



Arke Ltd

“Benefits Maturity Matrix”

Robin Smith

Considering:

- A Soft Method
- To measure, track and forecast
- Achievements of complex Programmes



www.arkeltd.co.uk



+44(0)1373 858 858

Topic – A Case Study and associated soft method developed

Aims

- Consider the “Benefits Maturity Matrix” method in its original context
- Consider Pros and Cons
- Reflect on ‘So What?’
 - Surprisingly...
 - Method still used
 - Started to be replicated

Bowman, Combat, Infrastructure & PBISA (BCIP)



50,000 Radios



21,000 Data Terminals



Planning Tools Situational Awareness Reports & Returns

Other Tactical CIS



Tactical Satellite

Gateway Devices



Specialist Radios

UORs



Modular Ops Rooms



Bespoke Software



Medical CIS

Other Projects



SATCOM - various systems



Falcon - a completely separate network



Information Systems – often called OpCIS but used at the Tac level

What?

- New generation: Hardware and Software
- New Acquisition & Deployment Model
 - Open systems
 - Faster updates

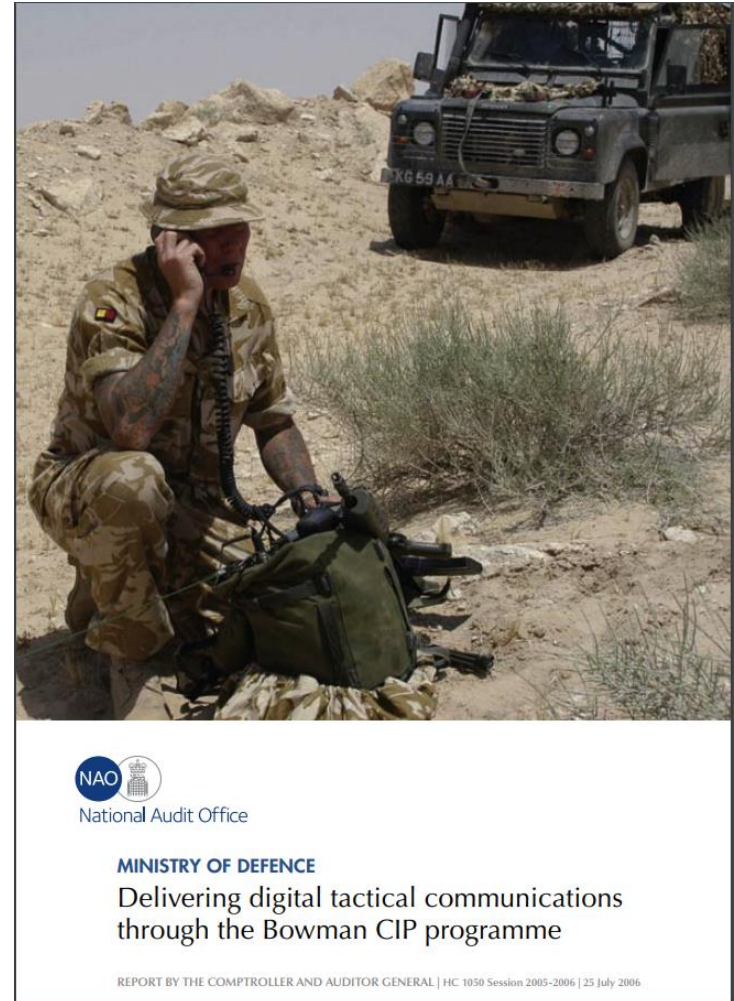
Benefits Targeted?

- Effectiveness
- Quality of life
- Upgrades cycle

National Audit Office

- on previous generation

Nat. Audit Office: “All stakeholders, should have common access to information on risks and benefits tracking”



Programme Board

Members.

Senior Owner, Army HQ Wider Representatives, Procurement Org',
Cabinet Office, Field Army Representatives

- Our Job: **Develop a new supporting method**
 - What are the benefits to the soldier?
 - What is impact of newly fielded kit?
 - Is it really better?
 - Are we on track?
 - What does the plan forecast?

Continuity

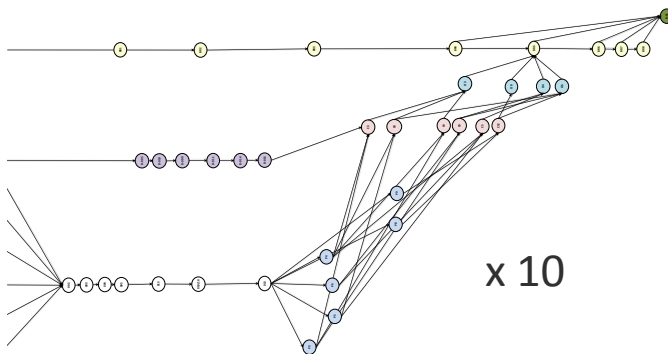


Data & Evidence?

No extra



Tried before, didn't stick



'Live' Programme -> Live Method

Prog. will change



What

(V. Crudely)
Complexity
Robustness

**Anecdotal, User
Feedback**

(New) Surveys

Lessons from Coll. Training

LE TacCIS Bespoke User Engagement

Bowman Capability Reviews

**Bespoke Training
Objectives**

**New Instrumentation &
Data Collection**

Where

Workshops with Users

**Workshops with Staff
Officers & Dept. Heads**

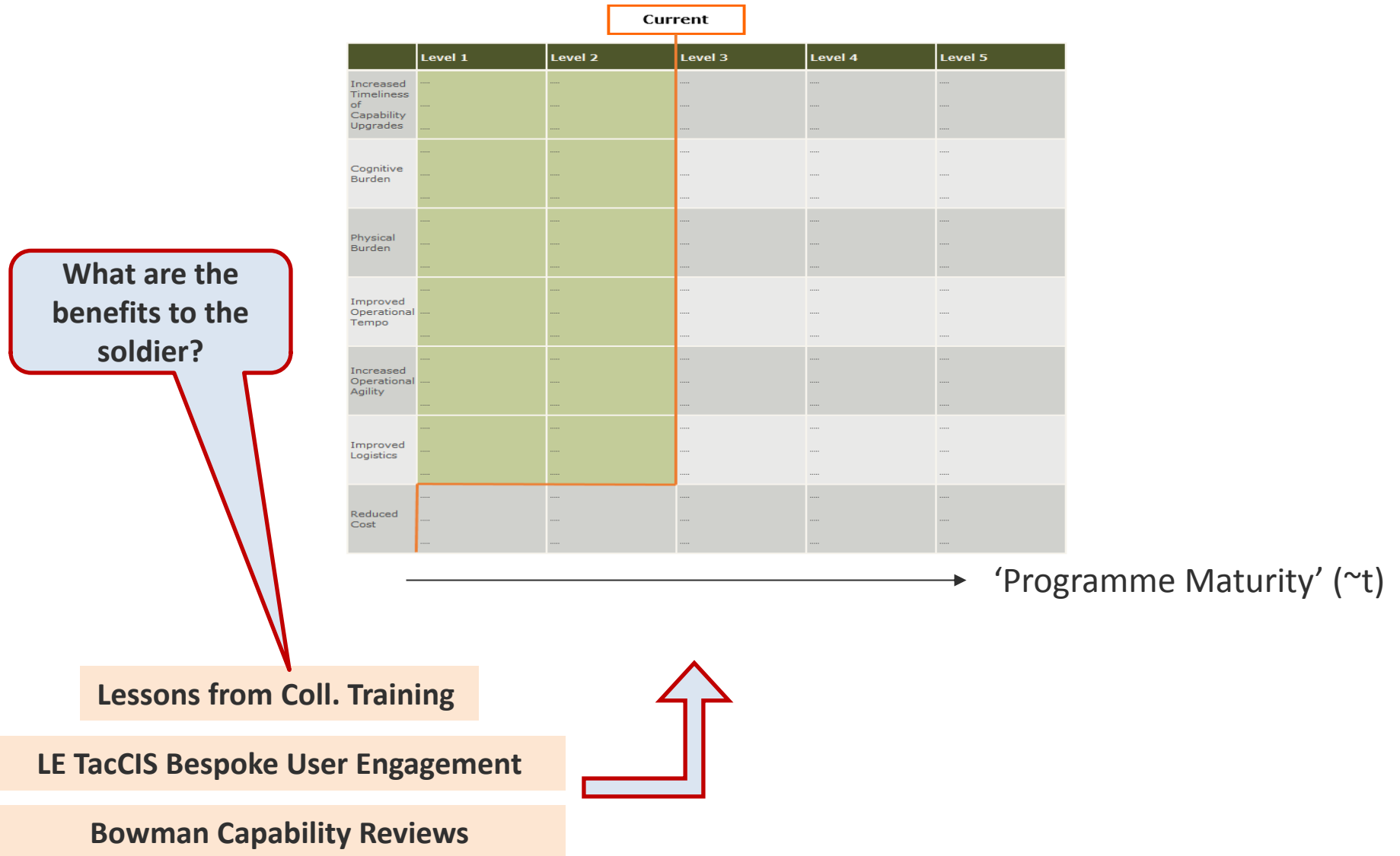
Collective Training

Trials Development Units

Bespoke Experimentation

Key help:

- 2015 Niteworks LE TacCIS Baselining Report (C. Beattie)
- Ex-contributors to Command and Control Development Centre (C2DC)
- MORPHEUS User Engagement Reports
- Army Training Branch, Field Army Change Plans (A Philpott), LWC S&T, Requirements Managers, Dstl (N. Paling, A Bain, N Lindsey)
- Rest of Army HQ IS-TacCIS team



Where are we now?

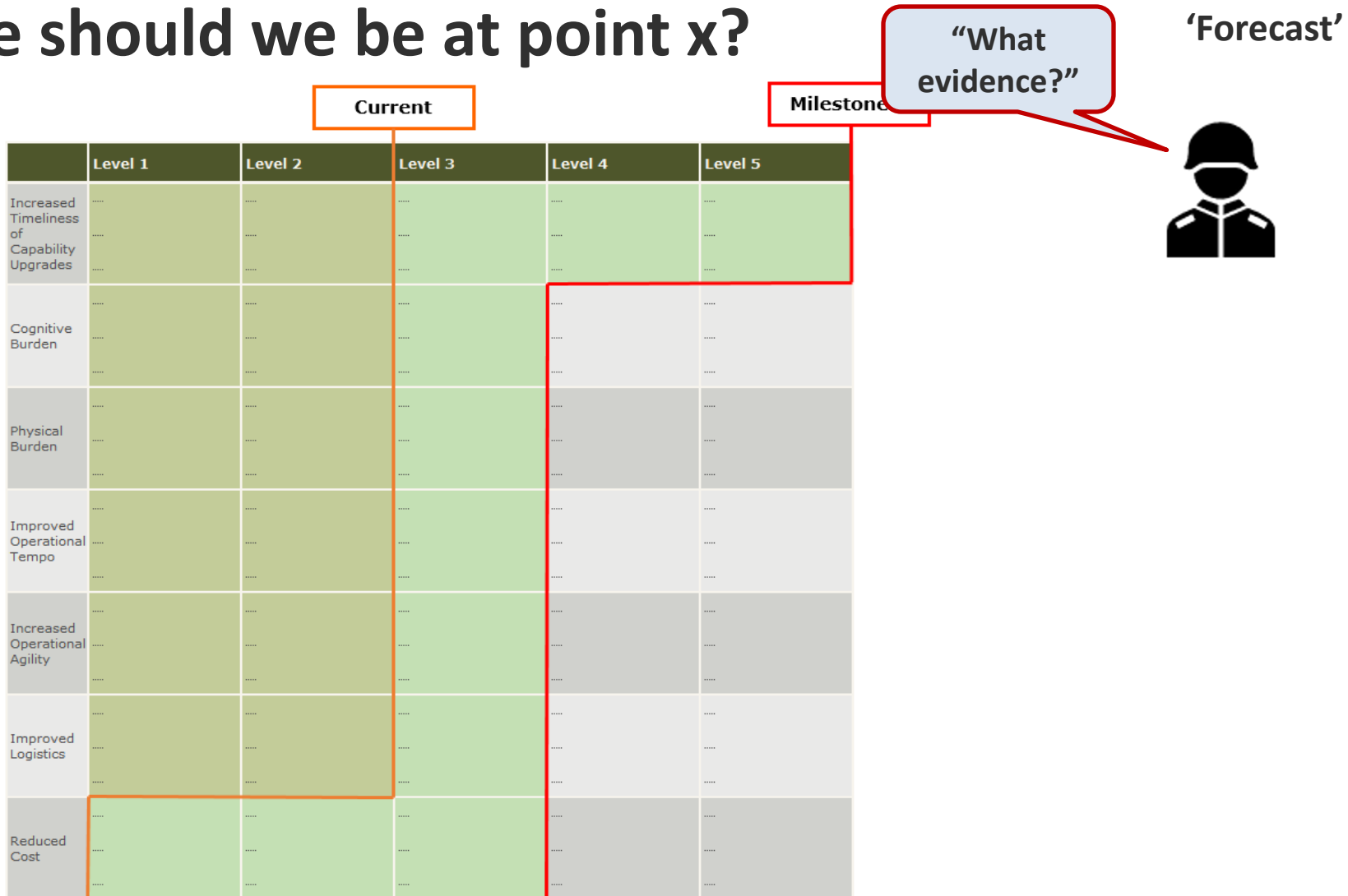
	Level 1	Level 2	Current	Level 4	Level 5
Increased Timeliness of Capability Upgrades
Cognitive Burden
Physical Burden
Improved Operational Tempo
Increased Operational Agility
Improved Logistics
Reduced Cost

"What evidence?"

'Measure'



Where should we be at point x?



(Get real!) Think we will be... at point

"What evidence?"

'Track'

	Level 1	Level 2	Level 3	Level 4	Level 5
Increased Timeliness of Capability Upgrades
Cognitive Burden
Physical Burden
Improved Operational Tempo
Increased Operational Agility
Improved Logistics
Reduced Cost



Full Table – Bare Min.

* BCM -> The lead Field Army Staff Officer

Deliver Evolutionary Capability Delivery across TacCIS projects:

Benefit (or Category)	Description	Key words	Level 0 - Baseline	Level 1	Level 2	Level 3	Level 4	Level 5		
Overarching 'Benefit'	Key sub-elements to consider	Baseline qualification	Frequency (push)	TacCIS upgrades and updates arrive as 'big bang' versions, usually separated by years;	Users able to seek 3rd party apps integration within in-service BCIP;		(Cross-section joint users) indicate they are regularly exposed to TacCIS improvements;	User feedback indicates improvements are delivered frequently;		
			Responsiveness (pull)	Increasing obsolescence of some capabilities has added urgency to the user's requirements for responsive change requests. Recent experience with UOR has shown how CDR products can be procured and fielded quickly;	• Indicators of user experiencing benefit	Feedback from [Info CapDev, Lessons, etc.] indicates user feedback is engaged in the 'Demand' for TacCIS;	Feedback from [Info CapDev, Lessons, etc.] indicates user feedback is engaged in the 'Demand' for TacCIS;	Feedback from [cross-section joint users] indicates there is acquisition responsiveness to change requests and lessons (need, threat, feedback from use, lessons learnt);		
			New Tech Accessibility	User experience with commercially available devices or networks have shaped perceptions that current capabilities could be modernised. Comparison against capabilities utilised by NATO allies also shapes perceptions;	• Assessment based on BCM experience, user feedback and other indicative or qualitative measures	* Feedback from [cross-section joint users] indicates user feedback is engaged in the 'Demand' for TacCIS;	Feedback from [cross-section joint users] indicates user feedback is engaged in the 'Demand' for TacCIS;	User feedback indicates progress to emergent requirements (e.g. new technologies) over years of their emergence;		
				Replacement and maintenance will need to be scaled and force-packaged as required. As the force deploys extended lines of communication (e.g. STRIKE), it will be vital that CDR fully supports logistic ESs;	Maturity (Indicators of Pg delivery)			Feedback from [FdArmy Sp planning, MARITIME, AIR] indicates feel able to influence the rate and scale of TacCIS change;	Feedback from [FdArmy Sp planning, MARITIME, AIR] indicates able to manage change within constraints of FORM;	Feedback from [FdArmy Sp planning, MARITIME, AIR] indicates TacCIS and platform CDR infra changes are regulated within their tolerance and communicated;
			Architecture Control	Clearer 'design' interface capabilities (e.g. Service BOP, S, FAULTS and other systems), interfacing is restricted to gateways - if at all.	Fielded BMA within in-service BCIP follows modular software design principles;	MOD owns delaminated & open TRINITY architecture & MORPHEUS architecture;	MOD is (demonstrably) the coordinating Design Authority (DA) for TRINITY and MORPHEUS;	Fielded architectures are delaminated and open - coherent with DaaP;	Fielded TacCIS architectures are: open, delaminated, DaaP compliant;	
			Army Operating Model	Systems design and flexibility of MOD capability acquisition have prevented incremental refreshes and introduction of new technology.	Fielded BMA within in-service BCIP enables user feedback;	"Demand" model operating - capability requirements and in-service feedback;		Able to test, integrate, accept and field ECD Capability Release;	Enterprise functions and architectures are demonstrably integrated across the D3GA;	
			ECD Operating Model	TacCIS upgrades and updates arrive as 'big bang' versions, usually separated by years;	Ability to test EvO releases agnostic of vendor;	Full test, reference and platform installation functions are owned and managed by MOD agnostic of vendor;	Common core SW services exploitable by all TacCIS Apps;	The first ECD business case is approved and Delivery Model is initiated;	Defence sustaining TacCIS through the ECD Operating Model;	
			Capability Releases				Able to change TacCIS user devices, introduce new apps and refresh network bearers independently of one another;	Programme ECD governance framework and operating model in place and ready for use;	Capability releases demonstrably delivered through ECD supported by competitive supply chain;	

Judge whether indicators observable

E.g. Judgement at milestone

	Level 1	Level 2	Level 3	Level 4	Level 5
Increased Frequency of Updates	1.0	1.0	1.0	1.0	1.0
Reduced Cost and Personnel Assets	1.0	1.0	1.0	1.0	1.0
Increased Operational Tempo	1.0	1.0	1.0	1.0	1.0
Increased Operational Agility	1.0	1.0	1.0	1.0	1.0
Improved Logistics	1.0	1.0	1.0	1.0	1.0
Reduced Cost	1.0	1.0	1.0	1.0	1.0

Output

Full Table

Benefit (or Category)	Description	Key words	Level 0 - Baseline	Level 1	Level 2	Level 3	Level 4	Level 5
Timeliness of capability upgrades	Time taken to plan, approve, test and effect a capability change (at varying scales and complexity)	Frequency (per d)	TacDS capabilities and updates arrive as planned conventions, usually reported by month.	User able to integrate 3rd party apps integration within in-service BCP.	End user (Indicators of benefit to user) Feedback from (Delivery Support wing, MRD T&A, AIC) indicates ability to influence the rate and scale of TacDS changes.	Feedback from (Delivery Support planning, MRD T&A, AIC) indicates users able to manage change within constraints of readiness.	Cross section joint users indicate they regularly engaged for TacDS improvements & aware they can discuss with all meeting commitments.	
		Responsiveness (per d)	Increase regularity/dense of some capabilities has added urgency to the user's requirements for responsive change requests. Recent experience with UOR has shown how CDS products can be produced and fielded quickly – demonstrating that procurement can be more responsive.		Feedback from (Info CapDev, lessons, Trg Warfare Dev) indicates earlier feedback for reporting future capability requirements and in-service feedback.	Feedback from (Info CapDev, lessons, Trg Warfare Dev) indicates that the programme is responsive to their evolving requirements for TacDS.	Feedback from (cross-section joint user) indicates there is acquisition responsiveness to change requests and reasons heard (need, threat, feedback forum etc).	
		New Technologies Entry	User experience with commercially available devices and networks have shaped perceptions that current capabilities could be modernised. Comparison against capabilities offered by NATO allies also gives perspective it is not that current CS hinder evaluation of emerging technologies.		Feedback from (cross-section joint users) indicates there are reduced barriers to bringing the latest CS technological options into service.	Feedback from (cross-section joint users) indicates emergent off-the-shelf CS technological options are integrated and exploited quickly.	Feedback from (cross-section joint users) indicates new enabled to evaluate how TB, CS technological as part of in-service equipment.	
		Multiple Beneficiaries	There is not a common / one stop shop as yet, post on-line register of TacDS, looking to house TacDS as an employment network. Subsequent exercises with differing configurations, Node development or planning, operations, meeting readiness requirements etc. Mutual compatibility between TacDS baselines is hampering realisation of benefits across TacDS.		Feedback from (logistics) indicates ease of tracking technological options and techniques (e.g. standards across MRDRB & TRINTT) may provide better tracking/benchmarking.		Feedback from (TacDS systems managers) indicates early awareness by backwards compatibility across multiple baselines. There is end-to-end visibility of most configuration changes across TacDS.	
					Maturity (Indicators of Programme delivery)			
	Architectural Control	Close cooperation between a full set of architectural federation between capabilities (e.g. between BOPF, S, FACON and other systems), interfacing is restricted to gateways – if at all.	Federated BOPF within in-service BCP follows modular software architecture and provides interfaces and enables 3rd party app hosting.	MOGown developed and open TRINTT architecture & MORPHEUS with features.	Federated TRINTT and MORPHEUS architectures are demonstrated and open affecting various core services exploitable by TacDS.	Federated MORPHEUS self-hosting Design Authority (DA) for TRINTT and MORPHEUS.	Federated TacDS architectures are open, vendor independent, demonstrated across all capabilities (e.g. visual phenomena, Morphous, Trinity others).	
	EC2 Operating Model	Flexibility and responsiveness of MECO capability introduction processes have prevented incremental nature of decisions being applied almost independently of one another. This has constrained the frequency of change. Change driven through identification of obsolescence issues and technology refresh agreement is constrained by tempo of capability management and its ability to be responsive to user needs. Field rights to be planned in the medium to long term in order to avoid disruption to training and exercise schedules. The smooth execution of fielding is hampered by changes in delivery date risks.	EC2 baseline Capability model defined.	Ability to prioritise future changes through clearly defined roadmap and a portfolio of capability need, operation & feedback and tech obsolescence drivers.	There is demonstrable intimate user engagement throughout all types of the model and management of continuous evolution, testing, adaptation, to meet agreed delivery schedule.	Ability to field multiple and consistent baselines within the constraints of force predictability and generation.	The transformation is institutionalised, it has allowed change through EC2, reduced risk/benefit, and generated evidence to justify approval for the next 5 year epoch.	
	EC2 Governance (Inc. Approval)	Focus of efforts aligned around reduction in use of artefacts (TRF work releases), leading to a shift of Systems Of Systems coherence.	Governance model defined.	Programme level approach, approach exists and, appropriate financial delegation has been issued for the programme.	EC2 governance framework providing coherent change management across interventions, increments and spins.	A change has been delivered through the next (Controlled and Uncontrolled).	The governance is institutionalised, change is delivered through EC2 road and military benefit, and approved for the next 5 year epochs in place; multi-change planned within the pipeline.	

Maturity Matrix:
6 levels of indicators
(A3 sheet per benefit)

Are indicators observable ?

E.g. Judgement at collection

	Issue 1	Issue 2	Issue 3	Issue 4	Issue 5
Increased Technicality of Capital Structure	0.00	0.00	0.00	0.00	0.00
Reduced Capital and Physical Assets	0.00	0.00	0.00	0.00	0.00
Increased Operational Targets	0.00	0.00	0.00	0.00	0.00
Increased Operational Agility	0.00	0.00	0.00	0.00	0.00
Increased Capital	0.00	0.00	0.00	0.00	0.00
Reduced Debt	0.00	0.00	0.00	0.00	0.00

Output

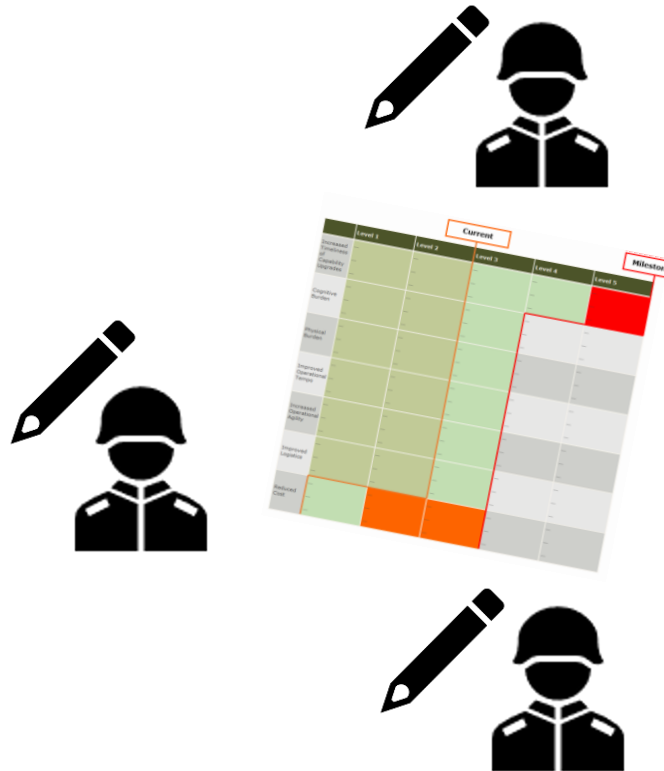
Output summary diagram:
Graphical summary diagram

			x5 Levels →	
Cognitive Burden	Cognitive - ease of use (interfaces, easy to remember, intuitive etc)		Baseline	Evidence Impact for the Soldier
		Network Management		
		Usability		<i>Evidence & feedback relating to [TARGETTED USER GROUP] indicates that...</i>
		Skills fade		
			Baseline	What has the Programme done?
		Automation		
		Apps HMI		<i>Software Applications x & y fielded to Full Operating Capability</i>
		Doctrine		

Land Environment Tactical Comms & Information Systems (LE TacCIS)

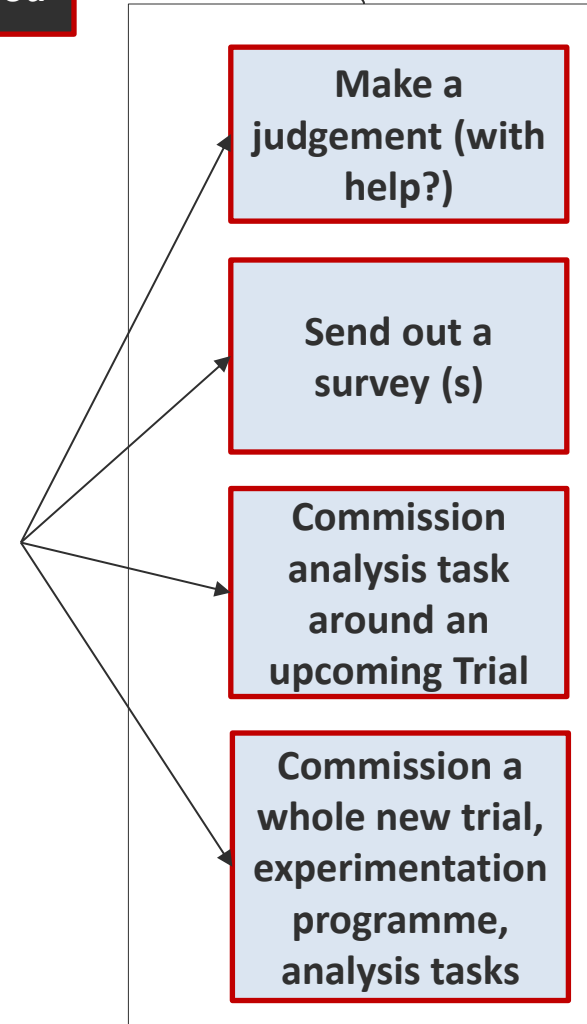
Programme Board

The Matrix – A Supporting Method



Staff Officer ahead of the Board meeting (or any time) could

***Customer decides
what's right for them at
the time and part of the
programme...
supported/steered by
the soft method***



Pros

- It survived
- Enforcing focus on ‘benefits to the soldier’
- Transparency
- Excel, A3, highlighters
- Encourages some analysis structure – and records – at Prog. Board level
- Nothing new/radical

Cons

- No ‘hard-wired’ link to supporting evidence and analysis
- Minimum input: judgement only
- Vulnerable to bias
- Excel, A3, highlighters
- Maturity level ‘indicators’ could be altered: not a fixed KPI, a number
- Nothing new/radical

The Maturity Matrix

- It's still going(!)
- Detailed analysis results could be fed/presented to Programme Boards.
 - Seeks specific evidence from:
 - Bespoke Studies
 - Bespoke Modelling
 - Surveys & assoc. analysis
 - Training data
 - Experiments
- Customer was free to operate it and commission/seek wider evidence as needed.

