

The background is a composite of military-related images. The top half shows a line of military vehicles, including a large truck and a smaller utility vehicle with 'XC28AA' on its side. The bottom half shows a group of soldiers in a landing craft on the water, with a soldier in the foreground silhouetted against a bright light, holding a camera or binoculars. A flag is visible on the right side of the bottom image.

Suppressing Sacred Cows

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- Introduction.
- Targetry – From data through information to knowledge!
- Trial Results – A platform for improving shooting training?
- Reconciling Training Expectations & Trial Results.

SDE Location & Core Activities



...Adding Value...

The SDE Team



...Adding Value...

Our Customers

SDE



Forsvarets
forskningsinstitutt



Cranfield
UNIVERSITY



Qioptiq Imaging Solutions



Aerospace Defence Technology



THALES

NAVAL



MSI-Defence Systems Ltd

...Adding Value...

A faded, grayscale background image showing a military helicopter on the left and several military vehicles, including an M113, on the right. The vehicles are in a field, and there are soldiers visible around them.

Live Fire Intelligent Target



Brief History

SDE®



...Adding Value...

Characteristics – Shot Detection



- **Accurate detection of high velocity projectiles.**
- **Detection window 30m x 30m (Calibre and Sensitivity Setting Dependent).**
- **Detection (HV) up to 45° from either side of target centre.**
- **Radio Controlled (3 -4 km) & GPS for UTC.**
- **PC at every target for instant decision making and subsequent target behaviour.**
- **Allows sufficient scope for most realistic trial scenarios and LFTT.**



Live Fire Intelligent Target (LFIT) SDE



Live Fire Intelligent Target (LFIT) SDE

The 'intelligent' targets capture the **time and position** (in 3D-space) of all shots that pass within close proximity to the target. The software processes this information to determine whether that specific shot would have resulted in a **kill, incapacitation or suppressive effect**

The **LFIT** simulate the response of a potential enemy to the effectiveness of the incoming fire from the exercising troops and the **targets respond 'intelligently' to the incoming fire**, in an autonomous manner

Connect

Initialise

Arm All

Active Targets

Target 1...

Not Connected

Target 2...

Not Connected

Target 3...

Not Connected

Target 4...

Not Connected

Target 5...

Not Connected

Target 6...

Not Connected

Target 7...

Not Connected

Target 8...

Not Connected

Optical Target...

Not Connected

Mute Comms Error Warnings

Raise All

Lower All

Target Type...

NATO: Foxhole (Trench)



X Offset... 0 ...mm Y Offset... 1460 ...mm

Target Behaviour Mode...

Full Suppression

Fall On Hit Options...

Incapacitate After... 4 ...Hits

Suppression Options...

Suppression Zone Size... 1000 ...mm

Fall On Suppression Options...

Suppression Time... 5 ...s

Full Suppression Options...

Achieve... Number Of Rounds... 10 Time Period... 30 ...s

Maintain... Number Of Rounds... 2 Time Period... 5 ...s

Re-Supp... Number Of Rounds... 5 Time Period... 15 ...s

Use As Switch Target

Switch From Target Number... 6

(All data will be written to this target database)

Use V

Base Length...

Rogue Shots

- Upper Bou
Lower Bou
Left Bound
Right Bound

Sensor Setup...

Acoustic Gain... 50 ...%

Detection Wind... 100

Use GPS

Latitude... 55.280094

Longitude... -2.116175

Altitude... 2.1

Speed... 345.05 ...m

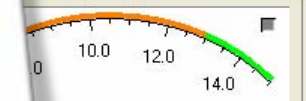
Heading... 10.17:7.771999999994

Report GPS Data

ment Factor...

...

age...



Volts

port Battery Voltage



X Offset... 0 ...mm Y Offset... 1045 ...mm

Change Target Address...

New Target Address... 5

Change Address

...Status...



Target Behaviour Mode...

Full Suppression

Fall On Hit Options...

Incapacitate After... 10 ...Hits.

Suppression Options...

Suppression Zone Size... 1000 ...mm

Fall On Suppression Options...

Suppression Time... 5 ...s

Full Suppression Options...

Achieve...	Number Of Rounds...	<input type="text" value="2"/>
	Time Period...	<input type="text" value="15"/> ...s
Maintain...	Number Of Rounds...	<input type="text" value="1"/>
	Time Period...	<input type="text" value="5"/> ...s
Re-Supp...	Number Of Rounds...	<input type="text" value="2"/>
	Time Period...	<input type="text" value="15"/> ...s

...Adding Value...

Trial / Serial | Target 5 | Target 7 | Monitor | Target Dimensions

Shots | Setup | Database

Connect
Initialise
Arm All

Active Targets
Target 1... Not Connected
Target 2... Not Connected
Target 3... Not Connected
Target 4... Not Connected
Target 5... Not Connected
Target 6... Not Connected
Target 7... Not Connected
Target 8... Not Connected

Mute Comms Error Warnings
Raise All
Lower All

Pop-Up Controls... ...Arm/Disarm On Raise/Lower

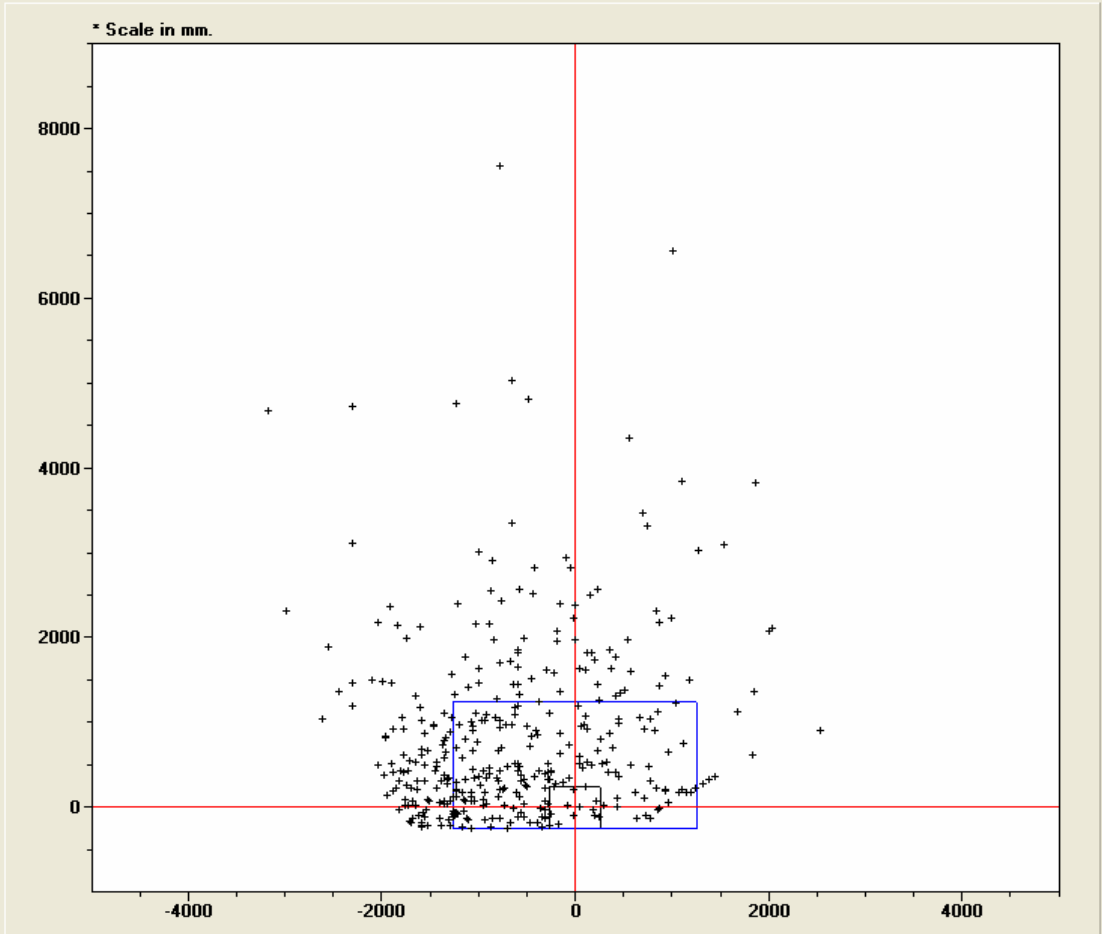
Raise... Lower...

Shot Number..... **636**
Velocity..... **0** m/s
Coordinates..... X **-1255** mm
Y **102** mm

Target Stats...
Pop-Up Active For..... **0** s
Rate Of Fire..... **63.3429** RPM
Total Suppression Time..... **0** s
Total Hits..... **15**
Total Suppressions..... **270**
Total Misses..... **351**

Display Controls...
Grid Lines... None

Clear Shots...
Reset...
Shot Numbers...
Show...

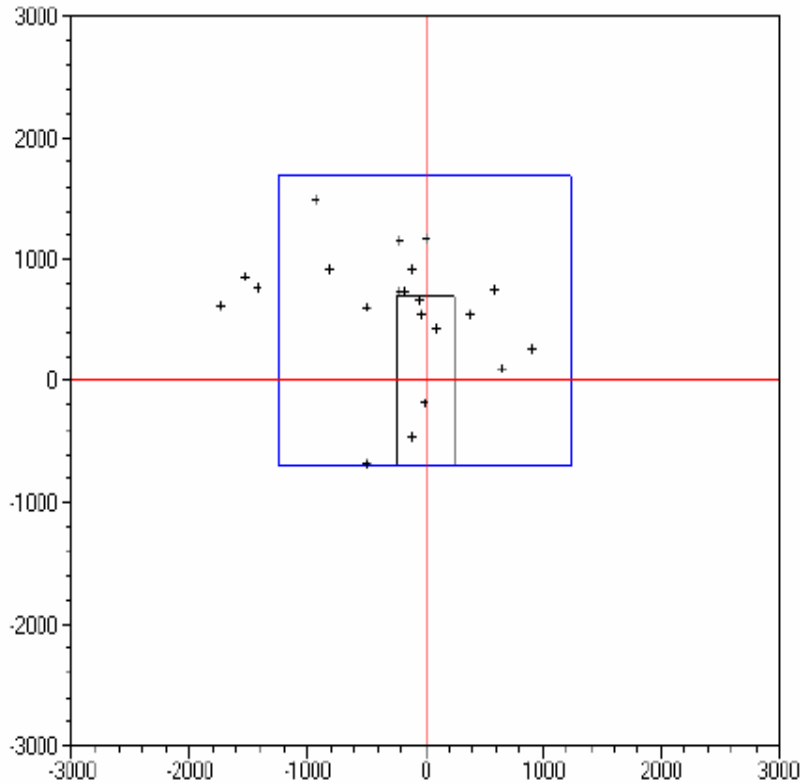


Copy To Clipboard

SHOT_NUM	PC_TIME	UTC_TIME	UTC_STAMP	TIME_STAMP	X_POS	Y_POS	VELOCITY	RESULT
454	11:52:52	11:52:57.285995	42777286	10182640	-306	-28	0	SUPP
456	11:52:55	11:52:59.161995	42779162	10184488	-921	194	0	SUPP
458	11:52:56	11:52:59.312000	42779312	10184638	-347	-229	0	SUPP
462	11:52:58	11:53:4.0959995	42784096	10189338	-1070	-242	0	SUPP

Errors...

Shots Display...



Trial Name... Section Attack Night 1 Nov

Serial Number... 21

Date... 01/11/2005



Target... 2

Primary Target

Parameters...

Suppression Zone Size (mm): 1000

Hits To Incapacitate: 10

Achieve...

Number Of Rounds: 2

Time Period (s): 15

Maintain...

Number Of Rounds: 1

Time Period (s): 5

Re-Establish...

Number Of Rounds: 2

Time Period (s): 15

Stats...

Serial Length (s): 218.33

Engagement Time (s): 54.96

Time To Initial Suppression: 56.77

Time To Last Shot (s): 174.93

Time To Incapacitation (s): N/A

Time Suppressed (s): 50.05

Time Unsuppressed (s): 129.88

Time Suppressed (%): 27.82

Time Unsuppressed (%): 72.18

Total Shots Recorded: 22

Total Hits: 4

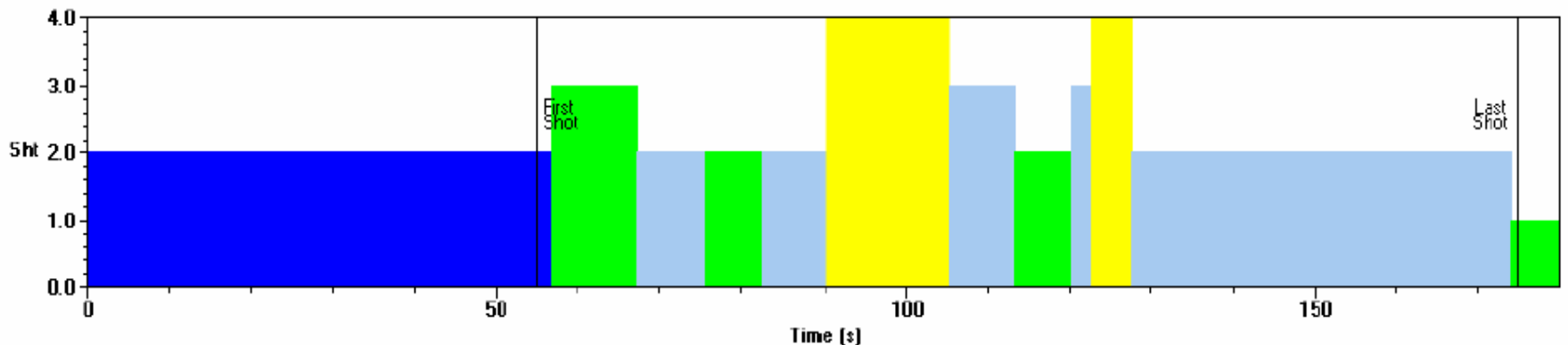
Total Suppressions: 14

Total Misses: 4

Total Shots After Incapacitation: N/A

Suppression Timeline...

Key: Achieving Suppression (Blue) | Maintain Suppression (Green) | Maintain Suppression (No Shots) (Yellow) | Re-establishing Suppression (Light Blue) | Incapacitated (Red)



Measures Of Effect (MOE) SDE

- Time to engage enemy;
- Time to achieve initial suppression;
- Duration of suppressive period provided by ammunition load;
- Proportion of shots that are deemed to have some effect upon the enemy;
- Proportion of task duration for which the enemy was suppressed;
- Time to kill the enemy;
- Rounds to kill the enemy.

Lethality Trial Results and Operational Shooting Requirement (OSR)



Infantry (Individual)



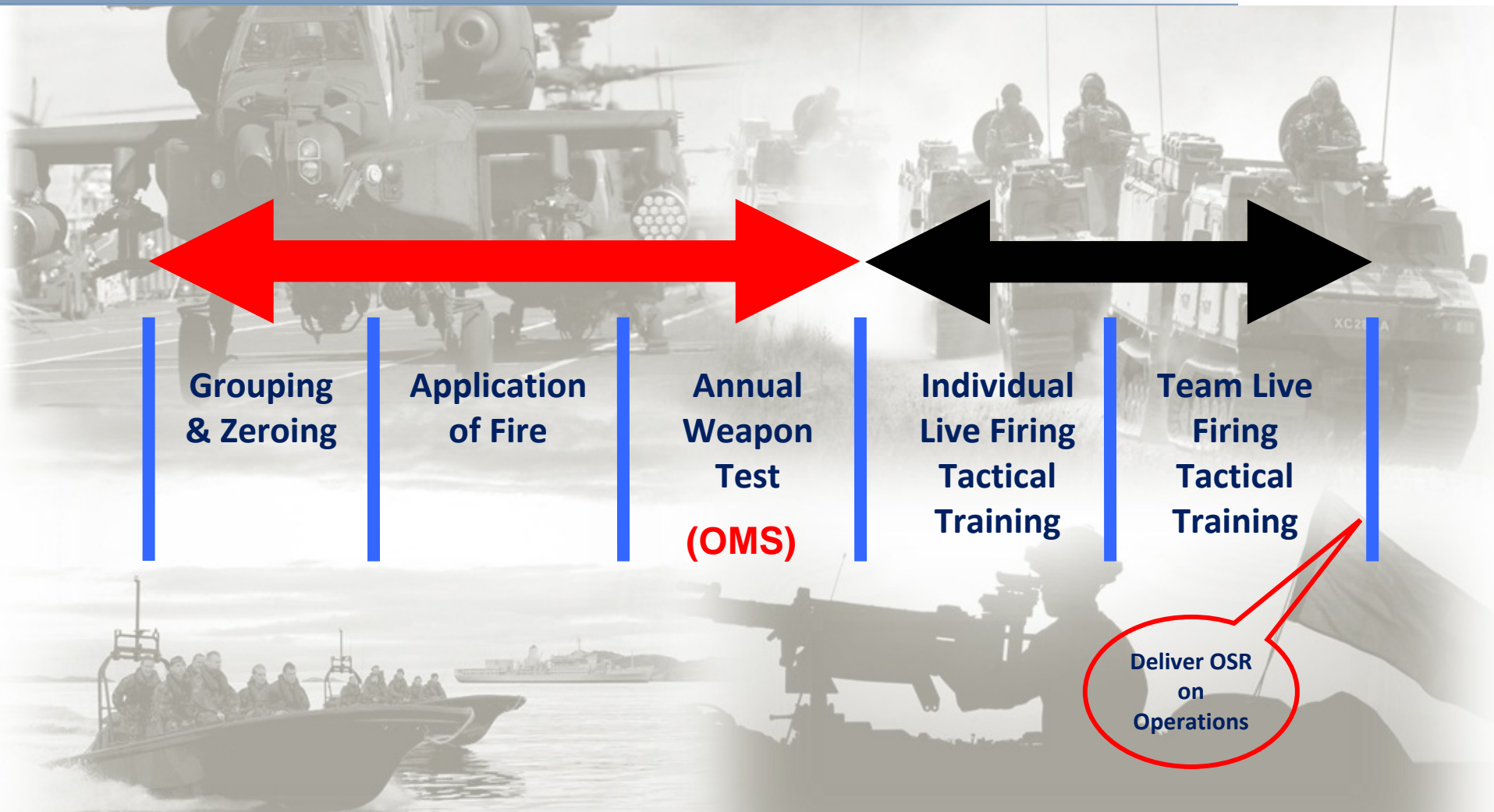
The Infantry soldier must be able to **react quickly** and to fire accurately **to kill or suppress** an enemy to the limits of the battle range of his personal weapon, or at close quarters, **from different static positions, on the move and from cover.**

Infantry (Fire Team)

**Four-man teams
must be able to
kill or suppress an
enemy in defence
and in offensive
operations at
battle ranges to
600 metres.**



Current Process



Measures Of Performance (MOP) SDE

- The Operational Marksmanship Standards (OMS) are Measures Of Performance.
- The Measured Performance is to achieve:

(h) % hits

at (r) range

on (t) target

Current Process



Achieve OMS = Deliver OSR

...Adding Value...

Potential Impact of Changes in Training Regime



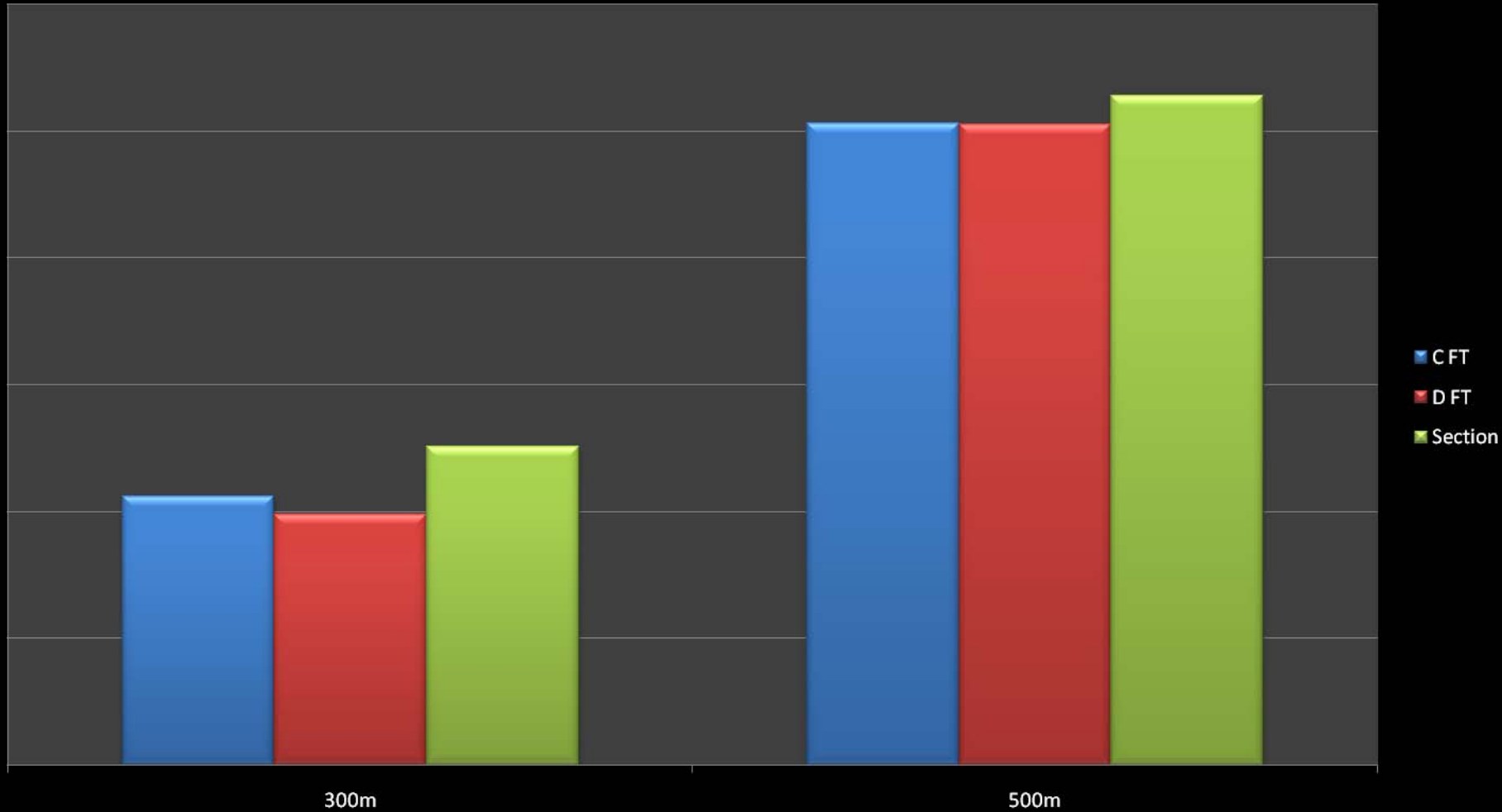
A Different Approach



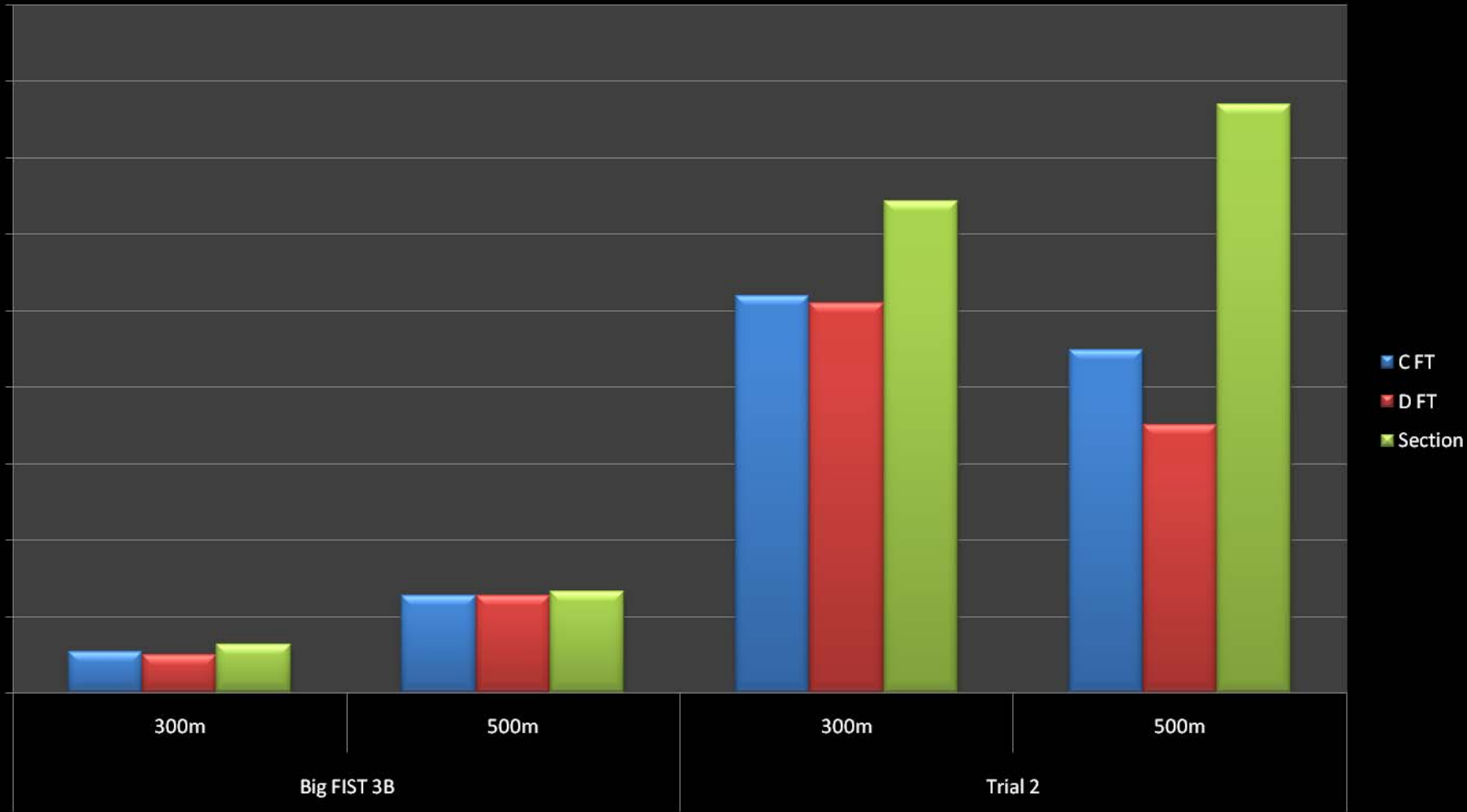
Potential Impact of Changes in Training Regime



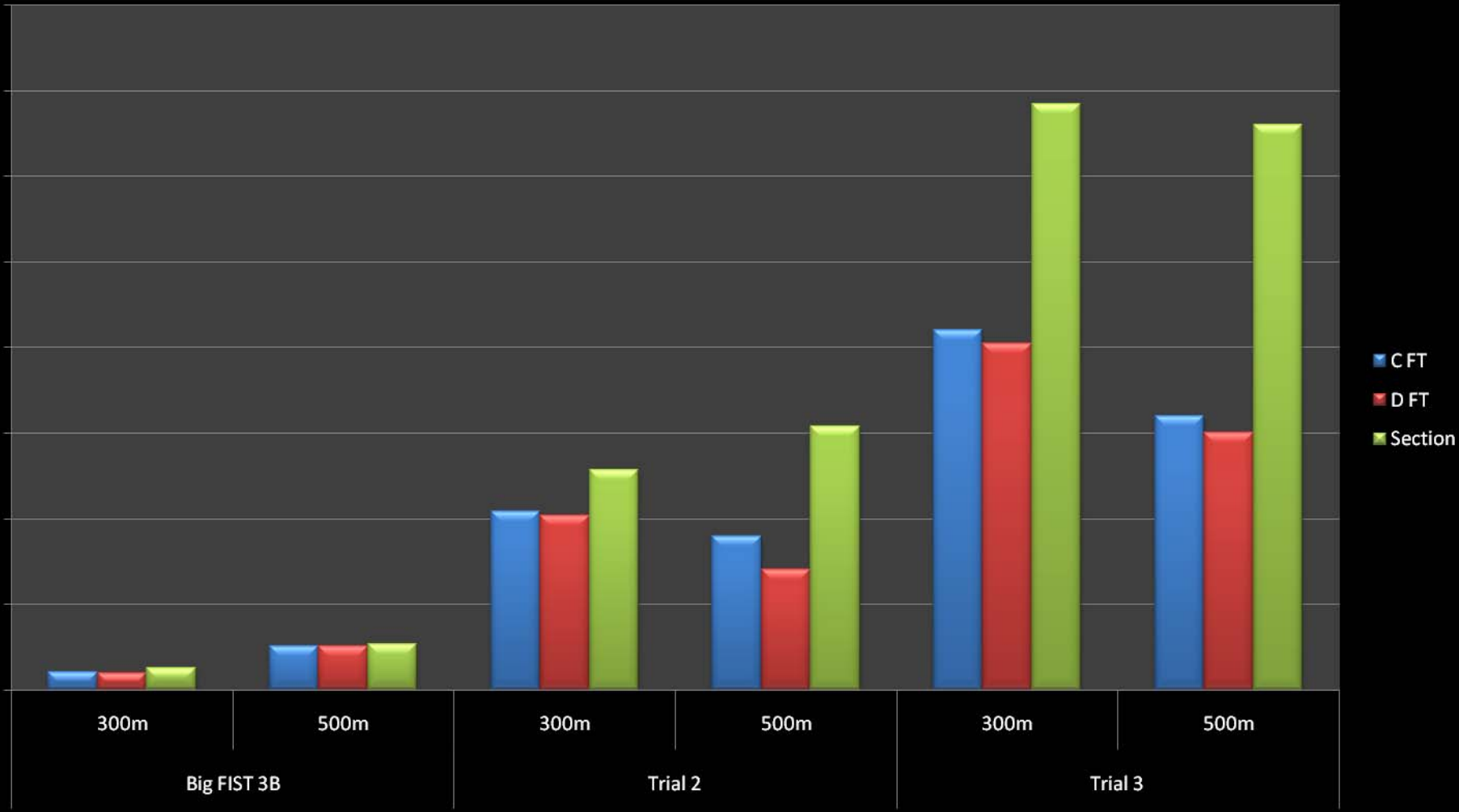
A Different Approach



A Different Approach



A Different Approach



- **FIT allows the effectiveness of live fire tactical training to be measured.**
- **FIT allows weaknesses in the delivery of lethal effect to be identified and improved.**
- **FIT assists with improved capability on the battlefield.**



- **demonstration to School of Infantry Mar 08.**
- **In negotiation with School of Infantry to provide LFIT service to all recruit and command courses up to platoon leader.**
- **Starting discussions with RAF Regiment.**
- **Discussions with HQ Land Command to support Pre Deployment Training (PDT).**

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