CREST Centre for Research and Evidence on Security Threats

Bridging the Principle-Implementation Gap: Evaluating Organisational Change to Achieve Interoperability Between the UK Emergency Services

SHORT REPORT

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This is a short report from the project: The Psychology Of Interoperability: Building Better Multi-Agency Counter-Terrorism Training (INTEROP). You can find all the outputs from this project at: *www.crestresearch.ac.uk/projects/the-psychology-of-interoperability/*

ABOUT CREST

The Centre for Research and Evidence on Security Threats (CREST) is funded by the UK's Home Office and security and intelligence agencies to identify and produce social science that enhances their understanding of security threats and capacity to counter them. Its funding is administered by the Economic and Social Research Council (ESRC Award ES/V002775/1).

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TABLE OF CONTENTS

INTRODUCTION

Interoperability is defined as a "shared system of technology and teamwork built upon trust, identification, goals, communication, and flexibility" (Power et al., 2023). It is an essential feature of a multi-team system, where sub-teams must combine expertise and align their behaviour to achieve superordinate collective goals. In emergency response contexts, it has been found that interoperability is difficult to achieve and that failures of joint teamwork are common (Pollock, 2013; Saunders, 2022).

Over the last decade, the Emergency Services in the UK have embarked on a significant journey of organisational change to promote interoperability. Spearheading this journey is JESIP – the cross-disciplinary team of interoperability experts from the Emergency Services and the Home Office, who have sought to implement change by developing new ways of working for the Emergency Services.

However, implementing organisational change is inherently challenging. The perception and evaluation of change efforts vary significantly among individuals, organisations, and social groups, meaning the same change efforts can promote both success and failure simultaneously (De Keyser, et al., 2021).

The UK Emergency Services offer a unique case study, comprising three professions, 110 organisations, and thousands of employees (Figure 1). Studying how a decade-long organisational change initiative has been perceived within a complex multi-professional framework provides valuable insights into the intricacies of organisational change.

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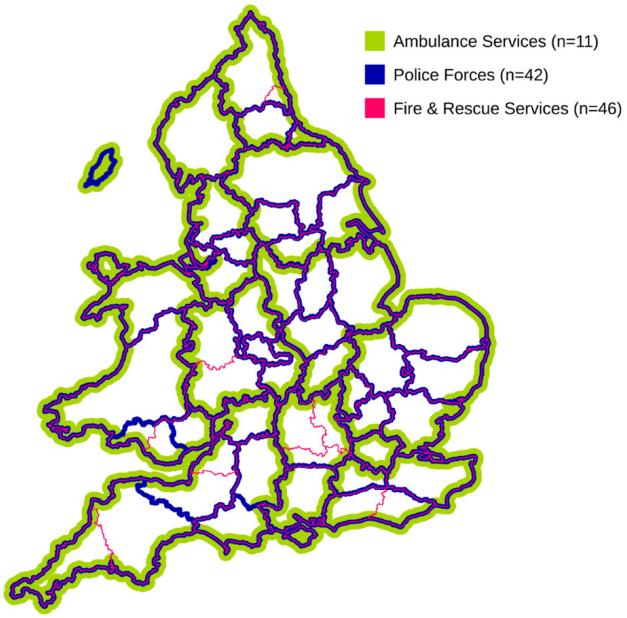

Figure 1. Emergency Services of England and Wales (2023)

Note: Scotland and Northern Ireland excluded as both countries have one Police, one Fire, and one Ambulance Service. There are also 3 additional non-geographic Police Services not shown (British Transport Police, Civil Nuclear Constabulary, Ministry of Defence Police)

METHOD

PARTICIPANTS

Sixteen participants from the Police (N=4), Fire and Rescue (N=7) and Ambulance (N=5) services were interviewed. All participants were from within a hard-to-access expert sample of experienced commanders, with an average of 24 years' experience working for the Emergency Services (range of 13 - 41 years). Participants were recruited via opportunity sampling through industry contacts and word of mouth. Interviews were held online on MS Teams, allowing for a broad geographical spread of participants across the UK.

DATA COLLECTION

Interviews were structured using the Critical Decision Method (CDM) (Crandall et al., 2006), a semi-structured narrative-based interview technique that is designed to identify the goal structures, knowledge requirements, and expertise used by professionals operating in challenging work domains. This method is a type of cognitive task analysis (CTA) that is especially adept for researching novel or under researched topics where analytic and reflective insight from the experts who operate in these contexts is vital to further our understanding (Wong, 2009). It has previously been used successfully in emergency response contexts, generating rich data to understand decision-making and teamwork challenges (Power & Alison, 2017). Interviews ranged in length from 39 to 74 minutes in length, with a mean average length of 56 minutes.

DATA ANALYSIS

The analytical approach to data collection was grounded in critical realism, which seeks to understand rather than just describe social realities. We sought to identify generalisable truths about the psychology of interoperability, whilst acknowledging that variance exists in how people observe and experience interoperability. We used reflexive thematic analysis (Braun & Clarke, 2019) to inductively identify new themes within the data, whilst drawing on insight from deductive themes previously identified in a systematic literature review on interoperability (see Power et al., 2023).

“[This method] has previously been used successfully in emergency response contexts, generating rich data to understand decision-making and teamwork challenges.”

RESULTS

THE PRINCIPLE-IMPLEMENTATION GAP

The key hindrance to organisational change on interoperability was the principle-implementation gap (Figure 2). JESIP's strategies worked well in theory, but their execution was hindered in practice. Delving further, this gap was evident across multiple social levels of the Emergency Services, including macro- (systemic), meso- (organisational), and micro- (interpersonal) levels.

> **The key hindrance to organisational change on interoperability was the principle-implementation gap.**

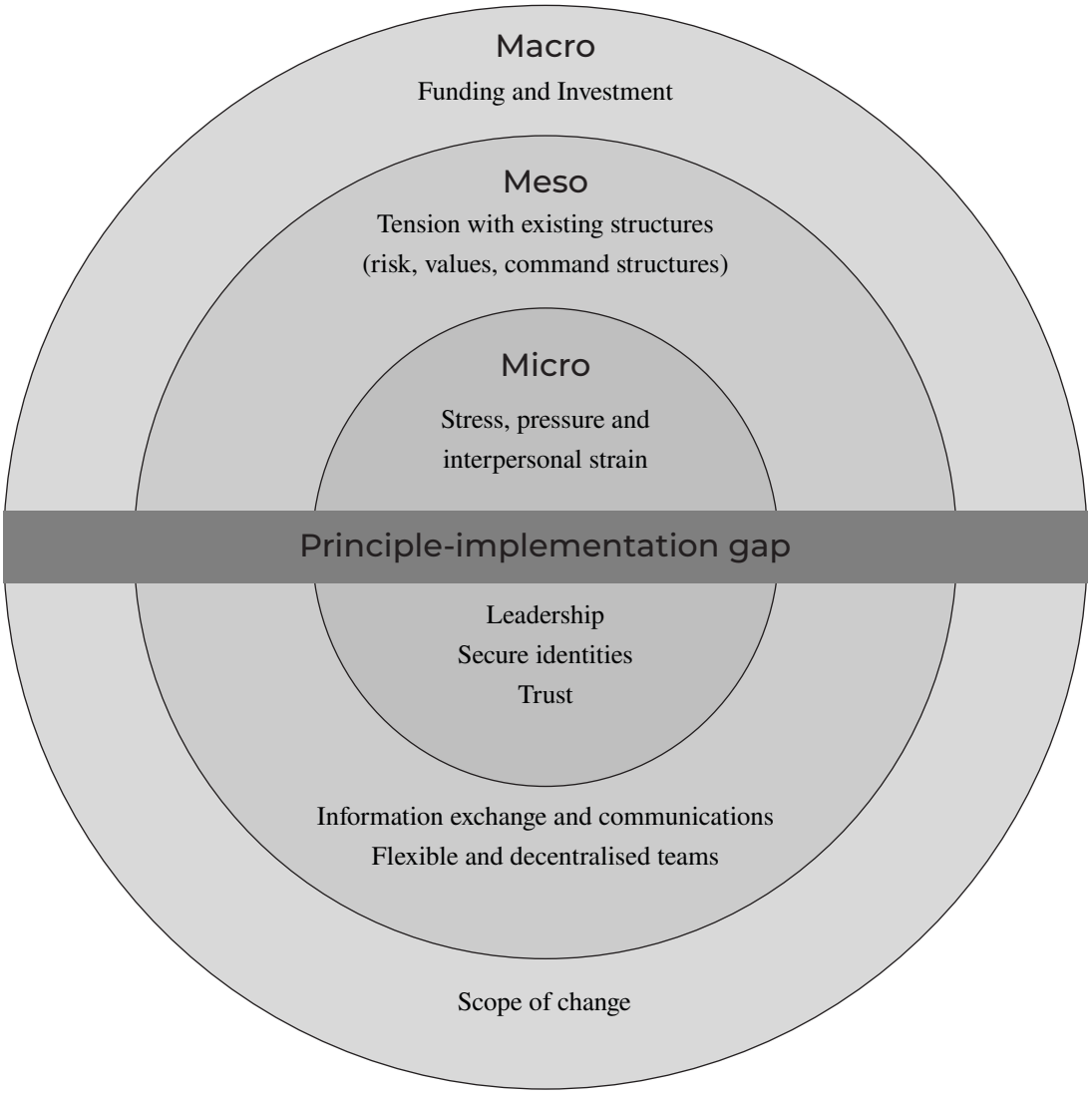

Figure 2. Barriers and facilitators of interoperability at the macro, meso, and micro levels

MACRO-LEVEL INTEROPERABILITY: SYSTEMIC INFLUENCES ON INTEROPERABILITY

At the macro-level, the principle-implementation gap was considered through two core challenges. First, the assumption that interoperability would improve based on the legacy of JESIP and without continued and substantial investment in interoperability resourcing and training. Second, the narrow scope of JESIP that limited its potential.

LACK OF FUNDING AND INVESTMENT

Participants described a need for dedicated investment and funding to achieve true organisational change in line with interoperability:

> **"The principles of JESIP are sound, I just don't think we have the opportunity, the funding or the priority to be able to invest in this in the level that's required." (A2)**

It was identified that engaging in joint training was key to interoperability:

> **"It's always the multi-agency ones where which are most effective whether that's multi agency, like CBRN courses to JESIP courses, anything that involves other agencies, it just breaks down those barriers." (A3)**

It enabled team members to work through their differences in a safe space so that they can circumvent difficulties during real-world incidents:

> **"Ingraining it, practicing and exercising in peacetime so then come the day the races, you know we will get it." (F6)**

KEY:

A = Ambulance Service

F = Fire Service

P = Police Service

However, a lack of central investment in the Emergency Services to engage in training, both directly by funding training and indirectly by employing enough personnel to have capacity to train, meant training happened too infrequently to make a difference to operational practice:

> **"We probably manage to do it [joint training] a couple of times a year, if you really wanna fix this, then it needs to be high fidelity exercising of multi-agency commanders regularly far, far more often than we do it now." (A2)**

NARROW SCOPE OF JESIP

Participants described how interoperability was limited by the narrow scope of JESIP that focussed on training at command-level and only for blue lights responders. Participants described how this limited the effectiveness of joint training as those who were not directly engaged with JESIP, for example non-blue lights organisations, saw it as outside of their remit:

> **"It becomes more difficult when you're dealing with non-blue light responders. I think or non-cat one responders. So the whole kind of interoperability of being able to set up, you know, interoperability channels, kinds of tends to fall down." (F2)**

Participants also blamed JESIP's focus on command level interoperability for leading to silo working during the early stages of an incident where responders are often at non-command levels:

> **"You sort of see those bubbles of Police, fire and ambulance all separate, until people who have been trained as commanders turn up." (A3)**

MESO-LEVEL INTEROPERABILITY: ORGANISATIONAL STRUCTURES

At the meso-organisational level, the principle-implementation gap was widened by tension with existing organisational structures that differ across the Police, Fire and Ambulance Services. Specifically, this related to incompatible command structures, tension between organisational values of teamwork and leadership, and differing organisational interpretations of risk. Positively, participants also reflected on how interoperability could be improved at the organisational level, through facilitating flexible and decentralised team networks, and improving inter-organisational communication structures.

TENSION WITH EXISTING ORGANISATIONAL STRUCTURES

- **Incompatible command structures.** Participants described how the different command structures between the three Emergency Services created practical challenges for putting JESIP principles into practice, such as commanders co-locating. Whereas the Police and Ambulance Service tend to work individually or in dyads, without a commander present, the Fire Service operate in small teams of 3 or 4 members, always with a qualified commander. This meant that Police officers who arrived at scene were often not prepared to engage in JESIP practices:

> **"The Police, you know, it's not unheard of to just have a Bobby for them, for want of a better term, first on scene and have the incident commander jacket flung at them because ultimately, they are the only person there from the Police." (F6)**

- **Tension between teamwork and leadership values.** Existing organisational structures were found to be associated with different organisational approaches towards teamwork and leadership. The Fire and Ambulance Services described strong teamwork values, and so interoperability was perceived to align with existing ideals:

> **"The Ambulance Service have took JESIP on whole heartedly, absolutely, 100%. We are JESIP through and through." (A7);**

> **"I am going to blow the Fire Service's trumpet and a little bit here, but I still believe in other blue light services JESIP is not as well ingrained as it is in the Fire Service." (F6)**

This contrasted with the Police, who perceived themselves as the dominant emergency service:

> **"The Police are probably more arrogant and think that we're always in charge and which is a cultural thing." (P13)**

and were perceived to value hierarchy and leadership values, meaning interoperability mapped less well to their organisation.

- **Differing perceptions of risk.** Participants described how interoperability was challenged because emergency groups had different ways of interpreting risk at the organisational level. Participants described how differences in risk perception caused issues for interoperability in terms of allowing emergency personnel to operate in high-risk zones. This led to frustration when multi-agency team members were reliant upon each other to engage in collective action, but could not agree on risk, limiting interoperability:

> **"Police will be expected to go in, but fire and ambulance wouldn't go in because it's classed as a hot zone or it's not deemed**

safe enough for them to enter. And that's where we then have a potential rub of, you know, we need in terms of Police, we need those services to come in with us" (P13)

FLEXIBLE AND DECENTRALISED TEAMS

Positively, participants described how meso-level inter-organisational structures could be redesigned to promote interoperability. Participants described that a successful interoperable team would have a decentralised structure that is underpinned by a clear understanding of one's own and each other's roles and responsibilities and fit within the multi-team system. Reliance on one another contributed to a sense of being one team:

"You do feel like a team approach, and you definitely get an understanding of what the other agencies are bringing to the incident." (F4)

EFFECTIVE INFORMATION EXCHANGE AND COMMUNICATIONS

One area where participants reflected that JESIP had worked well was around communications. Participants positively commented on how JESIP had been useful for structuring communications, which helped team members develop a collective understanding of priorities:

"I think JESIP has formalised it and put in some principles and some models to work to which are really good in high stress environments because you have aide memoirs and that about what you should be doing and taking you back to basics to be able to approach it in a very methodical and structured way, in a high stress environment." (A2)

MICRO-LEVEL INTEROPERABILITY: INTERPERSONAL INTERPRETATIONS OF JOINT WORKING

At the micro-level it was found that the inherent interpersonal stress associated with emergencies meant the calm application of JESIP principles was not always possible. Emergencies are stressful, and so interpersonal strain was prevalent. Positively, however, participants also described the micro-level processes that could be harnessed to bridge the gap, through building trust, harnessing identities, and training interoperable leaders.

STRESS, PRESSURE, AND INTERPERSONAL STRAIN

It was found that the stress of a real-world incident put pressures on pre-existing good relationships between multi-agency colleagues:

"We've always had in this area a very, very good relationship with fire and ambulance at that partnership JESIP level. But we've never done it under high stress, high impact. And it is different, isn't it?" (P1).

Tension also arose when other groups were perceived as being obstructive with regards to information sharing:

"The excuse is, it's sensitive or we can't tell you this for this reason, and it's normally around information. So, it's that sharing of information which if that doesn't happen, you're very blind to the risk." (A13)

This made the implementation of JESIP principles difficult in practice, because the reality of an emergency meant that individual relationships can break down, not due to animosity or distrust, but due to the unique impact of testing these relationships under stress:

> **"I think it's more to do with psychology of how you're behaving at high impact, high stress situations… there's nobody went there to not share information or not speak it. Just something else happened that meant we didn't do what we would normally do." (P1)**

ESTABLISHING TRUST

Positively, participants described how the principle-implementation gap for interoperability could be bridged through building trust. It was identified that interpersonal trust was ideal as it helped to rapidly establish positive working relationships:

> **"You probably feel like you've got a bit more trust and you feel more comfortable, if it's someone you've worked with before." (F4)**

In the absence of interpersonal trust, trust could still be established via swift trust. This could be based on role-based trust – placing faith in someone's ability to fulfil their role:

> **"Calling people operational and tactical commanders because straight away it breaks down the job roles and it breaks down the rank. So, if you introduce yourself as an operational commander, someone knows that you have done an operational command course." (A3)**

Further, swift trust could be established via group-based trust – transferable trust based on previous relationships with other members of the same team:

> **"It's based on experience as well as, so if you have a good experience with the Police, the next time you're anticipating having a good experience, not a negative one." (F15)**

Building trust through regular exposure with multi-agency colleagues can help to bridge the principle-implementation gap.

DEVELOPING SECURE IDENTITIES

Participants reflected on how interoperability can be reinforced at the micro-level by highlighting the interpersonal similarities between the individuals who work for the Emergency Services. For example, participants described that, although there might be different core responsibilities for the three blue lights services, that it is the same type of person who is drawn to the Emergency Services. This was perceived as being positive for relationship building as, although responders might disagree during an incident, they are all there for the same core reason and have chosen a career to serve their community and to help people:

> **"People don't join blue light services for the money or, you know, everybody's there because they're trying to help and they're trying to do their best to help a person who's at risk or in need." (P13)**

It was described that the type of person who joins the Emergency Services is inherently a team player, and that this shared identity was a strength that supported ambitions to achieve interoperability:

> **"I think when you think about the type of people that join Emergency Services, they have certain attributes, and a lot of the attributes lend themselves well to working in an environment where you need interoperability and JESIP" (A16)**

QUALITIES OF AN INTEROPERABILITY LEADER

Participants described how interoperability can be improved if leaders in the command team have strong interpersonal skills:

> **"It's having the personal attributes, those non-technical skills if you like to be able to apply that in that multi-agency environment." (F11)**

Leaders must have the ability to build relationships with multi-agency team members quickly:

> **"It's that bit about communication and that first impression with people… so you build that relationship cause you're trying to form mini relationships quite quickly in the in a dynamic environment." (F15)**

However, it was acknowledged that leadership was not something that was taught to individuals, which might explain variance, and that this was an important issue that might explain the principle-implementation gap:

> **"I think we should be teaching from day one leadership to people… compassionate leadership is really important so actually put me in a situation or put the commanders in a situation where they are feeling the stress, where they are feeling the pressure and they are being asked to make good leadership calls." (A16)**

CONCLUSION

This research has provided an in-depth examination of the challenges and potential pathways to achieving interoperability within the complex multi-professional framework of the UK Emergency Services.

We identified a principle-implementation gap, where the effectiveness of JESIP was hindered by systemic constraints around funding and training, organisational differences, and interpersonal challenges. Despite this, we also found positive impacts of JESIP, especially in terms of structuring information exchange, communication, and leadership.

In support of Power et al (2023), we conclude that it is critically important to address both the structural and psychological components of interoperability. Metacognitive skills training to sensitise individuals to their affective and cognitive beliefs around trust and identities is essential to help embed organisational changes towards interoperability. However, a decline in funding over the past decade has impeded the progress of change efforts, and thus it is imperative to invest in macro-level systemic changes that support the creation of an interoperable culture. Addressing the principle-implementation gap requires a multifaceted approach.

Commanders in our study were overwhelming supportive and invested in improving interoperability. They want to work well together, yet they felt hamstringed by capacity constraints to truly train for and embed interoperability. Adequate financial investment, coupled with metacognitive skills training to sensitise individuals on how to build rapid trust and identities, will significantly enhance interoperability within the UK Emergency Services. These recommendations provide a pathway for future efforts to bridge the gap between theoretical principles and practical implementation of interoperability to support emergency responding and disaster resilience.

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