



Select Committee on Risk Assessment and Risk Planning

Corrected oral evidence: Risk assessment and risk planning

Wednesday 3 March 2021

10.15 am

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Members present: Lord Arbuthnot (The Chair); Lord Browne of Ladyton; Lord Clement-Jones; Lord Mair; Baroness McGregor-Smith; Lord O'Shaughnessy; Lord Rees of Ludlow; Lord Robertson of Port Ellen; Baroness Symons of Vernham Dean; Viscount Thurso; Lord Triesman; Lord Willetts.

Evidence Session No. 11

Virtual Proceeding

Questions 120 - 130

Witnesses

I: Lord Houghton of Richmond, Former Chief of Defence Staff of the British Armed Forces (2013-16); Sir Chris Deverell, Former Commander of the Joint Forces Command (2016-19); Dr Marc Schelhase, Lecturer, Defence Studies Department, King's College London at the Joint Services Command and Staff College, UK Defence Academy.

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Examination of witnesses

Lord Houghton of Richmond, Sir Chris Deverell and Dr Schelhase.

Q120 **The Chair:** Good morning and welcome to this evidence session of the House of Lords Select Committee on Risk Assessment and Risk Planning, in which we will be considering the role of the military.

For our witnesses, a transcript of the meeting will be produced and they will have the opportunity to correct it where necessary.

Our witnesses this morning are: Lord Houghton of Richmond, former Chief of the Defence Staff of the British Armed Forces from 2013 to 2016; Sir Chris Deverell, former Commander of the Joint Forces Command from 2016 to 2019; and Dr Marc Schelhase, lecturer at the Defence Studies Department at King's College London at the Joint Services Command and Staff College of the UK Defence Academy.

Welcome to you all and thank you very much for coming this morning. Not all of you need to answer every question; some of them will be directed at you individually and some will be for all of you.

Let us start with this question: in your view, what should be the role of the military in building civil resilience and responding to civil emergencies?

Lord Houghton of Richmond: Good morning, and many thanks for inviting me. I think you have hit on a very important topic here—and one that I sense will be covered in the integrated review. I think that domestic and national resilience is one of the policy areas that needs revisiting.

When we think about the role that the military might play, we probably need to start with reviewing what a spectrum civil emergency can be. In my experience from the early 1990s, that spectrum perhaps at one end was intervention by the military to help to ease the impact of trade union disputes. One thinks of firemen's strikes, fuel drivers' strikes, ambulance drivers' strikes and prison warder strikes. All of those demanded a military intervention.

There are then those civil emergencies that come about due to lack of government capacity. Olympic security would be one; I would probably put foot and mouth disease and even flood response into that area of civil resilience.

Then you move towards strategic security emergencies, such as putting significant numbers of the Armed Forces on counterterrorist alert to backfill the police force, particularly the armed element of it, and perhaps international pandemic and Covid would fall into that category. This might be touched on in the integrated review.

There is a dimension of domestic resilience that comes about because of what is called the advent of asymmetric warfare, but those elements of interstate competition that sit below the threshold of formalised warfare

could impact on our national prosperity, the functioning of our national infrastructure and those sorts of things.

That is quite a spectrum. An awful lot of work has been done by government over the years to eliminate, dare I say it, the softer end of trade union disputes—frankly, by making them illegal and the conditions of work for various essential blue-light services not permissible to strike action—but where you draw the line about what is the role of the military to be fully prepared to intervene in civilian emergency and what actually should be left wholly to the civil agencies needs to be better pinned down in policy. You cannot have it both ways. You cannot define a future battlefield with an awful lot of robotic activity where a significant number of Armed Forces personnel are not required and, if you like, thin down the numbers of the military for some very siren-voiced reasons—the benefits of technology—but at the same time expect the military to be organised and have the capacity—

The Chair: Lord Houghton, you have frozen. Let us work on the basis you have frozen and turn to Sir Chris.

Sir Chris Deverell: I start by echoing Lord Houghton's comments about what a pleasure it is to be talking to you all. It is quite a daunting audience because it includes several of my former bosses, but it is a great pleasure to see you. I think that this is a really important topic.

Picking up what Lord Houghton said, the scale of the support that the Armed Forces provide to the Government in all their guises outside the traditional role of defence is really extensive. He listed a whole load of ways in which over the years we have provided that support using the Armed Forces. It is sometimes easy to forget that. We remember the latest crisis. We will remember the support that the Armed Forces have provided for Covid-19, but it is only when you list all of those examples over time that you understand just how significant the support of defence to government in situations of civil emergencies is. That is before you include, as he did, cases where the Armed Forces are used below the threshold of conflict but in national security situations.

It is interesting that we do all that with our Armed Forces without specifically resourcing them for that task. The MoD is not the lead for all but a few of the risks in the national security risk assessment, nor should it be, but it regularly provides support to other government departments when those risks materialise. This support is a free good that comes as a result of investments made for other purposes. The MoD does not generate or maintain forces specifically for this task, so there is the possibility that if we reduce our investment in our Armed Forces, including in their size, we will reach a point where we do not have the capacity available to respond to emergencies; indeed, in some cases we might not have the quality of the response that we need.

I think that that is a risk, but from the evidence I am not sure that it arises because of technology. Personally, I am not persuaded that we are cutting the size of our Armed Forces because of AI and robots. We may

do so to some degree, but in the main the reason we have cut the size of the Armed Forces is that we cannot afford them. Our manpower is extremely expensive and our current equipment mix is extremely expensive to maintain. While I would acknowledge that there is a risk, at least theoretically, in not having the capacity available to respond to these crises, we should be cautious about ascribing that risk to the adoption of technology.

Dr Schelhase: Like the two previous witnesses, it is a real pleasure to be here. As Sir Chris said, it is daunting, but at the same time it is also exciting to engage in these conversations with this audience in particular. Thank you for inviting me.

The notion that resilience will be looked at again in the wider context following a crisis is in a sense obvious because Covid has shown the limits to the wider resilience of society. The introduction of the furlough scheme at short notice, and so on, has shown us the limits of what is available, so I absolutely agree that we will have to revisit that in its entirety, not particular organisations but across the board. How do we achieve a more resilient society as such?

There are two sides to the military contribution: one is the very practical one. Both Lord Houghton and Sir Chris have outlined the wide range of areas where the military over the past decades has essentially stepped in and provided additional manpower. When we are looking at the responses, there is a concern that to some extent we could say that we were lucky this time because we were not committed to overseas operations to the same degree as we were before and we had manpower available to resource this over quite a significant period of time. That is something to remember in addition to the response we had from the military, if we look at the logistics, the test system and so on.

We cannot always take the availability of this for granted because it comes on top of other, almost standing commitments when it comes to flood defences, helping with floods and so on, which is essentially an annual exercise to some extent. It raises issues not so much about resourcing, because the MoD gets reimbursed for that, but the impact on training, for example, and wider personnel levels. What is interesting is that the more we upskill, what kinds of skills do we have available going forward? These are interesting issues that should be looked at.

That raises the question: to what extent does the UK need some form of civil defence or emergency organisation that obviously exists in other European countries? For example, if you look at the Italian response, the military played a role, but robust civil defence organisations can play a significant role in that and provide infrastructure and capacity. There are areas where we reach a point in the UK, especially on a national level, at which we have to look at a new organisation, which will also need resources.

The other point here is that the existing capacity and resources allocated to the Civil Contingencies Secretariat are quite limited in relation to

others. The response to Covid also came on the back of essentially a decade of cuts to local authorities, which are our Category 1 responders.

It takes us back to the wider question about what kind of society we want in terms of resilience. We almost have to rethink the entire structure of what we are looking at and then ask the question: what are the dedicated areas where only the military, or predominantly the military, has expertise along the lines Sir Chris highlighted?

The final point that I want to make is that if you consider a permanent role for the military, or, if you like, a more institutionalised role, you need to have a wider community engagement. Those kinds of measures need community support, which is important, especially if we speak about minority groups and so on. That is another important point. Just because you can do something does not mean you necessarily should; you need to have the community support so that, going forward, this is supported.

The Chair: You could argue that community engagement diminishes as the size of Armed Forces personnel reduces.

I now have a tough question to ask you. In the interests of time I want to limit each witness to a one-sentence response. Please do not limit this to civil emergencies or only that type of risk. What one risk—there might be lots—should keep us awake at night? I will go in reverse order. Dr Schelhase, what risk—of any sort—should keep us awake at night?

Dr Schelhase: What keeps me awake at night is ultimately the consequences of climate change, because it touches so many areas. It raises fundamental questions about how we organise our societies and economies and whether the current economic model is sustainable, if we really think it through. For me, climate change is the one risk, but it is not even a risk anymore, it is a threat.

Sir Chris Deverell: I think that it is pretty evident that the digital age has generated new threats to our individual and collective security and our way of life. We are well behind the power curve in responding to that issue.

Lord Houghton of Richmond: If I chose one, it would be the continuation of the maldistribution of wealth and opportunity at a time of significant and uncontrolled population growth.

The Chair: You are very disciplined. Thank you very much indeed.

Q121 **Lord Triesman:** Lord Houghton, I hope that you will not freeze again because I want to start with a question about your speech in the House of Lords in November, in which you said that the military's experience of "a system of command and control, optimised for turning strategic aspirations into co-ordinated tactical action" is not well understood in government in managing civil emergencies. In your view, what is the impact of this lack of understanding? What other lessons might be learned from the military in this regard, and how might the Army's experience of responding to the current pandemic influence its future

involvement in other civil emergencies?

Perhaps I may add one further element to the question about the lack of understanding in government. Many people arrive as Ministers—hopefully, the Prime Minister of the day has decided that they are likely to be competent in the role that they have been assigned—without any detailed preparation. How might that understanding be conveyed to Ministers so that they grasp the points that you are making very much more clearly?

Lord Houghton of Richmond: We could take the balance of the time just answering this question, but I will try to keep it reasonably brief.

Some years ago I was the one star in the Ministry of Defence then called the director of military operations whose branch was responsible for military aid to the civil power. In 1990-91 we had a foot and mouth incident. The Government's mechanism for running in the early months of that operation was through its COBRA procedure—

The Chair: Lord Houghton, I am very sorry but you have frozen again. Lord Triesman, would you like to put that question to Sir Chris while Lord Houghton unfreezes?

Sir Chris Deverell: I am very happy to answer it. I think that the military is particularly good at dealing with bounded problems in which you are forced to consider the facts as they are, not as you wish them to be. In military planning, you are encouraged to seek out all the factors that could bear on your decision-making in an exhaustive process that expands or contracts to fill the time available. That includes methods for collecting and processing the information that you need to support that decision. I am quite often struck by the absence of that clear process in other walks of life. There is scope for more training in that kind of decision-making process for those charged with the management of civil emergencies. That said, I would be most surprised if, for example, the Emergency Planning College was not doing a lot of this already.

The key point that is an advantage for the military, which is really hard for others to replicate, is the existence of a single national chain of command. It goes from the Chief of Defence Staff in most cases to the Commander of Home Command, who, in his role as Standing Joint Commander UK, is tasked with planning and executing civil contingency operations within the UK landmass and territorial waters. For obvious reasons, this chain of command is impossible for many of the civil agencies to replicate. I think that it is a bit unfair to say, "Isn't the military doing this well? Surely, we just need to translate that". The military has a really significant advantage that makes it better, but the planning dimension is a key skill.

In talking about the contribution that the Armed Forces make to civil emergencies, we often refer to mass and the people who get out there on the ground and do stuff, but we should not underestimate the degree to which seeding central and local government with planners, as has happened during Covid-19, is a fundamental aid that the military

provides in these circumstances. These are people who understand the discipline of planning and, therefore, can help the responsible authorities to do the planning they need to do.

I do not know whether that answers all of Lord Triesman's question, but I think that it does speak to the way in which command and control in the military works, as Lord Houghton said, in translating strategic aspirations into tactical action.

Lord Triesman: Perhaps I may press one further point with Lord Houghton, whom I am happy to say we can see once again.

I am not asking that question in the sense of whether the Government should try to give itself powers, which it probably cannot, to have a single line of command and control, which is the question as you have just described it. I am not asking about that so much as what could be done to improve understanding in government of both what you can do and what its capabilities might be alongside what you can do, or yours alongside what it can do. I am just concerned about the preparedness of government in this case, given what Lord Houghton said in his speech in November, to be able to deal with these issues.

Lord Houghton of Richmond: I heard the back end of Chris's answer, in which he was clearly answering my question very well. I refer to the concept that one of the greatest capabilities that the military brings to civil emergency is an established system of command and control, particularly the ability to keep the strategic level distant from the level of tactical activity, and to have an intervening level that we call the operational level, which, in the case of foot and mouth, came about when we put a logistic brigade headquarters into what was then the Ministry of Agriculture, Fisheries and Food.

I do not think that it is too difficult to foresee or bring about circumstances under which a range of pre-assessed national emergencies has lead departments responsible for the provision of those integrated intermediary headquarters and expert planners on their staff to prepare for those emergencies. In the very early days when you recognise that you are into a civil emergency, the lead department is fully aware of the sort of command and control that it has to bring to bear very quickly.

Without pointing fingers here, I am reasonably confident that, if at the outset of Covid there had been such an operational level of headquarters capable of managing a crisis in two tenses, the present tense being operations and the future tense being planning, we might have settled into—I am not saying it would have revolutionised—an operational drumbeat of activity, intelligence and all that which would have made the handling of the crisis very much easier. If, as I think we should, we prepare for greater resilience against a greater range of civil emergencies, we ought to make that an integrated part of government competence.

The Chair: Talking about foot and mouth, let us turn to Baroness

Symons.

Q122 Baroness Symons of Vernham Dean: Lord Houghton, my questions follow on from those of Lord Triesman. As you mentioned foot and mouth, perhaps I will start with that.

When I was a Minister in 2001 the ministry of agriculture could not cope with foot and mouth. As a Minister, I said, "Let us now bring in the military", and was told point blank that the military was not going to do it. There was real disagreement between the MoD and the civilian departments over who was responsible. In the end, the reason the military got involved was that the Prime Minister had to intervene personally by sending an envoy to a very difficult meeting in the Ministry of Defence.

That was one level. I wonder whether that sort of disagreement between government departments is now satisfactorily resolved.

The second point is about the preparation for the Iraq war. The military wanted proper preparation for the risk of huge civilian loss because there were not enough tents or enough food provided. The then Department for International Development refused point blank to put those instructions into place.

Do you think that there are now sufficient mechanisms for resolving the clashes between government departments over what were real risks at the time? My personal experience at the time was that I was piggy in the middle. Do you think that those are now sufficiently resolved or resolvable?

Lord Houghton of Richmond: I could spend a while talking about the detail of both of those vignettes, but I will not go into the detail of that.

I think that we have come an awfully long way since those days. I think of such things as the element of the Fusion doctrine and the advent of the National Security Council, particularly when it meets at official level, primarily in the form of the PUSs of all the responsible departments. There is an absolute open-mindedness about the need to resolve many of these issues in an integrated way across Whitehall.

I do think, however, that there is still in the psychology of some departments a reluctance to admit defeat and call in the military because it somehow reflects badly on them. I have been out of it for four or five years now, but I would like to think that we have moved beyond that. In my own career, it is a move from single-service dominance to the dominance of the joint arena when you realise that there are very few things that you can resolve on your own, whether as a service within the Armed Forces or a department within Whitehall, and everything needs an integrated approach. That is why, dare I say, the very title of this integrated review is music to our ears.

We have come an awfully long way, but there are still some barriers to wanting to call in the military because in some departments there is a

residual sense that they have not been able to do it themselves and in some way that smacks of departmental or political failure.

Sir Chris Deverell: If I may offer a further thought on that, I agree with Lord Houghton that the situation has changed since those days in 2001 that I remember and subsequently in the planning for Iraq, which are the scars that we bear on our back. The Civil Contingencies Act 2004 is a big part of that in allocating planning responsibilities to lead government departments for all kinds of risks. I think that has helped a lot.

What it has not yet done—this picks up something that Lord Houghton said a moment ago—is switch the mindset in some of these departments to the kind of contingency thinking that they need to do. A lot of these departments are really stretched doing current business. I am not convinced that enough contingency thinking and planning goes on. What tends to happen in circumstances where the military comes in is that you look for the plan that exists to respond to a situation and it is pretty sketchy. We could improve on that, but it would require a change of mindset in some of the other government departments that do not think about contingency situations in quite the same way as the MoD.

The Chair: Sir Chris, how can you say that the Civil Contingencies Act has changed things when in the biggest crisis since the Second World War it was thrown out the window?

Sir Chris Deverell: I was talking generally to the existence of a national security risk assessment, the allocation of responsibility for planning for particular crises to particular departments and the establishment of a secretariat that is supposed to think about that. Does that mean Covid-19 has been handled in an exemplary fashion? Self-evidently not. We started from a bad place in calculating the risk. We treated it as purely a health issue; we looked at a national flu epidemic rather than other communicable diseases, and when looking at that national influenza epidemic we could not consider the scale in the right way.

There are all kinds of ways in which the example of Covid-19 can be used to pull apart my statement. I was trying to say not that it was perfect but that when Lord Houghton described a whole range of ways in which the situation had improved I would add to that list the Civil Contingencies Act.

The Chair: Fair enough.

Q123 **Lord Robertson of Port Ellen:** I want to preface my question by saying that Sir Chris Deverell was at one point in his junior career an assistant private secretary in my private office and did very well. I am not in the slightest bit surprised that he ended up as one of the chiefs.

Sir Chris Deverell: Others might be.

Lord Robertson of Port Ellen: Look where I ended up.

I want to turn to the issue of exercising, war gaming and red teaming,

and ask whether you and Lord Houghton are surprised by the fact that the military places a premium on constantly exercising scenarios to make sure that you have that degree of command and control that you have already said is the hallmark of the military in emergencies. There seems to be a lack of any of these exercises and red teaming in the civil sphere.

I want to come on specifically to talk a bit about Operation Cygnus in 2016 that Sir Chris touched on. In the beginning, can we keep to the generality? Are you surprised there is a lack of that kind of integrated exercising that is essential in the military but seems almost completely absent in the civil sphere?

Lord Houghton of Richmond: I am not surprised, for the reason that in many respects the Armed Forces are built on a paradox. The better they are at being able to conduct war, the less is the risk that they will have to do it. It comes down fundamentally to deterrence. We spend a vast majority of our time training and preparing as much as possible in the hope that we will never have to do it. The majority of civil departments' time is spent doing the job. Our job is primarily training in the hope that we do not have to fight. In many ways civil departments do not have that luxury of time.

What Chris was saying at the end of his last response was that we have to try to inculcate into the civilian departments a greater sense of responsibility to prepare for the unimaginable in the hope that it will not happen, but you cannot "hopefully" deter a virus.

There is also a sense that some of the civilian resilience now has to be prepared for against the risk that it is actually used as an instrument of adversarial competition below the threshold of formalised warfare.

I am very interested to see how the Government deal with resilience in the integrated review, because I hope that they have done sufficient intellectual analysis of the international context to recognise that it is not a straightforward case of good guys and bad guys and straightforward enemies. The fact is that there is a whole range of things happening on this planet from climate change to population growth, urbanisation, globalisation, migration, inequality, energy security and microbiological vulnerability. These are the realities and trends of a dynamic planet, and we are in a competition with other countries for a competitive advantage in quality of life in this very dangerous and unstable world.

We are not talking about formalised warfare. Therefore, the need to gain a competitive edge on such a planet will put more and more onus on the resilience of our national structures, infrastructures, energy resources and all those sorts of things. I hope that the review highlights this and brings about the main point of your question. We have to start to get our Government to think this way—that we are in a 24/7 resilience battle in a very dangerous world, but it is a different set of dangers.

Lord Robertson of Port Ellen: Is exercising a critical part of that?

Lord Houghton of Richmond: It is. This is not exercising that will bring about deterrence; it is exercising that will be brought into play in having to deal with these civil contingencies. I do not think that we can be so sophisticated at our exercising of government departments. It will deter bad things happening, whether or not by adversarial design or these mega-trends in our world at the moment.

Lord Robertson of Port Ellen: Sir Chris, do you subscribe to that? Do you think the military is always planning and exercising in order not to use it?

Sir Chris Deverell: I do. I would like to tell a little story. When I came to leave your office as Secretary of State, as you were then, I was invited to pay a call on the then Chief of Defence Staff, now Lord Guthrie. I was about to go to command my unit. He said to me, "You don't need to do very much". I looked at him quizzically and he said, "If you do nothing, the machine will train". He was exactly right. What the military does all the time is train; it trains to be able to do better the thing that it fears it might have to do if the worst comes to the worst. It is absolutely instilled and ingrained all the time. That leads to a culture, process, chain of command teamwork and a can-do approach that is fundamental to the ability of the military to respond to unforeseen circumstances at short notice. That is very hard for other government departments to replicate.

I would be surprised if war gaming—they would not call it that—or some kind of table-top exercise never happened in the other government departments in relation to the risks for which they are responsible, but I would be very surprised if it was part of the lifeblood in the way that it is for the military. If you want to be really good at this stuff, you need to train, train and train to make it so.

Lord Robertson of Port Ellen: You were Chief of Joint Forces Command in 2016 when Operation Cygnus took place, based on a flu pandemic. Did you ever see the result of the lessons learned since that exercise?

Sir Chris Deverell: I did not. I am not confident that I was even aware of it. That is not as odd as it sounds because Joint Forces Command is responsible, through the Permanent Joint Headquarters, for overseas operations; and army command, through the mechanism of Standing Joint Command UK, is responsible for UK contingency activity, so there is a kind of bifurcation there. It may have predated my arrival at the chiefs, but I do not recall it.

Lord Robertson of Port Ellen: Lord Houghton, do you recall it? Did you see the lessons learned?

Lord Houghton of Richmond: Was this SARS?

Lord Robertson of Port Ellen: The flu pandemic.

Lord Houghton of Richmond: I cannot recall seeing it, but that is not to say it was not about.

Sir Chris Deverell: It does not ring any bells at all.

The Chair: Dr Schelhase, would you like to add to this?

Dr Schelhase: I found it interesting how, with the influenza pandemic, we essentially assessed the risk correctly but did not act on it. The national risk assessment for civil contingencies clearly says that an influenza pandemic is highly likely and that the impact will be significant.

Covid is not an influenza pandemic, but a Department of Health paper of 2011 mapped out all the scenarios—fatalities, a high proportion of the workforce not being able to go to work, hospitals reaching capacity, capacity being exceeded and so on—so essentially the knowledge existed. It reads across what we have been going through very much over the past year or so, so that knowledge exists.

If you combine that with the national risk assessment in 2017 and later, what I find interesting—never mind how socially constructed risk is—is that if the Government labels this as a high-impact, high-probability risk, clearly this should drive to some extent resource allocation somewhere, and then we can talk about the structures. Maybe it falls between different departments and we go back to the very first question about whether we need a civil emergency structure.

I agree with the point made earlier that the advantage that the military has in all of this is obvious. It has a national-level structure and a national-level response that it can apply. We saw this with the pandemic. The most successful part of dealing with the pandemic was the vaccination campaign because we have a National Health Service, so where it sits is quite interesting. That is what I would say about using risk in government and these scenarios being available but not being acted on for a number of reasons.

In relation to training and exercising, for me exercising is about building routines, which Sir Chris talked about, but also testing organisations to the point of failure. What is the unexpected? What is the point at which the organisation feels that it cannot cope with this? We try to do this now in the civilian world. For example, in financial services a bank has failed so you work your way back from that scenario that nobody really considers is feasible and try to develop responses. That is another important point for me about exercising, to really test how organisations cope, because ultimately when they fail in an exercise it does not really matter.

Lord Mair: May I follow up the questions from Lord Robertson about exercising in relation to critical infrastructure and local resilience forums? Lord Houghton, you referred to the importance of the functioning and resilience of our national infrastructure. Sir Chris, you talked about what kept you awake—the digital threat.

I want to ask you a bit more about the risks of cyber campaigns, which may well interfere with our critical national infrastructure. There are

reports in the press of China possibly threatening India's power grid and Russia turning off power in the Ukraine. We are talking about not just power, but many other aspects of our critical infrastructure: nuclear power stations, water supply, flood defences and transport systems. To what extent could the military interact with local resilience forums using their exercising and planning to try to cater for the emergencies I have just been discussing?

Lord Houghton of Richmond: We can do these things, but you do not want to do them on a tokenistic basis. You need to be able to dovetail with competence at local authority level. At the moment, the devolved nature of government within the country appears to me to be a miscellany of all sorts of different ideas and structures. I can remember when we were doing flood relief on the River Ouse in the Vale of York. The military was deployed to try to manage flood relief, but there were about six or seven forms of boroughs, districts, unitary councils, counties and metropolitan districts—there might even have been a unitary mayor in there somewhere—all with different sorts of capability and a sense of its own authority in that area.

What am I saying? Our system of devolved government at very local level was never conceived of from the perspective of effective response to civil emergency. If we could start with a clean slate and somehow dovetail the military chain of command on a regional basis in the UK with the way in which civil authority cascades down to local level, it would make this training very much simpler and more effective, but I fear that what might be tokenistic involvement at a local level and a few exercises to salve some consciences would not be sufficient of itself. Therefore, we need to think about this in a more holistic way if, within our national risk assessments, we believe it is worth this level of upheaval to fit ourselves for a properly resilient nation.

Sir Chris Deverell: I have three comments, one of which picks up the last response. It all depends on what you want to optimise for, does it not? It is easy to sit here in the midst of a crisis, the like of which we have not seen for decades, and conclude that what we must optimise for is the management of this kind of thing. If you were optimising for that, I do not think that you would design local government in the way it currently is designed, but obviously it is not intended to be optimised to manage these kinds of crisis. Whether it should be is a different question, but we need to recognise before we change it that the prior judgment is about what we are optimising it for.

My second comment touches on your question about the cyber threat in particular. There is prevention and response, is there not? As for prevention, I do not think that there is much substitute for a lot of hard yards by responsible authorities to keep working at their defences. In this we are lucky to have the National Cyber Security Centre, which is a force for good and is a capable aid to responding to this threat, but the devil is in the detail and the job will never be done.

There is then the response to something having gone wrong. The military can definitely contribute in many circumstances when that occurs, but I do not think that it would make sense to charge the military with being responsible for cyber defences across this landscape. It is vast.

The other point about cyber defence is that you are always facing risk judgments about the ability to execute your mission and defend against the threat, and these things are in conflict. If you come in from the outside and try to fix that, you do not necessarily understand what you are doing.

I can see the military responding to cyber incidents in some circumstances; I definitely see it contributing to a cyber offensive capability so that we can do harm to those who intend to do us harm, or are doing us harm in cyberspace, but the broad response to cyber has to be detailed work by individual organisations in government.

Lord Mair: Are you saying that there is not much of a role for the military in planning? You talked about contingency thinking. Are you saying that in the context of cybersecurity and threats to critical infrastructure the role is really in response rather than planning?

Sir Chris Deverell: To be clear, you can plan a response. I am sorry; I had not explained that very well. You can think about what would happen if we lost power in this area or in this way—if we lost our air traffic control system, or all kinds of other critical national infrastructure. You can plan how you would respond if that occurred, but I cannot see how the military can contribute massively to the responsibility for ensuring that it does not occur, or trying to stop it occurring, in cyberspace. It has its own job trying to do that in the military domain. Trying to ensure that we are protected in the Ministry of Defence against cyberattacks is a big task. I am not saying that we should not plan how to respond to an incident involving our critical national infrastructure; we surely should, and the military can help with that.

Lord Mair: To continue the point Lord Houghton was making, is there difficulty in working with local resilience forums and agencies because there are too many organisations involved and nobody is clearly in charge?

Sir Chris Deverell: It does not make it easy, and the military is not in charge, either. I think that we have taken the right approach to the local resilience forums, for example. We can help, but we should not be leading. It is better than it used to be. The tapestry that Lord Houghton described is clearer these days than it was, partly through repeated use in response to emergencies and partly because the responsibilities are clearer than they have been. Is it optimal for command and control purposes? Yes, definitely.

Lord Mair: Dr Schelhase, would you like to comment?

Dr Schelhase: Sir Chris mentioned the National Cyber Security Centre. It is important to remember where the expertise is within government, which in this case is GCHQ in many ways. GCHQ co-operates with the private sector, which also has to come into this. If we talk about critical infrastructure—the national grid, power stations or whatever it is—then cyber awareness and cyber defence is much wider than that. Therefore, you look at the expertise that exists in both the public and private sectors coming together and experts from the private sector being seconded to GCHQ and so on. I think it is a much wider picture. Then we can discuss where the military fits into it, but from a cyber perspective it is important to remember as well where the expertise comes from before we start branching out.

Q124 **Lord Willetts:** I would like to shift the focus to science and technology horizon scanning, which the MoD does on a considerable scale, from the point of view of both opportunities and—this is very relevant to our committee—risks and threats. How much of that work is shared with people on the civil side who may themselves be engaging in technology horizon scanning? Do you think that civil planners can learn lessons from what you do in the MoD?

Are you aware of an issue that I have come across, which is that people on the civil side often find that the level of security classification required to access and join in military horizon-scanning means that it is very hard for them to link up to what the MoD does?

Lord Houghton of Richmond: I had my most recent freeze while you were half way through the question, so I might not have caught all of it. I do get the problems of the military/civilian interface on horizon scanning and technology. Even though there have been some valiant attempts over the past few years to try to bridge the gap so that somehow innovation can be accelerated and the potential of technology can be harnessed more quickly, somehow we still seem to fail to turn experimentation into commercial output at a satisfactory pace. It is not one of the major things of the integrated review, but part and parcel of the Government's aspiration for the United Kingdom is that it should have a digital economy that is technically very advanced with far more money going into S&T and R&D and, rather than being in the realms of just science experiments, it should be closer to commercial exploitation, and the Ministry of Defence and its S&T community should play a more active role in that. Because I did not hear all of the question, that might not be the right answer, but Chris, who is a whizz at this, will be able to fill in.

Sir Chris Deverell: The first thing to say is that I think Defence is better than most government departments in the degree of effort that it expends in thinking about the longer term. It devotes resource and people whose job it is to do nothing but that, which I think is rare. It also maintains a sizeable R&D budget, although it is not as big as it used to be or should be. That is on the positive side.

On your comment about classification, it is an issue, but *Global Strategic Trends*, which is the MoD's flagship publication about horizon scanning

looking to 2050, is a public document and the dialogue that goes to produce it takes place in public; it is not classified. At one level there is a conversation going on between the MoD and other interested parties, not just in government, about what we think will happen in the future. I think we get good marks for thinking about it.

I would be more cautious about claiming that defence is exemplary at getting those trends right. We were talking earlier about Covid-19, which I have heard described as a grey rhino and not a black swan. It was lumbering towards us very evidently and in a sense we missed it. Defence was not alone, but we were included in that list of people who missed it. Even if we do spot the long-term trend, it is still a further step to ask whether we are making the investments required to capitalise on those opportunities or mitigate those threats. Even when we make the right kind of R&D investments, is that turning capability into the hands of users? This is a difficult issue.

As I said earlier, because we can see the full implications of digital and data only vaguely, we have not yet really developed powerful means of thinking about their implications and responding to them at a national level. You could talk about 5G, GPS, Cloud, electronic ID, ICT standardisation, security assurance and quantum. There is a whole range of areas in which we are responding piecemeal and not in a strategic way.

The risk is that we are ceding this territory either to China, massive US companies or a combination of both. That does not seem to me a sensible way to treat something of such massive importance. In particular, AI will be in absolutely everything, and as for understanding it and treating it as a strategic issue we are not there yet.

What would it take to be able to respond to this issue? When I look for it, currently I do not find it in government. You would need to bring together considerable technical expertise and deep technical understanding; you need to understand what is happening across the research landscape; you need to think about the capital markets, including venture capital, and the incentives that lead to investment; you need to think about the industrial landscape.

You need to bring together these three or four things to respond to the issues in a holistic way. I do not see that in government. I see piecemeal responses by individual departments to individual issues. I think this digital age is an absolutely new and transformational place and we have not designed our system of government accordingly.

Lord Willetts: That is fascinating. May I briefly follow that up? One barrier may be the budgetary issue. Having tried myself to link civil funding in some of these areas and security funding, the impression as an outsider is that the MoD was terrified of the creation of a new budget line. Often, when it came to civil activities, you got the sense that if you went ahead with it on a civil budget and the MoD found it useful, or genuinely dealt with a threat, it might chip in at the end after you had

done it, but getting a genuinely co-funded project from the beginning, linking civil and military, proved incredibly hard to do.

Sir Chris Deverell: I do not think that is straightforward, but you are perhaps describing a problem that is two or three stages later down the causal chain than the one I am describing. Before you get into budgetary squabbles about who is paying for stuff, there is a question to be examined about dealing with these issues in a way that treats them as national security issues. They obviously heavily impact on economic prosperity and, through that, our national security, but sometimes they also directly affect our national security, such as 5G or GPS. I do not think that we are failing to deal with these issues because there is a budgetary squabble going on; that is not how it manifests itself to me.

Lord Willetts: I am encouraged. This is a matter for separate discussion. I think that is part of the problem, but I fully agree with you that part of the challenge for this committee is trying to ensure that at least there is horizon scanning and proper military and civil awareness. I think that is also a challenge.

Q125 **Lord Browne of Ladyton:** This question is designed to draw out our witnesses on the understanding and application of risk in military decision-making in practice rather than in theory. Dr Schelhase, in your 2014 article for RUSI entitled *Realities of Conflict: Risk and Military Decision-makers*, you wrote about the need to develop “intelligent—rather than process-driven and routinised—risk management across the MoD”.

Will you outline how you came to that conclusion, and how intelligent risk management could be achieved? On your way you might want to touch on your views about the value of risk management publications, such as the Joint Service Publication on risk management and the Government’s Orange Book.

Dr Schelhase: The RUSI paper is very much part of a wider study into the political economy of risk in finance and the military, so it sits within that. So this is one aspect of it. I am also interested in risk in acquisition, for example.

This paper in particular was a direct consequence of my teaching and working with students at the Joint Services Command and Staff College at the UK Defence Academy, where as part of the operational phase they are introduced to doctrinal views of risk, if you like. I contrasted this with the reality as I perceived it of risk.

The essence of the paper was to contrast these models and approaches to risk management with the realities of risk as socially constructed, so risk within the risk triangle that I outlined in the paper. So the personal, organisational and societal perceptions and understandings of risk that are very different. That bear down on, in the case of the paper, operational level commanders.

In a sense, that contrasts with the risk management models. I wanted to tease out those tensions between those formalised structures and the reality that my students encounter on operations. That was the main purpose of the paper.

The aim to develop what I call intelligent risk management within the context of the MoD builds on work on risk, for example, by Michael Power and Richard Ericson, to tease out the importance of accepting the more socially constructed nature of risk. There are different aspects to that reflected in the paper. First, risk is inherently context dependent. We tend to like to see risk as objective in some shape or form, but ultimately risk is very much context dependent; it is socially constructed.

As for the dominant definitions, JSP 892 or the Orange Book do not really reflect that. For example, we talk about JSP 892. The definition is an uncertain future event that could affect the department's ability to achieve its objectives. One of the problems is that obviously risk is seen as inherently negative; risk is something that we have to mitigate, address and minimise.

Contrasting it with operations, risk is also an opportunity. That is the other side of it. Risk is not just something you mitigate against; it is something you take because you think that there might be a reward, or you think that there is more likely to be a reward than anything else. That is problematic. You have that definition, and further on in the document it talks about benefits, the opportunities that should be realised and so on.

I think there are what I call in the article conceptual confusions as to what risk actually is. I think there is a better definition. I like Ericson's definition that risk assessment is an uncertain knowledge claim about contingent future events that cannot be fully known because the contingency of risk is crucial.

I also think that in terms of intelligent risk management the importance of culture is key. We saw this outside the military following the financial crisis. There was a revival of studies of risk and culture. Is there a particular culture in banking, for example, that leads to more or different risk taking? I think how culture, or cultural conditioning, determines our behaviour is important. So culture in organisations. Because ultimately you can say that we choose what to fear to justify our way of life. The selection of risk is important. Douglas and Wildavsky have written on this.

What is also important is the nexus between power and knowledge when it comes to risk. It is not really interesting whether this or that is a risk. What is important is what makes you believe that that is a risk. In a sense, what are the power structures behind it that make you accept that this risk is a fact, if you like? That is important. Ultimately, for me, thinking about risk is important to enable you to challenge the dominant risk discourse that exists in organisations and in everything. That is the other crucial part of risk management.

The other aspect—and we encounter this ourselves on a daily basis—is to address what Michael Power has called secondary risk management. Ultimately, the people manage risk to their own careers, if you like. We all do this. The problem with that is that to some extent we tend to use risk more as a function of blame, so it is about being held responsible for something. Therefore, secondary risk management becomes crucial in many ways. That is deeply problematic because what you find in organisations is that the personal attitude or disposition to risk is so difficult to capture within an organisation. This is another important point.

To take communication in its broader sense, facilitating a broad discourse about risk is crucial. In an organisation there is almost what you can call an engaged culture—an Institute of Risk Management term—but the risk becomes in a sense a positive tool; it becomes a day-to-day challenge. What constitutes risk? What do we mean by it? That is important.

You also find that escalating risk in organisations is very difficult. The moment you take risks a level up, perspectives change; context changes and interpretations change; priorities change and so on. Therefore, escalating risk is difficult in organisations.

Linking it to the final part of the question about JSP 892 and the Orange Book, I think that they are useful really as reference points to show how the very formalised debate within government has evolved over time. For example, there is a qualitative step change if you look at JSP 892 from 2012 and at JSP 892 from 2015, of which I think a redacted version is available in the Library of the House of Commons, if I remember correctly. That is a step change. We have the introduction of a new risk management structure across the MoD. We have a chief risk officer and so on, and there are also qualitative differences within that.

It is interesting that when it was brought in—this links back to an earlier point made by Lord Willetts—that version was classified versus previous work. I think that is an important change there.

The new version of the Orange Book stresses the importance of culture and constructive challenge. In that sense they are important documents because they show an evolution of the debate. The references for other government departments are wider in that sense.

That was a long answer to your question.

Q126 Lord Browne of Ladyton: I am very conscious of time. This is quite a large subject. Before we move on, Dr Schelhase, I am tempted to ask you this. We are seven years on. In those seven years, as far as I understand it, you have been teaching at the UK Defence Academy a module called risk and risk analysis in defence. Do you think you have imbued the department with a more intelligent approach to this than it started with in 2014?

Dr Schelhase: In discussing it with my students, quite a few have said that “this is a very different way of looking at risk and I now have to go back to my units and look at this in a different way”.

Subsequently, we had the setting-up of the Military Aviation Authority as a result of Haddon-Cave and so on, so students go on to that looking at risk to life, for example.

It is essentially collaborative learning where, with my students, I have tried to instil this very different understanding of risk and the ambiguous nature of risk and its context dependency to get them to think critically about the organisation and risk management within the MoD. It has achieved traction. For example, later on we introduced a module on defence acquisition, where risk is crucial. We talked earlier about risk in defence scenario planning and how challenging it is. In defence acquisition you look at how personal perceptions of risk are so important, yet they are completely ignored to some extent or not articulated by models. I hope that teaching, lecturing and working with students and colleagues across defence has created more of an awareness and a direct impact of that.

Viscount Thurso: Dr Schelhase, may I follow up the answers that you gave? In the article that Lord Browne referenced you also discussed the concept of risk appetite. Could you explain to the committee the importance you see in establishing risk appetite—whether somebody wants to be hungry, open or averse—how that relates to the consideration of a threat or hazard and how you might implement that?

Dr Schelhase: Risk appetite is an interesting concept because you also get criticisms about the extent to which appetite implies risk seeking, so there is a critical side to that.

It is important because the organisation at the top has to understand where it is willing to take risk. For example, earlier we talked about innovation and where you are willing to take risk. If you are not clear where that is, you struggle to look at risk tolerance. To be clear about that is the important point about risk appetite.

The difficulty in implementing it is how you start to measure it. If you are in a banking environment, for example—I looked at financial services—you can see risk appetite in a particular area of, say, mortgage lending. Are we exceeding this? Are we happy to go further, or not? How will it balance out across other areas?

The financial targets are arguably easier, but, if we look at it in a wider organisational sense and link it to the innovation debate and where resources should go in defence planning, there are areas where you can say, “If we had a risk appetite articulated at departmental level, we could direct resources arguably more effectively into areas”.

For me, that is where in the MoD context risk appetite is important. In particular, on the acquisition side—I also said this in the article—what is interesting is that clearly the department takes risks in certain areas, but it does not articulate it as such. If we were to be clear where we have greater appetite for risk, which means we could reduce in that area, that would make it easier to prioritise defence resources in certain areas

rather than spread them across the board and weaken resilience. That is why risk appetite is important; it is getting the organisation to think about its priorities.

Viscount Thurso: Sir Chris, the obvious example of being risk-hungry, or at least risk-open, in the military might well be in a tactical situation where pressing forward in attack is a far better option than a cautious approach. That is an obvious one where one might be risk-hungry or even open in a situation. From what we have been discussing this morning, do you think that there is any relevance in civilian operators taking that approach when discussing a threat, which may be a flood, pandemic or something like that? Can they use this in that planning process?

Sir Chris Deverell: I would have to think hard about its applicability in a civil emergency context. I want to echo what Marc has just said about the innovation space. When I ran Joint Forces Command, I had within the organisation a specified explicit risk appetite for innovation and got into quite a lot of trouble for doing so. I remember having an awkward conversation with the Secretary of State of the day. We said that we were going to take a portfolio approach to risk and, if we had 20 innovation projects and 19 failed but one succeeded powerfully, which is a common approach in the private sector to some forms of portfolio risk, we would be happy.

The Secretary of State of the day was not happy with that because he said—I understand the point—that essentially you would be putting at risk public money and you cannot consciously or knowingly do that. I took issue with that in the sense that I think that we take risk all the time every time we do procurement. We try to limit or reduce it. Sometimes that induces risk, but it is naive to think that we are not taking risk in all of our activity.

I think that in this innovation space and in relation to focusing on opportunity we are missing a trick if we do not behave in the way I described, but I am not so sure that it applies in a civil emergency sense. What is important there is to collate the information and understand the problem in front of you and then make judgments. There may be times when charging forward in that context makes sense, but I would need to give it more thought than I have been able to since you asked the question.

Viscount Thurso: For example, you would not say that what happened in acquiring vaccines was a typical example of being risk-hungry—

Sir Chris Deverell: Yes, I totally think that. I am not sure that I would model that on tactical military activity. You see that same kind of risk hunger or tolerance in lots of walks of life and, thank God, it was done that way. I think we miss that opportunity in quite a lot of what defence does.

The Chair: For what it is worth, I entirely agree with your stance on

risks, Chris.

Q127 **Baroness McGregor-Smith:** We have touched on this subject slightly already, but how resilient is the military itself, particularly if an event impacted on its own operations? When we talk about resilience, I am quite keen to hear what we mean given the budgets that we have.

Lord Houghton of Richmond: It depends on what element of resilience you are assessing. If you look at the military you can talk about our emotional, physical and maybe materiel resilience.

Our emotional resilience is quite good. It depends on a whole variety of things. I wrote an article for the *Telegraph* some time ago about the state of our morale. Morale is not an indicator on the happiness index; it is the ability to endure in adversity. In that sense, I still think that the morale of the British Armed Forces is strong.

Likening it to the morale of the country during this pandemic, I think that the emerging success of the vaccination programme, with greater trust in the political leadership, has had a significant impact on morale. Emotional resilience is very important, and within the military it is very strong. It does depend far more on good plans and leadership than necessary comfortable circumstances.

Our physical resilience is less good. That is due primarily to the simple numerical decline of the mass of the United Kingdom's Armed Forces and, therefore, it is inevitable. What we can do on our own is now very limited. In many ways, the military architecture of our force structure, which has emerged over the past couple of defence reviews, makes sense only in the context of strong alliances. If not, we are very oddly imbalanced towards a nuclear deterrent, the two biggest aircraft carriers that we have ever built, some fifth-generation stealth fighters and we start to run out of mass and resilience quite quickly. It almost makes sense only in the context of collective security.

Our materiel resilience, which is within the physical, is worse still. That is about the overall decline in resources. This plays into everything from the state of married quarters, the way we look after our people and the resilience of supply chains. All those aspects give a fighting organisation resilience over time.

I think that it is a bit of a harlequin answer. There are elements of the British Armed Forces that remain tremendously resilient, but the reality of physical size and resource support has inevitably made us less resilient as an organisation when deterring and fighting wars.

Dr Schelhase: If I can add to that, having worked with my military colleagues and students for several years, this can-do attitude gets them quite far—often, arguably, to their detriment because it allows them to do things with limited resources that otherwise they probably would not be able to do. That is a clear advantage, and a great credit to them.

What is important here is that when we look at the whole acquisition space and whole force structure, because we are not really willing to prioritise, or at least be open about it, arguably to some extent that has been hollowed out. When you look at the aircraft carriers, for example, there is a lack of support ships, planes and so on. There are clear areas where the forces are not resilient in that sense. In times of conflict do we have enough stockpiles of ammunition, for example, because we cannot ramp up production very quickly as well?

All of those are areas where, because we have not really prioritised or reprioritised policies and resourced key aspects properly, the Armed Forces are not resilient at all in key areas. That is problematic.

The multiyear settlement for the MoD is a reflection of that because it is trying to address a hole in the funding in the acquisition space that we have never really been able to close in any sense. In those terms, if you call it physical or materiel resilience, we are not well positioned.

This takes us back to the earlier point about innovation. What is interesting about innovation is not that we focus on the latest technology and expect that to save something. Innovation happens in the organisational space, the structures. I often say that, if we could step back, take a blank sheet, ignore the legacy issues and so on and design the Armed Forces for today, we would probably do it quite differently.

That is hypothetical and difficult, but it leads us to those kinds of questions. If we have finite resources, as we do, what are the areas that we have to resource, and why? What drives them? We could have a very open debate about many stakeholders. It links back to the earlier point about the Fusion doctrine and how it all fits together.

That is really the only way we address in a meaningful way the lack of resilience in those terms in the military; otherwise, we will be here again in two or three years' time debating this. That is the fundamental problem that we face.

Baroness McGregor-Smith: Does that mean that we are not spending enough money? Do we need more money? Was the multiyear settlement not enough?

Dr Schelhase: I do not think it is about money because in many ways you can say that defence is like health. You can spend money, but there are always more things you can do. It is not about money; in a sense it is about acknowledging the kind of global power Britain wants to be and what it wants to do. Lord Houghton rightly talked about alliances. If we operate in alliances and say that America is our special ally, or however you want to phrase it, do we really need aircraft carriers to do that? Are there areas where we can invest? It is not really about money; it is about prioritising. It is also about challenging the existing structures of equipment. Do you really need certain equipment? It goes back to my point about risk and culture and how we identify something as a risk. The key point is about prioritising and using innovation in a way that allows

us to redesign the Armed Forces in a different way and make the budget go further, so it is not about more money.¹

The Chair: Being conscious of time, I would like some snappy answers.

Baroness McGregor-Smith: May I ask one very quick follow-up for a very snappy answer? My only slight challenge to that is that, given what is coming with AI, cyber and all the new challenges that we know we face, how can we say it is enough money? Surely, all of that will cost a huge amount. Would the MoD really sit there and say its multiyear settlement was enough?

Sir Chris Deverell: There will always be things that the MoD cannot afford to do, whatever budget you give it. To that degree, I agree with the earlier comment.

There is a strategic opportunity here: a lot of this technology, if we get it right, does not require spending vast amounts of money on it. The thing costing us vast amounts of money are our existing systems and structures, not these new technologies. It will require painful prioritisation within the defence department, but I do not think that it is impossible that we could acquire quite a lot of new digital capability without spending on the scale that has been necessary to provide, for example, a nuclear deterrent, a carrier strike capability or whatever.

Dr Schelhase: Essentially, the challenge will be finding the personnel and manning. That is a separate debate, but it is how you attract those people into defence in different ways from before.

Q128 **Lord Clement-Jones:** I want to come back to the question of technology and the accelerating pace of technological advancement. We have covered that to a degree, but I have a two-part question. First, starting with Lord Houghton and then Sir Chris, is the military well placed to respond to the accelerating pace of technological advancement, most notably in the area of AI?

Secondly, what might be the impact of an increased emphasis on technology over personnel, particularly on resilience? We are mindful of things like AI autonomous weapons and of what you had to say, Lord Houghton, on a question that was not related to defence. You said, "government needs to embrace decision science, which seeks to exploit the right balance of artificial intelligence and human judgment", or that kind of human-in-the-loop issue. Where do you sit on that?

Lord Houghton of Richmond: Perhaps I may do decision science first and then turn to defence technology more roundly.

On decision science, I am not suggesting that AI should be the methodology by which we take battlefield decisions, but, if you are looking at the capital programme of defence—its equipment capability

¹ Note by witness: For further reading see Mikkel Vedby Rasmussen, *The Military's Business* (Cambridge University Press, 2015).

going forward—a whole range of objective criteria feed into the decisions about how that programme is compiled.

Patently, the operational output should be the prime consideration, but there will be things to do with the defence industrial base, jobs and, obviously, affordability. Some will be perhaps more emotive things that relate to desires to retain totemic capabilities and things that are illustrative of a strategic power.

I have borne witness in the past couple of defence reviews that occasionally it is the political emotive decisions about capability, as opposed to objective criteria, that predominate when those decisions are made. I think that artificial intelligence capability, which can run rapid evolutions of many millions of capability choices to give the optimum output, must form a part of decision-making support, because these decisions have become too complex for the limitations of human fallibility to answer alone. That is my view on AI being harnessed in support of decision-making to get the best results from a finite amount of money.

On the wider point about defence technology, I still worry to an extent that the innovation competence of defence is limited by playing in what you might term its near-abroad: the in-house S&T, R&D, DSTL and the big primes that surround defence and to an extent, but only to an extent, are more interested in making money by glacial replacement of like-on-like with a narrow margin of technological betterment, as opposed to genuine innovation.

There will be some form of defence industrial strategy borne of the shortly-to-be-announced integrated review. It will definitely look at how we harness S&T and R&D and achieve innovation, but I still think that we have some way to go to optimise defence's ability to harness the technological possibilities that are out there.

Lord Clement-Jones: I was particularly interested in your point about the mixture of human and AI together mitigating risk, but we probably need to move on to Sir Chris.

Sir Chris Deverell: I share the view that artificial intelligence can aid decision-making on defence capability. If I examine myself honestly about how the process worked as it related to a defence programme while I was a chief, essentially we all fought each other to a standstill. I am not at all confident about the outcome of that process and that all the vectors that in the end spat out an answer were ones that resulted in the best answer.

On innovation, there is a really important point that the Government are in danger of missing. There is a difference between R&D, or what the MoD calls S&T, and innovation. They are not the same thing. We often substitute the latter for the former or the former for the latter. Innovation means change, and for change to have occurred there must be new capability in the hands of the user. R&D requires no such thing—certainly, S&T in defence does not. There is an awful tendency to do research and

for it not to lead to outcomes. You need a different mindset if you are doing innovation, and this is profoundly important. I am afraid that I see lots of examples of it going wrong in defence.

Lord Clement-Jones: I will not ask you the name of the Secretary of State, who is engraved on your heart, Sir Chris, but we were very taken by your one-out-of-20 example.

Q129 **Lord Rees of Ludlow:** I would like to ask a question stemming from the point made by Lord Houghton that everything that the MoD spends is an insurance policy that we hope will not be needed. When we look at the pandemic, it is clear that if we had had more funding for prevention and preparedness things would have been far better, but we know very well that politicians in other departments are reluctant to spend money on something that may not be used, or at least may not be needed during their term of office.

Do you have any advice that would make other departments more willing to invest in what is needed to ensure that we minimise the effects of some of these high-impact, low-probability events?

Lord Houghton of Richmond: It might go back to the very good but, for me, quite academic conversation on risk. Risk is inevitable and it is mitigated or accepted through choice. I think that the strategic choice that defence makes is to try to reduce the risk of conflict rather than reduce the risk in conflict. That is why, dare I say—I hope successfully—quite a lot of our defence budget goes into the hard power dimension of deterrence, which effectively keeps residual risk below the threshold of formalised war.

If you accept that—not everybody buys into it being quite as simple as that—there must be some reasons why it is many decades since formalised war on a large scale involving the state emerged. In investing in reducing the risk of conflict you translate that into the civil dimension. If we are at a place where we have been successful in formally deterring formalised war at an international level, the risk has now shifted to those residual risks that operate at the threshold below formalised war. This is where the other government agencies responsible for those risks need to devote a greater amount of their time for what is, if you like, the risk of them in conflict, of which the pandemic has been an obvious example, but there are others.

Lord Rees of Ludlow: And to accept that the money may not actually be spent in the next five years.

Lord Houghton of Richmond: Correct, but what it will avoid is the materialisation of that risk or it will help to mitigate it at least.

Q130 **Lord O'Shaughnessy:** Thank you, panel, for an incredibly interesting session. This is what we call our “Desert Island Discs” question. Out of all the things you have told us, is there one policy recommendation that you would choose above all that this committee should make to the Government? Sir Chris, may I turn to you first and then the other two

panellists?

Sir Chris Deverell: I do not think that it will come as a surprise, given what I have said already, that I think there is something in the space of reinforcing our ability to understand and respond to developments in technology. We are at the dawn of a new age, but we are handling its implications in a piecemeal fashion.

I leave it to others to determine how best to do that structurally and in terms of process, but that is the space that we need to be focused on. If not, we will be in trouble, especially after Brexit, which also gives us opportunities and threats in this space. It is important that we focus on this as an issue.

Dr Schelhase: I think that in all the areas that we have discussed it is really about providing the necessary resources. That is key. It does not mean more money; it means prioritising existing resources and strengthening structures. We talked earlier about civil defence.

If risk assessments are utilised—I used the example earlier of an influenza pandemic—keeping in mind that risk is context-dependent, they should be used to explain policy choices and have these debates with stakeholders and ultimately drive resources, which is not what has happened in relation to Covid; otherwise, they have no real meaning.

Lord O'Shaughnessy: That is very helpful and clear.

Lord Houghton of Richmond: This is a bit of an extraction from what I said previously. It is about trying to get government and the country more widely to stop defining the defence of our nation as an adversarial away fixture against defined enemies that are nation states; to understand that the greater dangers come from the dynamic instability in our planet in which all the nations are competitive players; and to consider national resilience as the best defence against the competitive conflict that now exists below the threshold of formalised warfare.

Lord O'Shaughnessy: That is very good, and crystal clear.

The Chair: Lord Houghton, in that definition would you consider the military as the country's resource of last resort?

Lord Houghton of Richmond: Ultimately, I still hold by the phrase that we are the risk managers of last resort. We need to be engaged in the mitigation of risks right up front, but in ways that perhaps historically we have not been engaged in. Going back to a previous conversation, we spend an awful lot of time training and thinking rather than doing, if you like. Therefore, some of the things that we train and think about ought to be more broadly accommodated within government thinking and action. That is my somewhat pompous view.

The Chair: We will see what we can do. Thank you very much indeed to all three witnesses for a very interesting session again. I am afraid that I have let it overrun, but that was because I found it so interesting. Thank

you to the committee for some very good questions and to our staff, as always, for helping us out in this session. That brings this session to a close and I now formally declare it over.