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Defining agility

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Much is made of the need for defence to be agile – but is the industry aligned enough in its thinking to use agility to its advantage?

Enter into a discussion about the 21st Century defence environment and the word 'agility' is sure to crop up. We hear it a lot among our customers, partners and prospects. But if you were to ask the participants in that discussion exactly what the term means, would any two answers be the same?

Helping customers to become more agile, and using that new-found agility to achieve a real world advantage, is central to what we do. It's why it formed such an integral part of our presence at this year's Farnborough International Airshow. But being able to consistently stimulate greater agility means recognising that it is not a uniform concept.

Everyone has a different perspective on what agility means, so understanding how these ideas differ and where they come together is critical. To that end, we ventured out into the exhibition space at Farnborough Airshow to ask some of the attendees what agility means to them.

The result is an assortment of views from across four distinct corners of industry – varied but not contradictory, and with several common themes running throughout.

The government defence innovator

Peter Stockel, Innovation Autonomy Challenge Lead, Defence Science and Technology Laboratory (Dstl):

“Agility is being able to respond to the changing defence environment. We want to lead; to stay ahead of changing threats.

“A lot of the new emergent technologies – like communications, autonomy, AI – are driven by commercial investment. These are more accessible to our adversaries than they are to us, because rogue states and non-state actors are not constrained by the processes we subject ourselves to. Agility in decision-making, financial management, regulation, commercial practice; we have to make all that work together in a state-sponsored endeavour.

“It’s getting increasingly difficult to predict what the long-term threats are going to be. We need to recognise the world will continue to change at an increasing rate. We must then understand the behaviours that enable us to respond to those changes in an agile way and focus on those.

“Previous versions of scenario-based planning assumed that in a particular type of scenario, a certain solution should fit. But constraining ourselves to that space is nonsense, because scenarios are fictional futures that are just one branch of a potential tree of futures. It’s more robust to stand back, look across all the branches and identify the common factors. I’m not saying we shouldn’t do scenario-based planning; it’s just about how we use that information to inform our choices and enable agile decision-making. Take the Tornado for example, designed to destroy Warsaw Pact airfields at low level in bad weather. What, operationally, has it mostly been used for? Dropping precision-guided weapons from medium level in parts of the world that are mostly desert. Fortunately, with adaption, it’s turned out to be quite good at it. But how do you deliberately imbue something like an aircraft acquisition programme with flexibility – the ability to respond quickly to changing circumstances?

“For rapidly evolving technologies we need to be thinking not about buying things for 30 years, but buying them for five years and replacing them rapidly. But that can be quite a hard idea to sell to the treasury, although there is increasing demonstrable willingness in Government to do things differently – you only have to look at the innovation initiatives to see the recognition of the need to change the game.

“For me, it’s about being more communicative and more willing to adopt things that are other people’s ideas, working across traditional organisational ‘stovepipes’. It means doing pilots on practical things that we can actually get our hands around. I guess it’s the engineer in me but I’m a fan of trying stuff – experimentation, demonstration – recognising it may take us somewhere unexpected. How do you exploit unexpected outputs from a limited experiment to stimulate rapid, targeted adoption?

“We [at Dstl], in partnership with frontline commands and industry, have made early progress in projects like the Autonomous Last Mile Resupply and Autonomy of Hazardous Scene Assessment accelerator competitions. The hard work underway now is how we take that progress and dock it into the acquisition process.”

The defence industry prime contractor

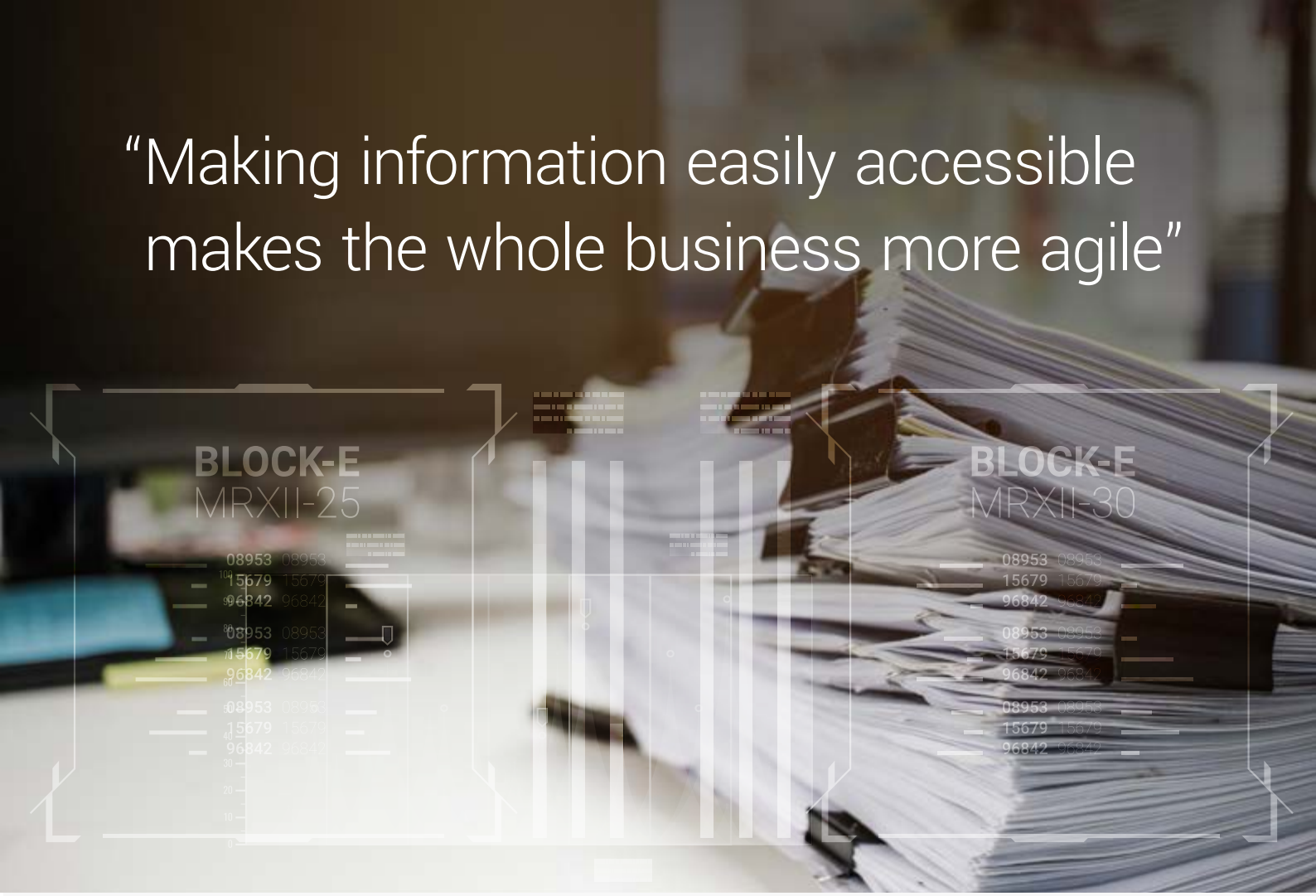
James Allibone, UK Head of Sales and Business Development, MBDA:

"People tend to focus on technology and how to build it faster – but that's half the problem. How do we contract for it? How do we qualify and accept it? The current processes can be prohibitively slow. We identify a requirement, put it out to competition, qualify, certify, and go through numerous gates, phases and approvals in what can be a ten-year process. Modern adversaries do not apply the same rigour. They are prepared to just try things.

"The current competition model puts suppliers in conflict with one another, when what we need in some cases is closer partnering to ensure we arrive at the best solution. We have incentivised the wrong behaviours in the past by instilling a punitive culture in which contractors are penalised for deviating from a predetermined gold standard. Instead, we should work out the spirit of a contract and work flexibly, pragmatically and transparently to deliver the optimum outcome. We could agree a minimum threshold, then measure and declare performance above that, with incentives for over-performing instead of penalties for not delivering a hard and fast set of requirements.

"We have in the past focussed on stockpiles of weapons. We buy weapons and keep them in a shed, where we may or may not use them. This ties us to the same standard of capability for potentially decades. In a rapidly changing environment, how do we work out what to stockpile for the next 20 years? In the modern world, we need to look to more of an on-demand production model – away from stockpiling and toward responding to changing demands in real time. We can maintain steady baseline production and ramp up when conflict looms – to the very latest standard.

"These are problems we will solve – necessity is the mother of invention. The RAF's Rapid Capability Office is an example of success in responding to some of these challenges, and the Navy and Army are setting up their own innovation offices. In this way we can try to spend less money on managing process and contracts and focus more money on equipping the UK with the best possible capability."



Deloitte.

The multinational professional services consultancy

Luciano Lo Tito, Senior Consultant, Deloitte:

“Agility is being able to develop ideas and take them to market quickly. In the private sector, things are moving very fast. In aerospace, companies are smaller and less integrated, compared to the automotive industry, for example. The employees and the information they hold are often spread across the companies’ many different divisions.

“The aerospace industry is also highly regulated. Regulation means a lot of paperwork, and a lot of information that needs to be stored.

“There is no more effective solution than to digitise everything. This gives you quick access to data and all the information that you require, without having to look for it across five different places. Being able to track your inventory or your supply chain in real time helps you to understand the risk of a supplier not delivering on time, how you can cope with that risk, and whether you should put measures in place. Making information easily accessible makes the whole business more agile.”

The precision engineering manufacturer

Stuart Offer, Additive Manufacturing Sales Manager, Renishaw:

"Technologies like additive manufacturing are helping companies to become more agile. It gives them the opportunity to produce things locally – so rather than manufacturing something in the UK and shipping it off to the other side of the world, you'll have a machine printing it in situ. Part of Industry 4.0 is the ability to collect the data from these machines and centralise it to improve and hone your processes.

"However, for defence to embrace the technology requires a change in mindset. Casting, forging and machining have been around for decades. People know the processes, they know how to design for them, the costs, how to qualify the products. If your accountant is comparing additive manufacturing with traditional manufacturing on a cost basis alone, you won't ever make anything using additive manufacturing, because it's generally more expensive. But when you look at the whole life of the product, the wider benefits can outweigh the upfront costs in the right application.

"We work with a well-known defence company whose lead time for manufacturing certain parts is minimum 18 months. So, if they want to change something, they've got a minimum of 18 months' wait to put that change in place. If they made that part additively instead of forging it, they could maybe get that lead time down from 18 months to just a few.

"When weighing up the benefits of these new technologies, we should not try to compare apples with apples, but take into account the technology's value in shortening timescales, increasing agility and opening up new design freedom."

The view from QinetiQ

It seems every business these days is eager to be known as a disruptive innovator, or an innovative disruptor – and we often hear that the key to fulfilling this ambition is to become more agile. But are any of these terms backed by any real substance? Or are they just corporate buzzwords?

In the language of business, familiarity breeds contempt, and so a once useful word can quickly fall out of favour. But love or hate the word itself, agility is a crucial concept for aerospace, defence and technology – especially in the context of the Fourth Industrial Revolution, where it is vital to rapidly deploy emerging technology to match adversaries' speed of adoption.

While our four interviewees approached the topic of agility from different angles, all were united in their appreciation of its significance. The unifying factor was an acknowledgement that as the world's challenges become more numerous and less predictable, to be flexible and able to respond quickly is becoming ever more critical. The methods by which that is enacted, and to what effect, may vary greatly between industrial sectors – or even between businesses in the same sector – making any conversation about 'agility' unconstructive unless we truly understand each other's points of reference.

Our aim is to break down the artificial barriers currently separating organisations and industries. By collaborating more closely and communicating more effectively, we can identify the elements of agility that bridge those gaps, paving the way for a more unified approach that works to everyone's advantage.

It therefore makes sense that a greater emphasis on developing a common language is a key part of unlocking the advantage that agility can offer – whether or not the word itself ends up being part of the lexicon.