Agility and Innovation in Acquisition

Following on from the 'contention' section in our last edition, we focus on agility and innovation, particularly in the C4ISTAR sector where technology generations threaten to, and often do, outpace our acquisition decision-making processes. As a result, we often have to rely on the urgent operational requirements (UOR) process to supply the troops in operations with equipment when they need it. But the UOR process is not ideal as it provides a quick-fix that does not adequately consider anything but the extremely short term. In addition, innovation is all too often equated with risk and avoided. Operational forces lay their lives on the line and deserve to be given the equipment they need when they need it. In this section, we have asked our experts, all with strong links to the C4ISTAR sector, to look at what changes are needed.

Our experts are: **Dr Nicholas Whittall, Philip Boxer, Danny Flack, Bill Robins, Pam Price, Bob Barton, Dr Dick Whittington and David Meyer**

AGILITY AND INNOVATION IN C4ISTAR

By Dr Nicholas Whittall and Philip Boxer

Dr Nicholas Whittall is Strategy Director for Thales Aerospace Division, UK. He has a background in electronic warfare research, systems engineering, programme management and business development. Philip Boxer is a senior member of the Technical Staff of the Integration of Software-Intensive Systems team at the Software Engineering Institute of Carnegie Mellon University in the US, working on the challenges organisations face from asymmetric forms of demand and the mitigation of interoperability risks through engineering requisite agility.

The most agile organisation meets the demands of its operational context at lowest cost; it is innovation that delivers this agility.

Agility is a matter of tempo matched to demand: an organisation delivering ballistic submarines faces much slower tempo changes in demand than one supplying mobile telephony. An organisation's processes and governance structures drive the time it takes to detect, then meet, changes in market demand.

When the pace of change outstrips its ability to react – i.e. its agility – it incurs costs in overcoming structural inertia to meet demand, conceding competitive advantage to those more fleet of foot. Organisations with similar structures and cultures within the same industry incur similar costs, which they pass on in prices. Dominance within an industry offers no incentive for transformation until market demand offers an opportunity for new entrants with new business models, such as Microsoft entering the computer market against the IBM behemoth.

> **"Agility is a matter of tempo matched to demand"**

Government departments face similar challenges. MoD must deliver military effect to meet operational demand. When this demand changes more rapidly than the Enterprise can meet, MoD incurs costs in workarounds and Urgent Operational Requirements (UORs), on which £6.6Bn has been spent since 2001. Increasing mismatch between planned demand and actual demand escalates the costs

of governance. Thus when planning assumptions – captured through capability audits to the equipment programme and delivered through equipment integration across Defence Lines of Development (DLoDs) into force elements at readiness – differ from the actual demands of the Front-Line Commands conducting operations, this escalates the costs incurred in correcting for the failure of the existing organisational design to respond adequately.

A single customer facing few but similar prime contractors therefore incurs two costs of governance, derived from any lack of agility in its own organisation and that of its prime contractors, which also compound costs from vertically organised supply chains. An improvement in agility should therefore reduce the costs the end customer – the MoD – faces to meet the same changes in operational demand.

Strategic Partnering Arrangements have addressed this issue where MoD faces a dominant prime. Alignment of company strategy and development programme with capability audit and equipment programme respectively should deliver the cost savings MoD seeks in slow-tempo sectors. However, a high-tempo sector rich in suppliers demands far-reaching innovation to deliver the agility required. C4ISTAR is such a sector.

The Far Future

Consider two futures, one far and one near. The far future recognises that innovation thrives on volatility and opportunity, but withers before institutionalised inertia. As 'creative destruction'[1] it unsettles the status quo and threatens those comfortable within it. One may describe this far future drawing on exemplars already existent in other sectors: Microsoft Windows, the worldwide web and GSM are three platforms that have enlivened innovation through opportunity. More than 70% of the world's software professionals write applications for the Windows platform. An ecosystem of trading thrives on this platform, which is over-specified in terms of how applications connect to it and use it, but under-specified in terms of what applications can be written for it and how they interact with each other.

> *"However, a high-tempo sector rich in suppliers demands far-reaching innovation to deliver the agility required. C4ISTAR is such a sector"*

As an Information and Communications Technology-intensive sector, one can envisage an analogous C4ISTAR platform over-specified in terms of the way applications connect to it and the military super-functions it must support, but under-specified in terms of what these applications are. This is the NEC utopia of agile military units forming and reforming according to operational demand, orchestrating capabilities guaranteed by the platform to work together.

This platform enables two important groups to work together: users, for whom innovation in the face of operational demand is their key skill; and orchestrators, who are able to conceive of the possible and offer solutions to operational demand. This is a C4ISTAR ecosystem enabled by an open platform regulated by MoD and supported by an engineering paradigm that reaches beyond narrow integration to support extensibility.

Such a platform opens the sector to a renewed competition of ideas and access to networks rather than chains of suppliers.

The Near Future

The near future addresses today's operational demands for better intelligence and force protection, and recognises that a one-size-fits-all acquisition system has not delivered the agility now demanded in this sector. Stovepiped equipment procurement from competing contractors for separate cap-badges has diced the C4ISTAR project, driven it away from the ideals of an ecosystem and constrained agility.

A collaborative venture to open existing systems to each other to deliver operational benefit with the support of new commercial models offers the opportunity to move towards the NEC utopia. This demands a collaborative construct that challenges the C4ISTAR community to deliver operational benefit against, say, an 'Afghanistan 2011' scenario. It needs the leadership of MoD, participation of the users, openness of the design authorities and other contributors, and the commitment of all to do what is necessary to increase the military benefit available from legacy assets. This demands innovation in commercial models, ways of working, culture and a host of other dimensions, most poignantly in competitors seeing each other as complementors and recognising the commercial benefit of increasing tempo within the sector. Such a team would spiral development from operational needs through demonstration to delivery to theatre, driven by the same ambition that delivers UOR success.

Towards a New Ecosystem

Afghanistan 2011, Dabinett, and NEC Utopia offer three signposts for a 'crawl, walk, run' approach to agility improvement within the sector, moving stepwise from the stovepiped assets of today through increasing integration towards a C4ISTAR platform supporting a new ecosystem of users and suppliers. The operational demand is immediate, the technical enablers are available, the economic logic is strong. Perhaps the missing ingredient is some 'creative destruction'. ∎

NOTES

1   Joseph Schumpeter, *Capitalism, Socialism and Democracy*, 1942

HAS THE ENTERPRISE 'GOT ISSUES' WITH PEOPLE?

By Danny Flack

Danny Flack is a director in BT Government Strategic Programmes and leads change programmes that are transforming BT from a traditional phone company to a professional services organisation. Here he stresses the importance of people and says that human transformation should be more appealing than a trip to the dentist, and should not be avoided or ignored.

People Are Important, Right?

If surveyed we'd all say 'YES' and agree that both the private and public sectors are fighting for fewer, more highly skilled talent to confront the key challenges. These people are an elite bunch – the 20% that allegedly deliver 80% of the value. Industry survives (or not) as a result of their contribution and faces a challenge to augment the contribution of the wider group. Defence needs these people to acquire a complex, effective, economic and agile C4ISTAR environment. The ability of the public sector to compete with industry in the acquisition of the talented is both challenging and debatable.

Advantage can be derived from scale, but to compete in areas requiring innovation, integration and expert client knowledge, large organisations must develop greater agility and flexibility to cope with an increasingly dynamic environment (fear not for the SMEs, their future is perhaps brighter than we anticipate). Survival will necessitate greater fragmentation to develop smaller, more agile atoms within the Enterprise to cope with the need for speed.[1]

This requires difficult decisions in respect to:

• What functions are core.

• Where exactly an organisation will operate in the supply chain.

The ability to identify niche capabilities and attract the talent that can sustain an advantage is critical. Equally important is the ability to release resources, often on a greater scale. This can be done: BMW now focuses on designing cars, McDonald's is a property business and AstraZeneca relies more on partnerships

with small, innovative companies to deliver research. The question is – how?

Are We Ignoring the Real People Challenges and, If So, Why?

With respect to the 'How' question, acceptance of the real challenge is a good start. The majority of podium speeches recognise people as the critical success factor. That is encouraging, but worryingly 25,000 visitors to DSEi last Autumn showed so little interest in 'Human Capital Transformation', one of DSEi's three themes, that it was withdrawn. Why is human transformation so unattractive to a mass audience when people are so important? The vast majority of us are human (the temptation to name exclusions was immense!) and transformation is exciting (a watch that can slice the cheese, a Lotus that fires torpedoes, etc.).

The problem could be that human transformation is an uncomfortable marriage with both scary and controversial metaphors (Jekyll and Hyde or stem cell research). What exits at 'B' is not what entered at 'A'; and because we are human, we are in scope.

Human transformation requires a step change in ability as a result of significant personal development or a physical change of personnel. This is not always intuitive and often painful. It is logistically more difficult in large organisations and the public sector where human resource (HR) systems and policies promote the perception that: 'You have to work with what you've got'.

The Enterprise: Change Resilient or Change Reticent?

If survival is mandatory, people matter, but talent is more important. Successful transformation occurs when the right people are on the bus and in the right seats[2]. The Enterprise must attract or retrain those who sustain the business and also be honest and supportive to the people who don't.

In a recent speech, General Sir Kevin O'Donoghue[3] stated that reductions in people could achieve more effective delivery to the front line. This would be achieved by the resulting reduction in nugatory process.

- Is there evidence elsewhere supporting a review of HR processes and resources first?

- Can reward frameworks continue to be predicated on an old set of HR rules? Successful companies offer flexible and innovative remuneration – the chef at Google is worth $50M!

- Can people satisfaction surveys continue to demand that business leaders achieve 100% happiness of 100% of people, 100% of the time. Does this generate a culture of people change and renewal?

Finding Talent: How Can We Trawl in Many Oceans?

As oil becomes a more valuable commodity, the investment made in search and recovery increases; the search for talent is no different.

There is talent and loyalty on offer if the Enterprise can embrace difference. Reasoned thought has discredited 'Tall Man' and 'Trait' theories on leadership – the ability to lead is not proportional to height, although 58% of Fortune 500 CEOs are over 6ft tall against a 13% US national average.[4] In the acquisition of leadership talent, Corporate America is narrowing the search to a small pond. This provides an opportunity for the open-minded CEO to trawl rich and largely untapped oceans.[5]

We have to find ways to confront this difficult issue in the best interests of organisations and individuals (be they cherished or surplus to our plans). Programmes like Defence Career Partnering (DCP) represent an innovative opportunity for both public and private sectors to collaborate in making more talent available on a more flexible basis. For the individual there will be greater choice, diversity and the ability to operate within a people network spanning many organisations and cultures, with the permission of the parent organisation.

So, Has The Enterprise 'Got Issues' With People?

Human transformation shouldn't be as appealing as a trip to the dentist, and should not be avoided or ignored. People making transformational plans for career development will differentiate the enterprise and ensure that 'the 80%' of the people deliver an exponential increase in value.

Talent matters most and it has no passport. In addressing the need for talent we must manage our people honestly and be innovative in expanding the range of options available for their development. Collaborative delivery of learning experiences can broker a transformation of people across all public and private sector boundaries, delivering measurable benefits. If successful, it will perhaps be feasible to captivate a defence audience and mitigate our reticence to confront the real challenges we all face in respect to that most important asset. ■

NOTES

1 Roger Camrass and Martin Farncombe, *Atomic – Reforming the Business Landscape into the New Structures of Tomorrow, Capstone,* 2003

2 Jim Collins, *Good to Great*, Random House Business Books (Hardcover), 2001

3 Chief of Defence Materiel, Speech to RSI Dinner audience, Institute of Directors, 22 November 2007

4 Malcolm Gladwell, *Blink: The Power of Thinking Without Thinking,* Penguin Paperback, 2006

5 The author is 5ft 11¾ in. tall

THE VALUE OF SMEs

by Bill Robins

Bill Robins, an independent CIS consultant, was formerly Director General Information and Communication Systems in the UK MoD, later working for BAE Systems. Here he discusses the importance of SMEs and believes that MoD must do more to understand their value.

The unwelcome departure of Lord Drayson from the driving seat of the second phase of the Defence Industrial Strategy (DIS 2) has left me with an uneasy feeling that the contribution to defence capability made by Small- and Medium-sized Enterprises (SMEs) may again be in danger. SMEs appear again to be at risk of being stifled, misrepresented and misused by some primes and consequently undervalued by the people concerned with building coherent military capability – those who should value them most. In allowing this, MoD risks denying

itself full benefit from a valuable and effective resource.

My concern arises from a DIS 2 industry brief which quotes the position of SMEs as follows: *'The principal role of SMEs will be in niche areas, in the main as consortia and major prime suppliers'.*

Visibility of SMEs

One of the threads of Lord Drayson's approach in DIS 1 was to ensure that the supply chain would be more visible and accountable to ministers. One aim was to avoid situations in which SME advice was ignored, SME products badly integrated by a prime contractor and the SME then loudly blamed for the troubles arising from the badly integrated product. The value of SMEs to Defence Capability was to be visible.

My first concern is, therefore, that once more SMEs could be at the un-refereed mercy of those unenlightened primes (not all primes, of course) who are inclined to handle SMEs as if they were merely a cost to the consortium, to be tightly controlled and minimised.

Fine, you might say, that's all part of the rough and tumble of commercial life. But I wonder if the MoD fully understands the true potential of SMEs to improve coherence and agility, two key qualities of Network Enabled Capability.

"It will be expensive but we might be able to meet the requirement … eventually"

"Can you hear something?"

"Me! Me! I can do it!"

The SME dilemma…

Integrating Value

The starry-eyed view of SMEs is that they are likely to offer the magic dust of 'innovation' to the starchy defence acquisition process. But SMEs offer something both simpler and more complex than innovation: they have products which to be fully effective must cut across prime capability areas.

> *"MoD needs to do more to ensure that the value of SMEs is understood and used, possibly by constructing an organisation with an integrating vision to do so"*

So, my second and more serious concern is that the integrating value of some SME products is not being exploited. For example, many SMEs offer business improvement tools which can enhance coherence: situational awareness, business process, mapping, messaging, security, etc. And if we contract such work to different SMEs via various primes, each one addressing similar issues, the various tools used in stovepipes will fragment defence capability rather than ensure its coherence.

If, however, MoD were to assume the role of a more actively intelligent customer, it could use SMEs at little expense to join capability lumps together, guided by a central vision within the Equipment Capability (EC) and Defence Equipment and Support (DE&S) organisations at the level of integrated capability. This would enable agile changes when they are needed, with an assurance of continued coherence. But it requires a number of nettles to be grasped, not least that of the future of the Integration Authority as a force for intelligent coherence. It demands enterprise-wide understanding of how different capabilities work together.

MoD Contracting

The experience of some SMEs in dealing directly with MoD contracting and accounting procedures has not encouraged them to persist in doing so. Most of them do not have the deep pockets needed to engage with MoD procedures, and this, of course, is the stated reason that the Department prefers to engage with them via prime contractors. But some of them can offer much more if only we get smarter: in a recent example, a small contractor offering use of a tool that promised large economies in acquisition manpower, spent six months (guided by an increasingly desperate military sponsor in DE&S who had to deliver the economies) negotiating 17 gates for a release of £250k on a £1.1M contract and nearly went to the wall in the process. But had the MoD used one of the big consultancies for the same job, the bill would have been considerably more than £1M as expensive day-raters swarmed over the organisation.

MoD Must Understand the Value of SMEs

I suggest that MoD needs to do more to ensure that the value of SMEs is understood and used, possibly by constructing an organisation with an integrating vision to do so. The tools and suites that they sell could offer economies of scale, coherence across multiple systems and services and the chance of agile and balanced change across the spectrum of military capability. But someone with an integrating vision and a little power needs to care about this.

> *"SMEs appear again to be at risk of being stifled, misrepresented and misused"*

It is just possible that the rumour of a more powerful integrating function in MoD – whether in DE&S or in the area of DCDS(EC) (or covering both) – could offer the focus needed to ensure that this vital national asset is not stifled. We cannot afford to miss this trick. ■

RAPID PROTOTYPE DEVELOPMENT AND EVALUATION: AN INNOVATIVE AUSTRALIAN INDUSTRY–DEFENCE PARTNERSHIP

by Pam Price

Pam Price is General Manager of Rapid Prototype Development and Evaluation (RPDE), a Joint Venture between Australia's Defence and industry sectors. In this article she describes the RPDE programme in which focused problem-solvers resolve challenges by identifying, understanding and facilitating more rapid capability change.

In February 2005, the Australian Defence Organisation with five companies from Australian industry formed a 'virtual' autonomous organisation known as the Rapid Prototyping, Development and Evaluation (RPDE – or 'Rapid') Program. At a time when the term Network Centric Warfare (NCW) was abuzz and no one single entity could claim to have all the answers, RPDE's vision was simple – *To enhance Australian Defence Force (ADF) warfighting capacity through accelerated capability change in the NCW environment.*

> **"Rapid participants work in a paid collaborative environment where commercial interests are put aside to find the best workable solution in short time frames"**

The initial five companies have expanded to 141 industry participants, with Rapid providing Defence a conduit to intellectual capital that would otherwise remain latent or suppressed. Rapid draws the brightest and best people from industry and academia to understand Defence operational needs and freely contribute to enhancing the ADF's capability.

Rapid participants work in a paid collaborative environment where commercial interests are put aside to find the best workable solution in short time frames. Activities are focused, prioritised and directed by Defence. While the workforce may be sourced from industry, Rapid truly is on the inside of the Defence fence.

Accelerating NCW capability change is just one of Rapid's purposes – the programme can also contribute to broader Defence and industry strategy. Australia needs to maintain an indigenous capability to develop and support our military equipment now and in the future. The resource constraints the nation is facing put a larger focus on the development of Small to Medium Enterprises (SMEs) to meet capability requirements. Rapid also focuses on providing opportunities for non-traditional industry with relevant skills to enter the Defence arena. Rapid has been structured to address these issues and opportunities.

Speed, Agility and Innovation

Rapid's framework allows speed, agility and innovation, but not necessarily in a traditional approach. In establishing Rapid, Australian industry acknowledged that to develop a truly collaborative programme, all major Australian defence companies would ideally participate along with Defence. Rapid's framework was developed collaboratively by Defence and the major companies. It relies on continuing acceptance from the 141 industry participants and Defence that it will provide the agility and innovation needed.

A commercial framework within the Defence environment that genuinely allows 'accelerated capability change' could be seen as an innovation in itself. Rapid's commercial framework achieves this through key tenets of:

- Providing speedy access to resources.

- Common labour rates for all participants.

- A consistent format for requests for services and contracts placed to aid in the speed to turn-around.

- No bias favouring any one participant or group of participants.

- A 'safe' environment promoting knowledge / intellectual capital sharing for a common goal.

- The Commonwealth assuming the bulk of the risk.

This 'non-traditional' arrangement for contracting industry demonstrates the faith that Defence has in what the programme can provide. A government bureaucracy can easily be pictured accepting a contract clause to create 'no obligation to provide any benefit or advantage to an Industry Member or Associate', but is less likely to be pictured agreeing that an '… Industry Member or Associate will not be excluded from any future Commonwealth procurement process solely by virtue of involvement in the RPDE Programme'.

> **"Rapid also relies on the goodwill of industry and their faith that investments in the programme will provide returns, albeit the time frames for which may be unknown"**

SME Involvement

Rapid also relies on the goodwill of industry and their faith that investments in the programme will provide returns, albeit the time frames for which may be unknown. Participants' expectations of what the returns will be may vary from one extreme to the other. An underlying aspect of the programme is that participation is not specifically for the purposes of immediate revenue generation. Larger Primes can sustain this, but not some of the SMEs that may be living week to week. To help overcome this, the common labour rates are set to allow SMEs to sustain their involvement, while at the same time encouraging larger organisations to contribute a level of 'investment' into what may be at best a cost-neutral marketing activity. This approach harnesses the power of industry collaboration in a 'class free' manner. Organisations large and small effectively have an equal opportunity to contribute, commensurate with their ability to do so.

Rapid's innovative approach also extends to solutions. The programme was founded on the tenet that no one single entity could claim to have all the answers. Rapid solutions draw the bits of the answer from the multiple industry players who possess it, and glue those bits together – micro-networking that delivers a macro-industry capability. The quick turnarounds rely on Defence acknowledging that many of the solutions are interim ones and that 80% to the warfighter now is better than 100% delivered in five year's time. Rapid ensures that the validated requirements from these interim solutions are fed into the standard capability development process to achieve permanent solutions.

Delivering a Capability Implementation Plan

But Rapid can only go so far with implementing a solution. The programme assesses problems, develops prototype solutions and delivers a Capability Implementation Plan. Defence has to be ready to accept Rapid's solution in the time frame it is delivered. Whether Defence is capable of doing this remains with the particular Defence champion of the day. Rapid's processes have evolved to 'grow' Defence champions from the nascent stages of a task. If committed champions cannot be identified, the investigation is wound up and no further action undertaken. This conclusion in itself is useful – providing an answer to Defence, and illustrating to industry genuine Defence thinking and sentiment on that particular problem.

At the end of the day, Rapid is a refreshing place where Defence and industry can come together and enjoy adult-to-adult conversations. Because Rapid is not an acquisition agency, Defence members feel encouraged to talk more openly to industry about specific problems. Again, the two-way street: in response to understanding what the real Defence issues are within a problem, industry is more open to identifying what is actually feasible, providing frank advice and recommended options that clearly demonstrate what is achievable in the near term, and what remains aspirational. ■

NOTES

1. For more information about Rapid, visit: www.rpde.org.au

THROUGH-LIFE CAPABILITY MANAGEMENT: WORKING TOGETHER TO ENHANCE MILITARY CAPABILITY

by Bob Barton and Dick Whittington

Bob Barton is Director Capability Development at BAE Systems and Dick Whittington is Chief Technology Officer at the Salamander Organisation. They describe their work in bringing together the processes and tools needed to address 'capability-based trades' in an environment which delivers increased objectivity, a single view of the truth, and pace, thereby improving acquisition cycle times so as to deliver the required force elements at a tempo to match changes in the external environment.

Through-Life Capability Management (TLCM) sets the agenda for change in MoD acquisition, but is regarded by many as little more than the 'latest initiative'. However, the MoD has no better way to balance the books and deliver the right military capability at the right tempo. As such, there are many reasons to believe that TLCM is an enduring need and will have a widespread impact on the defence industry.

As a major supplier, BAE Systems recognises that it has a responsibility to work with the MoD to understand and help mature a TLCM approach which provides the means to ensure that capability decisions are taken in context. The development of methods to support good option analysis, in a way which improves the response times and overall value, will deliver mutual benefits to MoD, industry and, most importantly, the User.

TLCM

Tom McKane's vision of TLCM[1] as *'an approach to the acquisition and in-service management of military capability in which every aspect of new and existing military capability is planned and managed coherently across all Defence Lines of Development from cradle to grave'* is now widely accepted. This vision has been embraced as a key aspect of addressing the funding challenge

posed by the Ministry's anticipated major acquisition programmes such as the future aircraft carrier (CVF), the Future Rapid Effect System (FRES) and the Joint Combat Aircraft (JCA). More than ever before, it is critical that our resources are deployed wisely and without waste.

The budgetary challenge created by major procurements is exacerbated by over 230 Urgent Operational Requirements (UORs), costing approximately £1.4Bn. Arguably a result of inefficiencies in the acquisition process, UORs compound the problem further. They are delivered piecemeal, with limited consideration of through-life management, ultimately adding further cost and complexity. A more efficient acquisition loop, working at the right tempo, would help significantly to reduce this aspect of the budget burden.

The acquisition and management of military capability is increasingly complex and costly, and the demands of the front line require a more responsive and agile acquisition approach. The Defence Acquisition Change Programme has been established to effect a step change in performance, to achieve more timely delivery of capability to the front line and better value for money. The challenge falls to the whole acquisition community, including industry, to respond with conviction.

> *"More than ever before, it is critical that our resources are deployed wisely and without waste"*

Towards Informed Decisions

As a leading prime contractor to the MoD, BAE Systems has committed to working with MoD to contribute significantly to an improved industry response. This article describes an initiative led by BAE Systems to meet the TLCM challenge. A range of partners, including York-based Salamander, small to medium enterprises (SMEs) and other academic, industrial and commercial organisations, enrich the approach in terms
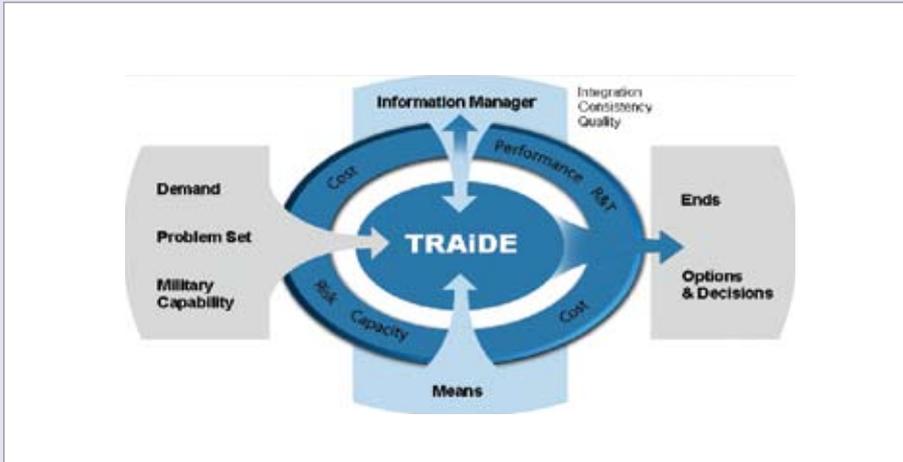
Figure 1: TRAiDE Concept

of methods, tools, information and process. Our approach is to deliver an inclusive environment to support informed capability management decisions. We are bringing together the processes and tools needed to address 'capability-based trades' in an environment which delivers increased objectivity, a single view of the truth, and pace. The approach increases the shared awareness across decision-makers, including all DLoD owners. This improves the cycle times and will deliver the required force elements at a tempo to match changes in the external environment.

TRAiDE ™

This approach means we need to consolidate diverse sources of information – architectural, programmatic, performance and commercial – and harness the technologies to provide *evidenced information for informed decision making*. This will ensure

military judgement is continually informed, underpinned and validated by hard evidence.

Trading is a key element of the approach, and for this reason we have called our offering TRAiDE™ – *TLCM Robust Acquisition information Decision Environment* (see Figure 1). Decisions in this area are essentially about trading, and constructing and sustaining a consistent, affordable and balanced portfolio. Making any decision means changing the balance of that portfolio at some level, and that in turn has an impact on the risk profile.

Putting this in context, we can bring to life the capability value chain as a complex set of nested 'OODA' loops feeding from the same common view of truth (Figure 2). The Recognised Acquisition Picture runs through all levels of decision, as a pan-DLoD axis, to synchronise the trading decisions relating to

(on the far left) national debate (e.g. nuclear deterrence), through to (on the far right) the scope of a particular project, achieving the necessary focus on the requirements of the user. Through the TRAiDE environment a decision at any of these levels can be analysed in terms of its implications across the value chain – the knock-on effects, the impact on risk and the other dimensions that need to be addressed to retain coherence.

Our initial focus has been at the levels of the Joint Capabilities Board (JCB) and Directors of Equipment Capability (DECs), including DLoD owners. Decisions at those levels are critical to effective investment. It is vital to realise that poor capability trades cannot be rectified by good project delivery – the best that can result would be the efficient delivery of the wrong force elements. We have engaged DEC teams and structures within their current context, and demonstrated benefit by introducing methods that help them *to do business better* – the emphasis being on pragmatism and minimum disturbance.

> *"It is vital to realise that poor capability trades cannot be rectified by good project delivery"*

TRAiDE supports a range of analytical and visualisation techniques, underpinned by a common information manager. The toolset will be available over the Defence Information Infrastructure (DII) to enable live use by MoD users.

Fundamentally, our approach is inclusive. We are engaging partners widely to ensure that best-of-breed methods, practice and tools are integrated into TRAiDE. Stakeholders include Cambridge and Loughborough Universities – bringing depth of thinking from a breadth of domains – together with a range of key contributors to TLCM and related initiatives.

The tools used within the initial TRAiDE offering include MooD® from Salamander
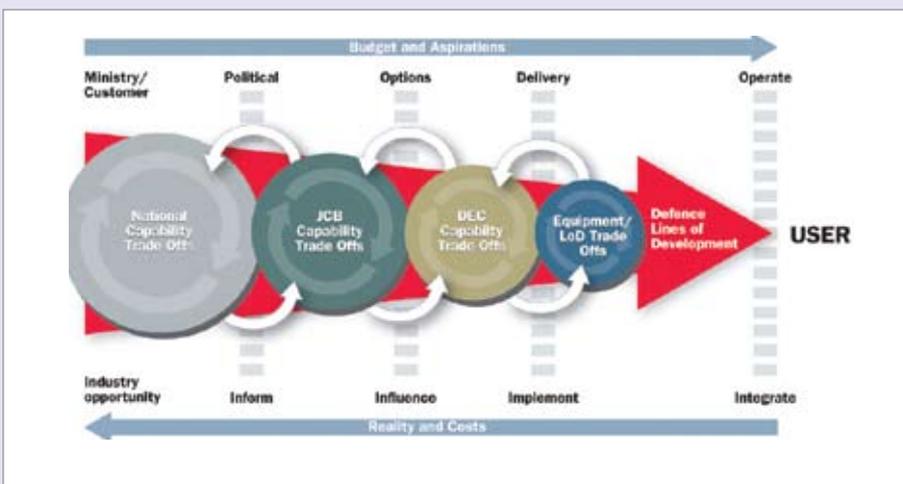

Figure 2: Capability Value Chain
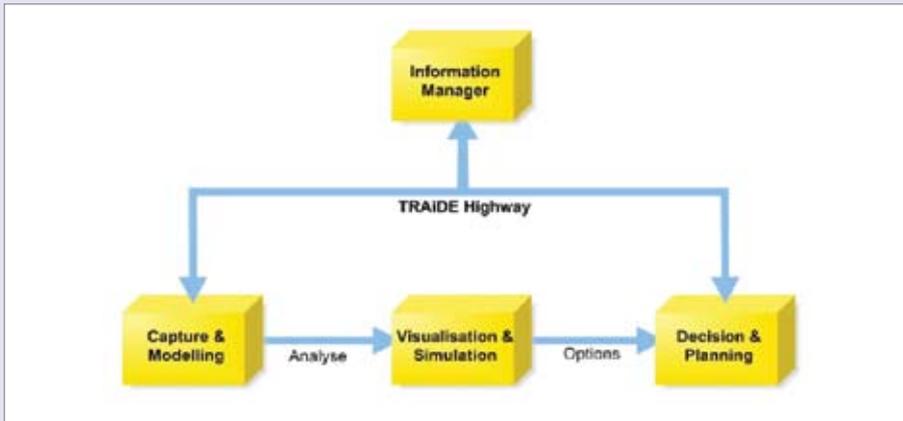
Figure 3: *Components of the TRAiDE™ Environment*

– an Information Manager with powerful visualisation that can construct, maintain and present MODAF views – supplemented by riskHive to provide risk-adjustment of programme information.

The strength of the 'inclusivity' approach – including significant joint work between MoD and industry – is paying dividends. A number of existing and new artefacts have been employed on the analysis to aid the breadth of 'what if' options provided across the DLoD, industry and capability dimensions. In order to maximise the benefits, the TRAiDE framework itself has been designed to ensure ease of interfacing and tool adoption. The current version interoperates with riskHive, and current trials and future releases will interface with a variety of additional components to broaden the range of analysis and visualisation.

Our continuing development programme is incorporating a range of subject matter experts with diverse skills throughout the life cycle, supported by complementary tools, including ISSE, developed by Vega and used by the Integration Authority to define and analyse system of systems architecture implications. This enables our environment to benefit from the investment in the MoD's Architecture Repository to inform and validate capability options. In order to increase the rigour of the analysis and extend the trades into other areas, such as industrial factors, CORDA has brought a range of DEC-proven techniques and analytical tools into the environment.

"From our initial focus on doing business better in the current situation, we will be actively engaging in the establishment of structures to do better business"
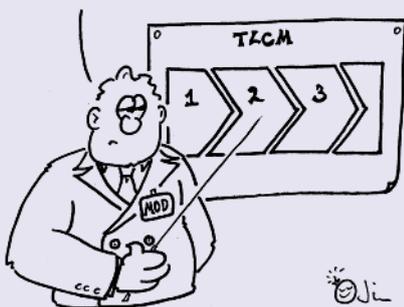
Alignment with Real Projects

The emphasis on pragmatism and practicality has been achieved by close alignment with real projects, such as the following:

- An initial proof of concept was undertaken within a new area – Joint Medium Weight Capability. This has now been extended to a major current area of investigation – Future Combat Air Capability (FCAC), undertaken in conjunction with DEC (TA) and DEC (DTA).

- Salamander and Vega currently work jointly within DEC CCII on the JC2SP programme, with Salamander's focus at the business level complemented by Vega's at the system level. Intercepting and incorporating that work within TRAiDE brings a real opportunity for further exploitation to derive additional benefit from the investment.

- The MoD, via KPMG and their own appointments on TLCM tools, will be evaluating the best methods in the near term before deciding on a consistent approach.

The MoD's approach to TLCM has been based on driving in consistency. The benefit of real-world applications such as TRAiDE is in the practical learning that is achieved. We have identified the need for greater consistency in the taxonomy used and, indeed, the shape of the DEC structure, both of which are important to aid capability trades. From this perspective, our approach has a transformational potential. From our initial focus on *doing business better* in the current situation, we will be actively engaging in the establishment of structures to *do better business* in terms of future focus and agility.

A Step Forward in Capability Generation

Incorporating the TRAiDE approach presents the opportunity to wrap a decision-making method and toolset around a wide and diverse collection of information to connect across the levels of consideration. This will lead to an unprecedented step forward in capability generation.

Our work in this area is developing in a progressive and constructive manner, involving close work with several MoD teams. Subsequent articles will address specific aspects of this work in more detail, reporting upon learning and benefits achieved. ■

NOTES

1 *Enabling Acquisition Change,* June 2006

IT SECURITY: COLD WAR OVER – TIME FOR A RETHINK?

By Brigadier David Meyer

David Meyer is the Assistant Chief of Staff for Command and Battlespace Management at HQ Land Command, UK. Here he compares the old certainties of the Cold War with today's more complex situation where IT is ubiquitous, wide interoperability is essential and the enabling network is required to move information between large numbers of individuals or groups. He believes that IT security no longer works and that it's time for a change.

Oh for the certainties of the Cold War! Looking back, security was really rather straightforward: we knew who we wanted to protect our secrets from, and who we probably wanted to share them with. Our use of technology extended only to encrypted telex or mufax machines, over which we sent facsimiles of sensitive documents between tightly controlled commcens. We protected the most sensitive national papers by putting them in differently coloured files, marking them 'UK EYES ALPHA' or something similar, and storing them in a cabinet to which access was limited. Information sharing with allies in land operations in Europe was pretty easy: each NATO nation had its areas of responsibility, and generally came into significant contact with other nations only at the higher levels of command. We could therefore share what we wanted with other nations through tightly controlled relationships with national liaison officers or military telex communications, and keep everything else hidden away.

Times, readers will have noticed, have changed. Firstly, technology has improved no more starkly than in the area of IT, in which change over the last 20 years has been radical. Early Defence IT networks conformed to existing security rules quite easily, by operating within essentially closed environments. The limited interoperability that was technically feasible in those early days was managed quite easily at the interface, and the relatively small number of users meant that application of the old security regime was easy and effective. But expansion of those networks has raised many challenges: IT is fast becoming ubiquitous, with even platoon-level HQs connecting to networks that in the past were viewed as an operational-level resource. And the demands of the 'enabling network' have meant that we increasingly view individual soldiers as network components, and aspire to easy exchange of information between them all. The divide between tactical, operational and strategic levels has been substantially blurred, and yet we are still seeking to manage the whole network as though the individual soldier is working in the same controlled environment as the theatre commander.

"Information, like water, will follow the path of least resistance"

Secondly, the environment in which land forces operate is radically different from the one for which our security regime was designed. The Balkans peacekeeping operations of the 90s were a wake-up call that might have prompted recognition that coalition information exchange was not to be so easily structured as in the Cold War days. For a range of reasons, the issue was not addressed satisfactorily in that decade, and so our approach to both the ad-hoc and more structured coalitions that grew in the wake of 9/11 continued to be based on the comfortable security assumptions of the Cold War. Such assumptions don't sit well with today's reality of an infantry section of one nation relying on Close Air Support from aircraft of a second, controlled by a Fire Support Team of a third, given that the infantry section would like the support now, today, rather than next week when the network interface and security issues have been resolved on a case-by-case basis. For those who are trying to make it all work on the battlefield, the existence of 'Senior Information Responsible Owners' (SIRO) who can apply security waivers, but are located thousands of miles away in national capitals, is less helpful than those SIROs might imagine.

So, here lies the problem: information, like water, will follow the path of least resistance, and is going to be shared whether our assumptions recognise this or not. We should aim to do more to help our people share information at the lowest level so that we do not actually constrain them in some of their most challenging and dangerous work. It is really time to develop an approach that recognises changes in both the technology and the environment, and this has to be done at the highest level, and agreed internationally, if it is to be as effective as it needs to be. In developing a new approach we need to:

- Accept that the land tactical environment is the most demanding for networks. Recognise this and design systems to operate within it. Don't try and adapt systems designed for peacetime offices to armoured vehicles and individual infantrymen on the battlefield, because any illusion of such a system working will be just that – an illusion.

- Decide on boundaries between high-level national systems and low-level tactical networks, and don't try to locate interfaces in the dirt and danger of the slit trench, where one tactical IT terminal should be viewed as the maximum, not as a starting point. Swivel-chair interfaces need a swivel chair, and such furniture is not generally carried by those who are being shot at.

- Accept that information will be shared down to the lowest level where it needs to be, in both national and coalition domains. In recognising this, stop pretending it won't happen and allow it to occur in a manner that assists the warfighter, rather than obstructing him.

Perhaps most importantly, we must recognise that this whole area of IT security on the battlefield is about as complex as it could be. We need someone who understands it all, including the battlefield piece, to be in overall charge. He or she must ensure that security rules are sensible, and are applied sensibly, and must have authority over the many players who are involved. We've tried several ways of avoiding this requirement in recent years and they haven't worked. It's time for a change. ■