Innovation in Procurement: a Public sector case study

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Agenda
1. What works? ... Diggerworks!
2. Some core requirements for procurement innovation in complex ‘public’ circumstances
DIGGERWORKS

Three key elements to moving public sector procurement to best practices

Strong and clear leadership (of the opportunity)
Alignment of numerous parties with the outcome goal
Process Integration of stakeholders (goals, activities, measures)

And don’t forget the governance too...
Governing innovation in an extremely constraining environment – lessons from Diggerworks

The Problem

ADF Combatant 1999

ADF Combatant 2010 (Xmas tree)
On the surface

Troops frustrated
  – Soldiers in Iraq equipped for East Timor
  – Soldiers in Afghanistan equipped for Iraq

Troops over-burdened
  – Walking loads up to 80 kg

Local manufacturers upset at imported equipment

Troops didn’t trust DMO

Chief of Army inundated with complaints

DMO had large stores of obsolete equipment

Quality problems with equipment
A little deeper

Strategic environment and technology change faster than procurement cycle

– Timor → Aceh → Solomon Islands → Iraq → Afghanistan
Deeper still – firing on all cylinders: **separately**

- **ARMY**
  - Sets requirements and soldiers on

- **DMO**
  - Procures and sustains

- **DSTO**
  - Researches

- Best available components – for a different time and place
- Components were not integrated
- Soldiers, politicians and local industry lose confidence in system
As the capability manager, Army had an imperative to provide close combat soldiers with the best possible equipment.

CDG have a responsibility to define the future capability requirements on behalf of Army and needed a more effective means of delivering real Soldier System enhancements through DCP funding.

Simply sustaining the existing Soldier system was not meeting the needs of soldiers and DMO needed find a way to deliver incremental enhancement of the Soldier System.

DSTO needed a stronger link to the Soldier System stakeholders to be able to influence capability development and acquisition decisions and to guide iterative development through user centred design.
Diggerworks Focus

- Integrate current soldier combat systems:
  - Reduce the burden
  - Increase survivability:
    - Protection
    - Mobility
    - Lethality
    - Dismounted Situational Awareness
    - Sustainability
  - Improve interoperability.
- The soldier and the Tactical Small Unit
The Strategy

Diggerworks

- Stakeholder Partnership
- Adaptive Acquisition
- Innovation Strategy
  - User Centred
  - Threat Directed
  - Evidence Based
  - Research Enabled
Stakeholder Partnership

Partnership Principles: • Shared Goals • Trust & Respect • Risk Acceptance
Partnership
Memorandum of Understanding
Adaptive Acquisition
Buy Less, More Often

No longer is everyone equipped the same:

Tier 1 – Specialists
Tier 2 – Close Combatants
Tier 3 – General Combatants

The close combatant is treated differently.
Adaptive Acquisition:
Force Generation Cycle = Fixed Delivery Deadlines

<table>
<thead>
<tr>
<th>Yr 0</th>
<th>Yr 1</th>
<th>Yr 2</th>
<th>Yr 3</th>
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<tbody>
<tr>
<td>Ready</td>
<td>Reset</td>
<td>Readying</td>
<td>Battle Group on Operations</td>
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<tr>
<td>High Readiness &amp; Operations</td>
<td>Reconstitute &amp; Individual Training</td>
<td>Collective Training &amp; Force Preparation</td>
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<tr>
<td>Op Feedback</td>
<td>User Need Refined</td>
<td>Integration &amp; Testing @ Diggerworks</td>
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<td>Refined Tender Spec</td>
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<td></td>
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<td>Acquire &amp; deliver new System</td>
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<td>Modify</td>
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2 Yr Turnaround

DMO DSTO
Adaptive Acquisition
User Centred Cycle

Support the User
The system must be integrated with the soldier. Fitting, training and adapting the system to user feedback is vital to soldier system success.

Learn from Operations
Gather and respond to insights from real users, conducting real tasks and confronting real world threats.

Respond & Adapt
Monitor and adapt to the threats being encountered and emerging technological opportunities to improve the performance/burden balance.

Evidence based
Capability decisions must be based on the best available evidence gathered and assessed in a timely manner.

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Support the User
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Threat Directed

Casualty & Protective Equipment Analysis

Returned Armour Assessment

Tailored Models

SCE Targeted Individual & Team Deployments

Returned Personnel Debriefs
Evidence Based & Research Enabled

- Ballistic Vulnerability
- Physical Capacity
- Advanced Materials
- Returned Armour
- Signature Management
- Cognitive Load, DBMS Interaction
- Injury Mechanisms
- Burden: Thermal, Load, etc
- Performance Measurement & Modelling
- Anthropometry
- Ergonomics/Field Evaluation

Etc ........
Defence Technology Innovation Space

System Readiness Level (SRL)

Technology Readiness Level (TRL)

- IMMATURE
- MATURE

- Diggerworks
- Defence Minors
- RPDE
- CDG
- PIC IP
- DMO
- CTDE
- DSTO
- CERP
- DSTO
- CTD
- DSTO

IQ1
IQ2
IQ3
IQ4

1
5
9

IMMATURE
MATURE
DMTC Project TRL Map

DMTC also conducts projects that feed directly into platforms and production lines e.g. automated welding.

Majority of DMTC projects look to develop technology from TRL 3-4 up to around 6-8.

DMTC also conducts fundamental research projects that feed into larger programs e.g. new material characteristics.
**DMTC Personnel Survivability Program 7**

DMTC Program 7 has been established and funded $7.5M cash leveraging $20M in-kind, 5 years. Currently 4 technical thrust areas:

<table>
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<tr>
<th>Technology Group</th>
<th>Technology Outputs</th>
<th>Project Number &amp; Name</th>
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</table>
| **7.1** Hard Armour Systems       | Plate Technologies  
   Helmet Technologies                                                                     | 7.1.1 Ceramic Armour Technology                             |
|                                   |                                                                                     | 7.1.2 High Curvature Body Armour                            |
| **7.2** Soft Armour Systems       | Enhanced Ballistic Protection  
   Lighter Weight Ballistic Protection                                                      | 7.2.1 Improved Anti-Ballistic Soft Armour                   |
| **7.3** Advanced Fabric Technologies | Physical Protection  
   Habitability  
   CBR                                                                                   | 7.3.1 High Strength Fabrics for Combat Clothing            |
|                                   |                                                                                     | 7.3.2 Fabric Treatment for Improved Habitability            |
| **7.4** Power Generation and Mgt  | Individual Power Generation  
   Individual Power & Data Distribution  
   Individual Power Storage.  
   Integration of Power and Data Systems                                                | 7.4.1 Portable Power Generation and Storage                |
|                                   |                                                                                     | 7.4.2 Power and Data Integrated T-BAS                       |
The Result

so far

Went from worst equipped to best

ADF Combatant 2010

ADF Combatant 2012
TBAS – Tier 2 (6.8 kg)

MCBAS (11.0 kg)
**Integrated removable knee pads**

**Current Version 5 Terra Combat Boot**

**2013 Afghanistan Equipment**

**AMP Combat Trousers**

Stretch panels to facilitate body movement (rear waist, crotch, knees)

**Pelvic Protection System:**
- Tier 1 (under garment, not visible)
- Tier 2 (over garment, not shown)

**Integrated removable elbow pads**

**LA 5 Aiming Device**

**AMP Combat Shirt**

**Tiered Body Armour System** (includes load carriage, ammunition pouches and belt)

**Garmin Foretrelx GPS** (under shirt sleeve)

**F88SA2 Rifle**

**AMP Combat Trousers**

**AMP Fields Shirt** (not shown)

**AMP Hat** (not shown)

**MultiBand Inter/Intra Team Radio, Whip Antenna, Holster, Battery and Headset** (on back, whip antenna visible)

**NINOX NVG and WILCOX mount** (not shown)

**NINOX NVG and WILCOX mount** (not shown)

**Soldier Personal Radio, Switch Pack and Headset**

**Australian F88 Advanced Combat Optical Gun Sight**

**Ballistic and Laser Ocular Protection System (Sunglasses)**

**Hydration System** (on back)

**Integrated removable knee pads**

**Current Version 5 Terra Combat Boot**

Field Packs available for use (not shown):
- Sniper/Spec Packs (new), Medium Assault Pack, Small Assault Pack (Special Forces only) and Large Field Pack 05

**Combat Gloves**
Outcomes delivered through **Diggerworks**

Some of the
Governance

Champions for Partnership
AHQ – MAJGEN Caligari
DMO – MAJGEN Cavanaugh

Top Down Partnership
Army Capability Integration Board
DSTO – Dr Oldfield
CDG – BRIG Rerden

Integrated Soldier Systems Branch
DMO – BRIG Phelps

Director Partnership
Diggerworks Stakeholder Group
AHQ – COL Gabriel
DMO – COL Blain
DSTO – Dr Beagley
CDG – COL Saddlington
JOC – COL Goodyer
Navy, Air, JHC, CIED

Delivery
Integrated Team
Diggerworks
Army
CDG
DMO/LEA
Navy
Air
JHC
CIED

S&T Capability

CASPEAN
DSTO - Radtke

Innovation

CSIRO
Dr Humphries

DMTC 7
CEO – Dr Hodge
DSTO – Radtke
DMO – Foreman

Combined S&T Plan
Dr Patterson
[LOD, WSD, etc]

CTD

Deliver Enhanced Combat Ensemble to the Soldier

Adaptive Acquisition

At a glance

CTD

At a glance

S&T

At a glance

Governance
The problem:

Innovators must balance knowledge creation and control
- Low control – knowledge-creation lacks direction
- High control – kills creativity

The military has high barriers to innovation
- High control culture
- Complex organisational environment
- Hierarchical – Three agencies with three ministers
From Mass Production (trench warfare) to Flexible Specialisation (local teams)

Technical Innovation:
- Import components
- Innovate components
- Configure components

- e.g. Boxer shorts
- e.g. Kinetic batteries
- e.g. Tiered armor
From Mass Production (trench warfare) to Flexible Specialisation (local teams)

Technical Innovation:
- Import components
- Innovate components
- Configure components

Management Practices:
- Delivery system (Ops and innovation)
- Governance system
- Leadership
Delivery and innovation systems

• Knowledge creation
• Communication
• Bureaucratic barriers
From Mass Production (trench warfare) to Flexible Specialisation (local teams)

Technical Innovation:
• Import components
• Innovate components
• Configure components

Management Innovation:
• Import practices
• Innovate practices
• Configure practices

Management Practices:
• Operations delivery
• Innovation delivery
• Governance

Gruntworks
Adaptive acquisition
Reclassification
A package that fits the constraints
Governance system and leadership

- Objectives and approach
- Knowledge management
- Procurement
- Climate
- Leadership
Beyond the military

Critical role of leadership

• Frame the problem
• Create the solution environment
  • Structural arrangements
    • Knowledge management
    • Communications
    • Barriers
  • Climate
• Maintain the solution environment

Critical role of governance

• Manage difficult decisions and relationships
• Push responsibility up and credit down
Development of an Integrated Soldier System through successive and considered enhancement
DIGGERWORKS

Three key elements to moving public sector procurement to best practices

Strong and clear leadership (of the opportunity)
Alignment of numerous parties with the outcome goal
Process Integration of stakeholders (goals, activities, measures)
And don’t forget the governance too...

(These are common to public sector best procurement practices, eg Sydney Olympics, NSW government public housing maintenance)
Procurement Innovation: a modern approach
Business Building Blocks: The connections matter!

**PROCUREMENT STRATEGY**

What is your competitive positioning?

**PROCUREMENT OPERATING PRACTICES**

What is key do delivering the strategy?

**PROCUREMENT BEHAVIOUR AND CULTURE**

Do they drive the operations in the right (strategic) direction?

**REWARDS & RECOGNITION OF PROCUREMENT**

Do they reinforce the strategy?

**MEASURES OF PROCUREMENT PERFORMANCE**

Are we measuring and reporting the right things?

- Innovation in procurement?
- Set up and resource for Innovation in procurement practices!
- Behaviour/ culture of Innovation in procurement practices!
- Measure/ KPIs for Innovation in procurement practices?
Innovation: Why collaborate?

- Reduce costs
- Deliver consistent quality
- Increase resilience
- Pool scarce resources/expertise
- Migrate to best technology platforms
- Share risks: reduce risks!
- Increase purchasing power
Collaborative procurement options

- Professional networks
- Lead buying
- Shared services
- Piggy backing
- Third party advisory
- Third party purchasing
- Third party outsourcing
Consortia

The Market

Central Procurement

Buyer

Buyer

Buyer

Buyer
Collaboration strategy

(Derived from Huxham, 1996)
So let's examine 10 Fundamental Strategies and Best Practices to consider embracing to “Achieve Procurement & Supply Chain Excellence”

1. Establish a governing council
2. Align the supply chain organization
3. Recruit procurement / supply chain professionals
4. Set the Strategic Sourcing strategy
5. Establish key supplier alliances
6. Manage Total Cost of Ownership
7. Manage compliance and Risk
8. Optimize owned inventory
9. Gather / report information on a timely basis
10. Establish processes and controls

Many of these introduce opportunities to innovate!
Questions