Lifelong education
Making local experiences, products, heritage	History of things (place, origin, products, local routes)	• Morecambe curriculum
Involving citizens more in infrastructure decisions	Informing citizens properly about the matters of decision and how they affect it	• Empowerment about involvement of citizens • Inform citizens about the infrastructural decisions • Engage citizens in infrastructural challenges

3.3.1. Societal Liveability Lens (Discussion)

In the Society group, the discussion included four areas: public spaces, event spaces, diverse age group spaces, and technology. It was recognised that all these were important for the Lancaster society lens; however, the group focused on the first three main points. It was agreed that technology is an important aspect of society; yet, the conversation did not flourish in a similar manner to that seen for the other themes. This is because the 'public event, and diverse' space created a lot of interest, and there was no time for the technology discussion. Furthermore, it seemed that the group needed technology experts to join the conversation because the participants had no solid knowledge or experience in this field. The participants highlighted the need to 'keep safe' by 'making cycling safe' and to 'ensure diverse needs' by fostering a 'nighttime economy' beyond the 'pubs' culture. In addition, as shown in Table 2, safety, diversity, inclusion, and accessibility were the main issues in Lancaster. These issues need to be taken into account when designing future policy; this was one of the main parts of the discussion. Participants also highlighted the need for future policy to incorporate ways to enable younger adults to socialise in public spaces and improve public transport to support this. They argued that designing urban spaces to accommodate the needs of younger generations would encourage younger people to use public spaces. Additionally, those involved in the design of public spaces need to consider how to dissociate the drinking culture from the use of the public space.

As the conversation developed, participants addressed the financial aspects involved in space- and place-making. For example, public spaces should be free of charge, as this will allow more people to engage with them. It was argued that there is a shortage of 'spaces for events', so it is necessary to 'provide accessibility' for event spaces with 'consideration of different abilities and access'. The group also agreed that any initiatives need to consider public spaces as indoor spaces as well as outdoor spaces. This would involve making 'sure

the pavements are accessible' and creating more 'indoor spaces that people can just walk in' located in the heart of Lancaster City Centre. Lastly, the participants pointed out a lack of places for young adults to socialise, so future policy should support generating these spaces while ensuring free admission and connecting them with better public transportation networks. Indoor and outdoor spaces must be of good quality, be safe, and be accessible. 'Technology' was not discussed here, although it was considered one of the main goals in the Society section.

3.3.2. Environment Liveability Lens (Discussion)

The priorities discussed in the Environment group varied. Green infrastructure, green as a service, and resiliency were all prominent in the discussion. Furthermore, issues involving green infrastructure and resiliency had more goals, but it was challenging for participants to develop initiatives for both. In addition, air quality, green as a service, and biodiversity (also parts of resiliency) had fewer initiatives and discussions for the goals. The participants discussed the connection between bioregions and holistically utilising technology to approach environmental issues. The participants could not suggest any initiatives because there were no experts in the relevant technology. Overall, the initiatives for the Environment Lens aimed to create co-housing and co-living projects, prohibit plastic bags and packaging in local retailers, designate 'Net Zero Friday' for education, design natural urban carbon sinks, and increase resilience to flooding. Additional initiatives included areas of caring for and preserving the environment and wildlife. It was obvious that the discussion recognised the importance of certain goals for the Environment criterion; nevertheless, there was no overarching environmental goal. Therefore, the goals seemed generic, while the initiatives discussed included some tangible actions.

3.3.3. Health Liveability Lens (Discussion)

The discussions in the Health group primarily focused on physical activity (active travel), followed by clean air and clean water. The group suggested running 'active travel campaigns' and using wearables to track individual activity. In addition, they argued for the importance of understanding the duration of the pandemic's impact on public transport to foster 'physical activities'. Interestingly, the discussion on active travel yielded two main goals (walking and cycling) and six initiatives. The six initiatives (three for each of the two goals) mentioned supporting issues, for example, a campaign, wearables, storage, safety, and the impact of the pandemic on public transport. Understandably, the discussion around the pandemic highlighted its impact on transport. The workshop took place during the COVID-19 lockdown, and, as expected, transport and physical activity were high priorities in the discussion. The discussion on air quality led to that on water quality; however, there was no additional discussion or exploration regarding goals and initiatives.

It was also pointed out that encouraging 'cycling' should be followed by providing 'inclusive' infrastructure. Inclusivity was a key value for promoting cycling in the discussion, and specific initiatives were suggested on bike storage, promoting safe cycling for children, and inclusivity issues for pedestrians with moving difficulties. Overall, improved transportation services encourage people to use public transport more. They also suggested that awareness and communication on healthy transport are necessary. For example, they suggested running 'clean air campaigns' to address communication gaps. The goals for 'access to clean water' were not discussed because, like the technology conversation, there was no time left.

3.3.4. Economy and Finance Liveability Lens (Discussion)

Discussions in the Economy group mainly argued for the significance of decentralising the town centre. The group argued that Lancaster's central area's residential facilities and services are very centralised. The group considered the 'Eden Project', 'tourism economy', and 'transport' as priority goals, which would all provide economic support to the area. In addition, the Eden Project and transport needs should be considered in connection because of the mutual

benefits. Furthermore, the Eden Project in Morecambe (funded by the UK government) should adopt a local character. The project will be an attractive destination "that combines indoor and outdoor experiences" of the natural environments of Morecambe Bay, which is a few miles away from Lancaster City Centre (Eden Project Morecambe, UK Eden Project, no date). However, the participants argued that urban policy needs to ensure procurement within a local scope, for example, the use of local materials. Additionally, initiatives should involve public engagement activities; local initiatives bring significant economic activities and, thus, must support the local economy. Transport infrastructure should also be part of these economic initiatives and support new technologies like electric cars.

3.3.5. Governance and Policy Liveability Lenses

We consider the Governance and Policy group to have had a complete discussion in which all four priorities regarding the goals and initiatives were discussed. Furthermore, each of the four priorities seemed different to the others; for example, communication, citizenry, local issues, and decision-making were explored. Each goal included a deeper insight into how each of the priorities would materialise; for example, the citizenry goal explored educating citizens about places and how to design them. For this one, the Morecambe curriculum was cited as a good way to educate people on local matters. The other three priorities were explored in the same way. The conversation led to an initiative discussion. However, we felt that the group lingered on what needs to be done rather than how an initiative can be designed to achieve the goals of the Governance lens. We feel that further exploration should support stakeholders in designing initiatives. These could contain the discussion 'of what needs to be done'.

Overall, the workshop created networking opportunities and conversations. Once the whole group reconvened, the participants noted that the presentations given at the beginning of the workshop by the academics and the policy officers made it easier to discuss the matters. This made the process more efficient because the research team then only had to explain the tasks, for example, the SMART assessment, and discuss the priorities. Overall, the participants discussed public spaces, how green infrastructure can positively impact climate change, active travelling for health purposes, the decentralisation of Lancaster, and citizens' engagement and decision-making.

A SMART assessment was conducted, as shown in Figure 4. Here, we relate these results with the workshop findings. For example, in the SMART assessment, the Governance criterion achieved the lowest percentage, while the Governance group discussed clear goals and realistic initiatives (communication, education, experience, and participation). Similarly, the Economy criterion achieved a low percentage (7%), and the discussion was driven by the local opportunities that the Eden Project can bring to the area. In addition, the Health criterion retuned a low result in the SMART assessment (15%), yet clear initiatives were produced, for example, physical activity through walking, cycling, and public transport. Both the Society (39%) and Environment (35%) criteria achieved higher scores. Interesting points from both discussions included the lack of a technology discussion and the unclear initiatives linking air and water quality in the Environment group. These workshop findings can and should be considered when designing the smart urban agenda. We have shown that implementing methodologies such as the SMART and workshop participation can bring about comparable results. These processes were conducted in an open and transparent format that allowed critical group conversations. These results can be used to encourage a participatory method when designing the urban smart agenda.

4. Designing the Urban Smart Future Agenda for Lancaster City, UK

Designing the Urban Smart agenda can be a complex process. This is due to the uncertainties involved in smartness; the disconnection in definitions, policies, and practices; and public participation and understanding. However, in this research, we implemented the SMART to help establish a design process for the agenda. We identified three overarching areas within the Local Plan—urban, sustainability, and economy. These can bring policies

and strategies together for the urban agenda. The SMART evaluation demonstrated that the Lancaster Local Plan mostly fulfils the SMART criteria for the Environment and Society criteria but did so to a lesser extent for the Health, Economy, and Governance criteria. During the workshop, participants noted that all five SMART criteria are important and should be all equally prioritised. Group discussions were focused on priority goals and future initiatives to fulfil these goals. Therefore, the points developed following the presentations and group discussions should be considered when designing the Lancaster Urban Smart Agenda. For example, discussions according to the five SMART lenses were considered to be the foundation for designing smart initiatives:

- Society: Accessibility was the focus of the discussion here. To strengthen urban society, Lancaster needs community centres that are accessible. These places should be open and easy to find (perhaps in a central location). These should be public spaces that operate in a 'walk-in' mode, where people can go in and perform community activities. These urban centres will enhance societal feeling and provide the support needed for Lancaster communities.

- Environment: Infrastructure services were discussed as an overarching idea. This was positive, although it would require substantial urban transformation. For example, participants explained that initiatives like cycling need to adopt an urban engineering approach, where cycling infrastructures would impact many areas in Lancaster. This comprises more than simply building cycle lanes but also includes transport modes, green infrastructure, green corridors, and the impact of flooding, amongst others.

- Health: Active travelling was the core discussion here. Interestingly, participants considered health in terms of their lifestyle. Thus, walking and cycling were seen as central to healthy lifestyles, both in terms of physical and psychological health. As the research was conducted during the pandemic, walking and cycling were perhaps high on the agenda. Furthermore, participants also focused on infrastructure provision rather than active lifestyle choices, explaining that accessibility for all generations is important to support health.

- Economy: This discussion explored both the local economy and the decentralisation opportunities. Here, participants recognised the importance of developing the local economy through tourism and transport. For example, the Eden Project should offer local economic opportunities. Furthermore, for this, the County Council needs to improve local transport to support visitors to the Eden Project and overall accessibility.

- Governance: In this group, the focus was on citizens as the centre of local governance. The group concluded that local governance requires a shift in political power to empower citizens in local decision-making. However, this can be complex when it comes to implementing national (or international) policies. Nevertheless, the discussions made it evident that people need to be part of the local governance processes.

Overall, the group discussions highlighted different approaches to each of the SMART lenses. Responses varied from those directed at personal lifestyles to local citizen participation in governance and overarching infrastructure solutions. Discussions based on each lens supported urban solutions through collaborative conceptualisation and prioritising solutions. The workshop and assessment tools supported a multi-disciplinary and collaborative process, which is essential for the difficult-to-define subject of smart cities. Additionally, this is interesting because it demonstrates that each initiative requires a participation and decision-making process, considering all scales within the urban context. However, the workshop discussion revealed certain limitations; for example, the agenda for smart cities is a complex issue, especially for medium and smaller cities that have limited financial and operational resources. The process of evaluating local policy, prioritising, and developing the smart urban agenda is impacted by the participants, the conditions at the time (in this case, COVID-19), and other social and political influences. It can also be a long process, with implementation taking longer. In this study, the workshop was time-consuming, with the team having to meet several times with the policy officers to understand their needs and desires and due to the post-COVID restrictions. However, the process offered valuable

insights for the research team. These are summarised in a set of recommendations that can support the design of the Lancaster smart urban agenda as follows:

To develop a process for the Urban Smart Agenda, the following steps should be considered:

- Assess the local policy in Lancaster using the SMART by a group of experts in the smart cities field.
- Set the priorities according to the SMART findings and design a workshop.
- Present, disseminate, and discuss the results during the workshop.
- Following recommendations for the Urban Smart Agenda based on the observations throughout the process, we recommend the following:

Local policy in medium and small cities needs to have a clear overarching theme that relates to the local character, for example, the local communities in Lancaster. Here, we summarise the opportunities, challenges, and recommendations following the analysis of the workshop and reflections from the academic team. This study further developed the existing research on smart cities. Specifically, the research team at Imagination Lancaster implemented the SMART towards the Urban Smart Futures project for Lancaster, UK. We followed a process of evaluating policy before disseminating and discussing the results with local policy officers and academics. This process highlighted the opportunities and limitations in decision-making and policy design. However, we established a transparent process that supports public participation and enhances collaboration towards the shared goal of designing smart initiatives.

5. Conclusions: General Recommendations for Medium to Small Smart Cities

Following the assessment, result dissemination, and the prioritisation discussion in the workshop, we developed recommendations for the Urban Smart Futures Agenda. These were developed according to our research on truly smart cities, that is, with the aim of liveability. The workshop was conducted during the COVID-19 pandemic. In comparison with previous research on smart cities, this manuscript demonstrates how a smart agenda can be used to develop solutions for medium and smaller cities. Capital cities find it easier to adopt these agendas, as they have better access to resources; yet, when smaller cities aspire to smart developments, it is advisable to follow the methods implemented in the Lancaster case. In particular, we suggest the following recommendations for the Urban Smart Futures Agendas:

- Local policies and strategies need to relate to each other due to the interdependencies between local policies and strategies.
- Technology is an important part of any Urban Smart Futures Agenda—this needs further exploration with the public, as there is often a lack of understanding regarding the use of innovative technological systems.
- Evaluating smartness and decision-making need to be conducted in a participatory manner, involving collaborators such as academia, local governance, and civic communities.
- Collaboration and active participation in the smart urban future agenda design process should be open and transparent.
- The implementation of the SMART can provide measurable outcomes that can be discussed and be part of agenda design.

This study outlines a method for designing an Urban Smart Futures Agenda. This is an evidence-based process for medium to small cities that aspire to become truly smart, with liveability and collaborative decision-making at their centre. Through participation and collaboration, this manuscript demonstrates how to de-risk a smart agenda and develop solutions that are designed by collaborators.

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