

# Thinking Differently

## Introduction.

### Slide 1

Good afternoon lady and gentlemen ‘wargamers’ - it is my absolute pleasure to address such a professionally impressive and fundamentally vital community at this time of transformation for Defence. Right now, structural and procedural changes are picking up pace and driving through the heart of how we prepare ourselves for the changing global strategic context in which the UK, and its Allies and Partners face new threats from resurgent and developing powers, as well as enduring Violent Extremism. Today we face a *persistent competition*, at home and abroad, across all the military domains of maritime, land, air, cyber and space, and in the information environment. This is a strategic challenge that requires a fused, cross-Whitehall and international strategic response, where Defence is sometimes, but rarely, in the lead. Such a response needs to be underpinned by new strategic thinking and a changed mindset. More of the same Defence will just not cut it.

One example of the changing strategic context is our relationship with China - only 30 mins ago I was at a CDS SF, discussing how we could lead our relationship with China from the tightrope it currently occupies, to the relative security of the garden fence – avoiding the precarious knife edge alternative... Yet allowing us to ‘steer’ along the correct path, requires us to first use all the tools we have developed effectively, and indeed improve them or invent new ones if required. Herein lies just one example of the opportunity offered by Wargaming. So thank you, wholeheartedly, to all of you here for participating, and Connections UK and King’s College for hosting, this extremely timely and important event.

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So, who am I and what do I do? Major General Mitch Mitchell, the Director of the Development, Concepts and Doctrine Centre, sometimes described as the UK MOD’s Think Tank, or a ‘Cognitive Staff’ for Defence. My team is charged with the production of horizon-scanning, strategic trends, concepts and doctrine. Underpinned by evidence-based research and experimentation, alongside NATO and International Allies, and in global partnership with academics and Think Tanks, this work helps to inform and guide national decisions in Defence strategy, concept and capability development and operations, and provides the foundation for joint education, both now and into the future. But regardless of whether it’s a concept, doctrine or futures work strand – the most important enabler to making it a worthwhile and useful tool for Defence is testing. Testing - routinely, rigorously and without exception - so that we can adjust and assure our thinking. Increasingly, we will need to test through experimentation, and wargaming is a critical part of this.

*(A brand new working definition of ‘experimentation’ has been proposed as “Activities to explore, innovate, discover, test and validate concepts with the purpose of generating evidence to support capability development.” (DFD Tiger Team)).*

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A brief example of the logic - our Futures team, in collaboration with its global network, considers how the future might look in 30 years' time and publishes its thoughts and findings through its Strategic Trends Programme. This work is especially useful in the preparation of strategic defence and security reviews and national security strategies and has been the handrail for the drafting of Defence's key future conceptual products; the 'CCSI' – Capstone Concept for Strategic Integration. This is essentially the 'up and out' of how defence will operate with other Government departments and Allied nations in the future, in order to gain competitive advantage over new forms of threats, and the 'IOpC 20' – Integrated Operating Concept, essentially how we should use our Armed Forces to maintain competitive advantage across an array of changing domains and environments into the Future. Once approved, this work will begin its crucial journey along the pathway of 'experimentation'. But how do you 'wargame' (or as we call it in Defence, Force Exploration) a concept of operations for the future? Some food for thought.

## The Threat.

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So the landscape of conflict has changed.

We are in an era where it is claimed that Facebook advertising can destabilise a Western Democracy. The whistle-blower Chris Wylie gave evidence to Parliament that data misuse by Cambridge Analytica was *cheating the electoral process, against the law and may have altered the outcome of the US Election*.

We are also in an era of fake news where accusations like this are simply dismissed and even when properly investigated, the findings can merely be ignored.

There is good evidence that Russia was involved in this, to the point where Theresa May, when Prime Minister, accused the Russian government of "deploying its state-run media organisations to plant fake stories and photo-shopped images in an attempt to sow discord in the West and undermine our institutions".

This is, of course, hardly new. Fake news has a long history. The Daily Mail newspaper published a letter four days before the 1924 General Election, purporting to be a directive from Grigory Zinoviev, the head of the Communist International in Moscow, to the Communist Party of Great Britain, ordering it to engage in seditious activities. It said the resumption of diplomatic relations by a Labour government would hasten the radicalisation of the British working class. The letter aided the Conservative Party and produced a Conservative landslide in the election.

We ourselves have even done a little meddling, when we told the US Government that we had discovered that Germany was proposing a military alliance with Mexico in 1917, to attack the USA in the event that the USA entered the First World War against Germany.

This enraged Americans and was instrumental in generating support for the US declaration of war with Germany in April 1917.

The difference with the Zimmerman Telegram, of course, is that we were telling the truth, whereas in the former case, the Zinoviev Letter was completely fabricated by Russian Monarchists seeking to damage relations between Russian and Great Britain.

What has changed today is the access, and reach of such messages; seeking to exacerbate differences and foment extreme views. These messages can now be *specifically targeted to groups and individuals most likely to agree and be influence by them*, and the resulting effectiveness of these messages can be *measured, analysed, refined and improved*.

This has led to some analysts coming to the conclusion that we are now in an era of *information war*. One or two commentators, such as Jahara Matissek of Northwestern University and Ian Bertram of the U.S. Air Command and Staff College, were even moved to write an essay on "*The Death of American Conventional Warfare*".

Personally I think the idea of getting rid of our tanks, ships and aircraft and instead investing in Facebook and Twitter, to be a little premature – but there is no denying that there has been a shift in the dynamic of conflict. I strongly believe that society as a whole needs to be better educated on, and alive to, this changing threat and individuals should understand the role they must play in increasing our resilience to it.

## Learning from the Past.

Someone once said to me that the entire purpose of education was to try to prevent you from making the failures of the past, and giving you the tools to find new ways to succeed in the future.

One thing we can be sure of is that we will still need conventional military forces, but those forces will need to act and react in different ways to those they have used in the past. We still need to hold on to the hard won skills acquired over the past decades of conflict, from the resounding success of the Bosnia Intervention, through less successful interventions more recently.

We must have conventional training, but we need to be clear that in order to improve at something, *we need to practice*. We have problems with our procurement systems and this can lead to us buying expensive training systems based on questionable evidence. In short, we have bought shiny toys because we lack technical expertise to understand the real cost-effectiveness of these systems. *They may be good, but they are definitely very expensive*.

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Expensive training systems mean we can't really practice, because we don't have enough of them to allow our people the time and access to be able to use them a sufficient number of times to qualify as practice.

Back in 1896, Captain Percy Scott was in command of HMS Sylla in the Mediterranean Fleet. This was a time when Royal Navy Captains often spent a significant proportion of their own pay *on paint* - because the way to get ahead in the Navy was *to have a beautiful looking ship*. Percy Scott thought differently. He was interested in *gunnery*.

He noticed that as the ship pitched up and down, the ships guns could not keep themselves trained on the target, so most of the shots came nowhere near the target. He decided that he wanted to train his gunners to be able to elevate and depress the guns fast enough to keep them pointed at the enemy, so he invented the "Dotter".

This was a simple device, knocked up in the ship's workshop, that made a target move up and down powered by a mechanical crank, imitating the movement of the ship. In the barrel of the gun was a spring loaded paintbrush that, when the gun was fired, sprang out and made a dot on the target. The genius of the system was the mechanical delay that could be set according to the range and time of flight of the shell, so the gunner needed to correctly "lead" the target.

He insisted that the gun crew practice with the Dotter frequently, until he found those with an aptitude for targeting and constantly worked them to improve their performance. The following year at the Royal Navy Gunnery Competition, the average number of hits in the rest of the Navy was only 28% on target, *whereas HMS Sylla got 80% hits on target*.

*We don't need expensive and shiny training systems – we need effective ones, targeted at the tasks that give us what we most need - and we need to practice with them regularly.*

Now that example was based on trying to sustain and improve our existing performance. But, as I have outlined, we live in a different world, and we need to spend a more of our time practicing *thinking, and thinking differently*.

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The Iraq Inquiry, headed by Sir John Chilcott, highlighted a number of areas where decision making was fundamentally flawed in the prosecution of the war in Iraq. This was really the start of the realisation that the world had changed and we needed to do things in a different way, not only because "more of the same" was ineffective, but also because we simply cannot afford the cost in lives and money with our old ways of working.

## Learning to Think Differently.

Traditional solutions are no longer enough. We need to innovate and adapt and MOD is taking this seriously. The introduction of a new model called Defence Force Development, which aims to deliver forces and capabilities that are fit for purpose, resilient and sustainable to meet both current and FUTURE challenges requires both the traditional structures, and the people in Defence, to be more agile and forward looking. Our approach is changing to direct forward thinking, exploration and experimentation, support strategy and shape the trajectory of force design and procurement. To enable innovation and

adaptation – we need Wargaming. And finally, Wargaming has been given the place it has long deserved in this new DFD Model.

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## Wargaming.

Now, I'm not going to talk about the value of Wargaming. I am here at one of the world-leading professional wargaming conferences, so I don't need to lecture you on the importance of Prussian Kriegsspiel, Admiral Rozhestvensky's failure to follow up the correct prediction of the attack on Port Arthur, the innovations of the US Naval War college between World War One and Two, the German Army Class of 1927, the stunning success of the Western Approaches Tactical Unit, the contribution to the Anaconda strategy in Afghanistan, Deputy Defence Secretary Bob Work's famous Memo, and the on-going planned force testing and futures gaming run at DCDC.

I know Wargaming is important. You all know Wargaming is important. And the Vice Chief of the Defence Staff has recently sent a very clear signal that he also thinks that Wargaming is important. This in itself is extremely IMPORTANT! Appointing himself the Champion of a new 'Wargaming Experimental pathway' as part of the DFD model described earlier, VCDS is personally taking responsibility for its success. Because as we know, Wargaming offers a unique way of allowing people to think about a problem, gain insights and ultimately understand the problem. From there we can start to feel our way to possible solutions.

I want to talk about some particular aspects to wargaming: *practicing decision making, technology, and thinking differently.*

Practice is good – *and Wargaming is cheap* - but *we need to practice often*. Think back to the picture of Percy Scott's Dotter and the rows of seamen lined up to practice. *Wargaming cannot be a quirky novelty* – it needs to be something that happens regularly, and regularly to the extent that those involved feel compelled to try new and radical alternatives, simply because they have tried everything else they could possibly do.

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Not just a single, headline event, hijacked by vested interests and senior officers' particular agendas. We need an "n" to be larger than one.

*Because it is the new and radical that we need.*

The inductive logic that comes from repeated wargaming with an *active opposition*.

The realisation that we are starting to understand what we don't know.

The step beyond thinking what we need to win the immediate fight.

## Hybrid Warfare.

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Let us talk for a moment about Hybrid Warfare. What is it?

At a recent NATO conference none of the 28 participant nations could agree on a definition. *//None// It may be argued that we literally don't know what we are talking about.* However, whilst we may not have an undisputed definition across NATO, there is an increasing awareness across society of what it entails.

Events such as the Novichok incident in Salisbury epitomise the issue of the inherent challenge faced by Hybrid Threats – which is that many adversaries now calculate their actions to do us harm in a manner that avoids provoking an armed response. We must raise the cost of this behaviour by using our full range of capabilities.

The Government has quite rightly invested much into the strategic analysis of this new challenge in the changing character of conflict, and the Operating Concepts described earlier outline new ways in which both the MOD and Government as a whole, should respond.

Our proposed response is centred around the 'Central Idea' of the CCSI - which is to establish and maintain 'Advantage'. Advantage in this context is achieved by driving the conditions and tempo of strategic activity, rather than responding to the actions of others, whilst being adaptable and agile enough to respond and regain the initiative if and when circumstances dictate – by setting our adversaries more dilemmas than they give to us.

You can see the inherent linkages here with the agility being strived for through DFD. Change is being driven at every level. But as this audience well knows, and I will reiterate again, a concept is only as good as the vigorous testing it is put through first.

## Experimentation

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The Experimentation Pathway personally sponsored by VCDS mentioned earlier is an enormous opportunity for the defence community.

VCDS himself he has ordered wargaming be a sub-set of 'Experimentation,' directed and cohered through the DFD process - making it a formal and essential part of MOD Force Development processes, rather than the largely ad-hoc battle rhythm it currently holds.

It will be given a formal name, akin to the US 'Bold Quest Experimental Programme' and the principal DFD 'experimentation' TTX workshop is planned for later this very month. (24/25 Sep).

This isn't an idea for the future, this is an open door for this community that VCDS is actively driving and we should be excited by this new direction. So how will we wargame future challenges such as 'Sub Threshold' activity?

## The Siren Song of Technology.

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Many believe that computers alone have the answer. If we can just invest more into ever increasingly sophisticated models we can model the problem and work out a solution.

I'm afraid that I have a problem with that. *You can only do things with a computer that have been programmed in the computer.* This means that we may well be able to do well, when face with problems that we know and understand, but it is the "Unknown Unknowns" that are going to trip us up.

Now some of you might be immediately thinking of that knee-jerk panacea to computer problems, artificial intelligence, and machine learning...

AI is being touted as the answer to almost everything, and in many cases it is an incredibly powerful tool. When faced with models of conflict from Chess, through Go to Dota 2 and, most recently, Starcraft; AI has been able to defeat the best in the world. However, these models of conflict tend to be limited and two-sided, so come nowhere near the complexities of the real world. And in the more recent cases, human players, with a little practice have learned to adapt and defeat the AI.

This is a rather amusing picture to convey the limitations of AI. The self-driving car which can't get out of a circle of white chalk.

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Of course, you can say the AI can then learn and adapt from these defeats – which is of course true. *It just needs to play against every human on the planet.* And again on a Friday evening, and try them again on a Monday morning before their first cup of coffee, because I don't know about you, but those two are very different people.

However, please don't misunderstand me.

Taking a shot at AI in this setting is easy to do, but is intellectually lazy and I won't have it. We need to be very careful because there could be a divide between "manual wargaming" and "computer wargaming".

Be quite clear – there is only *useful Wargaming*.

The sort of alternate thinking Wargaming I am talking about is mostly *qualitative* in nature, at least in the beginning. It relies on the multiple-sided fuzzy characteristics of Social Science, rather than the single-shot kill probabilities of hard science.

The insights gained will still need to be turned into things with numbers that can be measured and compared with alternatives. For that we need computer support, because in today's world of Defence budgeting, quite rightly, nobody in Government is going to give you any money unless you can back it up with some quantitative evidence. Indeed, this is a Chilcot lesson

Deriving gleeful satisfaction about AI failures creates the sort of complacency about yesterday's methods that will doom wargaming to a niche, only useful with small groups of like-minded people.

We need computer support to allow true wargaming to be run distributed from different locations, with larger numbers – so if you aren't experimenting with things as simple as Skype, or more complex like Roll 20 - shame on you.

We need AI powered Natural Language Processing in data capture and analysis, reducing the observer's implicit biases. We need AI powered Communication Analytics to solve Tom Shelling's problem and determine where effective communication is taking place, where the messaging is misunderstood, and why. We want to be able to add more rigour to the qualitative analytical process – adding the sort of analysis that Facebook and Google does to real world Defence problems.

Manual wargaming alone will not be accessible enough.

Computer simulation alone lacks the radical imagination we needed to succeed. Wargaming, like the Future Force, needs a new, different view of the Human-Machine link.

## **A Look to the Future.**

So - what needs to be done?

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*You need to embrace technology, to make better Wargames. Wargames that are easily accessible, operate at a distance, consistently, measurably, repeatedly.*

*You need to keep the faith, keep plugging away, building a better mousetrap and well as trying to imagine alternatives that nobody has dared dream of in the past. MOD now realises the importance of your work so now is the time to show what you can do.*

As I look out at you, I see a lot of old, greying, white faces (the same as looking in the mirror!). You are the past and we need the future. You have vast knowledge, and we need to exploit that knowledge – *but, by definition it isn't going to be enough.*

If we are to learn to think differently, *we need diversity. We need young people with fresh and open minds. We need women. We need people from different cultures and backgrounds. Working together to dare to think differently* and shape a better future against today's threats. I personally value this HUGELY. An example is the thriving intern programme at DCDC in which young, bright graduates work alongside my desk officers over

a range of projects – often contributing a completely different perspective on the issues we're grappling with. They energise us both physically and intellectually, they keep us on our toes, they make us think harder to win intellectual disagreements than anybody else. And most importantly, they are the future and we *must* invest in them.

Anyone sitting or standing here over the age of 50 – I don't care how good you are as a practitioner. *Your real job is to mentor, encourage and train your successors.* If you aren't actively seeking out ways of encouraging new generations of alternative thinkers, *then we will fail.*

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*Be quite clear* – this is not going to be easy. In order to be innovative and adaptive, we will need to ensure that we have the people and processes to support new ways of doing things, rather than drowning in red tape and the old ways of working.

But I'm not here as a senior officer just to tell you to get off your backside and work harder. That won't work either. Those of us in senior appointments have to follow the VCDS-led revolution and recognise that innovation and adaptive ways of working require the structures to support them.

It is no good coming up with an idea that everyone is sure will work, only to have it drowned in red tape and the dead hand of "commercial process". We need faster and more agile ways of approval to spend money. We need to accept risk in order to allow us to keep up and eventually overtake the pace of change in our opposition.

We also need mechanisms and resources to support this education and mentoring processes. *We need a champion for Wargaming* in order to ensure that it doesn't continue to be utterly dependent on talented amateurs or the few dedicated professionals we have in the audience.

We now have our champion. We now have our process, through DFD. We now have our concepts to test. The challenge is set. The future is bright for wargaming but more of the same won't do. It's time for change – over to you.

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### QUESTIONS