

## Design Strategies for Future Governance in Emergencies: A Case Study

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### INTRODUCTION

This paper presents a scoping study of the Covid-19 response by Lancaster City Council, a district council in north-west England.

This research is located within wider research questions of how design-led approaches might contribute to policy decisions. In this paper we explore how design may cement learnings, reflections and experiences, thereby building stronger future practices, strategic responses, and resilience in public sector organisations. In particular, we are interested in layering, and the type of emergent strategic challenges which can result when multiple extraordinary events take place concurrently, such as a flood incident during a pandemic, which occurred in Lancaster in January 2021.

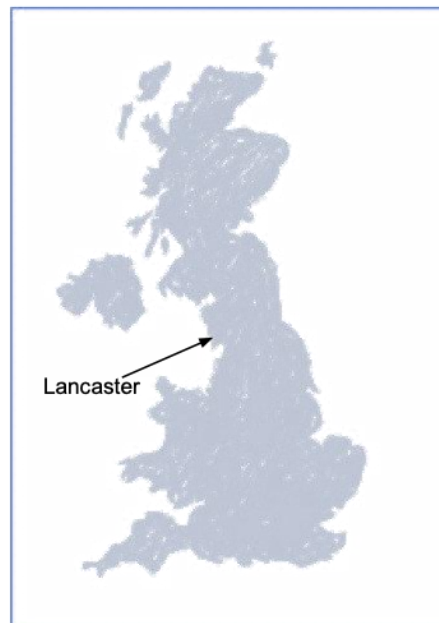


Figure 1: Map of Lancaster's Location

### BACKGROUND

Lancaster is an historic city located in the county of Lancashire, in the north-west of England (Fig.1). A population of approximately 146,038<sup>1</sup>, makes it the fourth largest district council in the county. The city covers an area of approximately 576.2km, is located 7km from the coast and includes the seaside town of Morecambe. It is the most northerly city in Lancashire, is located on the river Lune and was once one of the most important ports in England.

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<sup>1</sup>2019 mid-year population estimate <https://www.lancashire.gov.uk/lancashire-insight/area-profiles/local-authority-profiles/lancaster-district/>

Lancaster has areas of high level of socio-economic status, with the Morecambe Bay NHS Trust, the city's two universities and Heysham Power Station being the main employers. However, Morecambe has some of the highest levels of socio-economic deprivation in England. Lancaster's economy is predominantly service-oriented (Lancashire County Council, ND) and 80% of the district's businesses are small or medium enterprises, with few national chains residing within the city. The city's location in the north-west of England means the climate is temperate and as a result the area sees a high amount of rainfall, which has caused significant flooding in the past. As a district Lancaster covers a range of landscapes, from the coastal area of Morecambe, to the hilly city itself and out towards the Pennine belt (Fig.2).



Figure 2: View from Williamson Park, Lancaster showing Morecambe Bay and the Cumbrian Mountains

Further north of the district lie the Lakeland fells and mountains, and to the east the Yorkshire Dales. Good infrastructure, including the M6 motorway and the West Coast Trainline mean the city is well connected to Scotland, Manchester and London.

The ecosystem of local governance in England is complex, with different tiers resulting from moves towards a more devolved landscape. In the north-west of England there is a mixture of Metropolitan City Areas (Manchester and Liverpool) with elected mayors, Unitary authorities who take the services usually provided by county councils within their remit (e.g., social care, education, highways), county councils (Lancashire), district councils (Lancaster) and parish councils. The district of Lancaster is represented by two members of Parliament; one for Lancaster and Fleetwood (Labour) and one for Morecambe and Lunesdale (Conservative). There are three tiers of governance within the district; Lancashire County Council, Lancaster City Council and Parish (neighbourhood/village) Councils, all providing a wide range of services across the district. During the COVID-19 pandemic, in addition to the services and guidance provided by the UK Government, each tier of local governance was required to adapt their service provision in order to ensure key residents and businesses were supported. These services were operating in emergency mode at the beginning of the pandemic and once more during the resurgence of cases in the district from August 2020. The National Health Service (NHS) also provided essential services during this period.

Provision of key services is divided between Lancashire County Council, who provide education, highways, registrations of births, marriages and deaths, social care and Lancaster District Council, who provide waste collection, housing, planning and building control and

council tax collection. The District Council (referred to for the rest of this chapter as City Council/ the Council) is run by an elected council, with an executive committee of members who are also portfolio holders. The Chief Executive has overall responsibility for council officers who are split into three directorates; Communities and the Environment, Corporate Services and Economic Growth and Regeneration (Lancaster City Council, ND).

## **METHODOLOGY**

As a short, scoping case study the research comprised of four key-informant interviews and the collection and analysis of publicly available data relating to COVID-19 cases. We also collected primary data through taking photographs around the city to chart the various interventions made in the urban realm (Fig. 4,8,9). The interviews were analysed using thematic analysis (REF: Braun and Clarke) and placed within the context of the UK Government's national response and the publication of data relating to the pandemic. This piece of research captures key insights from a moment in time, from the leader of the City Council, the Member of Parliament for this constituency, and council officers involved in planning and emergency response. We also consulted documents produced by the council and by third parties, including the Carnegie Trust's report 'Pooling Together: How Community Hubs have responded to the COVID-19 Emergency' which featured Lancaster City Council's Community Hub.

## **TIMELINE OF COVID RESPONSE**

Communication during the pandemic was split between national governments (with separate communications issued from England, Scotland, Wales and Northern Ireland), Public Health England, the NHS, county councils (Lancashire) and district councils (Lancaster). The UK Government's public information campaign began in February 2020 with the publication of posters and other graphic communication telling citizens to wash their hands. This then



Figure 3: Public Health England COVID information

became a more urgent campaign once cases began to rise in the UK. The government began holding regular press conferences where the Prime Minister or a member of the executive

cabinet would update the public on television, along with scientists and government medical officers. The phrase 'Stay at home, protect the NHS, save lives' became prominent when the first lockdown was introduced in March 2020 and was accompanied by a range of graphic material (Fig. 4).

Public Health England also distributed television adverts and graphical materials advising the public to wash their hands, cover their faces and maintain social distancing (hands, face, space) (Fig.3). Lancaster City Council does not have a remit for public health, instead being responsible for Environmental Health. They produced materials in the city centre to guide residents on social distancing measures (Fig.5) and their website and communication channels pointed towards the national campaigns.

The City Council also communicated information about their key services and changes to provision, in addition to outlining support available to residents and businesses through a variety of channels. As soon as the pandemic began, they sent a letter to all homes and businesses in the district with key phone numbers and information about service provision. This was followed by regular updates on their websites, provision of extended hours for customer services, COVID information officers who were present in the city and surrounding areas, social media and regular video meetings.

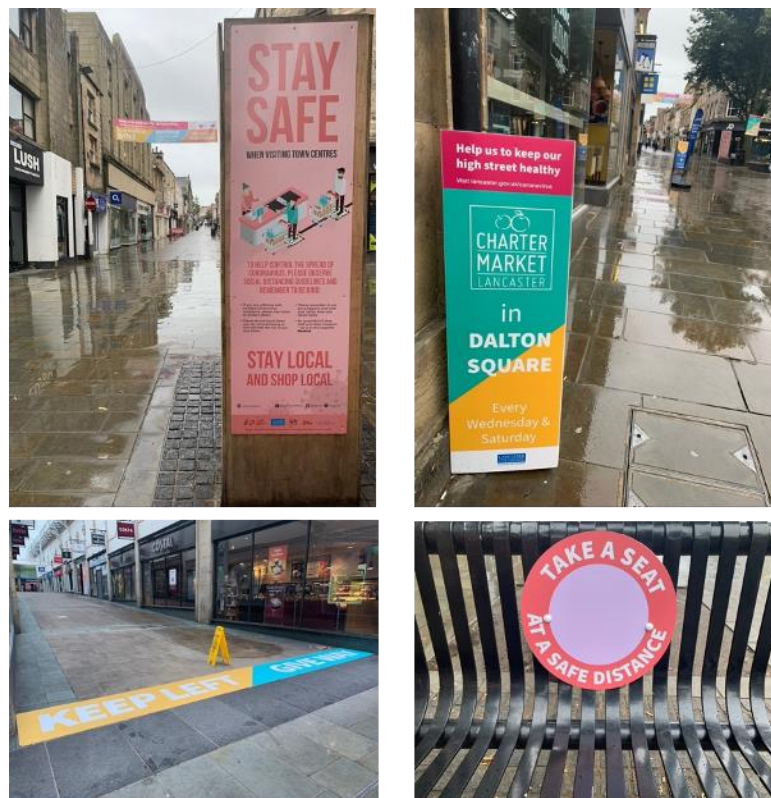


Figure 4: Public health graphic materials in Lancaster City centre

Throughout the pandemic the MP for Lancaster and Fleetwood had Governmental briefings relating to the changing regulations and the introduction of the Tier systems. These were often arranged at short notice due to the fast pace of developments and implementation of policy. The Leader of the City Council also received briefings from central Government prior to some

public announcements being made, but also had to rely on information provided to the public. Both the MP and the Leader of the Council found issues in getting up-to-date information from central Government. This placed pressure upon them when providing advice and guidance to constituents and residents. Laws were passed relating to social gatherings and business closures and these were enforced by police. Locally, Lancaster City Council ensured compliance of social distancing measures in local businesses, operated a “COVID safe” scheme, and enforced closures of non-essential retail, hospitality, leisure and personal care businesses.

## TIMELINE OF EFFECTS

The four UK countries (England, Northern Ireland, Scotland, Wales) were all subject to different regulations and lockdowns. Key dates for England, including lockdowns and the introduction of the Tier System are illustrated in Figure 5 (below). When the tier system was introduced in October 2020, Lancaster was placed in the same tier as the whole of Lancashire, despite cases in the West of the county being much lower than in Eastern regions (such as Blackburn with Darwen and Burnley). This was highlighted in November when the Lancaster and Fleetwood MP called for a more local approach, suggesting Lancaster and Fylde, who

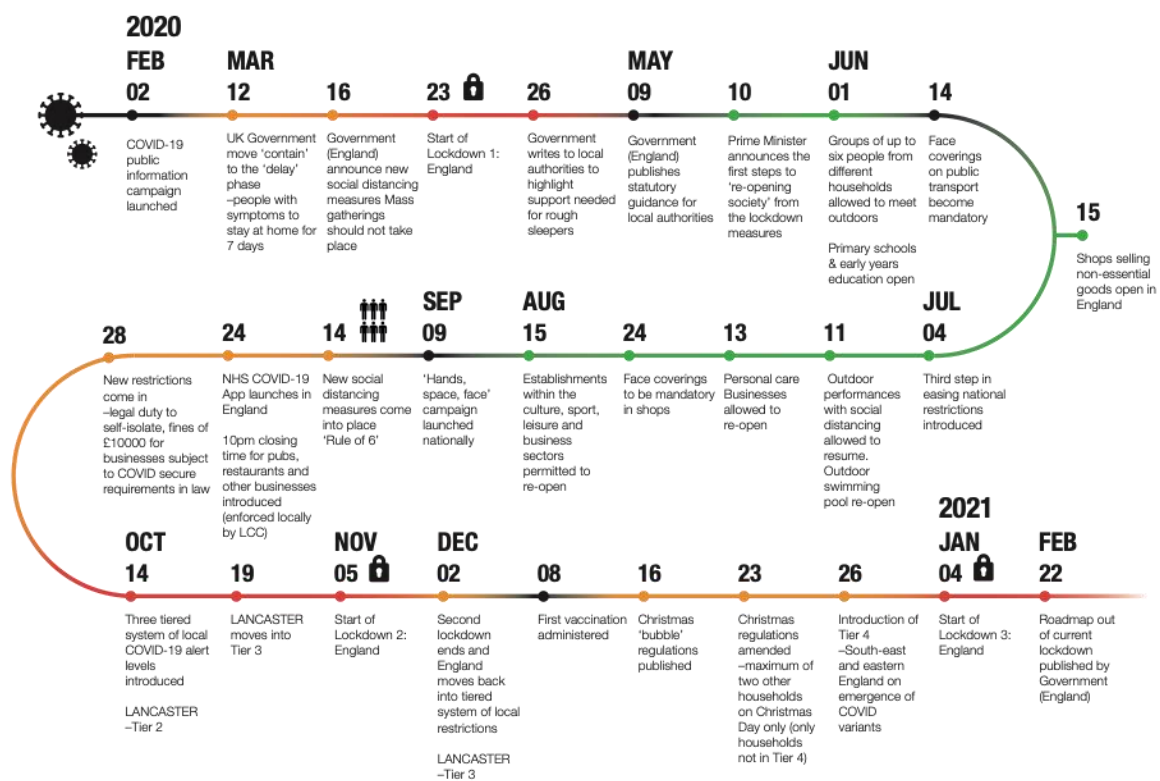


Figure 5: Timeline of key COVID-19 events

had fewer cases, should be placed in a lower tier. However, not long after this, cases in this area began to rise again and so the MP accepted that Lancaster should remain in the same tier as the rest of the county. Communications

between national government, MPs and local councils often consisted of briefings arranged with short notice and the leaking of regulations to news outlets prior to official government briefings. Furthermore, the complex ecosystem of regional and local governance in England resulted in a perceived lack of understanding of that ecosystem by civil servants and politicians in central government, and a lack of clarity in the guidelines whilst working at high speed. The rapid rollout of national and subsequently regional tier systems, which were often leaked to national press ahead of official announcements, meant it was vital for local government officers and politicians, including the Lancaster MP, to communicate locally and offer reassurance and support to local residents and businesses. Lancaster district itself did not have a significantly high level of cases (Fig 6 – 8), but Lancashire and the North West both

Cases in [Lancaster](#)

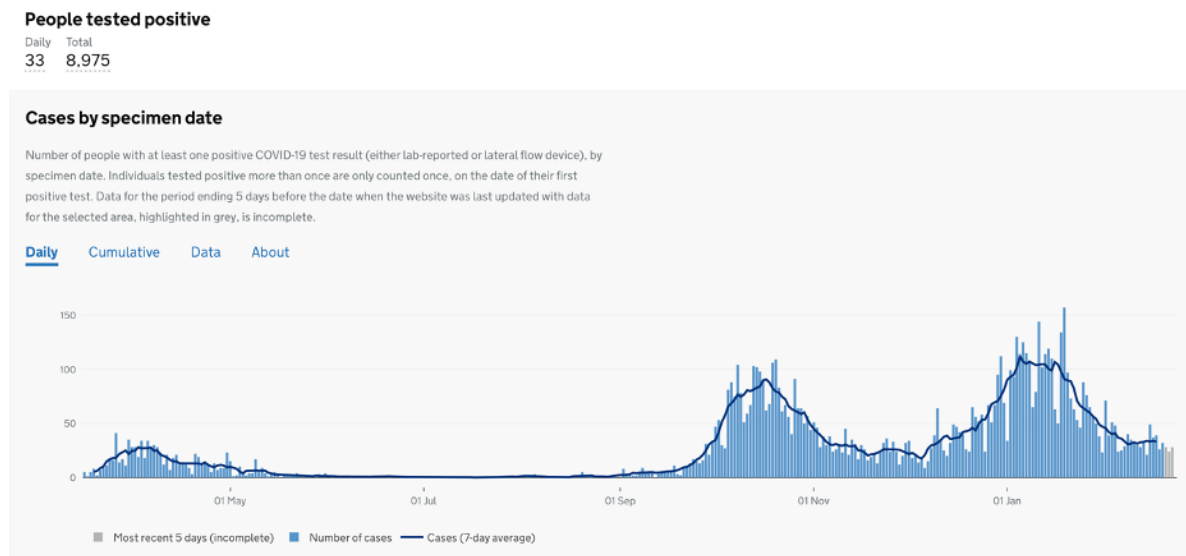


Figure 7: Graph of cumulative COVID-19 cases in Lancaster (from HM Government Data Dashboard)

Cases in [United Kingdom](#)

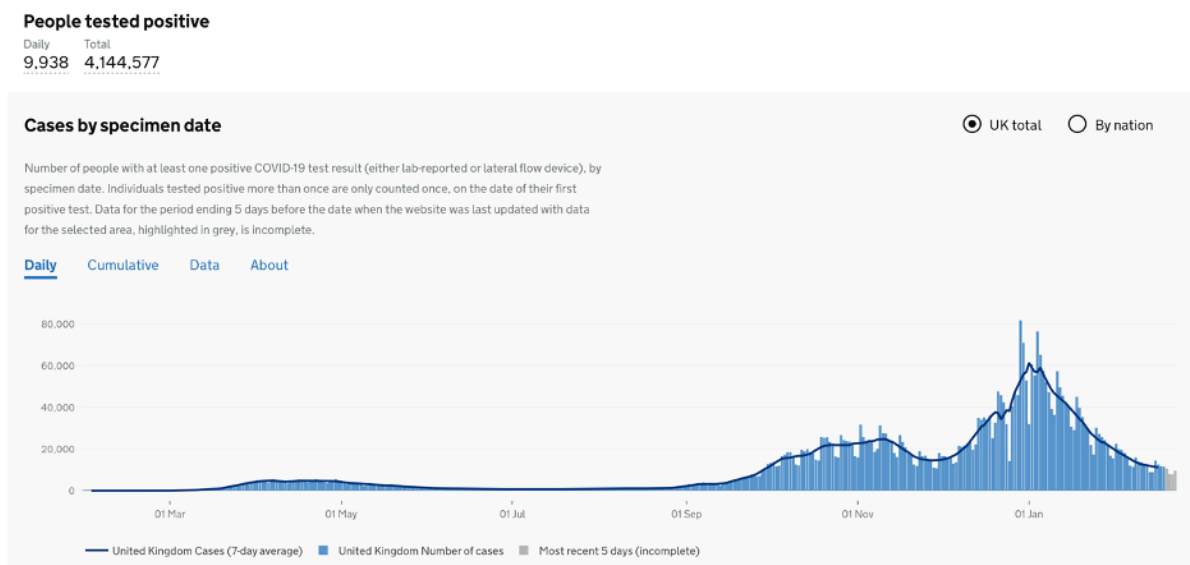


Figure 6: Graph of cumulative COVID-19 cases in UK (from HM Government Data Dashboard)

Deaths within 28 days of positive test		Deaths with COVID-19 on the death certificate	
Daily	Total	Weekly	Total
0	277	19	126

### Deaths within 28 days of positive test by date of death

Number of deaths of people who had had a positive test result for COVID-19 and died within 28 days of the first positive test. Data from the four nations are not directly comparable as methodologies and inclusion criteria vary. Data for the period ending 5 days before the date when the website was last updated with data for the selected area, highlighted in grey, is incomplete.

[Daily](#) [Cumulative](#) [Data](#) [About](#)

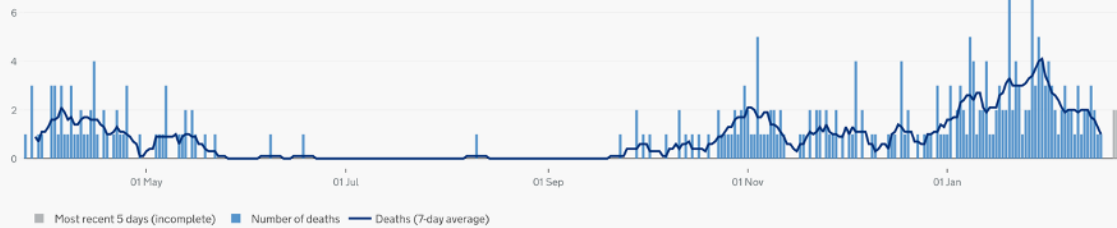


Figure 8: Graph of Cumulative Deaths in Lancaster (from HM Government Data Dashboard)

saw very high cases. By the 12<sup>th</sup> February 2021 Lancaster had 8,586 cases, (per 100,000 of the population), Lancashire had 88,913 cases (7,289.2 per 100,000) and the North-West had 551,777 (7,516.2 per 100,000) and the UK 4,013,799<sup>2</sup> (Lancashire County Council, ND).

The UK saw the highest death rates in Europe, with 116, 287 people dying by 12<sup>th</sup> February 2021. By this date, Lancaster had 261 deaths, Lancashire saw 2,700 (3<sup>rd</sup> highest in Upper Tier Local Authority)<sup>3</sup> (Government, 2021).

## CONSEQUENCES

### Urban form

Around the world it was recognised that the pandemic highlighted issues relating to inequalities in cities (Gatzweiler, 2020). The pandemic resulted in tangible changes to the urban form of Lancaster, particularly around the city centre. In order to ensure compliance with social distancing in the pedestrianised areas of the city centre, signage was installed and seating was either taped so that people could not sit down (Fig.4). The city’s Charter Market, which has been in existence since the 18<sup>th</sup> Century, is usually located in a pedestrian zone that sees heavy footfall under normal circumstances. In order to keep the market operating and supporting small local businesses, the market was re-located to Dalton Square; an historic area close to the Town Hall (Fig.9). The square is usually open to traffic, but it was closed off to enable the market to operate on Wednesdays and Saturdays, in addition to encouraging more pedestrians to use the space. The re-location also enabled the council to experiment with using this area for pedestrians only as part of a larger, long-term plan with Lancashire County Council to re-design the whole city centre transportation system, including its notorious

<sup>2</sup> Lab confirmed cases

<sup>3</sup> Deaths within 28 days of positive test by date of death

one-way gyratory system. The urban realm also saw the transformation of buildings, with offices re-used for customer services to enable social distancing and the Town Hall being used as a vaccination centre.

Transportation around the city was also re-designed when Central Government issued orders to local and county councils to deploy cycle and walking paths (Fig.10) in order to encourage more people into active travel, which would take the pressure off public transport. This involved the closure of some smaller roads, where in some cases barriers were combined with containers of plants and greenery. Plans were already in place to develop the city's active travel plans in the future, and these were brought forward and prototyped during the pandemic.

Nationally a picture emerged that large portions of the population were unable to access green space within a 10-minute walk (Mell, 2021; Patel JA, 2020). As the impact of pandemics in the past have highlighted the need for careful consideration of urban design and its effects upon



Figure 9: Dalton Square closure to traffic and hand sanitising station

urban health, the impact of the design of urban spaces will need to be re-considered and designed to enable greater wellbeing post COVID-19.

### **Policymaking**

Within the City Council, policies that had been on the agenda for the future were brought forward and essentially prototyped; including working from home, roll-out of digital technologies, active travel and urban realm. The process of policymaking was challenging in the early stages whilst effective modes of communication were being established between elected members and council officers. A key policy that came from central government and had to be enacted by the City Council was the implementation of the business support schemes to assist local businesses, which had to be funded initially by the City Council until they were able to recoup funds from central government



The City Council had developed an Emergency Plan prior to the pandemic, which dealt with a range of risks, such as fire or flood, and included a plan for a pandemic. However, the pandemic plan dealt primarily with the provision of services, which were placed in Band 3 (least essential) to Band 1 (most essential and statutory<sup>4</sup>). One of the key tasks in the early stages of the pandemic was to redeploy staff from Band 3 to ensure that the key services in Bands 1 and 2 were adequately staffed. The plan was revised as it was implemented as no officers or councillors had operational experience of a pandemic. It continues to be a working document where learning is incorporated.



Figure 10: Pop-Up bicycle lanes in the city centre

## Digital technology

The rapid implementation of work from home orders meant the City Council had to ensure all staff working from home had adequate hardware, software and internet connection, with key council services offered to customers by digital platforms and telephone. This picture mirrored governments at all levels around the globe (Agostino, Arnaboldi, & Lema, 2021). This deployment occurred successfully, with Microsoft Teams being used for all meetings within the council, for council executive committee meetings and for community calls. This deployment of technology also saw a roll out of devices to staff who were not office based and did not tend to use technology, such as bin collectors were provided with new technology equipment and embraced it. Attendance at virtual all-staff meetings also increased during the

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<sup>4</sup>The City Council's Emergency Plan prioritised services in three bands – with Band 1 being statutory and vital services, Band 2 being important services and Band 3 being services from where staff could be re-deployed

pandemic, and it is perceived that there has been greater engagement in the democratic process and across communities when video calls were held.

A key challenge in the reliance upon technologies, both within the council and in communities, particularly for children who had to home-school and residents who needed assistance, was the provision of equipment and access to the internet. A range of charitable organisations donated equipment to schools and mobile phone and internet providers enabled free access to those in need. Residents in rural areas also found issues with broadband connectivity, which is part of a wider national issue with mobile and broadband provision in rural and remote areas.

### **Social consequences**

Throughout the pandemic there was a strong sense of community both within the council and outside in communities. Small mutual aid groups developed who helped vulnerable residents who were shielding with shopping or made phone calls to those who were lonely. In an interview with the City Council Leader, she expressed her pride in the officers across the council who had worked throughout the pandemic, often in different roles. The City Council set up a Community Hub at the onset of the pandemic, providing support for residents in a range of areas. This was considered an example of good practice and included in the Carnegie Trust's 'Pooling Together' report (Coutts, 2020). The City Council transformed from being just a service provider to being a connector and network actor during the last year, seeing themselves more as an enabler with the skills and resources to connect communities and organisations to foster a sense of shared responsibility across the district. Furthermore, the council worked to provide all homeless residents with accommodation, which would normally be a complex operation due to often complex needs and the different organisations involved in such a process.

### **INTEGRATION OF DESIGN METHODS INTO FUTURE GOVERNANCE**

In recent decades a range of design methods and approaches have been explored and utilised in governments at all levels (ref). Design, in particular design thinking (Brown, 2009) and Simon's approach to policymaking through creative problem solving (Simon, 1969) have been deployed in governments. However, more recently specific design methods such as co-design (Bason, 2013; Einfeld & Blomkamp, 2021; Whicher & Crick, 2019), participatory design (Bason, 2013) and speculative design (Miller, 2019) have been utilised in governments to go beyond the conceptualisation of design simply as a problem solving exercise (Junginger, 2014; Siodmok, 2014).

Whilst design is not a panacea to issues faced in government, it holds the potential for policymakers and officers to visualise possible futures and outcomes of policy actions and interventions. As such, we plotted where design interventions might take place in a range of policy areas and actions (Fig.12)). This first attempt at plotting design interventions forms the basis of future work we intend to carry out with Lancaster City Council, with elected officials, officers (at all levels in the organisation) and community organisations and individuals they work with.

A key area to be explored will be how experiences from COVID-19 can be captured and reflected upon, in order to inform future emergency planning for both pandemics and other complex challenges, such as those relating to climate change and societal change.

# CONCLUSION

## Impact of taking a systems approach

Governments at all scales can employ systems thinking in order to aid policymakers in not only understanding but also influencing the spread of infection and the wide range of impacts it has across communities (Bradley, Mansouri, Kee, & Garcia, 2020). The Systems Approach diagram (Fig.9) illustrates the complex relationships between the national government, local government and the statutory regulations carried out by all organisations. It also highlights the partnerships that were vital to service delivery during the pandemic and the policy areas the City Council intend to develop further in the future.

We saw that Lancaster took an approach that was partly systematic, but also partly emergent and responsive. Certain actions taken by the City Council had been implemented by national Government, such as the requirement for local authorities to provide adequate shelter for the homeless population, the distribution of financial support to businesses in the district and the

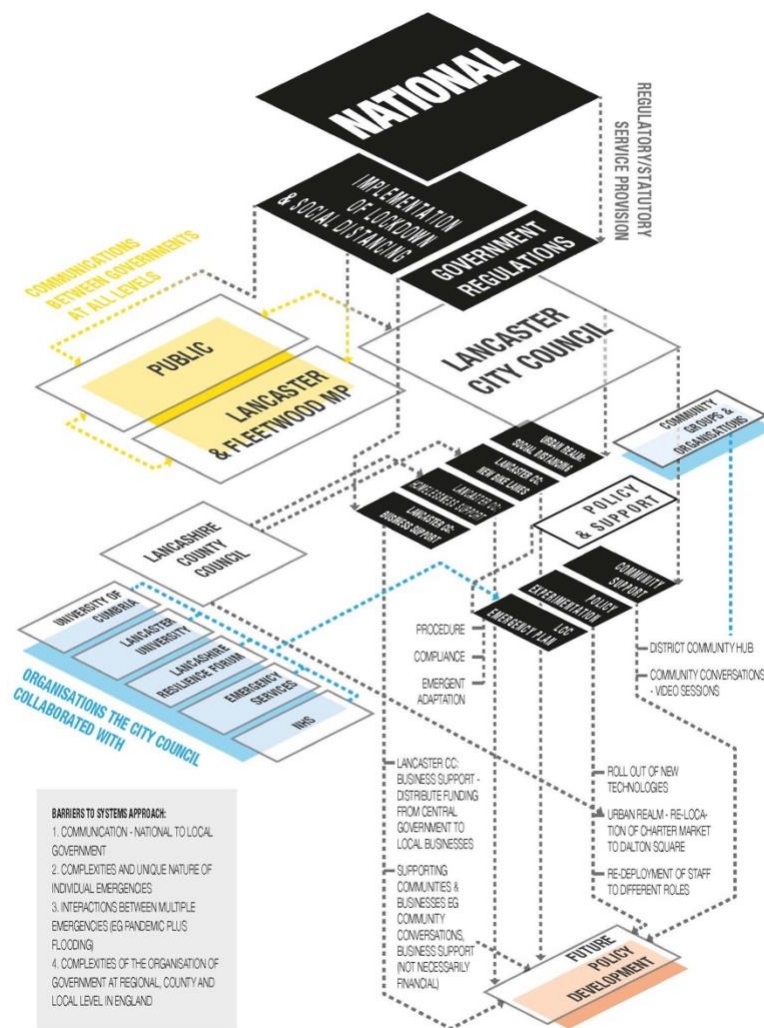


Figure 11: Systems Map showing inter-relationships between Lancaster City Council and other organisations

provision of increased space for cycling and walking (carried out in partnership with Lancashire County Council).

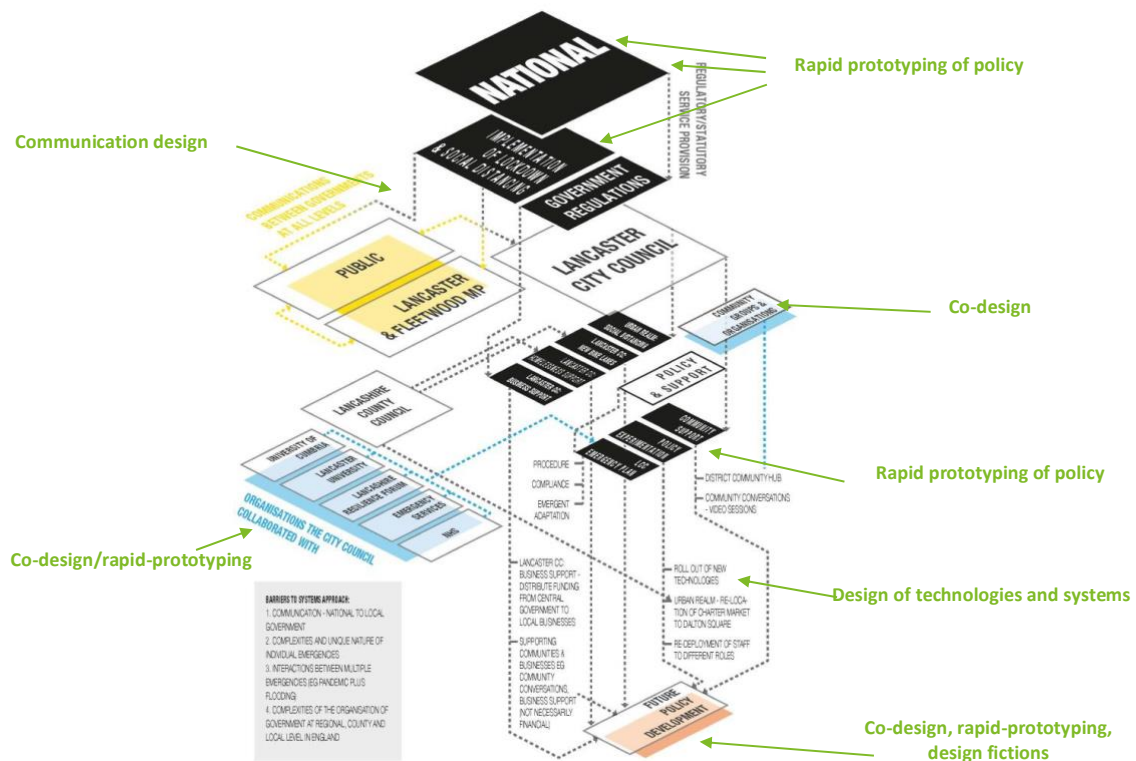


Figure 12: Systems Map showing locations of potential design interventions (work in progress)

Other actions, such as those in the City Council’s emergency plan, also followed protocols. The lack of operational experience both within the district, county and national governments led to responsive learning throughout the pandemic and, therefore the importance of reflection became apparent in these processes. The planned responses within the Council’s emergency plan, such as the prioritising of key services, were adapted as officers gained clearer insights into what was required for each service. The City Council was able to respond to the service needs of the community by re-deploying staff rapidly into key areas, such as bin collection and customer services. This was only possible because their work-force was of adequate size, a result of the council not out-sourcing any services. In recent years the practice of out-sourcing which began in the 1980s has been reversed, with councils taking the decision to ‘in-source’ in order to provide higher quality services, better value for money and to provide high-quality employment (Sasse, 2020).

Barriers to the City Council taking a systems approach were discovered, namely the complexity of governance at the regional and local level in the English regions. This mix of governance types and the resultant confusion by central government about key roles and requirements of government at a local level led to lack of clear communication and the

implementation of large-scale Tier regulations. It was felt by local leaders that at certain stages of the pandemic a local approach to Tiers and also to the track and trace system might have worked more effectively.

The way in which the City Council moved from the role of service-provider to 'connector' is also important to consider in the context of systems approaches. Whilst regulatory responses were seen in some areas of the City Council's response, a more emergent approach was seen in their response to residents in need. Within a week of the lockdown announcement in March 2020 the council moved to set up their District Community Hub, which relied upon the assistance and support of community groups within the district. Whilst this was not included in the Emergency strategy or required by central government, it became a key method of both communicating with and providing support for those who were particularly vulnerable.

### **Evidence of on-going policy change**

Prior to COVID-19, the City Council was focussing on three priorities; meeting the climate emergency, building community wealth, and building community power. Through their work, they were focussing on community engagement which they carried out through community mapping, community organising and understanding where people meet, and understanding the different kinds of groups and how they connect. As the pandemic started to impact, the Council began pulling together the community organisations, community leaders and other institutions and organisations in order to support one another and share information. Whilst simultaneously providing and bringing together support in the district, the Council maintained focus on their three core priorities that would also be priorities in the future. This demonstrates that forward planning for policies needn't be abandoned during extraordinary circumstances and can act as a framework to support actions during these times to maintain focus.

The City Council also brought forward internal and external facing policies that had been on the horizon, such as the need to tackle the issues with the city's homeless population, flexible working from home, and encouragement of active travel in the city through cycling and walking and changes to the urban realm. In fact, the pandemic offered opportunities for experimentation in policy areas relating to active travel and the urban realm, where officers from the City Council and County Council were able to observe the impact of pop-up cycle lanes and the pedestrianisation of Dalton Square due to the re-location of the Charter Market. The Council also experienced the removal of 'red tape' and policies that might take a long time to enact have been carried out rapidly. This was demonstrated in the speed at which the city's homeless population were provided with shelter and care, a task which would normally have taken much more time and become far more complex.

It is also apparent that key officers and leadership within the Council are keen to learn from their experiences of the pandemic in embedded key learning from this time into their future planning. This will inform policies around transportation, the public realm and human resources. In particular, the leadership are keen to harness the new skills and enthusiasm demonstrated by some staff who were re-deployed or had opportunities to demonstrate skills during this period.

The Council's emergency plan has also been affected by this pandemic, most notably through the reflections and experiences of those involved in delivering the plan, which have been written into it and transformed it from written plan to working document. Officers have realised

that whilst there is a need for the plan to contain key operational steps and procedures it is also vital that flexibility is built into the plan. It is also vital that the plan reflects the possibility of emergencies overlapping and occurring simultaneously, for example experiencing a pandemic *whilst* experiencing flooding or other emergencies caused by climate change. A systems approach is imperative as pandemics do not occur in a vacuum, and in the future the co-existence of multiple and simultaneous emergencies such as pandemics and climate-change related flooding is likely to increase. Being prepared is vital, as is the ability to immediately collaborate with key groups, organisations and agencies, whilst building in a certain degree of flexibility.

The benefits found by Lancaster relating to community and organisational motivation and cohesion was partly contingent upon strong leadership, which cannot always be relied upon to be present in organisations such as local government. This presents a risk factor which must be included in a systems approach, of ensuring leadership at the level of politicians down to the leadership at organisation and directorate level. These inter-reliant and complex issues should be addressed in parallel and between all levels of governance, with clear lines of communication between national, regional and local governments.

### **Potential of design**

Our ongoing research aims to explore at which points different design methods might aid policymakers and council officers in both the development of and reflection upon experiences of COVID-19. Furthermore, through using design methods such as co-design (Sanders & Stappers, 2008) and design fiction (Coulton, Lindley, & Akmal, 2016) we hope to assist the council in formulating emergency plans for the future that allow for multiple and concurrent emergencies, such as pandemics and extreme weather events.

## ACKNOWLEDGEMENTS

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## REFERENCES

- Agostino, D., Arnaboldi, M., & Lema, M. D. (2021). New development: COVID-19 as an accelerator of digital transformation in public service delivery. *Public Money & Management*, 41(1), 69-72. doi:10.1080/09540962.2020.1764206
- Bason, C. (2013). DESIGN-LED INNOVATION IN GOVERNMENT. *Stanford Social Innovation Review*, 11(2), 15-17.
- Bradley, D. T., Mansouri, M. A., Kee, F., & Garcia, L. M. T. (2020). A systems approach to preventing and responding to COVID-19. *EClinicalMedicine*, 21. doi:10.1016/j.eclinm.2020.100325
- Brown, T. (2009). *Change by Design: How design thinking transforms organizations and inspires innovation*. New York: HarperCollins.
- Coulton, P., Lindley, J., & Akmal, H. A. (2016). *Design Fiction: Does the search for plausibility lead to deception?*
- Council, L. C. (ND). Council Structure. Retrieved from <http://www.lancaster.gov.uk/the-council-and-democracy/about-the-council/council-structure> 9
- Council, L. C. (ND). Lancashire County Area Profiles. Retrieved from <https://www.lancashire.gov.uk/lancashire-insight/area-profiles/local-authority-profiles/lancaster-district/>
- Coutts, P. O., H; Pennycook, L; Thurman, B (2020). *Pooling Together: How Community Hubs have responded to the COVID-19 Emergency*. Retrieved from
- Einfeld, C., & Blomkamp, E. (2021). Nudge and co-design: complementary or contradictory approaches to policy innovation? *Policy Studies*, 1-19. doi:10.1080/01442872.2021.1879036
- Gatzweiler, F. F., B; Rozenblat, C; Su, H.J.S; Luginaah, I; Corburn, J; Boufford, J.I; Valdes, J.V; Nguendo-Yongsi, B; Howden-Chapman, P; Singh, R.B; Cooper, R; Oni, T; Zhu, Y.G (2020). COVID-19 reveals the systemic nature of urban health globally. *Cities and Health*. doi:doi.org/10.1080/23748834.2020.1763761
- Government, H. (2021). COVID-19 Data Dashboard. Retrieved from <https://coronavirus.data.gov.uk>



Junginger, S. (2014). Towards Policymaking as Designing: Policymaking Beyond Problem-Solving and Decision Making. In C. Bason (Ed.), *Design for Policy* (pp. 57-69). Farnham, Surrey: Gower Publishing Limited.

Mell, I. (2021). Access to urban parks is far from equal - fining people who travel to reach nature is not the answer. Retrieved from <https://theconversation.com/access-to-urban-parks-is-far-from-equal-fining-people-who-travel-to-reach-nature-is-not-the-answer-153258>

Miller, B. (2019). Signals of change: Using speculative design to anticipate regulatory needs. Retrieved from <https://openpolicy.blog.gov.uk/2019/09/23/signals-of-change-using-speculative-design-to-anticipate-regulatory-needs/>

Patel JA, N. F., Badiani AA, et al. . (2020). Poverty, Inequality and COVID-19, the forgotten vulnerable. *Public Health*.

Sanders, E. B. N., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *CoDesign*, 4(1), 5-18. doi:10.1080/15710880701875068

Sasse, T. N., S; Britchfield, C; Davies, N (2020). *Government outsourcing: When and how to bring public services back into government hands*. Retrieved from

Simon, H. A. (1969). *The Sciences of the Artificial*. Cambridge, Massachusetts and London, England: MIT Press.

Siodmok, A. (2014). Tools for Insight: Design Research for Policymaking. In C. Bason (Ed.), *Design for Policy* (pp. 191-200). Farnham, Surrey: Gower Publishing Ltd.

Whicher, A., & Crick, T. (2019). Co-design, evaluation and the Northern Ireland Innovation Lab. *Public Money & Management*, 39(4), 290-299. doi:10.1080/09540962.2019.1592920