Recommendations for policy and practice

The following recommendations for policy and practice build upon the research findings set out in the preceding sections. They aim to help inform Scottish local and central governments' ongoing practices in, and future planning for, digital transformation and data innovation. Beyond Scotland, these recommendations are relevant to policymakers and practitioners at the forefront of data engagement by providing directions for future developments.

Building on recent achievements

As evidenced in the report, the pandemic has demonstrated the importance of data to local government and public organisations and accelerated data use and innovation. Making these achievements last requires:

1. **Sustaining, and building on, newly-gained data practices** (re: findings 1.1 and 1.3): Local authorities should be supported to sustain their efforts and avoid reverting to pre-COVID-19 data practices. This can be achieved by investing in newly-gained data practices and data-driven initiatives, as well as by strengthening data networks and collaborations to reflect on lessons learnt and share best practices.

2. **Recognising the importance of public sector data** (re: finding 1.2): Local and national public sector data has played a key role in managing the crisis. Therefore, accessibility and usability of this type of data need to be placed at the forefront of local and national policy agendas. This can be achieved through the implementation and strengthening of open-data initiatives across the public sector, and addressing issues relating to data re-use and sharing (see also recommendation 5).

3. **Harnessing the potential of novel data** (re: finding 1.4): While the use of novel data by local authorities is still at an early stage, to seize this opportunity, central and local government should foster data skills as well as provide successful use case examples of novel data applications to address operational needs and inform decision-making. Successful examples include: the work undertaken by the Scottish Cities Alliance [70], and the collaborative work undertaken by Glasgow City Council and the Urban Big Data Centre on creating anonymised open data counts of pedestrians and vehicles using CCTV [71].

4. **Coordinating private sector data procurement** (re: finding 1.5): Local authorities can increase the use of and access to private sector data by jointly devising guidance and templates for private sector data procurement. One successful example is the development of collaborative procurements by Excel Scotland [72].

Addressing persistent challenges

The pandemic exposed urgent challenges relating to data quality, integration and sharing across local government and the public sector. Addressing these challenges will allow local authorities to be more resilient and efficient, thereby reducing expenses and the use of resources. This can be achieved by targeted local and national investment in:

5. **Developing and adopting data standards** (re: finding 2.1): Local authorities, with the support and lead of the Scottish Government, should adopt common digital and data standards. This will reduce resource intensive data matching and integration, and facilitate data interoperability within local government and across sectors.

6. **Conducting data maturity assessments** (re: finding 2.1): Data maturity assessments [73] should be conducted across local government with the support of the Digital Office. These will enable local authorities to identify data gaps and challenges, and establish strategies and targeted investment to meet their specific data needs.

7. **Addressing legacy systems** (re: finding 2.2): Legacies of systems are a major obstacle to data use and sharing within local authorities. Local government, supported by central government, needs to map existing systems, assess needs and develop a strategy to address legacy. This can be supported by the Digital Office and via the Scottish Digital Academy [74].

8. **Providing staff training** (re: finding 2.3): Developing and strengthening local government's in-house data skills are essential. Training includes the acquisition of technical skills (for example, data analytics, data integration, and database creation), the use of software (for example, ArcGIS Desktop, Power BI, and Tableau) and the enhancement of data literacy within local authorities. Such training can be delivered in partnership with the Scottish Digital Academy or academic organisations such as the Data Lab, and the Urban Big Data Centre.

9. **Investing in greater data capabilities** (re: finding 2.4): To ensure successful digital transformation and reap the benefits of data within local government and across the public sector, targeted investment is needed in data infrastructure (for example, system management and analytical tools) and capacity development (for example, staff). Case examples of successful investments should be shared to demonstrate positive cost-benefit outcomes.

Enhancing cross-sectoral data sharing

Local government had to rapidly acquire and share data with a range of cross-sector organisations, in particular NHS Health Boards, central government and the third sector, to manage and coordinate a local response to the pandemic. Moving forward, it is essential to support cross-sectoral data sharing practices by:

10. **Consolidating data sharing protocols across the public sector** (re: finding 3.1): The Scottish Government and national organisations with a digital portfolio should support and consolidate the achievements made during the pandemic. This can be accomplished by using collective data sharing agreements (for example, Data Sharing Framework between local government and NHS), as well as developing and adopting common platforms within the public sector.

11. **Developing data sharing protocols with the third sector** (re: finding 3.3): Data sharing between local authorities and the third sector, while critical, is not yet properly supported. Better outcomes can be achieved by developing data sharing protocols, thus significantly reducing duplicate information requests and the burden put on the third sector and local government. This should be actively supported by central government and national organisations with a digital portfolio.

12. **Investing in a national data ecosystem** (re: findings 3.2 and 3.3): Cross-sectoral data sharing needs to be supported by nurturing a viable national data ecosystem. This requires strategic and financial investment and structural support (for example, streamlining and coordination), directed at local government and the third sector. These efforts should be overseen at national level.

Innovating in joined-up data practices with focus on public benefits

Looking ahead, there is a strong case for local and central governments – as well as wider public, private and third sector organisations involved in digital transformation and data innovation – to work towards a joined-up approach to data focused on public benefits. Such an aspiration can be realised by:

13. **Embedding data perspectives throughout local government processes** (re: finding 4.1): Data has played a pivotal role in the management of the crisis and its value has been recognised beyond the remit of data specialists. Local and central governments should entrench this by consistently considering the value and contribution of data at various stages of policy and decisions.

14. **Facilitating shared learning and data collaborations across local government** (re: finding 4.2): Central government and other organisations at the forefront of data engagement should support and strengthen existing spaces and networks dedicated to data collaboration and shared learning (for example, cross-sector data taskforce, and data and intelligence network).

15. **Promoting a national approach to data as public good** (re: finding 4.3): Those wishing to advance the digital agenda in Scotland should demonstrate the value and potential of data to citizens. This can be achieved by clearly articulating the public benefits in using and sharing their data, as well as by increasing transparency of these processes to build public trust. This needs to be combined with greater consultation and participation of citizens in data initiatives and innovations.