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UK Resilience Lessons Digest

Learning in Action

Issue 2 | March 2023

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Director's Foreword

From Mary Jones, Director, Resilience Directorate

The first issue of the UK Resilience Lessons Digest entitled “Learning Together” was published last October. It reached more than 40,000 readers from across the UK resilience community and more than 400 members of that community signed up to the webinar to launch publication hosted by the Emergency Planning College. I joined the launch event and was impressed by the wide range of interest at local, national and international levels.

Since that event we published the UK Government Resilience Framework in December, which builds on our well established framework for civil protection in the UK and delivers a new strategic approach to resilience based on three core principles:

- A developed and shared understanding of the civil contingencies risks we face is fundamental;
- Prevention rather than cure wherever possible: a greater emphasis on preparation and prevention; and
- Resilience is a ‘whole of society’ endeavour, so we must be more transparent and empower everyone to make a contribution.

In order to shift away from simply dealing with the effects of emergencies towards a stronger focus on prevention and preparation for risks, it is critical that we identify lessons from what we have experienced and take steps as individual organisations and a wider community to build our understanding and learn from those lessons and take steps to implement changes to our plans, provide our people with the knowledge and skills required and test them in their roles.

This second issue “Learning in Action” is important because it considers the resilience community’s experience of national, regional and local exercises, presenting a central academic analysis to support our shared understanding of risk. It highlights common challenges and areas for improvement in simulated responses to a range of scenarios. This issue also includes four articles that promote active learning from exercises and emergencies in both concept and practice. This provides the community with insights into active learning processes; a contribution from the JESIP team on national level learning following publication of Volume 2 from the Manchester Arena Inquiry; practical tools to support scenario design; and active learning from local community experiences of mutual aid during the Covid-19 response.

I hope you find that this edition of UK Resilience Lessons Digest is a resource that will help you in achieving our shared ambition and continued efforts to identify and implement lessons across the risk cycle, especially in using the common learning themes in our collective efforts to design training and exercise objectives.



Mary Jones

Director, Resilience Directorate

Introduction

Welcome to the UK Resilience Lessons Digest, Issue 2: Learning in Action

In this edition, we are pleased to present an analysis of lessons arising from more than a decade of emergency exercises. We also hone in on important lessons arising in the national arena and explore how ‘active learning’ can make all the difference when it comes to embedding change. Additionally, we provide updates on how the Digest has been put into action in local settings.

Since Issue 1: Learning Together was published last October, the Chair of the Manchester Arena Inquiry, Sir John Saunders, released the Volume 2 reports on the emergency response to the Attack in May 2017.¹ Joint Emergency Services Interoperability Principles (JESIP) released key guidance on activating, leading and working in Multi-Agency Information Cells (MAIC) and in December 2022,² the government published the **UK Government Resilience Framework**.³ This set out plans to strengthen the systems and capabilities that support our collective resilience.

All of these publications are products of active learning processes. They are informed by an evidence base that is built on learning from past emergencies and active engagement with the experiences

of key stakeholders, articulating lessons to be grasped in the present and direct resilience learning for the future. They also recognise that there is clearly more learning to be implemented, tested and embedded, converging on the importance of exercising emergency plans and structures to help achieve this. For example:

- the Volume 2-I report states that “lessons need to be learned when things go wrong in exercises or in a real emergency, and change implemented as a result”⁴
- JESIP’s MAIC guidance advises exercising multi-agency information cells during each appropriate exercise
- the UK Government Resilience Framework outlines a continued commitment to regular publication of the Lessons Digest,⁵ networked lesson learning through a new UK National Resilience Academy,⁶ and the reinvigoration of the National Exercising Programme to test plans, structures and skills.⁷

However, the processes involved in identifying and embedding lessons from exercises can create challenges in practice. To support the process of identifying and acting on lessons from exercises,

1 The Hon Sir John Saunders, ‘Manchester Arena Inquiry Volume 2: Emergency Response’, Volume 2-I, November 2022

2 JESIP, ‘Multi-Agency Information Cell (MAIC) Guidance’. June 2022

3 HM Government, ‘UK Resilience Framework’, December 2022

4 The Hon Sir John Saunders, ‘Manchester Arena Inquiry Volume 2: Emergency Response’, Volume 2-II, November 2022, paragraph 21:24, page 135

5 HM Government, ‘UK Government Resilience Framework’, December 2022, paragraph 201, page 62

6 HM Government, ‘UK Government Resilience Framework’, December 2022, paragraph 194, page 61

7 HM Government, ‘UK Government Resilience Framework’, December 2022, paragraph 203, page 63

'Learning in Action' helpfully draws out learning themes and transferable lessons from 16 post-exercise reports. This highlights both common challenges and areas to be considered for improvement.

Learning in Action at the Emergency Planning College

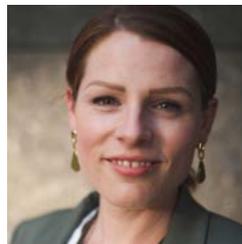
We would like to thank those who provided feedback on issue 1 via our Digest feedback form, to help us learn how we can ensure the publication remains relevant going forward. We were thrilled to see such a positive response to 'Learning Together', which reached more than 40,000 people and generated more than 400 sign-ups to the accompanying webinar.

In response to that feedback, the Digest content has been streamlined to enable a greater focus on the central lessons analysis. We have also maintained a consistent design layout, ensuring articles are clearly signposted, so that each issue can be 'digested' in one go, or approached in bitesize chunks. Finally, following feedback from the local tier, transferable lessons and learning themes are both embedded in the analysis on p.16, and have been collated for easy review and application in practice settings in the **resources** section.

We continue to welcome feedback on the digest going forward, which can be done via this link to our two-minute **feedback form**. We hope you find issue 2: Learning in Action an insightful read, and look forward to hearing from you.



Deborah Higgins
Head of Cabinet Office
Emergency Planning College



Lianna Roast
Resilience Knowledge Co-ordinator
Emergency Planning College

Issue 2: Executive Summary

Timely analysis. Transferable lessons.
Transformative insights.

About the Digest

The publicly available UK Resilience Lessons Digest is part of the government's commitment to strengthening whole-society resilience.⁸ It sits at the heart of a programme of work at the Cabinet Office Emergency Planning College (EPC) to synthesise lessons learned of all major exercises and emergencies.⁹ These summary pages provide an overview of Issue 2 content, which is tailored to achieve the Digest's three key objectives. These are:



To **Summarise** transferable lessons and themes from a wide range of relevant sources



To **Share** lessons across responder organisations and wider resilience partners



To **Coordinate** knowledge to drive continual improvements in doctrine, standards, good practice, training and exercising

Each issue of the Digest provides an analysis of lessons arising from public facing reports, generated after exercises and/or emergencies. This provides an evidence base for 'Learning Themes' (i.e. common areas or patterns of learning across reports) and 'Transferable Lessons' (i.e. lessons with 'all-hazards' applicability, or 'risk agnostic' characteristics) that can be applied in practice to build resilience across the risk cycle.

For a more in-depth overview of the work, including information on the Digest's vision framework, processes and principles, please see the 'About' section in full in Issue 1: **Learning Together**, page 8.



Sidelight: The Risk Cycle

The risk cycle is a conceptual model that breaks the management of a risk down into stages at which different preparatory actions can be taken. The UK Government is using six stages: anticipation, assessment, prevention, preparation, response and recovery.

8 UK Government Resilience Framework. 201, p.62

9 HM Government, 2022. Government response to Preparing for Extreme Risks: Building a Resilient Society, p.10

Overview of Issue 2 - Learning in Action



Summarise:

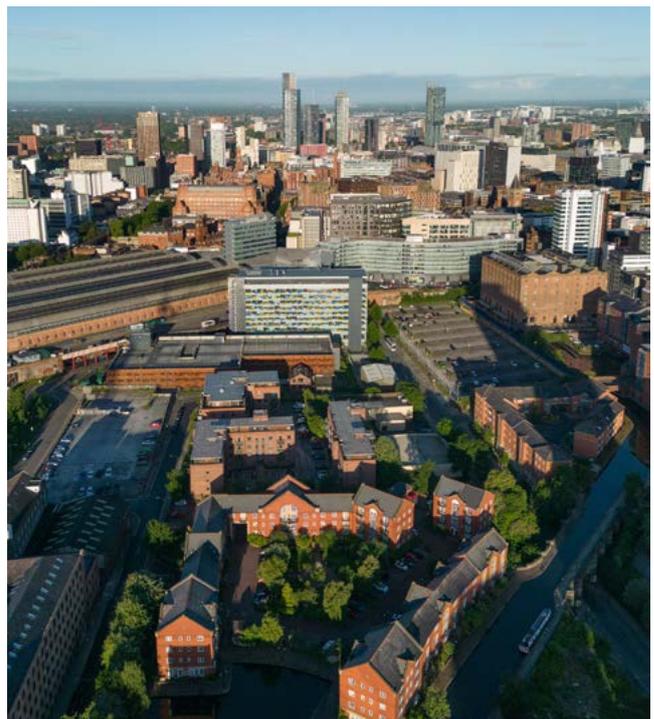
Learning from Emergency Exercises

In November 2022 the Chairman of the Manchester Arena Inquiry published Volume Two of his report into the death of the 22 victims of the attack on 22nd May 2017¹⁰. This set out the Chair's findings and recommendations on the emergency response following the attack. Amongst the issues highlighted in the report were evidenced challenges in identifying, recording and responding to lessons learned from emergency exercises.

In line with these findings and the inclusive commitment of the Digest to synthesise lessons from exercises, the analysis in this issue of the Digest focuses on learning from Post-Exercise Reports (PXR). This research is intended to support the resilience community in identifying transferable lessons and learning themes from more than a decade of exercises.

The data set included a review of 14 public facing PXR. This was further supplemented by 2 further post-exercise reports, made available through evidence from the two most recent Public Inquiries:

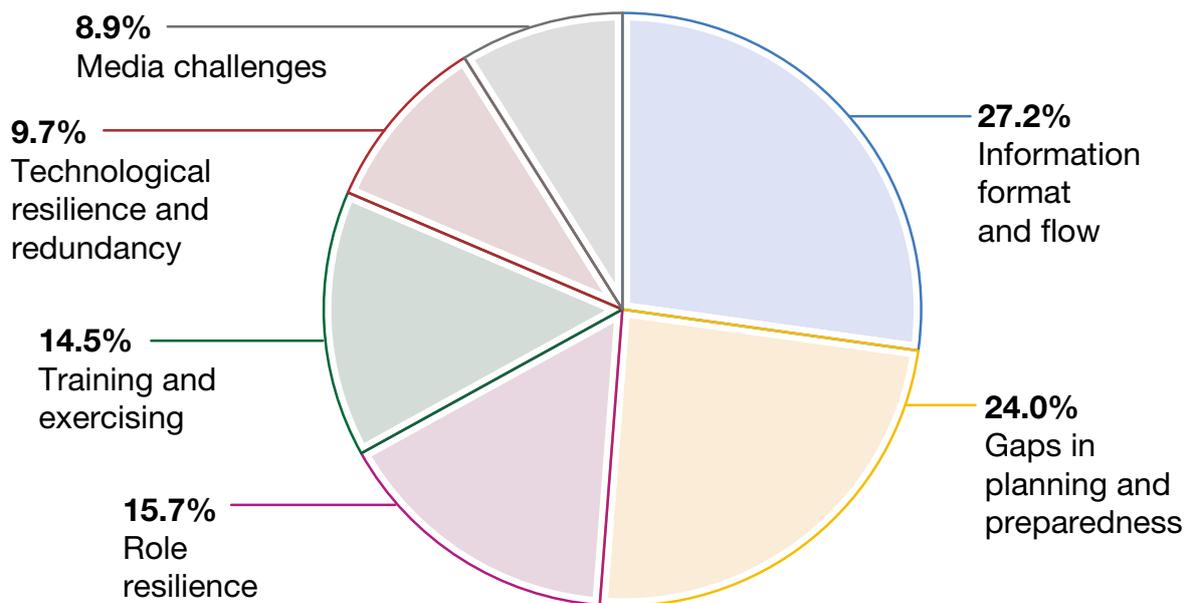
The Manchester Arena Inquiry (Exercise Winchester Accord), and the Grenfell Tower Inquiry (Exercise Safer City). Together the reports span a period of 12 years (2009-2021) and generated learning from rehearsed responses to a range of risks identified on the National Risk Register (NRR).



10 Manchester Arena Inquiry. Volume 2: Emergency Response. Available from: <https://manchesterarenainquiry.org.uk/report-volume-two/>

A total of 456 lessons were reviewed across the 16 reports. The majority of observations, lessons and recommendations identified, coalesced around six distinct learning themes. These are visualised below in order of prevalence:

Figure 1: Share of lessons arising under each of the six learning themes



Under each of these themes there were also a range of transferable lessons that can be applied broadly to improve preparedness and increase resilience in multiple scenarios. Each of the themes have been expanded in the section 'Learning in Action - Lessons arising from emergency exercises', and linked to the National Resilience Standards. A full table of transferable lessons, for ease of sharing and review in local resilience contexts, can be found in the Resources section.



Share:

National and Local Level Learning

National Learning from the Manchester Arena Inquiry

Lessons on interoperability from the Volume 2 Report

In this article Joint Organisational Learning (JOL) Coordinator Lisabeth Jones, and JESIP Deputy Senior Responsible Officer, Carl Daniels highlight some of the national level issues identified in the Manchester Arena Volume 2 Report. They also detail how JESIP and JOL have been actively learning from lessons identified by the Inquiry, both during proceedings and since Volume 2's publication. This included recent updates to the **Joint Doctrine: The Interoperability Framework** (the 'Joint Doctrine'); inputting relevant recommendations into JOL Online so they can be tracked, analysed, shared to inform national doctrine and training; a review of recommendations to see what near-term actions can be taken in response to the challenges raised; and continued, collaborative work with national strategic partners to provide updates against relevant recommendations direct to the inquiry Chair. To read the article in full see p.46.

Learning in the Local Tier

Putting the Digest into action in Greater Manchester Resilience Forum

In this article Dr Kathy Oldham, Chief Resilience Officer for Greater Manchester Combined Authority shares how their Local Resilience Forums have actively applied Digest Issue 1, to support their learning and continual improvement processes. By distilling the Digest's content into 18 lessons across the 5 learning themes arising from the analysis of lessons identified following Storm Arwen, local partners were able to carry out an initial assessment and gap analysis of current relevant activity within the GMRF. They are now exploring how the GMRF can incorporate these lessons in new ways of working, in emergency plans, and in future exercise scenarios. More details can be found on p.42.



Coordinate:

Applied academic insights and practical tools for lesson implementation

Academic Insight

Mutual Aid: Learning in action during Covid-19

COVID-19 saw an unprecedented response from the public to help each other in times of crisis. Thousands of community-based, mutual aid groups emerged across the UK and played an important role in supporting some of the most at-risk individuals in their communities. However, mutual aid and community support groups can dissipate over time, despite how vital and valuable they are. In this case study, Professor John Drury and Dr Evangelos Ntontis set out learnings from their research to understand the processes whereby community support and mutual aid groups can be sustained over time. Interviews with organisers and a two-wave survey of volunteers indicated three types of factors that helped sustain groups: group scaffolding (including finance, practical support and guidance); fostering positive group experiences; and promoting group strategies that enhance a sense of belonging. For a fuller overview and understanding of their findings please see p.60.

Tools for Implementation

Actively Anticipating the Future

Emergency exercises are important tools for making future scenarios actionable in the present. In this article James Ancell, Head of Foresight in the Cabinet Office Joint Data Analysis Centre, writes about the importance of 'Futures Thinking' when actively imagining and anticipating future emergency effects and impacts. This includes the use of techniques for Idea Generation and application of the Futures Wheel to support both pre- and post-exercise activity. Both offer opportunities to build bridges between lessons identified in exercises or emergency responses, past and future plans and practice going forward.

In addition, please do take a look at the 'Resources' section, which provides further reading and links to additional information on some of the topics covered in this issue.

Learning in action

Bridging concepts and practice in the lesson
learning context

What is active learning?

Active learning processes play an essential role in helping people to successfully integrate concepts and practice when working to acquire new knowledge and skills. In fact, it could be argued that all learning is active, given the ‘wiring and firing’ that takes place in the brain whenever we encounter and accommodate new or updated information from the world around us.¹¹ But while all learning can be described as active in part, not all learning endeavours can be described as effective. This has led authors in the risk and resilience arena to describe some post-incident or exercise learning as ‘passive’. This idea of ‘passive learning’ is helpful in distinguishing between learning that results in ‘knowing’ about something, and learning that involves “knowing about something, and then taking remedial action to rectify the deficiencies that have been uncovered”.¹²

This suggests that there are different types, or ways of learning, which are more effective than others. It also suggests that the difference between knowing where things can be improved and achieving embedded change after exercises and emergencies, is in the action.

Why do we need active learning processes?

Research into teaching and learning supports the view that varying effects and impact can be made with different types of learning. In the resilience context, active learning is all about ‘doing something’ with lessons we identify beyond completion and dissemination of the debrief. This is often referred to as lesson implementation, leading to the all-important ‘embedding’ of learning through changes that prevent a problem’s recurrence.

The word ‘embed’ was first used in a geological context as a way of describing fossils found in rock, coming from the prefix ‘em-’, meaning ‘to put into’ and the root ‘bed’, meaning ‘to lay or rest in’.¹³ This reminds us that when we work to embed lessons and the changes they necessitate, it is a process of pressing that learning into practice. More than just making a temporary imprint or impression of a lesson identified within or across organisations, it speaks more to the efforts of making something a fixed, integral part of something else in a way that persists over time.

11 N.R Carlson, ‘Foundations of physiological psychology’ Second Edition. Pearson Education New Zealand. 2008, page 352

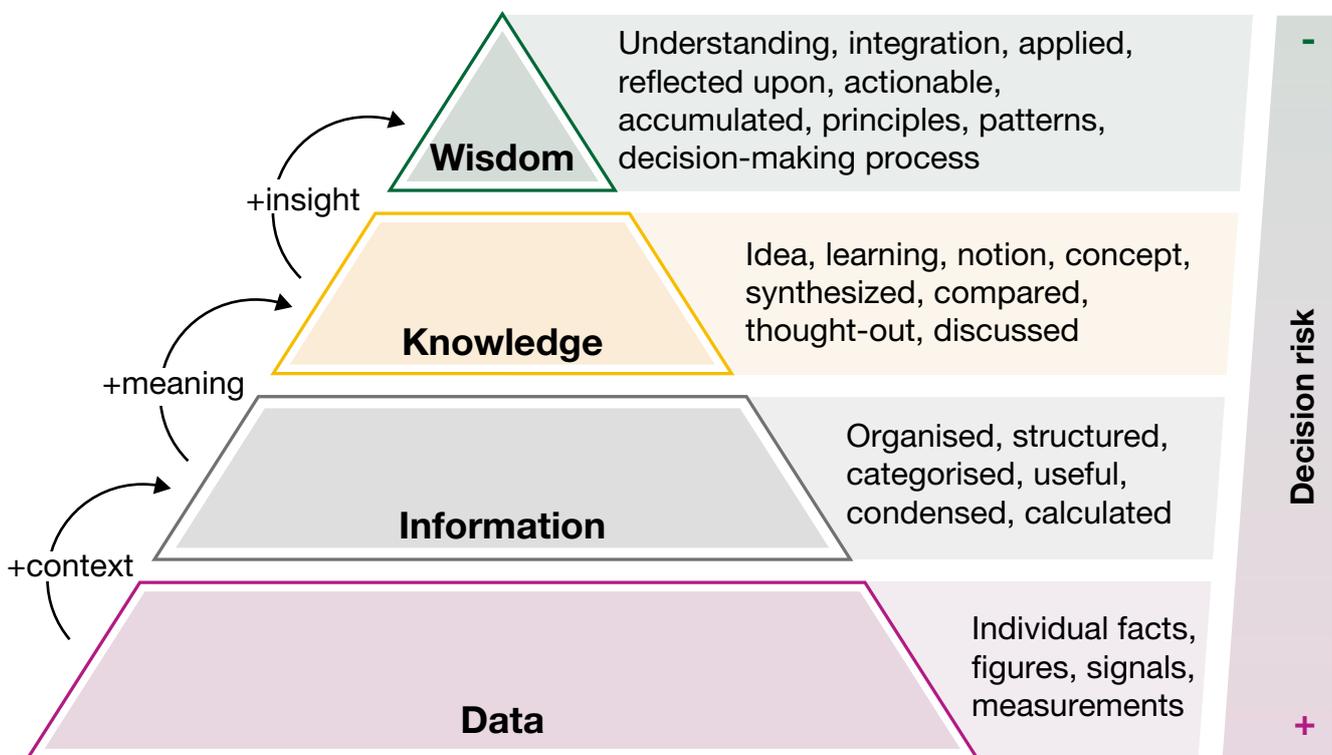
12 B. Toft and S. Reynolds, ‘Learning from disasters: A management approach’ (3rd ed.). Houndmills: Palgrave Macmillan, 2005)

13 Macmillan Dictionary, 2018

The need for this kind of embedding can be visualised in the popular data-information-knowledge-wisdom hierarchy (see Figure 2).¹⁴ While the model has both its proponents and critics, it is useful in thinking about what we do with information from debriefs, reviews and inquiries. Although lessons may have become contextualised learning i.e. knowledge or wisdom for those who were there or investigated it, those lessons may only represent data or information in the minds of others

reading them retrospectively.¹⁵ The active processes of pushing into the context and meaning associated with lessons during training and exercising to pass that learning on and press it in is essential. However, learning from emergencies and exercises also demonstrates that this process is never a ‘one-and-done’ endeavour. In fact, “even the most qualified personnel require continued learning to respond safely and effectively to emerging and re-emerging threats”.¹⁶

Figure 2: Data information knowledge wisdom hierarchy



14 R. L. Ackoff, ‘From data to wisdom’. *Journal of applied systems analysis*, 16(1), 1989, pp.3-9. Adapted in: L.O.Tedeschi, ‘Mathematical modelling in ruminant nutrition: approaches and paradigms, extant models, and thoughts for upcoming predictive analytics’. *Journal of animal science*, 2019, Figure 5. Available from: https://www.researchgate.net/figure/The-data-information-knowledge-wisdom-DIKW-hierarchy-as-a-pyramid-to-manage-knowledge_fig6_332400827

15 Wildfire Lessons Learned Centre. *The Likelihood of Learning from Incidents*, 2022. Available from: <https://wildfirelessons.blog/2022/08/30/the-likelihood-of-learning-from-incidents/>

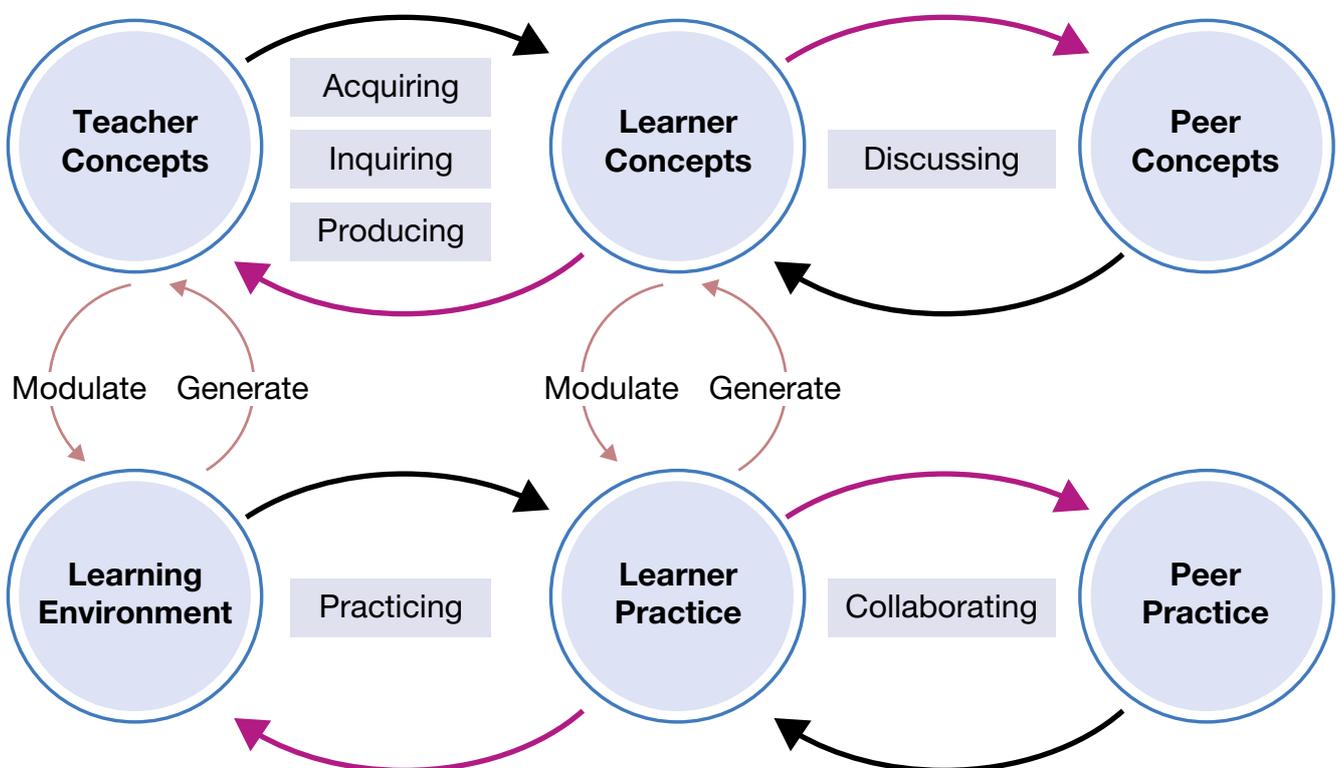
16 K. Reddin, H Bang, and L Miles, L. ‘Evaluating simulations as preparation for health crises like CoVID-19: Insights on incorporating simulation exercises for effective response’. *International journal of disaster risk reduction*, 59, 2021, page 2

How do we apply active learning?

There are many teaching and learning models which can be used to gain insight on various processes and pedagogies, and support active learning processes. One particularly influential model in both face-to-face and e-learning is the 'Conversational Framework', designed by Professor Diana Laurillard.¹⁷ Anchored in the question: what does it take to learn?, this framework

attempts to bring the main theories of teaching and learning into a single model that visualises different active learning types as conversational exchanges between teachers, learners and peers.¹⁸ These are listed below with brief examples adapted from Laurillard's fuller definitions,¹⁹ and they are visualised in the Framework diagram.

Figure 3: The Conversational Framework



17 D. Laurillard, 'Rethinking university teaching: A conversational framework for the effective use of learning technologies'. Routledge, 2022. Available from: <https://www.routledge.com/Rethinking-University-Teaching-A-Conversational-Framework-for-the-Effective/Laurillard/p/book/9780415256797>

18 Future Learn: The Conversational Framework. Available from: <https://www.futurelearn.com/info/courses/blended-and-online-learning-design/0/steps/191671>

19 D. Laurillard, 'Teaching as a Design Science: Building Pedagogical Patterns for Learning and Technology'. New York and London: Routledge, 2012., Chapters 6-11

| Type of learning | Example |
|-----------------------|--|
| Acquisition | Reading books and media, listening to tutors and podcasts |
| Collaboration | Creating joint outcomes and/or discussing them in small groups in person or online |
| Discussion | Discussion based tutorials, informal chat groups, email exchanges |
| Inquiry/investigation | Collecting, comparing and analysing text or guidance |
| Practice | Taking part in exercises, scenarios and simulations |
| Production | Producing written work, models, resources or animations |

What next?

Each of these types of active learning can be applied in personal, single organisation and multi-agency settings. The analysis that follows focuses on lessons identified through exercises as an active learning practice. It may be helpful to remain mindful of how you can actively apply the information acquired through reading about learning themes and transferable lessons. Those who operate in more specific training, exercising and organisational learning roles may also want to consider how they can increasingly apply the active learning types into their training and exercising to support implementation and embedding processes.

For a more in-depth look into the original research papers and online content about the Conversational Framework, see the links in the Resources section on p.64.



Learning Analysis

Lessons arising from emergency exercises

The Digest is committed to synthesising lessons from both exercises and emergencies. This analysis focuses on the former, bringing 16 public facing post-exercise reports (PXR) and 456 lessons together for analysis. The reports included 14 PXR made available through government websites and a further two made available through evidence from the two most recent public inquiries: The Manchester Arena Inquiry (Exercise Winchester Accord), and the Grenfell Tower Inquiry (Exercise Safer City). Together these varied reports span a period of 12 years (2009-2021), generating learning from rehearsed responses to a range of risks identified on the National Risk Register. A full list of the PXR included in the analysis is provided in table 1 below.

It is important to note that the PXR included in the analysis are in no way the sum of all exercising activity across the 12-year period. Exercises run with frequency and consistency at varied scales, testing readiness to respond to emergencies at international, national, regional and local levels. These exercises range from large, thematic 'live play' exercises that bring multiple agencies together to rehearse and validate plans for responding to a particular hazard or threat, to smaller, intra-organisational table top exercises and scenarios that help assess readiness for emergency response and recovery.

The research

As the Chairman of the Manchester Arena Inquiry, the Hon Sir John Saunders, highlighted in the recent Volume 2-1 report on the Attack, the purpose of "exercises [are to] uncover problems and identify better ways of working".²⁰ It is therefore timely to explore any patterns in lessons arising across broad and varied exercise activity.

As exercises are regularly planned, created and conducted across the resilience community, this research is intended to provide insights that can support and inform ongoing exercise workstreams. It also highlights practical, transferable lessons that could be used to inform preparedness activity, conduct a local gap analysis and address identified lessons to maximise preparedness outcomes.

20 The Hon Sir John Saunders, 'Manchester Arena Inquiry Volume 2: Emergency Response' Volume 2-1, 2022, paragraph 12.758, page 262

Table 1

| Year | Exercise lead | Name | Risk/hazard | Scenario | Lessons |
|-------------|---|---------------------------------|------------------------------------|---|----------------|
| 2009 | North Wales Resilience Forum | Exercise Watertight II | Environmental hazards | Major flooding | 6 |
| 2010 | Department for Environment Food and Rural Affairs | Exercise Silver Birch | Human and animal health | Avian influenza | 44 |
| 2011 | Department for Environment Food and Rural Affairs | Exercise Watermark | Environmental hazards | Major flooding | 36 |
| 2012 | Ministry of Defence | Exercise Short Sermon-12 | Industrial accident – nuclear | Off-site nuclear emergency | 42 |
| 2013 | Ministry of Defence | Exercise Short Sermon-13 | Industrial accident – nuclear | Off-site nuclear emergency | 67 |
| 2015 | Department of Energy and Climate Change, Maritime and Coastguard Agency | Exercise Dragon | Industrial accident non-nuclear | Oil spill response | 13 |
| 2015 | Ministry of Defence | Exercise Diamond Dragon | Major transport accident nuclear | Defence air accident | 29 |
| 2015 | Food Standards Agency | Exercise Prometheus | Human and animal health | Mycotoxin contamination of imported grain, E-coli | 22 |
| 2016 | Public Health England | Exercise Cygnus | Human and animal health | Pandemic flu | 22 |

| Year | Exercise lead | Name | Risk/hazard | Scenario | Lessons |
|---------------------------|---|--|-------------------------------|--|------------|
| 2016 | Greater Manchester Police | Exercise Winchester Accord (via Arena Inquiry Evidence) | Malicious attack | Marauding terrorist attack | 19 |
| 2017 | Maritime and Coastguard Agency | Exercise Grey Seal | Human and animal health | Off-shore marine pollution | 34 |
| 2017 | London Fire Brigade | Exercise Safer City (via Grenfell Inquiry Evidence) | Environmental hazards | Extreme snow (pan-London) | 4 |
| 2018 | Department for Environment Food and Rural Affairs | Exercise Blackthorn | Human and animal health | Foot and mouth disease | 55 |
| 2019 | Department for Business, Energy and Industrial Strategy/ Maritime and Coastguard Agency | Exercise SHEN | Human and animal health | Off-shore marine pollution from installations | 15 |
| 2020 | Scottish Government | Exercise Silver Swan | Human and animal health | Pandemic flu | 17 |
| 2021 | Department for Transport and Maritime Coastguard Agency | Exercise CELTIC DEEP | Human and animal health | Major shipping incident, offshore and onshore marine pollution | 31 |
| Total PXR reviewed | | 16 | Total lessons reviewed | | 456 |

Methodology

To synthesise report contents, analyse common learning themes and identify transferable lessons, a qualitative metasynthesis has been applied. This is an umbrella term for a mixed-methods approach that brings findings together from multiple qualitative reports, enabling new insights to be informed by the whole. It was selected because of the significant variability across reports in the ways that observations, lessons identified and recommendations are gathered and presented. Overall, the aim in applying this methodology is to make findings increasingly accessible and useful for informing policy and practice across the risk cycle.



Sidelight

To help minimise the risks of researcher bias in results, the Digest adopts a descriptive approach to the research. This means that unaltered text from the reports is used to identify and evidence learning themes, rather than inferring meaning from them. For more details on this research method, please see the 'Methods' section in Digest 1 Learning Together p.31.

Research aims

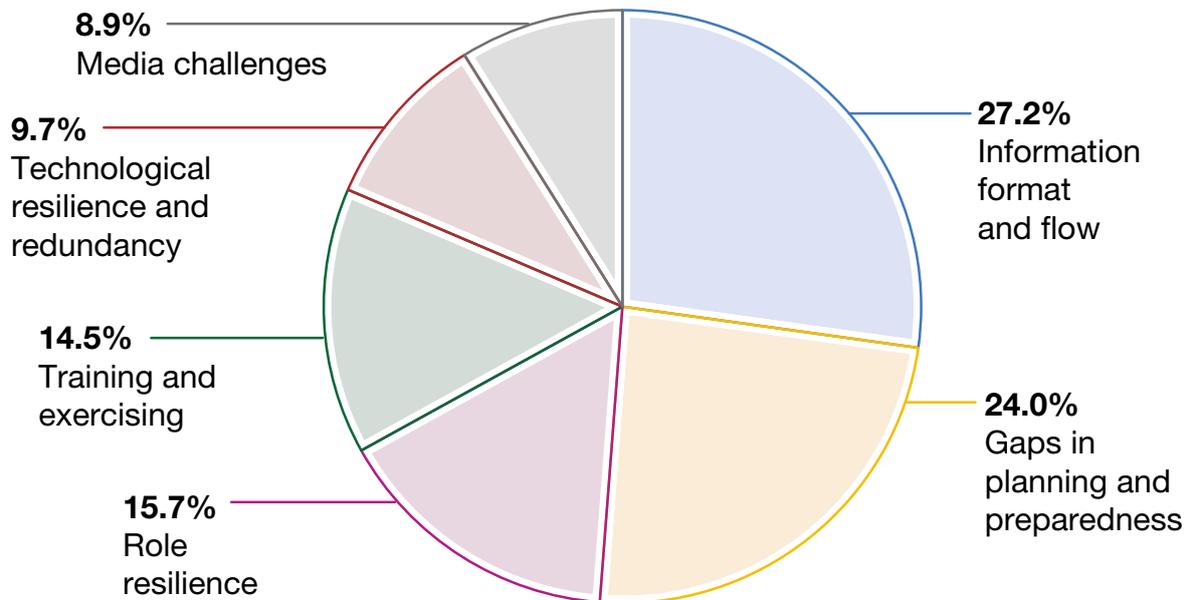
The aims of the research were to answer the following questions:

1. can common learning themes of relevance to the resilience community be identified and evidenced across the selected reports?
2. do lessons identified demonstrate transferable features that can be used to inform preparedness activity and drive continual improvements in response?
3. do learning themes and transferable lessons relate to existing National Resilience Standards, existing doctrine and multi-agency guidance?
4. what practical actions do reports suggest that responder organisations and local resilience partners can take to support exercise activity and improve preparedness outcomes?

Findings

Learning themes

Figure 4: Share of lessons arising under each of the six learning themes



Across the observations, lessons identified and recommendations, six key learning themes were identified. These are listed in order of lesson prevalence:

- information format and flow
- gaps in planning and preparedness
- role resilience
- training and exercising
- technological resilience and redundancy
- media challenges

Further evidence for these themes are expanded below, aligned with activities in the risk cycle and accompanied by transferable lessons. All themes and

lessons arising should be considered in the context of statutory and overarching multi-agency guidance and references from government, including:

- **National Resilience Standards for LRFs** (Cabinet Office, 2020)
- **Emergency Preparedness** (Cabinet Office, 2011-12)
- **Emergency Response and Recovery** (Cabinet Office, 2013)
- **National Recovery Guidance** (Cabinet Office, 2013)
- **The Central Government's Concept of Operations (CONOPS)** (Cabinet Office, 2013)

Learning theme 1: information format and flow

This theme concerned lessons arising in the way that information was collected, collated, recorded and shared during the rehearsed response. PXR content also linked these underlying factors to collective challenges in effective communication and achievement of situational awareness.

Challenges in acquiring meaningful, well-formatted information to help build a sound Common Operating Picture (COP) and maintain situational awareness during the response were cited across the PXRs. This was evidenced most explicitly in the report from Exercise Prometheus, which recommended that ‘better systems’ were put in place to provide a common view of the incident and improve situational awareness during the response.²¹ However, report content also suggested that underlying issues were frequently rooted in problems with the information quality, format and flow used to develop and maintain that COP, rather than any overriding ambiguity or uncertainty generated by the simulated emergency event itself.

This vital information within and across organisations is typically gathered using Situation Reports (SitReps), which can necessarily vary across organisations and agencies depending on internal response requirements.²² However, in some of the reports reviewed, standardised SitReps were considered beneficial, despite not being in place ahead of the exercise. In other cases SitReps existed but were not applied, and in some cases they were applied but populated with inaccurate or poor quality data. Issues with ineffective version control also led to misaligned templates and inconsistent information gathering within organisations.²³ In the most acute instances, a ‘lack of compliance’ with pre-prepared templates meant there was “no easy or immediate information flow”²⁴ or “a lack of relevant information... displayed to be of use to the members of the cell”.²⁵ In other cases, differences in its ‘presentation’ resulted in frustration and information duplication.²⁶ Even when information formatting was pre-agreed and applied, a lack of clarity was reported regarding the amount of information senders should include, and an incomplete understanding of receivers’ onward requirements meant that compilation was hindered.²⁷

21 Exercise PROMETHEUS, ‘Control-Post Exercise 26th - 27th March 2015’ Post-Exercise Report, 2015, page 17

22 JESIP, ‘Multi-Agency Information Cell (MAIC) Guidance’. June 2022, page 13

23 London Resilience, ‘Exercise Safer City 2017 Post Exercise Report’, 2017

24 HMNB Devonport, Plymouth. ‘Exercise Short Sermon 13 All Agencies Report’, 2013 page 13

25 Maritime and Coastguard Agency and Department of Energy & Climate Change, ‘Exercise Report - Exercise DRAGON’, 2015, page 53

26 Directorate of HM Coastguard, ‘Exercise Celtic Deep Report’, page 57

27 Ministry of Defence, ‘Exercise DIAMOND DRAGON 15 Lessons Identified Report’, 2015, p.3



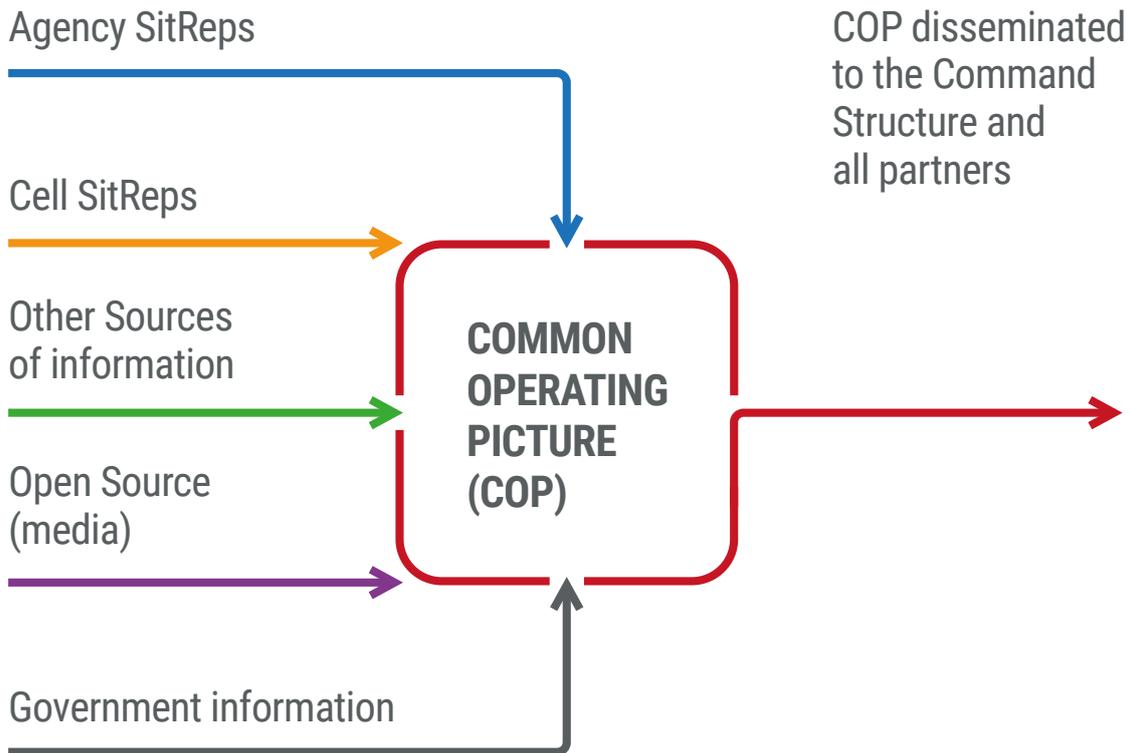
Sidelight:
The Common Operating Picture

The Common Operating Picture (COP) is the common overview of an incident that is created by assessing and fusing information from multiple sources, and is shared between appropriate command, control and co-ordinating groups to support joint decision making. The advantage to a COP is it builds a picture across agencies, rather than being a single agency view.²⁸



JESIP
 Working Together – Saving Lives

Figure 5: The Common Operating Picture



28 JESIP 'Joint Doctrine: The Interoperability Framework Edition 3' October 2021, section 7, page 18

Beyond formatting but linked to it, were challenges in achieving a timely flow of information within and between agencies, responder organisations and departments. In many cases, the underlying issues often fell into one of two categories. The first included cases where the ‘battle rhythm’ itself (i.e. the daily rhythm of pre-agreed meetings in a response scenario) seemingly failed to allow sufficient time between the various meetings for operational tasks, or the sharing of updated information ahead of the next meet.^{29, 30} In other cases ‘silver’ tactical meetings were judged to be too close to strategic ‘gold’ meetings, and in some scenarios the absence of any structured timings at all for meetings and/or updates created its own challenges.³¹

The second category centred around issues with meeting administration, including invites, membership, agendas and action tracking.³² Agendas in particular were reported as not always strategically aligned to ensure discussions generated the onward information required by others.³³ There were also concerns that in some group meetings a lack of structure and framework may have contributed to inefficiencies in decision making and communications between groups.³⁴ Recommendations duly proposed that agendas were strategically aligned, standardised and pre-agreed to minimise disruption to future flows of information.³⁵ Clarification on data collection methods for compiling SitReps, the onward creation of templates to ensure more consistent, co-ordinated and meaningful information presentation, and the updating and reissuing of a SitRep aide memoire were also proposed.^{36, 37}

29 HMBD Clyde, Argyll and Bute, ‘Exercise Short Sermon 12 All Agencies Report’, 2012, page 12

30 Department for Environment, Food & Rural Affairs, ‘Exercise Silver Birch 2010 National Foot and Mouth Disease Exercise Evaluation and Lessons Identified Report’, 2010, page 55

31 Directorate of Maritime Operations, ‘UK National Contingency Plan Exercise GREY SEAL Report’, 2017, page 76

32 Exercise PROMETHEUS, ‘Control-Post Exercise 26th - 27th March 2015’ Post-Exercise Report, 2015, page 16

33 HMBD Clyde, Argyll and Bute, ‘Exercise Short Sermon 12 All Agencies Report’, 2012, page 12

34 HM Coastguard, ‘UK National Contingency Plan Exercise Exercise SHEN – Post Exercise Report’, 2018, page 62

35 North Wales Resilience Forum, ‘Exercise Watertight II POST EXERCISE REPORT’, 2009, page 15

36 HMBD Clyde, Argyll and Bute, ‘Exercise Short Sermon 12 All Agencies Report’, 2012, page 4-5

37 London Resilience, ‘Exercise Safer City 2017 Post Exercise Report’, 2017



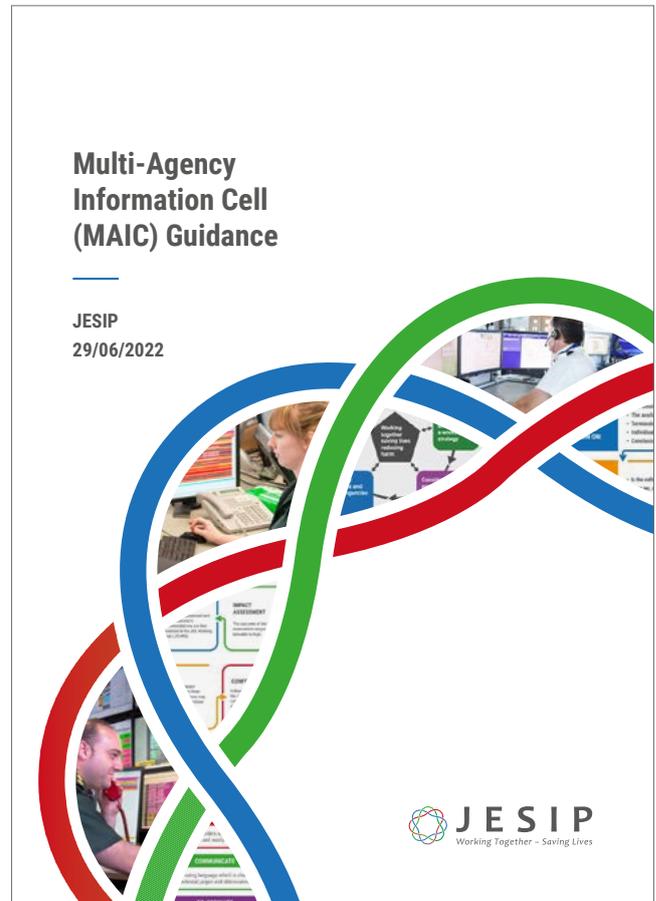
Sidelight:

Maintaining a Common Operating Picture and establishing a Multi-Agency Information Cell (MAIC)

National Resilience Standard #6 states that to achieve good practice in the area of Interoperability, a Local Resilience Forum (LRF) should have:

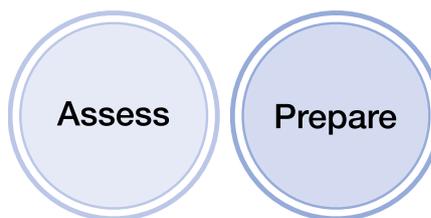
“Arrangements to attain and maintain a Common Operating Picture in emergency response and recovery through the establishment of a Multi-Agency Information Cell that utilises ResilienceDirect as a common information sharing platform, and commonly-agreed situation reporting and briefing templates and applications”.

In November 2022 JESIP published new **Multi-Agency Information Cell (MAIC) Guidance** in support of the Joint Doctrine. It is aligned with the National Resilience Standards and intended to support LRFs in developing their own Multi-Agency Information Cell (MAIC) arrangements. It has been developed by a multi-agency team from across several LRF areas and is a key resource to note in light of the lessons arising around information in emergencies. It is also supported by an accompanying case studies document. For further information see the **JESIP website**.



Transferable lessons

Examples of transferable lessons under the theme of information format and flow are listed below.



Exercise Grey Seal (2017)

| No. | Recommendation | Rationale |
|----------|---|--|
| 10, p.72 | Consider convening a discussion to assess the appropriateness of using Information, Intent, Method, Administration, Risk Assessment, Communications and Humanitarian Issues (IIMARCH) JESIP template for SITREPs and briefings. | It may be more efficient to utilise the IIMARCH JESIP template to organise internal/external operational-tactical-strategic briefings which would suit up, down and across communications. |

Exercise Blackthorn (2018)

| No. | Lesson Identified | Page | Description |
|-----|-------------------------|------|--|
| 46 | Use of ResilienceDirect | 60 | Further explore the merits of using Resilience Direct as a communications tool, so that protected and other information can be shared or signposted to, thus resolving some of the difficulties associated with maintaining up to date email distributions lists and perhaps alleviating some issues with the security of personal or organisational email accounts. |

Exercise Watermark (2011)

| No. | Recommendation | Page |
|-----|--|------|
| 4 | Situation reporting (sitrep) and information requirements: the review recommends that information requirements and reporting processes during an emergency are evaluated, including how available resources can best be used to satisfy audiences at all levels. Reporting and briefing processes need to be amended to meet information requirements and reflect current arrangements | vii |

For an overview of desired outcomes, a summary of legal duties (mandatory requirements) and details of how to achieve good and leading practice in this thematic area, see National Resilience Standards for LRFs, Standard 6: Interoperability, and Standard 11: strategic co-ordination centre (preparation and operation).

A free overview of **decision support tools for risk, emergency and crisis management** (including tools to support information gathering and assessment) can be accessed via ‘tools’ on the Emergency Planning College website.

Learning theme 2: gaps in planning and preparedness

This learning theme captures a range of issues highlighting gaps and/or areas for improvement in strategic, tactical and operational emergency planning and preparedness.

Across the PXR reports it was evident that exercise activity had been very useful in helping organisations to identify areas for improved emergency planning and preparedness. The need to review, update or further embed an understanding of legislation, raise awareness of key policies, strategies and plans or ensure knowledge and application of standard operating procedures featured in almost all reports to varying degrees.

The scenarios were also productive in terms of generating foresight around the impacts, or second and third order effects, that emergency scenarios may be likely to trigger. Examples of this included a need for further assessment and planning around anticipated major road or motorway closures,³⁸ potential for off-site casualties and onward impacts for other agencies or partners involved in the response.³⁹

Some of the lessons arising lent themselves to reasonably simple solutions. For example, the need for more copies of emergency plans (both off-site and on-site) to be made available on location and/or in the control centre could be easily rectified.⁴⁰ Similarly, recommendations for the development and use of action cards,⁴¹ updating terminology or integrating updated procedures in existing plans for onward dissemination would presumably require reasonably practical, time-limited resources to implement. However, when it came to broader challenges in planning and preparedness, it seemed that many of the proposed improvements were unlikely to be ‘quick wins’. Instead, recommendations appeared more likely to require that organisations take a ‘long-view’, investing time in both thought and action, sourcing strategic or specialist input and, where appropriate, adopting a multi-agency approach to resolve the issue.

38 GMRF, ‘Structured Debrief Report, Winchester Accord – Multiagency’, 2017, page 4

39 HMNB Devonport, Plymouth. ‘Exercise Short Sermon 13 All Agencies Report’, 2013 page 30

40 HMBD Clyde, Argyll and Bute, ‘Exercise Short Sermon 12 All Agencies Report’, 2012, page 4

41 Directorate of Maritime Operations, ‘UK National Contingency Plan Exercise GREY SEAL Report’, 2017, page 72

Recommendations within organisations that could require more integrated input and solutions included:

- the generation of standard operating procedures where none existed⁴²
- a need to review aspects of HR strategy to help manage staffing during a response
- recommendations to conduct relevant internal policy reviews.⁴³

Recommendations to clarify the key decision makers with sufficient organisational authority to approve key actions within plans^{44, 45} define trigger points and thresholds for activation (and stand-down) and update operational instructions to guide personnel and resource requirements were also made.^{46, 47}

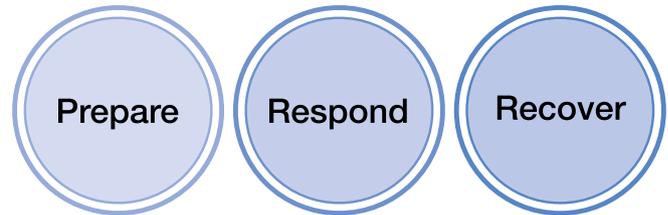
Finally, the rehearsed response also flagged a need for organisations to conduct internal reviews and examination of procurement contracts⁴⁸ and relevant service level agreements.⁴⁹

Recommendations presumably requiring higher-level, multi-agency co-ordination also included more generalised reviews of multi-agency plans⁵⁰ and guidance documentation, especially in terms of recovery planning.^{51, 52} In some cases there was also the need for new and/or updated concept of operations documents to be produced in support of specific response scenarios⁵³ and for greater awareness of organisational roles and capabilities across agencies to be achieved.⁵⁴

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- 42 HM Coastguard, 'UK National Contingency Plan Exercise Exercise SHEN – Post Exercise Report', 2018, page 62
- 43 Animal and Plant Health Agency, 'Exercise Blackthorn: National Foot and Mouth Disease Exercise Evaluation and Lessons Identified Report', 2018, page 51-56
- 44 Maritime and Coastguard Agency and Department of Energy & Climate Change, 'Exercise Report - Exercise DRAGON', 2015, page 53
- 45 Directorate of HM Coastguard, 'Exercise Celtic Deep Report', page 57
- 46 Directorate of HM Coastguard, 'Exercise Celtic Deep Report', page 57
- 47 Animal and Plant Health Agency, 'Exercise Blackthorn: National Foot and Mouth Disease Exercise Evaluation and Lessons Identified Report', 2018, page 51-56
- 48 Department for Environment, Food & Rural Affairs, 'Exercise Silver Birch 2010 National Foot and Mouth Disease Exercise Evaluation and Lessons Identified Report', 2010, page 54
- 49 Exercise PROMETHEUS, 'Control-Post Exercise 26th - 27th March 2015' Post-Exercise Report, 2015, page 18
- 50 The Scottish Government. 'Exercise Silver Swan Overall Exercise Report', 2016, page 9
- 51 North Wales Resilience Forum, 'Exercise Watertight II POST EXERCISE REPORT', 2009, page 15
- 52 HMBD Clyde, Argyll and Bute, 'Exercise Short Sermon 12 All Agencies Report', 2012, page 4
- 53 Public Health England, Exercise Cygnus Report, 2017, appendix 1
- 54 Department for Environment, Food & Rural Affairs, 'Exercise Silver Birch 2010 National Foot and Mouth Disease Exercise Evaluation and Lessons Identified Report', 2010, page 50

Transferable lessons

The following lessons, although context specific in the reports, provide examples of transferable learning that could be picked up and applied to support planning and preparedness for a range of emergency scenarios.



Exercise Prometheus (2015)

| No. | Lessons: plans and procedures | Page |
|-----|--|------|
| 16 | The standard operating procedures that support the incident management plan should be reviewed to ensure that the right level of technical and operational detail is included. Staff should be regularly drilled in the use of both standard operating procedures and incident management plans. | 20 |

Exercise Grey Seal (2017)

| No. | Recommendation | Page |
|-----|---|------|
| 28 | Review the current...organisational response cell framework, or develop a new framework diagram, to include the incident source and the links between all responders. | 77 |

Exercise Watertight II (2009)

| No. | Recommendation | Page |
|--------------|---|------|
| 2(i) - 2(iv) | A review of...multi-agency recovery guidance should be undertaken to ... (ii) itemise what needs to happen to meet the handover criteria and who is leading on what during the transition from response to recovery (SCG or RCG)... (iii) clarify who should lead the handover ... (iv) [and produce] guidance and checklists...to help assist those that are involved in the recovery phase, e.g. standard agendas, role checklists, recovery action plan examples. | 15 |

For an overview of desired outcomes in this thematic area, a summary of legal duties (mandatory requirements) and details of how to achieve good and leading practice in this area, see National Resilience Standards for LRFs Standard number 4: emergency planning, and Standard number 13: local recovery management.

Learning theme 3: role resilience

This learning theme captures a group of observations, lessons and recommendations that centred around the availability, capability, capacity and continuity of individuals and their respective roles, in both organisational and/or multi-agency contexts.

Challenges of availability and capability were expressed in three ways. The first when busy telephone lines meant that colleagues could not reach key decision makers with vital information. This led to recommendations for secondary communication routes and contact numbers to be set out in advance, ensuring priority information could get to the right people at the right time. The second arose where individuals were carrying dual-roles in a single position. This meant that key individuals were physically unavailable to attend concurrent or overlapping meetings, with negative onward impacts in maintaining situational awareness.⁵⁵ The third centred on issues around:

i) sufficient numbers of suitably qualified and experienced personnel and senior decision makers being deployed by relevant organisations⁵⁶ and/or

ii) ‘supply and demand’ of context-specific expertise, for example that of utility companies in the case of flooding,⁵⁷ or veterinary expertise in the case of animal disease.⁵⁸

It was in these scenarios that strategic resourcing plans were recommended in order to pre-empt the requirement to meet operational demands.

Capacity and continuity issues were also raised at both individual and corporate levels, predominantly due to the volume of work created in the response. For example, Exercise Short Sermon 12 cited “capacity issues for some working within the [strategic response] cell due to volume of work”.⁵⁹

Additionally, Exercise Short Sermon 13 noted the need for deployed staff to be of “sufficient seniority”, for the organisation to deliver on its duties.⁶⁰ Beyond this, three PXR specifically made reference and recommendation regarding administrative staffing support levels to bolster capacity and ensure continuity. For example, Exercise Grey Seal, cited “a lack of resilience in a number of roles, and a particular need for additional administration support”.⁶¹

55 GMRF, ‘Structured Debrief Report, Winchester Accord – Multiagency’, 2017, page 4

56 HMNB Devonport, Plymouth. ‘Exercise Short Sermon 13 All Agencies Report’, 2013, pages 11, 23, 33

57 Department for Environment, Food & Rural Affairs, ‘Exercise Watermark - Final Report’, 2011

58 Department for Environment, Food & Rural Affairs, ‘Exercise Silver Birch 2010 National Foot and Mouth Disease Exercise Evaluation and Lessons Identified Report’, 2010, page 51

59 HMND Clyde, Argyll and Bute, ‘Exercise Short Sermon 12 All Agencies Report’, 2012, page 8

60 HMNB Devonport, Plymouth. ‘Exercise Short Sermon 13 All Agencies Report’, 2013, pages 23, 33

61 Directorate of Maritime Operations, ‘UK National Contingency Plan Exercise GREY SEAL Report’, 2017, page 72

This was also the case with Exercise Blackthorn, which led to a recommendation for the establishment of a pool of deployable administrative staff to support key response functions.⁶²

A similar point was made in Exercise Celtic Deep's PXR by the Maritime Coastguard Agency, who recommended that a team of staff trained in emergency planning and ministerial briefing be maintained, ready to deploy and provide administrative support for specific senior roles.^{63, 64}

Finally, a generalised need to improve business continuity and resilience for a protracted incident response and recovery was highlighted.⁶⁵ Recommendations in this regard included the strengthening and deputising of permanent roles, the building and maintenance of surge capacity and capability, along with a regular review into the readiness of external resources cited in emergency plans, such as couriers or additional communications infrastructure that would be made available through retainer contracts.



62 Animal and Plant Health Agency, 'Exercise Blackthorn: National Foot and Mouth Disease Exercise Evaluation and Lessons Identified Report', 2018, page 56

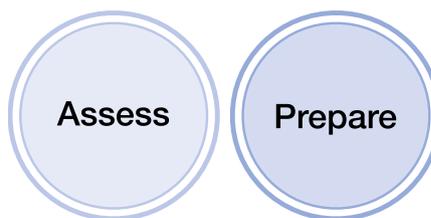
63 Directorate of HM Coastguard, 'Exercise Celtic Deep Report', page 58

64 Directorate of Maritime Operations, 'UK National Contingency Plan Exercise GREY SEAL Report', 2017, page 72

65 Directorate of HM Coastguard, 'Exercise Celtic Deep Report', page 57

Transferable lessons

Transferable lessons around the theme of preparing for role resilience in protracted responses and preventing issues around capacity and capability include:



Exercise Cygnus (2016)

| Lesson | Details |
|-------------------|--|
| LI 9, Appendix 1A | All organisations should examine the issues surrounding staff absence to provide greater clarity for planning purposes. |

Exercise Prometheus (2015)

| Lesson | Details |
|--|---|
| Infrastructure: bullet 8, page 19 (equipment and resources) | Consider 24/7 operation and training of back-up staff ... to fulfil defined non-routine incident response roles... Create a call out list of partners who may be able to provide additional resources in major incidents... |
| Plans and Procedures: bullet 9, page 19 | Provide a register identifying the capability/expertise of internal staff and teams to help define membership of the Tactical Incident Management Team in terms of the required technical and policy expertise. |

Exercise Celtic Deep (2021)

| No. | Recommendation |
|-------------|--|
| 21, page 58 | Consideration should be given to strengthening the permanent Maritime and Coastguard Agency press team as current resources do not allow a comprehensive and fully effective media response to a major incident that extends over 12 hours or a number of days or weeks. (Report refs: 6.11.9, 6.11.16, 6.11.19). |

For an overview of desired outcomes in emergency planning, a summary of legal duties (mandatory requirements) and details of how to achieve good and leading practice in this area, see National Resilience Standards for LRFs Standard number 4: emergency planning, and number 9: business continuity management.

Learning theme 4: training and exercising

This learning theme included lessons about the exercise process itself. These highlighted frustrations in scenario planning, failures to embed learning from previous exercises, practical issues in delivery, and an identified need for more training and future exercising.

Exercise planning: The challenges and frustrations with the exercise planning phase, especially in the case of national level exercises, cited issues with consistent representation of participating partners and sector expertise at the planning table. This spoke to the earlier theme of role resilience, as in several cases the impact of individual absences and/or organisational availability had frustrated the fluency and frequency of planning meetings, disrupting the exercise schedule and stalling progress.⁶⁶ This led to the recommendation that substitute personnel should be nominated for all agencies, as a way of mitigating the impacts of absences, ensuring sufficient representation and expertise to drive progress forward and ensure timely responses to information requests.⁶⁷

Further capacity limitations were also highlighted in Exercise Control. One

example noted “little resilience for the Exercise Director during the response”,⁶⁸ creating delays in information flow and dissemination of exercise injects during play. Echoing the need for substitute partners to be nominated, it was also recommended that deputy and/or assistant director(s) be considered for future exercises, to bolster resilience in Exercise Control and the role of Exercise Director especially.

Identified Training Needs: The PXR's also made frequent reference to training needs that had been exposed or highlighted during exercise play. In some cases exercise participants were described as ‘untrained’,⁶⁹ and in others the absence of advance training between key partners resulted in “a very steep learning curve” during the exercise.⁷⁰ Where training had been in place, onward recommendations focussed on gaps in required competencies, specialist skill sets and knowledge of response plans. For example, in Exercise Short Sermon 12, several organisations acknowledged a need for more internal training to ensure a “reasonable pool of resources remain knowledgeable in the procedures and process” involved in standing up a response.⁷¹ Exercise Blackthorn also highlighted the need to embed response plans through onward training programmes, recommending that fast-track training packages also be developed for induction at pace during a real time response.⁷²

66 HMBD Clyde, Argyll and Bute, ‘Exercise Short Sermon 12 All Agencies Report’, 2012, page 10

67 Maritime and Coastguard Agency and Department of Energy & Climate Change, ‘Exercise Report - Exercise DRAGON’, 2015, page 52

68 Directorate of Maritime Operations, ‘UK National Contingency Plan Exercise GREY SEAL Report’, 2017, page 69

69 London Resilience, ‘Exercise Safer City 2017 Post Exercise Report’, 2017, page 8

70 Ministry of Defence, ‘Exercise DIAMOND DRAGON 15 Lessons Identified Report’, 2015, p.5

71 HMBD Clyde, Argyll and Bute, ‘Exercise Short Sermon 12 All Agencies Report’, 2012, page 6

72 Animal and Plant Health Agency, ‘Exercise Blackthorn: National Foot and Mouth Disease Exercise Evaluation and Lessons Identified Report’, 2018, page 56

In terms of specific roles and skills, training proposals were particularly evident for those in liaison roles between various LRFs and specialist authorities and agencies.^{73, 74} This was owing to the dual requirement for deeper generalised response knowledge and an understanding of the information

needs of multiple partners. The need for further exercising, to better test specific procedures or to assess whether onward actions in line with recommendations had resulted in the desired changes was also cited.^{75, 76}

Transferable lessons

In addition to the largely transferable learning above, a very practical recurring lesson around the suitability and practicality of rooms for co-locating partners and response cells was noted in five of the 16 reports across the 12-year timespan. Issues to be aware of included the physical room capacity, security access and sufficient resourcing within them. Other areas of transferable learning from this theme are highlighted below.



Exercise Short Sermon 13 (2013)

| Page | Lesson by individual organisation |
|------|---|
| 26 | The planning process did not capture learning from Short Sermon 10. As a consequence, a number of the lessons from 2010 were not addressed in 2013. |

Exercise Silver Birch

| No. | Lesson identified | Page |
|-----|---|------|
| 43 | For exercise planning purposes the scope of the advisory group should be reviewed once the exercise aim and objectives have been agreed to ensure the group consists of the relevant organisations to effectively support the exercise. | 58 |

73 Directorate of Maritime Operations, 'UK National Contingency Plan Exercise GREY SEAL Report', 2017, page 77

74 Department for Environment, Food & Rural Affairs, 'Exercise Watermark - Final Report', 2011

75 North Wales Resilience Forum, 'Exercise Watertight II POST EXERCISE REPORT', 2009, page 16

76 Department for Environment, Food & Rural Affairs, 'Exercise Silver Birch 2010 National Foot and Mouth Disease Exercise Evaluation and Lessons Identified Report', 2010, page 54

Exercise Prometheus

| No. | Lesson | Page |
|-----|---|------|
| 18 | Future training and exercising should include a programme of more frequent smaller scale training and drills and a programme of exercises to test, embed and then maintain revised arrangements. This includes use of the Incident Management Plan and Standard Operating Procedures. | 21 |

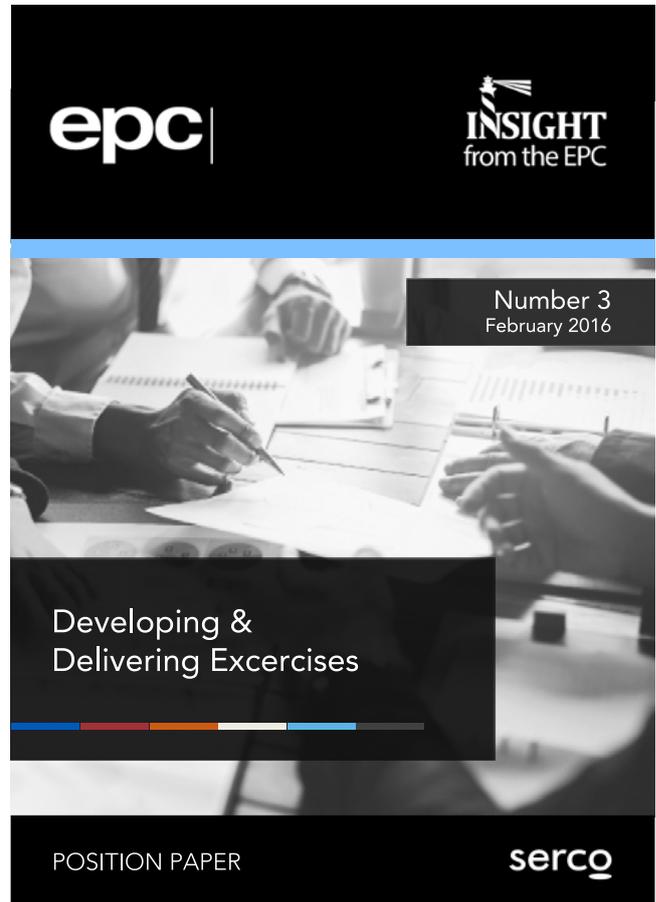
For an overview of desired outcomes in this thematic area, a summary of legal duties (mandatory requirements) and details of how to achieve good and leading practice in this

area, see National Resilience Standards for LRFs standard number 7: training, and number 8 exercising.



Sidelight

Further information on developing and delivering exercises, including an overview of exercise terminology, helpful case studies and information on planning and evaluating exercises can be found in Emergency Planning College Position Paper Number 3: **Developing and Delivering Exercises.**



Learning theme 5: technological resilience and redundancy

This learning theme identified key lessons concerning the resilience (i.e. the ability of systems to withstand and continue to perform after damage or loss of infrastructure) and redundancy (i.e. the ability to maintain capability after damage via diverse, alternative methods) of IT systems, connections, hardware and software.

There have been significant advances in technology during the 12-year period covered in the PXR dataset. It is therefore not surprising that challenges around IT featured in the top six learning themes. What was interesting, however, was that technological problems were not confined to earlier time periods when IT and internet connections were arguably less developed and reliable. Instead, this theme endured across time periods and scenario contexts. It is reasonable to suggest this may reflect an increased reliance on modern technology and its associated interdependencies, despite significant advances in connection speeds and functionality.

This theme was especially salient when partners co-located, creating multiple IT issues. Most commonly, partners

struggled to access the internet on their own computers when operating from host locations. Some had no working WIFI arrangements or IT access during the exercise at all. Others had insufficient access, battling with coverage and intermittent connectivity due to the weight of concurrent usage. Even those given the opportunity to use unfamiliar surrogate computers in situ then struggled to access their own systems, leading to significant communication and information sharing issues.^{77, 78, 79} Finally, multiple reports cited issues with requirements for access to printers, and in some cases partners were frustrated that security arrangements on site meant they could not make important international calls.⁸⁰

Related observations and recommendations did offer some very practical, transferable recommendations. For example, the provision of headphones for team members using iPads when co-locating was seen to be beneficial.⁸¹ The need to ensure that contingency plans were in place for WIFI access should local network issues, or the impacts of the emergency, render the internet unavailable were also highlighted. Along the same lines, the need for platforms, plans and procedures to support remote working models, online press conferences and integrated multi agency audio video conferences⁸² were also noted.⁸³

77 Department for Environment, Food & Rural Affairs, 'Exercise Silver Birch 2010 National Foot and Mouth Disease Exercise Evaluation and Lessons Identified Report', 2010, page 56

78 HMNB Devonport, Plymouth. 'Exercise Short Sermon 13 All Agencies Report', 2013, pages 26

79 London Resilience, 'Exercise Safer City 2017 Post Exercise Report', 2017, page 3

80 Directorate of Maritime Operations, 'UK National Contingency Plan Exercise GREY SEAL Report', 2017, page 74

81 Directorate of HM Coastguard, 'Exercise Celtic Deep Report'

82 Directorate of HM Coastguard, 'Exercise Celtic Deep Report', page 58

83 Exercise PROMETHEUS, 'Control-Post Exercise 26th - 27th March 2015' Post-Exercise Report, 2015, page 17

Transferable lessons

Many of the issues described above can be considered transferable, but further examples stood out. The first of these describes an instance where a field laptop with key plans and reporting templates on its hard drive failed due to hot weather.⁸⁴ No other machines had these stored on their hard drives, leaving colleagues to respond without them. Given the temperatures experienced in the 2022 heatwaves and trajectory of climate change, it may be useful to review the resilience of IT hardware in hot weather should cooling on site or on location fail. Considering the experience on this particular exercise, it may also be



pertinent to ensure alternative options are in place for accessing the internet, and/or key files, if primary networks or applications are down. Secondly, it was recommended that procedures be developed so that IT technicians can be automatically deployed to key locations at the onset of a major incident, providing support for essential response cells and functions.⁸⁵ Three further lessons of relevance are shared below.

Exercise Diamond Dragon (2015)

| Reference | Lesson identified |
|------------|---|
| 14, page 4 | A number of variant IT system were used as part of the response. This resulted in poor information flow between agencies. There is a need to review the use of IT systems to ensure their effective use and integration in support of the multi-agency response. |

Exercise Watermark (2011)

| Recommendation | Details |
|----------------|--|
| 18, page vii | IT infrastructure: future exercises involving strategic co-ordination centres and incident rooms/operation centres should be used to further test location-specific IT and communications infrastructure . In particular issues like internet guest logins, firewalls...and multi-agency access need solutions which can then be shared as good practice. |

84 Ministry of Defence, 'Exercise DIAMOND DRAGON 15 Lessons Identified Report', 2015, p.5

85 Maritime and Coastguard Agency and Department of Energy & Climate Change, 'Exercise Report - Exercise DRAGON', 2015, page 53

Exercise Blackthorn (2018)

| Lesson identified | Details |
|-------------------|--|
| 46, page 60 | Further explore the merits of using ResilienceDirect as a communications tool, so that protected and other information can be shared or signposted to, thus resolving some of the difficulties associated with maintaining up-to-date email distributions lists and perhaps alleviating some issues with the security of personal or organisational email accounts. |

Details regarding desired outcomes concerning the resilience of IT and information sharing systems, including a summary of legal duties (mandatory requirements) and details of how to achieve good and leading practice in this area is run throughout the National Resilience Standards for LRFs. Particular insights in this area can be found in standard number 1: LRF governance and support arrangements, and standard number 14: cyber incident preparedness.

Learning theme 6: media and communication

Learning in this thematic area covered a range of issues, including media management, protocols, liaison, training and communications.

Challenges in media engagement and communications were evident across reports, leading to several recommendations proposing that both organisational and multi-agency media communication

strategies should be reviewed post-exercise. This was firstly to ensure that pre-defined media structures and protocols were in place, and secondly that necessary templates to support public communications were well designed in advance, ready to be populated during a response. The need for advanced, risk-specific information to be generated in support of steady and consistent media liaison and messaging to reassure the public was also noted in Exercise Cygnus. This included the important tailoring of messages for specific community groups, and the advance preparation of translated versions for speakers of other languages.⁸⁶

Other challenges arose in determining the agreed route and authorisation process for the release of this information to the public. In some cases, the route and roles required to sign-off were not made clear in emergency plans and/or media procedures.⁸⁷ In other cases, agreement was achieved through the activation of a bespoke 'media cell' to support the co-ordination and consistency of messaging across partners, boundaries and borders.⁸⁸ However, even when convened, the

86 Public Health England, 'Exercise Cygnus Report', 2017, lesson identified 10, appendix 1

87 Animal and Plant Health Agency, 'Exercise Blackthorn: National Foot and Mouth Disease Exercise Evaluation and Lessons Identified Report', 2018, page 55

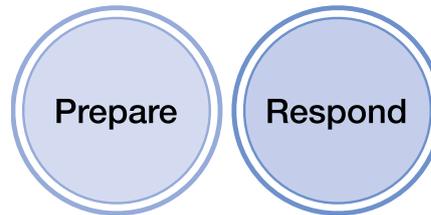
88 HM Coastguard, 'UK National Contingency Plan Exercise Exercise SHEN – Post Exercise Report', 2018, page 64

experiences of exercise participants led to recommendations for a predefined cell guidance document, containing a list of attendees (with up to date contacts) and specifying how it would be effectively chaired.

The importance of media roles also generated a lot of learning across exercises. A summary of cross-cutting recommendations from organisations and partnerships in this area included a need to:

- define, pre-assign and update the media relations roles post-exercise
- deliver or facilitate specific training for those in media relations roles, especially if they will be adopting the role temporarily and infrequently when an emergency response is stood up
- decide whose media representative would lead in the delivery information in varied emergency scenarios
- determine clear, integrated processes for those in media roles to obtain necessary information, images and infographics from partners in alignment with the agreed daily rhythm of meetings
- deputise media roles to cover unanticipated absences, enable effective handovers and ensure continuity of communications during a protracted response^{89, 90}
- detail how skilled public relations officers from other departments could be deployed in a timely manner to support as appropriate.⁹¹

Transferable lessons



Exercise Watermark in particular, despite its focus on the national flood response, had key recommendations that are easily transferable across emergency scenarios. Although now more than 10-years old, these lessons still articulated the essence of cross-cutting media lessons contained in the reports reviewed. Arguably, the pace and prevalence of social media perhaps makes them all the more relevant today.

Finally, a shared risk with common consequences was also highlighted, where due diligence in media preparedness was lacking. This concerned delays and/or failures in the provision of timely information and updates to the media. This went on to widen the window of opportunity for mis- and is- information to emerge, increasing the risk that false or competing narratives would gain traction. For more information on these risks see a helpful resource from Ofcom in the sidelight below the table.

89 Directorate of HM Coastguard, 'Exercise Celtic Deep Report', page 58

90 HMBD Clyde, Argyll and Bute, 'Exercise Short Sermon 12 All Agencies Report', 2012, page 9

91 Exercise PROMETHEUS, 'Control-Post Exercise 26th - 27th March 2015' Post-Exercise Report, 2015, page 25

Exercise Watermark (2011)

| Recommendation | Details |
|----------------|---|
| 30, page 28 | The review recommends that local resilience forums need to establish a clear process for media communications that guarantees fast formal approval from senior management. |
| 31, page 29 | The review recommends that examples of good press releases are shared and used as a template for future multi-agency releases on flood incidents. |
| 32, page 29 | The review recommends that all government departments and emergency responders assess social media capability, capacity and access and think about removing any barriers so they can start to lead the way in social media conversation. |



Sidelight: Tackling misinformation



In April 2022, Ofcom launched Life Online, a new podcast diving into themes around online safety.

This followed some of their latest research, which showed that 30% of people (approximately 14.5 million) fail to question misinformation, while 6% (one in every 20 internet users) believe everything they see.

Across the series, they talk to experts about what really happens online, how people feel about it, and what can be done to help everyone live safer lives online. The first episode of Life Online was titled **'The Genuine Article: Tackling Misinformation'**. It discusses misinformation, disinformation, and how to identify it. To listen to the 20-minute podcast and for more information see the **Ofcom** website.

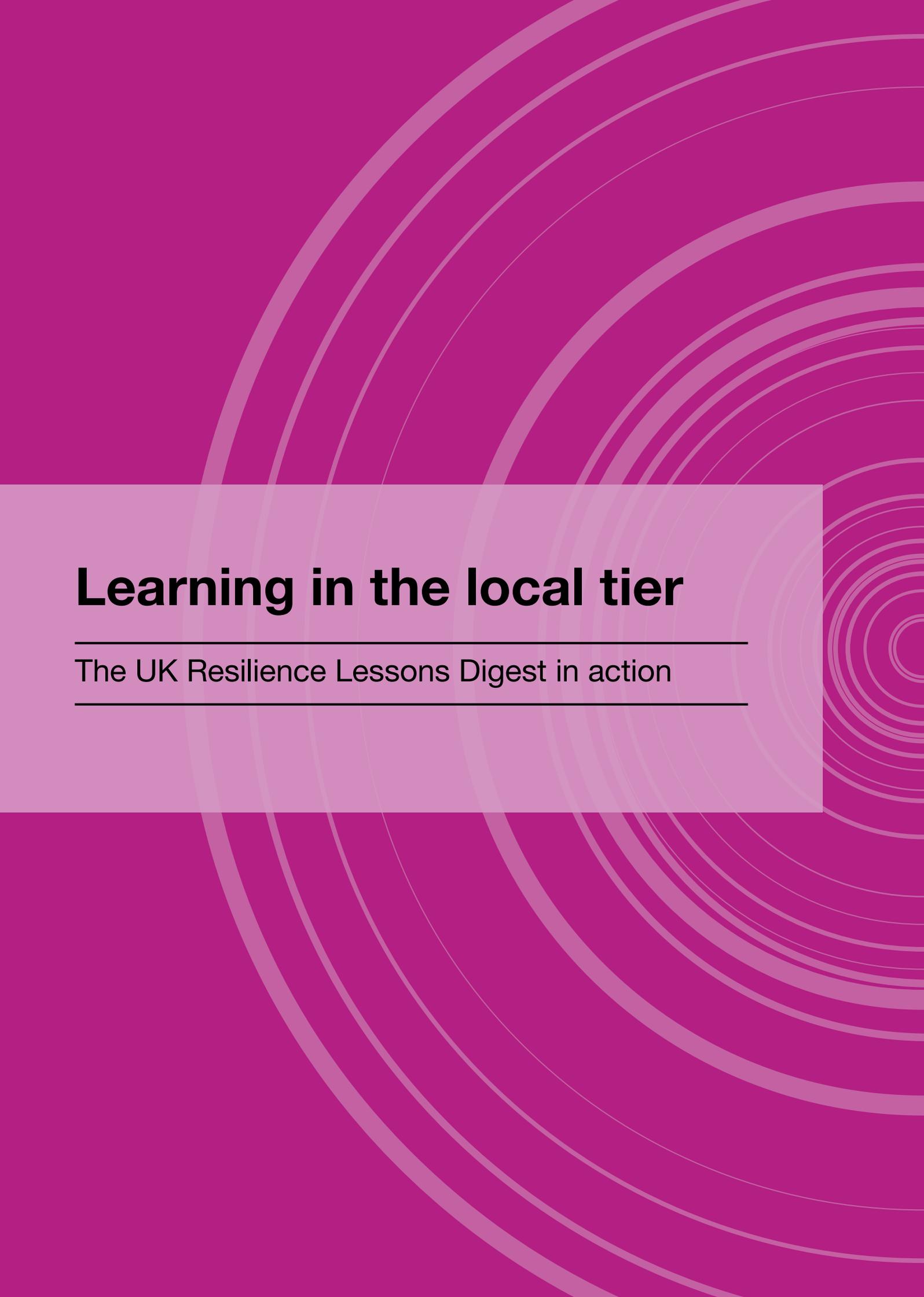
For an overview of desired outcomes in this thematic area, a summary of legal duties (mandatory requirements) and details of how to achieve good and leading practice in this area, see National Resilience Standards for LRFs standard number 3: communicating risks to the public, standard number 4: emergency planning, and Standard number 12: strategic co-ordinating group (preparation and activation).

Conclusions

Regardless of scale and delivery method, this research demonstrates there is much learning to be gained from the review of emergency exercises. It highlighted the importance of doing this both at national and local levels, to ensure patterns in the multi-agency management of complex emergencies and organisational learning are both captured for review. This was timely given both the recent findings from Volume 2 of the Manchester Arena Inquiry and the recent commitment in the **UK Government Resilience Framework**, to reinvigorate the National Exercise Programme.

Whilst many will be familiar with the six learning themes arising in this analysis, it was interesting to note the evident thematic differences when comparing lessons identified in this PXR dataset, with the post-incident reports detailing real-world learning from the impacts of Storm Arwen in Digest **Issue 1**. While areas of commonality across analyses do exist, it is clear that exercise environments have their own crucial part to play in the active learning process, simultaneously connecting concepts, practice, learners and peers. This offers those involved unique opportunities to identify challenges and opportunities ahead of a real-world response.





Learning in the local tier

The UK Resilience Lessons Digest in action

In this article Dr Kathy Oldham, Chief Resilience Officer for Greater Manchester Combined Authority shares how their Local Resilience Forums have actively applied Digest Issue 1, to support their learning and continual improvement processes.

Greater Manchester is home to nearly 3 million people, 100,000 businesses and over 17,000 voluntary organisations, community groups and social enterprises. Our Greater Manchester Resilience Forum is one of 38 LRFs in England that bring together a wide range of emergency responders from the public, private, voluntary, and academic sectors to co-ordinate activity and work in partnership to prepare for emergencies.

In common with other LRFs, we develop a Community Risk Register that sets out the risks we prepare for including: natural hazards, industrial accidents and malicious acts. Home to 3 great rivers, the Douglas, the Irwell and the Mersey, our top risks include flooding and severe weather. As a large urban area, we also plan for any loss of essential services and the critical infrastructure that provides them, including electricity, telecommunications, gas, and water. So it was with interest that we read the articles in volume one of the Lessons Digest analysing learning identified in the aftermath of Storm Arwen, which included the challenges posed by severe weather impacting on electricity and telecommunications systems among others.

Engaging with the new UK Resilience Lessons Digest

The Greater Manchester Resilience Forum (GMRF), along with many other LRFs in the country, welcomes the work of the Emergency Planning College in developing



the Lessons Digest. The Lessons Digest aims to summarise and share transferable lessons and themes identified from emergencies and, in so doing, can help LRFs to build on this learning when planning for future emergencies.

During an emergency, responders from many different agencies work together through joint command and control structures to integrate their actions to deliver co-ordinated assistance to society. Many lessons identified following an emergency therefore need consideration by all these agencies, continuing to work in partnership, to implement system-wide changes that can help to ensure future actions are informed by this learning. The GMRF therefore took a partnership approach to exploring the learning highlighted in the Lessons Digest.

Transferable lessons and learning themes

In December 2022, the GMRF received a report distilling the Digest's content into 18 lessons contained within the 5 themes of:

- an evolving understanding of extreme weather risks
- welfare and wellbeing
- standards, guidance and good practice
- information and expectation
- collaboration and integration.

Against each lesson was an initial assessment and gap analysis of current relevant activity within the GMRF.

A few thoughts arising from discussion of this analysis included.

- The UK has a strong civil contingencies framework, led at a national level, albeit delivered locally. This delivers co-ordinated approaches and fosters cross-border working. However, some of the lessons from Storm Arwen require changes to be made at this national level.
- There is a continued need for local emergency responders to continue to work closely with specialists in climate change to understand how to prepare for the challenges this will bring. Whereas in preparing for emergencies we can often draw on historical events, climate change is projected to bring unprecedented challenges at scale, pace and across geographical areas in ways we haven't experienced previously.
- Business continuity planning within organisations focuses on maintaining essential services. In a sustained response these plans need to pivot to

keep both essential services and the emergency response running over a protracted period.

- Sustained and wide area emergencies may require a surge capacity that exceeds the redundancy already built into services, such as customer call centres. New ways of working may need exploring to cope with sudden increases in customer demand in emergencies.

Of the lessons highlighted in the Digest, two in particular stand out:

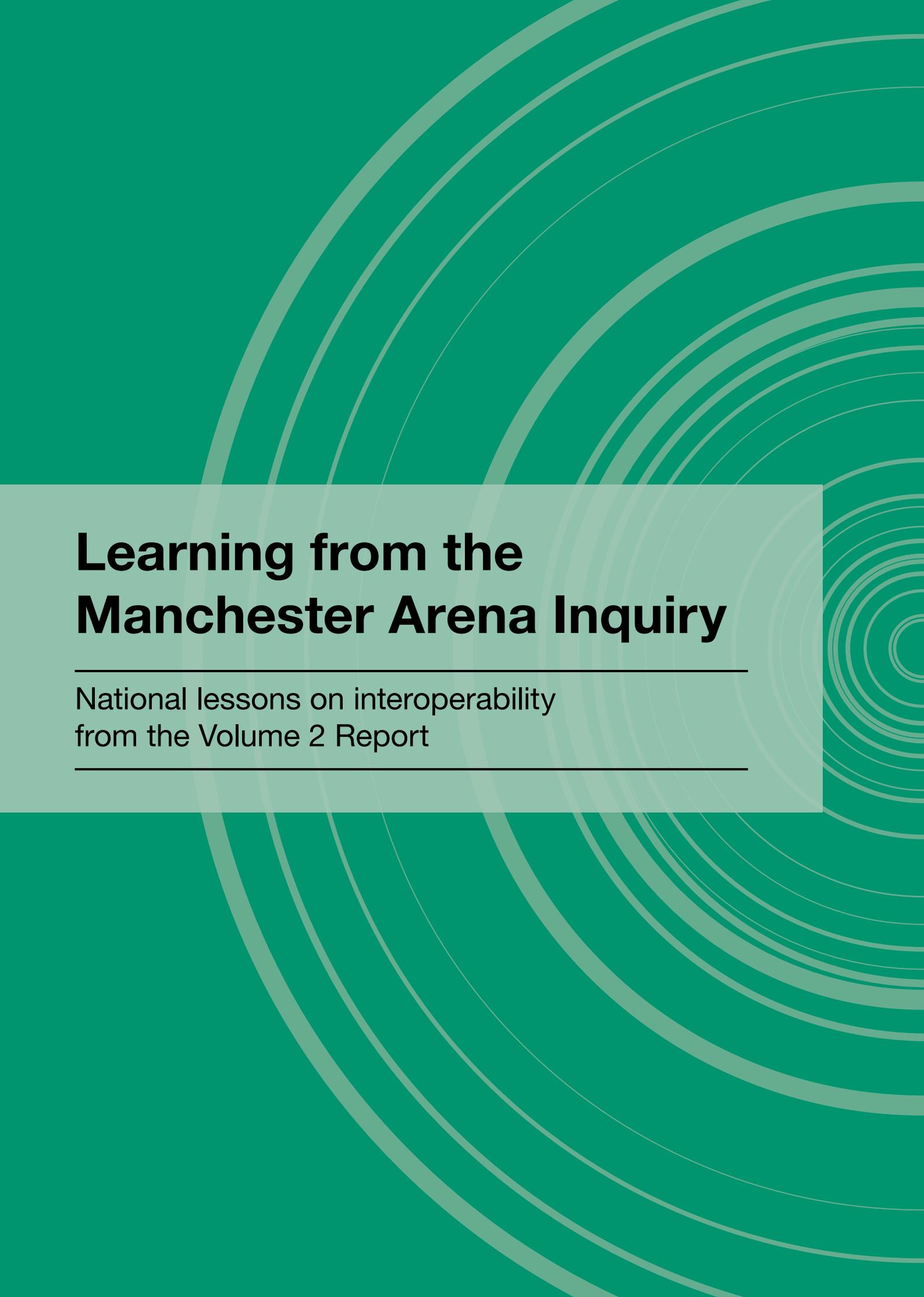
- the interdependency of electrical and digital/telecommunications systems and the problems caused when either is lost
- the challenge for all responders in understanding the roles and responsibilities of other organisations (which may number upwards of 20) in an emergency, including how organisations prioritise their services reflecting different statutory and technical requirements – a lesson that has been identified from a number of incidents.

Looking ahead

In addition to exploring how the GMRF can incorporate these lessons in new ways of working and in emergency plans, the intention is to test some scenarios based on these lessons in forthcoming exercises to better understand their causes and how to resolve them.

For further information about resilience work across GMCA visit: greatermanchester-ca.gov.uk/what-we-do/resilience



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Learning from the Manchester Arena Inquiry

National lessons on interoperability
from the Volume 2 Report

In this article, National Joint Organisational Learning (JOL) Coordinator Lisabeth Jones, and JESIP Deputy Senior Responsible Officer, Carl Daniels highlight some of the national-level issues identified in the Manchester Arena Volume 2 Report. These focus on the importance of the JESIP principles and embedding of ‘interoperability’ – the extent to which organisations can work together coherently as a matter of routine. They also detail how JESIP and JOL have been actively learning from lessons identified by the Inquiry, both during proceedings and since Volume 2’s publication.

Introduction: about the Manchester Arena Inquiry

The **Manchester Arena Inquiry** is a statutory public inquiry. It was established on 22 October 2019 by the then Home Secretary, to investigate the deaths of the victims of the terror attack on the Arena on 22 May 2017. It was chaired by the Hon Sir John Saunders, and ran according to the rules in the Inquiries Act 2005 and Inquiry Rules 2006. **Volume 1** of the Inquiry’s independent report, ‘Security for the Arena’, was published in 2021.⁹²

Volume 2 of the report was published online in November 2022. It sets out the Chair’s findings and recommendations on the emergency response to the attack. This report has been laid before Parliament and is made up of two documents, **volume 2-I** and **volume 2-II**. A full summary of Manchester

Arena Inquiry Recommendations, including those that will be monitored going forwards, can be found in **Report Volume 2-II**, part 21 – ‘volume 2 conclusions and recommendations’ (pages 138-161).

The application of JESIP’s Joint Doctrine during the attack

Since its inception in 2012, the Joint Emergency Services Interoperability Programme – which later evolved into the Joint Emergency Services Interoperability Principles (JESIP)⁹³ – has sought to provide a framework through doctrine, engagement, communications and training and awareness resources. This is to enable continual progress towards the aim of working together, saving lives and reducing harm. The cornerstone document, the **JESIP Joint Doctrine: The Interoperability Framework** (the ‘Joint Doctrine’), has been tested through incidents, exercises and training since the first edition was published in 2013 and, arguably, never more so than in the response to the attack at Manchester Arena on the 22nd May 2017 (‘the Attack’).

The Manchester Arena Inquiry Volume 2: Emergency Response report, specifically focuses on the Joint Doctrine and its application by the emergency services during this incident. The bulk of this examination is in part 11 (which includes a brief history of JESIP) and it is here that the Chair concludes that the Joint Doctrine, at the time in its second edition, “set out guidance essential for joint working by the emergency services”.⁹⁴

92 The Hon Sir John Saunders, ‘Manchester Arena Inquiry Volume 1: Security for the Arena June 2021

93 JESIP, ‘Principles for Joint Working’

94 The Hon Sir John Saunders, ‘Manchester Arena Inquiry Volume 2: Emergency Response’, Volume 2-I, November 2022, page 86

The report further states that ‘[t]he evidence heard in the Inquiry has confirmed the importance of almost all of what is said in the Joint Doctrine’.⁹⁵ However, while praising the “good examples of joint working on the ground”, the Chair expresses disappointment that “so much went wrong with joint working”, in particular at the command level⁹⁶. **Sadly, the lack of embeddedness of the Joint Doctrine at the time led to a failure to apply JESIP and is a theme running through the report.** One of the contributing factors that emerged was a failure to ‘capture lessons’ and to ‘implement change’, in particular from multi-agency exercises prior to the Attack.⁹⁷ Recommendations R48, R49, R88 and R104 all seek to address this gap. It is also recommended that control rooms, in particular, participate in and learn from multi-agency exercises (R28 - R30).

JESIP developments since the attack



Importantly, there have already been significant developments in JESIP since the attack. Most notable was the launch of JOL Online in August 2017 and the employment of its first dedicated national JOL co-ordinator in 2018. The Joint Doctrine was also reviewed and updated based on

some of the findings from various sources including the Grenfell Tower Inquiry, the Kerslake report and JOL Online inputs to name a few. This led to the publication of the third edition in October 2021. Furthermore, the JESIP Multi-agency Interoperability Training Course has been combined so that control room supervisors/managers are trained alongside other commanders. In short, we are learning.

JOL in action



To have a joint organisational learning strategy fully embedded nationally was one of the original objectives for JESIP and is still a key element of the Joint Doctrine. An overview of JOL, with its associated governance structure and process, was given in **Issue 1 of the Lessons Digest** where the tools available to enable lessons identified to progress to embedded learning were outlined. At its most basic level, JOL Online is an information sharing platform where organisations receive notification of lessons identified/notable practice and are encouraged to integrate these into their own organisational learning systems to make improvements locally/regionally. Where there are more complex sources of learning, such as a public inquiry, the full flexibility of the JOL structure is required. In response to the Manchester Arena Inquiry report:

95 The Hon Sir John Saunders, ‘Manchester Arena Inquiry Volume 2: Emergency Response’, Volume 2-1, November 2022, paragraph 11.24, page 88

96 The Hon Sir John Saunders, ‘Manchester Arena Inquiry Volume 2: Emergency Response’, Volume 2-1, November 2022, paragraph 11.26, page 88

97 The Hon Sir John Saunders, ‘Manchester Arena Inquiry Volume 2: Emergency Response’, Volume 2-1, November 2022, page 258



- we are working collaboratively with national strategic partners to provide updates against relevant recommendations direct to the inquiry Chair
- we have examined any comments regarding the Joint Doctrine to ensure that the third edition (published prior to the Inquiry's volume 2 reports) is aligned with the findings
- we are reviewing the recommendations to see what near-term actions can be taken in response to the challenges raised. These may be subject to the issue of a JOL action note with recommendations direct to all emergency services and LRFs
- we have inputted relevant recommendations into JOL Online so they can be tracked, analysed, shared and changes can be made to national doctrine and training.

However, JOL is only one 'cog' in the overall UK continual learning and improvement machinery for responding to emergencies. JOL's success is dependent on engagement from individuals and organisations at a local, regional and national level to effectively identify lessons (through debriefing and other methods) and submit these to JOL Online. A process for considering and acting on lessons identified and notable practice published on JOL Online should also be in place. To find out more about how JOL works in action, you can [read a case study regarding water rescue interoperability here](#).

What next? Actions for responder organisations:

While interoperability lessons identified and notable practice will be continually monitored and analysed at the national level through the JOL structure and process, it is important this does not replace local analysis and plans to implement lessons learned.

To support this process, each police, fire and ambulance service and LRF has nominated at least one JOL Single Point of Contact (SPoC) who will be responsible for encouraging inputs onto JOL Online on behalf of their service or LRF. If you are unsure who your JOL SPoC single point of contact is, find out so that you can better understand how JOL is at work in your organisation. You can contact the National JOL Coordinator for more information at jol@jesip.org.uk



Sidelight:

For further details about this and other public inquiries see the following links:

What is a Public Inquiry? **files.**
[manchesterarenainquiry.org.uk/
live/uploads/2019/11/07204218/
What-is-a-Public-inquiry-1.pdf](https://manchesterarenainquiry.org.uk/live/uploads/2019/11/07204218/What-is-a-Public-inquiry-1.pdf)

Statutory public inquiries:
the Inquiries Act 2005

This briefing paper from the House of Commons Library provides an overview of the Inquiries Act 2005. <https://commonslibrary.parliament.uk/research-briefings/sn06410/>

Further Information

Full copies of the Volume 2-I and Volume 2-II reports (including print-ready versions) of the public inquiry into the attack on the Manchester Arena can be accessed [here](#).

On 2nd March 2023 the Chairman of the Manchester Arena Inquiry went on to publish Volume Three of his report into the death of the 22 victims of the attack on 22nd May 2017. This examines the evidence heard by the Chairman on the radicalisation of Salman Abedi, the planning and preparation of the attack and whether the attack could have been prevented. The report, Volume Three: Radicalisation and Preventability, is available here: <https://manchesterarenainquiry.org.uk/report-volume-three/>



Tools for implementation

Actively anticipating the future

In this article James Ancell, Head of Foresight in the Cabinet Office Joint Data Analysis Centre (JDAC), describes two creative techniques that can help practitioners actively apply ‘Futures Thinking’ in exercising workstreams. This includes tools for Idea Generation and application of the Futures Wheel, which can be used to support both emergency scenario development and post-exercise learning activity.



James Ancell

Head of Foresight in the Cabinet Office
Joint Data Analysis Centre (JDAC)

Introduction

In order to anticipate and manage the consequences of all kinds of emergencies, resilience professionals need to identify risks and understand their impacts in advance, where possible.⁹⁸

The production of emergency scenarios and exercises is one of the ways that these future impacts and scenarios can be explored and made actionable in the present.⁹⁹ However, developing highly undesirable, ‘worst-case’ scenarios can be cognitively uncomfortable, challenging the imagination to ‘think the unthinkable’ in order to improve preparedness outcomes.

An example of this challenge was retrospectively highlighted in the 9/11 Commission Report on the September 11 attacks on the United States in 2001. The Commission reported that insufficient attention was paid to the potential threat of suicide pilots and possibilities of passenger aircraft being weaponized, prior to the attack. This was considered a ‘failure of the imagination’.¹⁰⁰ In the report’s section titled ‘hindsight and foresight’ the Commission went on to say:

“It is therefore crucial to find a way of routinizing, even bureaucratizing, the exercise of imagination. Doing so requires more than finding an expert who can imagine that aircraft could be used as weapons”.¹⁰¹

98 HM Government, ‘Responding to Emergencies -The UK Central Government Response: Concept of Operations (CONOPS)’, 2013, page 6

99 B. Anderson, ‘Preemption, precaution, preparedness: Anticipatory action and future geographies’. *Progress in human geography*, 34(6), 2010, pages 777-798

100 D.L Hoover, ‘A failure of imagination in the US intelligence community’, *American Intelligence Journal*, 31(1), 2013, pages 59-71

101 The 9/11 Commission Report: Final Report of the National Commission on Terrorist Attacks Upon the United States, authorised edition. New York: W.W. Norton & Co., 2004, pages 336; 339

Approaches to thinking about the future

“Foresight is described as a process by which one comes to a fuller understanding of the forces shaping the long-term future, which should be taken into account in policy formulation, planning and decision making.”¹⁰²

One of the ways that the imagination can be readily employed in the emergency preparedness and wider resilience contexts is through the use of ‘futures thinking’ tools and techniques. Broadly defined, ‘futures’ refers to “an approach or way of thinking about the possible, probable, (un)preferable futures and the underlying structures that could give rise to particular future characteristics, events, and behaviour”.¹⁰³ With everything going on in the here and now, it can be hard to take a moment to look forward and think about the wide range of possible events that could arise in 2023. However, when needing to anticipate and manage the consequences of all kinds of emergencies, it could be one of the most useful things you do to prepare yourself and your team for what might happen next.

Futures tools and techniques

The primary purpose of futures tools is to:

- gather intelligence about the future
- explore the dynamics of change
- describe what the future might be like
- develop plans and test them out

We can’t always say exactly what will happen with great certainty, but we can plan and prepare for a range of outcomes, helping to embed lessons identified and drive continual improvements along the way.

One way of doing this involves writing imagined emergency scenarios based on real or emerging threats. The tools that follow can be useful in generating scenario ideas that will engage teams and provide appropriate levels of challenge. They can also be used to creatively explore different levels of impact from a particular event or driver, to help design exercise injects, identify key players and consider key decision points.

While there are benefits in access to expertise and experience in their delivery, they can be easily adopted by anyone wanting to broaden thinking and generate foresight. Generally both work best when used in-person, but they can be applied virtually too. Sticky notes (or a virtual whiteboard), interactivity, tone and engagement are all as important as the actual techniques themselves.

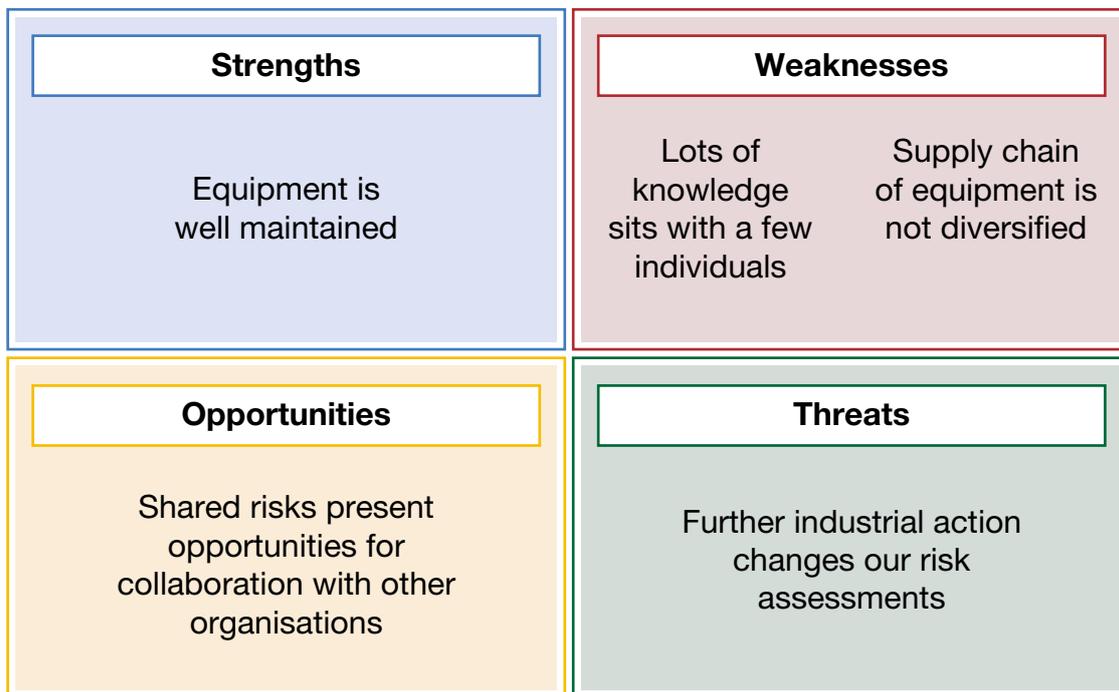
Futures technique 1: idea generation

Idea generation techniques are simply a way of bringing possibilities to the table, providing an opportunity for creative thinking within a team or multi-agency setting. Activities tend to be discussion or workshop based. Good examples include the use of tools called ‘thinking frameworks’, which work best in groups of six or more, but can be used independently.¹⁰⁴

102 J.F. Coates, ‘Foresight in Federal Government Policymaking’. *Futures Research Quarterly*, 1985, pages 29-53

103 Government Office for Science, ‘*The Futures Toolkit: Tools for Futures Thinking and Foresight Across UK Government*’, 2017, pages 92

104 Government Office for Science, ‘*The Futures Toolkit: Tools for Futures Thinking and Foresight Across UK Government*’, 2017, pages 61

Figure 6: Strengths, weaknesses, opportunities and threat (SWOT) analysis

Why? To encourage a broad range of ideas on a particular topic, or the materialisation of a particular risk. Many crises were predicted by people who were able to break free from conventional thinking.

How? The most commonly used frameworks to guide thinking are a strengths, weaknesses, opportunities and threat (SWOT) analysis or the political, economic, sociological, technological, legal and environmental (PESTLE) framework.¹⁰⁵ Examples of both are in figures 6 and 7.

Try:

- Select a hazard or risk and imagine it has materialised. What would be your current SWOT in managing the response and/or recovery? Consider using lessons identified in previous emergencies and exercises to inform inputs.
- Use the information gathered using a SWOT analysis to support the design of bespoke scenarios and challenging injects for table top, command post and live play exercises. For example, explore how injects or live play could embed strengths or improve weaknesses.
- Test your proposed scenario narratives for PESTLE implications that may impact the emergency response, business continuity and the recovery process. You may wish to expand thinking to include ethical and/or organisational elements (figure 7). Consider the impacts events will have on public services, businesses, government priorities or vulnerable members of society. How would the scale of the event change the impacts? For example, if a power outage was experienced on a local, national or international scale.

¹⁰⁵ Government Office for Science, 'The Futures Toolkit: Tools for Futures Thinking and Foresight Across UK Government', 2017

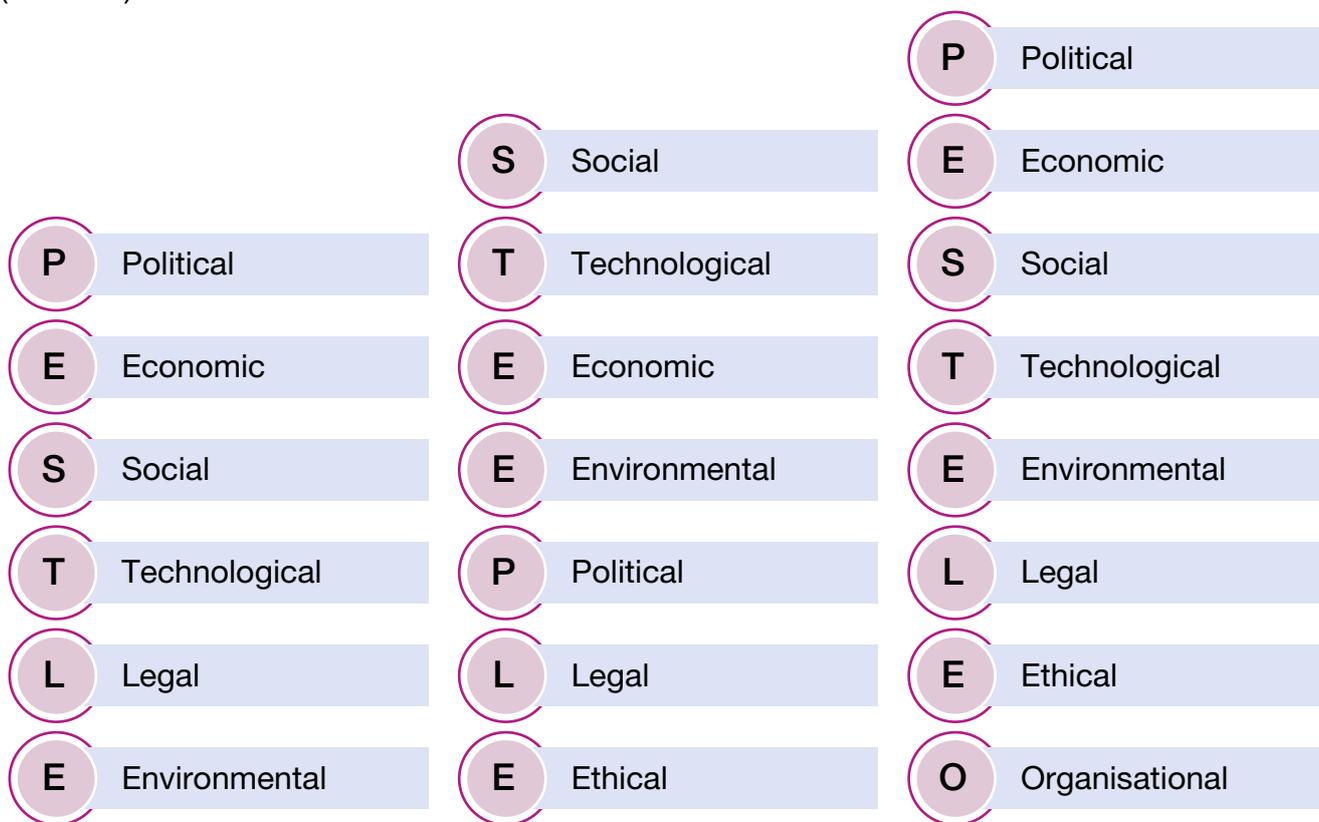
Consider using the PESTLE framework to imagine possible impacts on the application of the JESIP principles¹⁰⁶ in a complex, emergency response.



Sidelight:

Did you know that the PESTLE framework has been expanded for application in a range of contexts? See Figure 7 for examples that may suit your context or setting.

Figure 7: Political, economic, sociological, technological, legal and environmental (PESTLE) framework



Top tips: Setting the tone is vital for generating ideas, so it's worth taking the time to set ground rules for participants. To encourage everyone to participate, including attendees who may be less confident in speaking up, try running a silent brainstorm on framework areas first of all.

You might even adapt these thinking frameworks to design your own, inspiring more bespoke prompts for futures thinking in your particular setting or context.

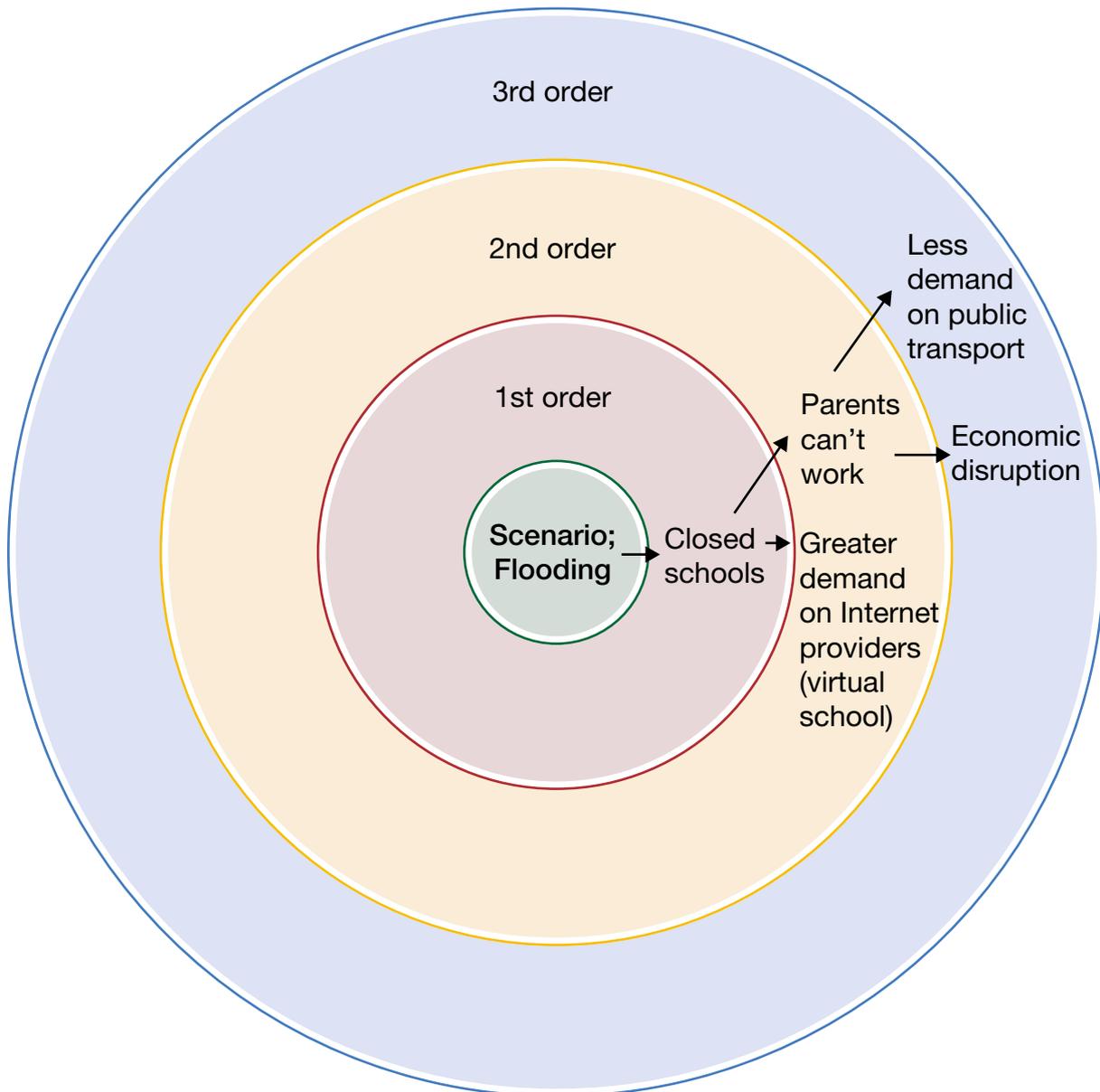
106 JESIP Principles for Joint Working. Available from <https://www.jesip.org.uk/joint-doctrine/principles-for-joint-working/>

Futures technique 2: visualising impacts

The Futures Wheel is a tool that encourages a form of structured thinking to help participants visualise how the impact of an emergency event can create cascading

risks and onward impacts (i.e. second and third order effects). These can be explored at multiple levels, e.g. societal and organisational, or strategic, tactical and operational. It can be particularly useful for identifying and mapping connections and causalities.¹⁰⁷

Figure 8: The Futures Wheel



107 Government Office for Science, 'The Futures Toolkit: Tools for Futures Thinking and Foresight Across UK Government, 2017, page 92

Why? To creatively explore different levels of impact from a particular event or driver, identify services and/or systems that are closely interconnected, liable to create cascading risks and may necessitate updates in emergency planning.

How? Prepare a brief emergency scenario in advance (or use idea generation technique to develop one). Place it in the centre of a whiteboard or A3 page. Gradually tease out the consequences of that event, one layer at a time, asking “what could happen next?”, or ‘If this happens then...’ Finally, review the diagram, ask “what do we need to do about this? Who would be able to tell us more?” Then expanding the wheel to third or fourth order effects is usually sufficient.

Try:

- Use the information gathered in the futures wheel to support the development of a main events list for exercise scenarios. The second and third order effects can be useful in writing injects and developing meaningful scenario updates following exercise time-jumps.
- Before reviewing or updating a particular emergency plan, use the futures wheel with local partners or teams to help identify and assess onward vulnerabilities, impacts and interdependencies beyond materialisation of the identified risk. Do the impacts and available plans align? Are there any gaps that need to be addressed?

- Having completed the above – imagine the same risk materialising, but this time it occurs during, or is concurrent with, a multi-agency partner experiencing a cyber-attack. How might the second and third order effects be impacted? How would issues such as connectivity, communication and co-location impact the wider response and recovery?

Top tips: The most surprising conclusions are often about how issues compound. Think about how these issues will ultimately impact business, households, public services, vulnerable groups, regions and policies at local and/or national levels.

Further information and resources

Importantly, this is not about getting everything right. It’s about developing the best possible understanding of how events could play out, how different variables might impact the effects it creates, and how we might influence them. It’s about considering the future and what this could mean for your business, local partnership or department when working on prevention, preparedness, plans and policies in the here and now.

For more information on futures work and access to more free tools and techniques, see the **futures toolkit**. This **trend deck** by the Government Office for Science, combining the published horizon scans of multiple organisations, is also helpful when thinking about trends (e.g. climate change) and conducting foresight exercises. A selection of additional crisis leadership tools, including problem deconstruction and **cause and impact analysis** can also be accessed via ‘toolkits’ on the **EPC knowledge hub**.

About the Joint Data and Analysis Centre

JDAC sits in the Cabinet Office's Economic and Domestic Secretariat (EDS). Their vision is for data and analysis to be central to decision making at the centre of government. They do this by ensuring key government decisions are based on the best possible data and strategic analysis. Within that, the Foresight Team provides advice and analysis on future economic and domestic issues and impacts, including acute and chronic risks.

If you would like to discuss an idea for futures work, or to request advice, facilitation, or analysis for economic and domestic policy issues, please contact: eds.jdac-foresight@cabinetoffice.gov.uk



Academic insight

Mutual aid: learning in action during COVID-19

Introduction

The UK has a strong history of volunteering in emergencies. This is recognised in the **UK Government Resilience Framework**.

“We regularly see the generosity of people coming forward to help their communities and the capacity of communities to support those in need: from emergency responders and networks of businesses, voluntary groups and local volunteers, to smaller community groups and individuals who undertake those simple and essential acts of good neighbourliness.”¹⁰⁸

At the national and local level, inclusive volunteering should be supported so that people and communities can participate and everyone who can is encouraged to play a role in local volunteering.

COVID-19 saw an unprecedented response from the public to help each other in times of crisis. Thousands of community-based, mutual aid groups emerged across the UK and played an important role in supporting some of the most at-risk individuals in their communities. The challenge, however, is that the mutual aid and community support groups which frequently occur in the event of emergencies can dissipate over time, despite how vital and valuable they are.

In this case study, Professor John Drury and Dr Evangelos Ntontis set out learnings from their research to understand the processes whereby community support and mutual aid groups can be sustained over time. They ask, what factors work against the decline that so often happens with such groups?

UK COVID-19 mutual aid groups

Who were they?

“Mutual aid groups are spaces that cultivate solidarity amongst people that have come together to address a shared need or concern.”¹⁰⁹

Many participants were new to volunteering or community action. Some groups were repurposed from pre-existing community groups. Groups tended to be informal, distinct from the existing voluntary sector, and with no formal constitution. Some groups later applied for charitable status to access grants more easily. Communities with more social capital tended to have more mutual aid groups.

What did COVID-19 mutual aid groups do?

Mutual aid groups’ main activity was shopping to support those self-isolating or shielding. They also engaged in other community support activities, including fundraising, providing information, dog-walking, mental health support and collecting prescriptions. Some pointed out that mutual aid groups were crucial in the UK’s pandemic response. In addition, many groups sought to respond to other community needs beyond COVID-19, including food poverty and supporting refugees.

108 HM Government, ‘UK Government Resilience Framework’ paragraph 143, page 46

109 M. Fernandes-Jesus, G. Mao, E. Ntontis, E., C. Cocking, M. McTague, A. Schwarz, J. Semlyen, and J. Drury, J., 2021. ‘More than a COVID-19 response: Sustaining mutual aid groups during and beyond the pandemic’. *Frontiers in psychology*, 12, Article 716202, page 2.

Understanding how COVID-19 mutual groups sustained themselves

The Economic and Social Research Council funded research¹¹⁰ to examine how COVID-19 mutual aid groups sustained themselves over time. Following the initial upsurge, participation in mutual aid groups dropped, particularly after ‘lockdown’ restrictions eased. For example, activity in COVID-19 mutual aid groups on Facebook dropped by 75%¹¹¹ by June from the high point of March 2020. Some volunteers left because they felt let down by local authorities, needed logistical infrastructure, felt overwhelmed, lacked capacity, or lost motivation due to return to ‘normality’. For the groups that continued, there was a need to sustain themselves and maintain volunteers’ engagement over time.

Interviews with organisers¹¹² and a two-wave survey of volunteers indicated three types of factors that helped sustain groups. First, there was group scaffolding – such as access to funds, space for meetings and storage, computing facilities, and transport. Second, there were group experiences which arose from participation and motivated further involvement – including a sense of identity, wellbeing, empowerment,¹¹³ and skills acquisition. Finally, organisers employed various group strategies to enhance a sense of belonging and motivate volunteers – in particular, fostering a culture of care, holding social events, a flexible leadership structure, and regular communication.

Learnings: Implications for community resilience

- Government, local authorities, and local infrastructure organisations/the formal voluntary sector can all help scaffold the group processes that sustain mutual aid groups.
- Group scaffolding can comprise financial/practical support, connections and links, and guidance/advice.
- It is important that no ‘strings’ are attached to this external support, as it is precisely the identity of mutual aid groups as independent and informal that makes them trusted by communities.

Further Information

For more information, resources and a **toolbox** providing support to help sustain community participation, please visit the University of Sussex mutual aid research page.¹¹⁴

110 University of Sussex, ‘Groups and COVID-19’, 2023

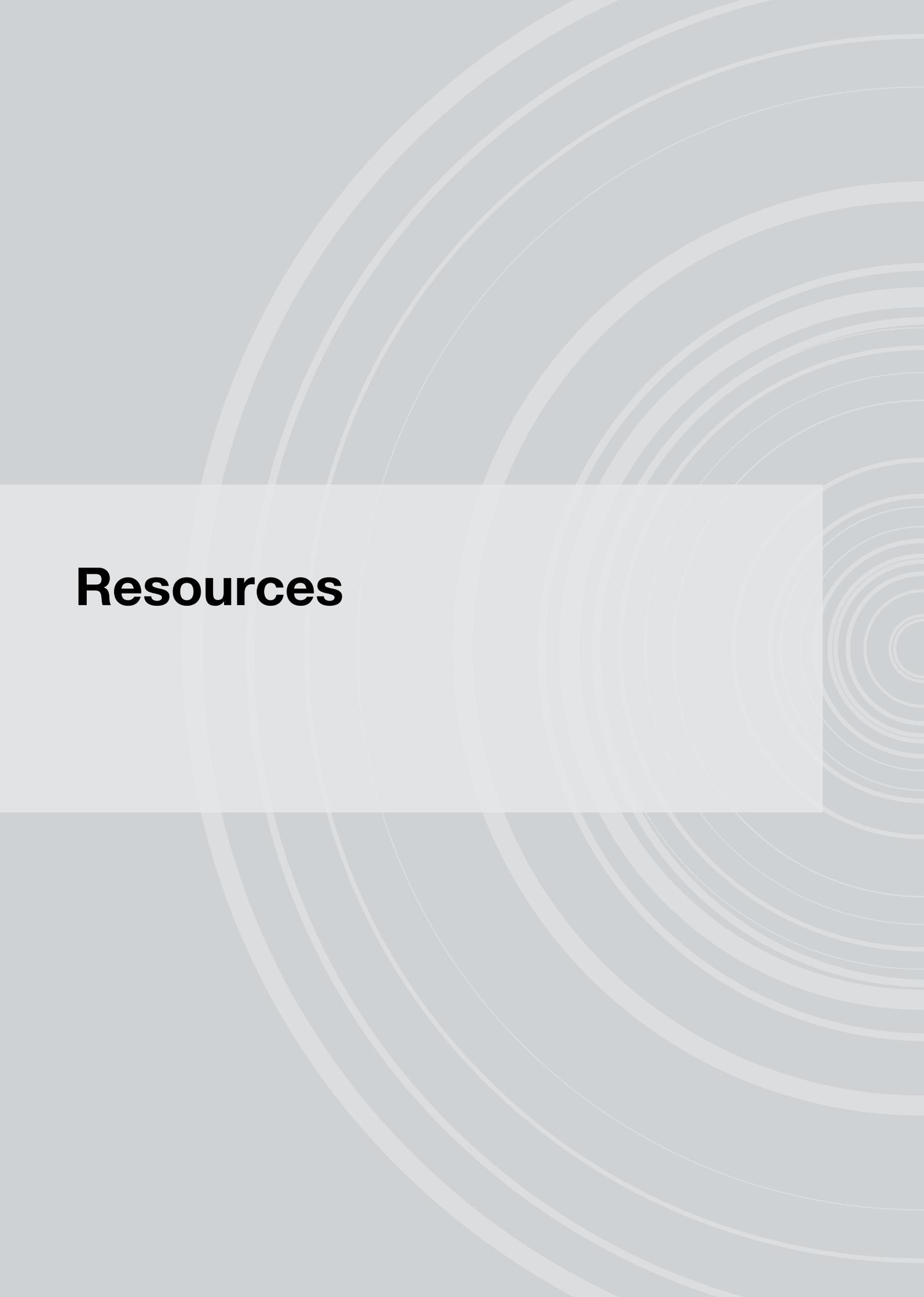
111 Tracking the nature and trajectory of social support in Facebook mutual aid groups during the COVID-19 pandemic

112 More Than a COVID-19 Response: Sustaining Mutual Aid Groups During and Beyond the Pandemic

113 How participation in Covid-19 mutual aid groups affects subjective well-being and how political identity moderates these effects

114 University of Sussex, Community support and mutual aid





Resources

Learning in action

Research article on the conversational framework

Laurillard, D., 1999. A conversational framework for individual learning applied to the 'learning organisation' and the 'learning society'. *Systems Research and Behavioral Science: The Official Journal of the International Federation for Systems Research*, 16(2), pp.113-122. Available from: [https://onlinelibrary.wiley.com/doi/abs/10.1002/\(SICI\)1099-1743\(199903/04\)16:2%3C113::AID-SRES279%3E3.0.CO;2-C](https://onlinelibrary.wiley.com/doi/abs/10.1002/(SICI)1099-1743(199903/04)16:2%3C113::AID-SRES279%3E3.0.CO;2-C)

FutureLearn video content on the Conversational Framework:

In this free video via FutureLearn Professor Diana Laurillard introduces the Conversational Framework and the six types of learning it embraces.

Further reading

Skryabina, E., Reedy, G., Amlot, R., Jaye, P. and Riley, P., 2017. *What is the value of health emergency preparedness exercises? A scoping review study*. *International journal of disaster risk reduction*, 21, pp.274-283.

Wider lessons and learning

JESIP Joint Organisational Learning latest learning

Following the publication of Action Note 2022-001: Interoperability at water rescue incidents on Resilience Direct, a corresponding case study 'JOL in Action' is now publicly available to via the JESIP website: jesip.org.uk/news/joint-organisational-learning-in-action

Research and analysis: Evaluation of the Birmingham 2022 Commonwealth Games – Interim Evaluation Report

An independent evaluation report providing an interim assessment of the impact of the Birmingham 2022 Commonwealth Games events on Birmingham, the West Midlands and the wider UK. The ongoing independent evaluation of the Birmingham 2022 Commonwealth Games and associated legacy programmes is being carried out with two main purposes: (1) to inform legacy programme delivery and ensure lessons can be learned for future Commonwealth Games and other mega events (2) to demonstrate accountability and transparency in the allocation of public funding by assessing whether the intended outcomes and impacts of the games have been achieved. For further information see:

www.gov.uk/government/publications/evaluation-of-the-birmingham-2022-commonwealth-games-interim-evaluation-report

Serious Case Reviews: analysis, lessons and challenges

Research reports analysing serious case reviews, with findings for professionals working with children and families. 'Learning for the future' is an overview and analysis of 235 cases which led to serious case reviews between April 2017 and September 2019: www.gov.uk/government/publications/serious-case-reviews-analysis-lessons-and-challenges

Rail Accident Investigation Branch (RAIB)

RAIB has produced a series of summaries of the learning that has come out of our investigations into accidents and incidents in six topic areas: www.gov.uk/government/collections/summaries-of-learning

Latest Learning: RAIB has recently released its safety digest into the derailment of a tram near Highbury Vale tram stop, Nottingham, 30 September 2022: <http://www.gov.uk/government/publications/safety-digest-012023-highbury-vale>

A report on a pedestrian struck by a train at Lady Howard footpath and bridleway crossing, Surrey, 21 April 2022, was also published in February 2023: www.gov.uk/government/news/report-012023-pedestrian-struck-by-a-train-at-lady-howard-footpath-and-bridleway-crossing

Air Accident Investigation Branch (AAIB)

AAIB provide assistance and expertise to international air accident investigations and organisations. Their purpose is to improve aviation safety by determining the circumstances and causes of air accidents and serious incidents, and promoting action to prevent reoccurrence: www.gov.uk/government/organisations/airaccidents-investigation-branch/about

Latest Learning: The AAIB also produces monthly bulletins, a compilation of AAIB reports published on the second Thursday of the month. The most recent bulletins for 2023 can be found here: [www.gov.uk/government/collections/air-accident-monthly-bulletins - 2023-monthly-bulletins](http://www.gov.uk/government/collections/air-accident-monthly-bulletins-2023-monthly-bulletins)

Marine Accident Investigation Branch (MAIB)

The MAIB investigates marine accidents involving UK vessels worldwide and all vessels in UK territorial waters. This is to help prevent further avoidable accidents from occurring, not to establish blame or liability; www.gov.uk/government/organisations/marine-accidentinvestigation-branch/about

Latest Learning: current investigations, investigation reports and safety bulletins. To subscribe to the MAIB news alert service or report an accident or incident visit www.gov.uk/government/organisations/marine-accident-investigation-branch

See also: research and analysis – Safety lessons: be prepared with regular training and effective drills on your fishing vessel

A safety message to the fishing industry on the application of the correct safety procedures and equipment during an emergency situation:

www.gov.uk/government/publications/safety-lessons-be-prepared-with-regular-training-and-effective-drills-on-your-fishing-vessel

The Grenfell Tower Inquiry

Progress against the Grenfell Tower Inquiry Phase 1 recommendations

Progress was updated in December 2022. An accessible version is available here:

<http://www.gov.uk/government/publications/quarterly-thematic-update-on-progress-against-the-grenfell-tower-inquiry-phase-1-recommendations/progress-against-the-grenfell-tower-inquiry-phase-1-recommendations-december-2022-accessible-version>

Recently published guidance – Fire Safety (England) Regulations 2022

The Fire Safety (England) Regulations 2022 introduce new duties under the Fire Safety Order for building owners or managers (responsible persons).

The regulations will implement the majority of the recommendations made by the Grenfell Tower Inquiry in its Phase 1 report which required a change in the law. The regulations will come into force on 23 January 2023 following publication of guidance which was published on 6 December 2022.

For further details see:

<http://www.gov.uk/government/publications/fire-safety-england-regulations-2022>

The Manchester Arena Inquiry

On Thursday 2nd March 2023 the Chairman of the Manchester Arena Inquiry published the Volume Three report. The report considers the evidence heard by the Chairman during the oral hearings on the radicalisation of Salman Abedi, the planning and preparation of the attack and whether the attack could have been prevented. The report includes findings and recommendations on radicalisation and preventability.

For the latest Inquiry news visit: manchesterarenainquiry.org.uk/news/

Related news and updates:

Independent Review of Prevent's report and government response

Read William Shawcross CVO, the Independent Reviewer of Prevent's report and how the government is responding to the recommendations outlined in the report:

www.gov.uk/government/publications/independent-review-of-prevents-report-and-government-response

Independent report: Local Resilience Forum 2021/22 Funding Pilot evaluation

This report presents the findings from the evaluation of the 2021/2022 Local Resilience Forum Funding Pilot. This pilot represented the first time central government has provided direct funding to LRFs outside of funding for specific events. It was a first step towards meeting the government's Integrated Review (IR) commitment to consider strengthening their roles and responsibilities. www.gov.uk/government/publications/local-resilience-forum-202122-funding-pilot-evaluation/evaluation-of-the-202122-funding-pilot-for-local-resilience-forums

Research and analysis: VCSEP evaluation: from COVID-19 response to emergency preparedness.

This report covers the Voluntary and Community Sector Emergencies Partnership's (VCSEP) transition from COVID-19 emergency response to an emergency preparedness model. It explores the lessons learnt throughout the VCSEP's transition from being primarily focussed on supporting the voluntary and community sector response to the coronavirus (COVID-19) pandemic, to supporting the voluntary and community sector to develop their emergency preparedness approaches and skills. For more information visit: www.gov.uk/government/publications/vcsep-evaluation-from-covid-19-response-to-emergency-preparedness

National Cyber Strategy 2022

This strategy sets out the government's approach to protecting and promoting the UK's interests in cyberspace. It is our plan to ensure that the UK continues to be a leading responsible and democratic cyber power: www.gov.uk/government/publications/national-cyber-strategy-2022

Consultation outcome: proposal for legislation to improve the UK's cyber resilience

www.gov.uk/government/consultations/proposal-for-legislation-to-improve-the-uks-cyber-resilience

Flood risk management plans 2021 to 2027: national overview (part a)

The national overview (part a) provides an overview of the flood risk management plans for 2021 to 2027: www.gov.uk/government/publications/flood-risk-management-plans-2021-to-2027-national-overview-part-a

ICAI review of UK's humanitarian response to COVID-19: FCDO response

The Foreign, Commonwealth and Development Office's response to the Independent Commission for Aid Impact's review of the UK's humanitarian response to COVID-19: www.gov.uk/government/publications/icai-review-of-uks-humanitarian-response-to-covid-19-fcdo-response

A compiled table of transferable lessons from digest issue 2

Exercise Grey Seal (2017)

| No. | Recommendation | Rationale |
|----------|---|---|
| 10, p.72 | Consider convening a discussion to assess the appropriateness of using Information, Intent, Method, Administration, Risk Assessment, Communications and Humanitarian Issues (IIMARCH) JESIP template for SITREPs and briefings. | It may be more efficient to utilise the IIMARCH JESIP template to organise internal/external operational-tactical-strategic briefings which would suit up, down and across communications. |

Exercise Blackthorn (2018)

| No. | Lesson Identified | Page | Description |
|-----|-------------------------|------|--|
| 46 | Use of ResilienceDirect | 60 | Further explore the merits of using Resilience Direct as a communications tool, so that protected and other information can be shared or signposted to, thus resolving some of the difficulties associated with maintaining up to date email distributions lists and perhaps alleviating some issues with the security of personal or organisational email accounts. |

Exercise Watermark (2011)

| No. | Recommendation | Page |
|-----|--|------|
| 4 | Situation reporting (sitrep) and information requirements: the review recommends that information requirements and reporting processes during an emergency are evaluated, including how available resources can best be used to satisfy audiences at all levels. Reporting and briefing processes need to be amended to meet information requirements and reflect current arrangements | vii |

Exercise Prometheus (2015)

| No. | Lessons: plans and procedures | Page |
|-----|--|------|
| 16 | The standard operating procedures that support the incident management plan should be reviewed to ensure that the right level of technical and operational detail is included. Staff should be regularly drilled in the use of both standard operating procedures and incident management plans. | 20 |

Exercise Grey Seal (2017)

| No. | Recommendation | Page |
|-----|---|------|
| 28 | Review the current...organisational response cell framework, or develop a new framework diagram, to include the incident source and the links between all responders. | 77 |

Exercise Watertight II (2009)

| No. | Recommendation | Page |
|--------------|---|------|
| 2(i) - 2(iv) | A review of...multi-agency recovery guidance should be undertaken to ... (ii) itemise what needs to happen to meet the handover criteria and who is leading on what during the transition from response to recovery (SCG or RCG)... (iii) clarify who should lead the handover ... (iv) [and produce] guidance and checklists...to help assist those that are involved in the recovery phase, e.g. standard agendas, role checklists, recovery action plan examples. | 15 |

Exercise Cygnus (2016)

| Lesson | Details |
|-------------------|--|
| LI 9, Appendix 1A | All organisations should examine the issues surrounding staff absence to provide greater clarity for planning purposes. |

Exercise Prometheus (2015)

| Lesson | Details |
|--|---|
| Infrastructure: bullet 8, page 19 (equipment and resources) | Consider 24/7 operation and training of back-up staff ... to fulfil defined non-routine incident response roles... Create a call out list of partners who may be able to provide additional resources in major incidents... |
| Plans and Procedures: bullet 9, page 19 | Provide a register identifying the capability/expertise of internal staff and teams to help define membership of the Tactical Incident Management Team in terms of the required technical and policy expertise. |

Exercise Celtic Deep (2021)

| No. | Recommendation |
|-------------|--|
| 21, page 58 | Consideration should be given to strengthening the permanent Maritime and Coastguard Agency press team as current resources do not allow a comprehensive and fully effective media response to a major incident that extends over 12 hours or a number of days or weeks. (Report refs: 6.11.9, 6.11.16, 6.11.19). |

Exercise Short Sermon 13 (2013)

| Page | Lesson by individual organisation |
|------|---|
| 26 | The planning process did not capture learning from Short Sermon 10. As a consequence, a number of the lessons from 2010 were not addressed in 2013. |

Exercise Silver Birch

| No. | Lesson identified | Page |
|-----|---|------|
| 43 | For exercise planning purposes the scope of the advisory group should be reviewed once the exercise aim and objectives have been agreed to ensure the group consists of the relevant organisations to effectively support the exercise. | 58 |

Exercise Prometheus

| No. | Lesson | Page |
|-----|---|------|
| 18 | Future training and exercising should include a programme of more frequent smaller scale training and drills and a programme of exercises to test, embed and then maintain revised arrangements. This includes use of the Incident Management Plan and Standard Operating Procedures. | 21 |

Exercise Diamond Dragon (2015)

| Reference | Lesson identified |
|------------|---|
| 14, page 4 | A number of variant IT system were used as part of the response. This resulted in poor information flow between agencies. There is a need to review the use of IT systems to ensure their effective use and integration in support of the multi-agency response. |

Exercise Watermark (2011)

| Recommendation | Details |
|----------------|--|
| 18, page vii | IT infrastructure: future exercises involving strategic co-ordination centres and incident rooms/operation centres should be used to further test location-specific IT and communications infrastructure . In particular issues like internet guest logins, firewalls...and multi-agency access need solutions which can then be shared as good practice. |

Exercise Blackthorn (2018)

| Lesson identified | Details |
|-------------------|--|
| 46, page 60 | Further explore the merits of using ResilienceDirect as a communications tool, so that protected and other information can be shared or signposted to, thus resolving some of the difficulties associated with maintaining up-to-date email distributions lists and perhaps alleviating some issues with the security of personal or organisational email accounts. |

Exercise Watermark (2011)

| Recommendation | Details |
|----------------|---|
| 30, page 28 | The review recommends that local resilience forums need to establish a clear process for media communications that guarantees fast formal approval from senior management. |
| 31, page 29 | The review recommends that examples of good press releases are shared and used as a template for future multi-agency releases on flood incidents. |
| 32, page 29 | The review recommends that all government departments and emergency responders assess social media capability, capacity and access and think about removing any barriers so they can start to lead the way in social media conversation. |

The background features a series of concentric circles in various shades of green, creating a ripple effect. A horizontal band of a lighter green color spans across the middle of the page, serving as a backdrop for the title.

Acknowledgements

Acknowledgements

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