



# Optimizing Smaller Western Countries' Resource Allocation in Remote Warfare via System Dynamics Modeling

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# 1. Remote Warfare

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Training Support

Intelligence Support



## 2. Remote Warfare Stocks and Flow Model

Primary assumptions:

	Information	Force Size
COIN		
Insurgents		



## 2. Remote Warfare Stocks and Flow Model

### Inputs:

Iraqi Security Forces Size & Attrition  
Islamic State Size & Attrition  
Population Size

Recruitment  
Information Collected  
...



### Model:

#### What ?

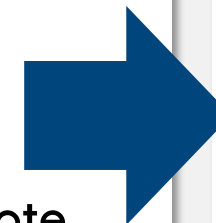
System dynamics modeling and simulation.

#### Why ?

To analyse the impact remote warfare components, training support and intelligence support have in a counterinsurgency.

#### Who ?

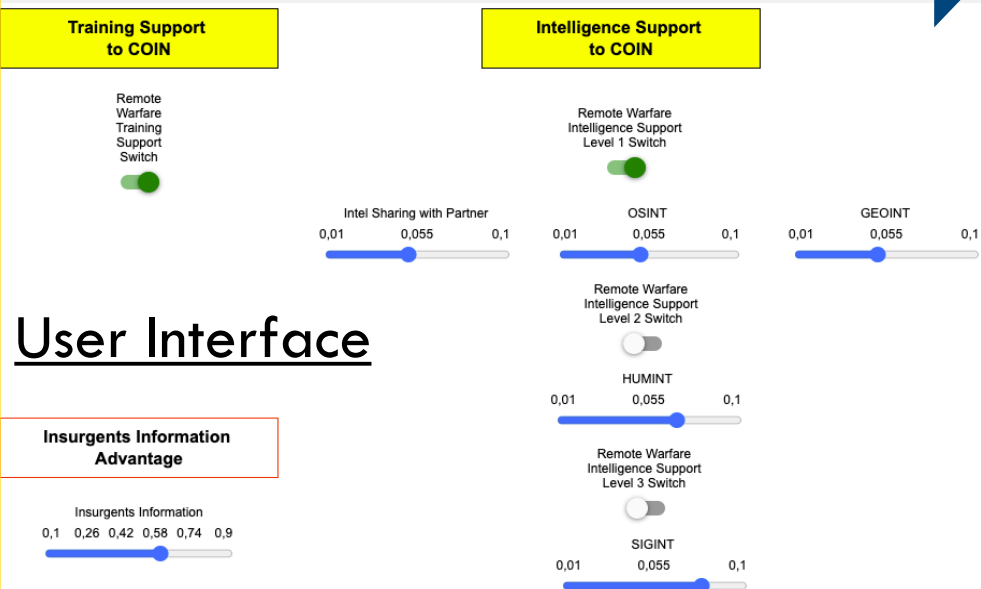
Maj Cédric Craninx under supervision of Dr. Wayne Porter.



### Output:

Trends during 36 months:

- Insurgents' Size
- COIN Size
- COIN Find & Fix Capability



### User Interface



# 3. User Interface

**Training Support to COIN**

**Intelligence Support to COIN**

Remote Warfare Training Support Switch

Intel Sharing with Partner

0,01   0,055   0,1

Remote Warfare Intelligence Support Level 1 Switch

OSINT

0,01   0,055   0,1

GEOINT

0,01   0,055   0,1

Insurgents Information Advantage

Insurgents Information

0,1   0,26   0,42   0,58   0,74   0,9

Remote Warfare Intelligence Support Level 2 Switch

HUMINT

0,01   0,055   0,1

Remote Warfare Intelligence Support Level 3 Switch

SIGINT

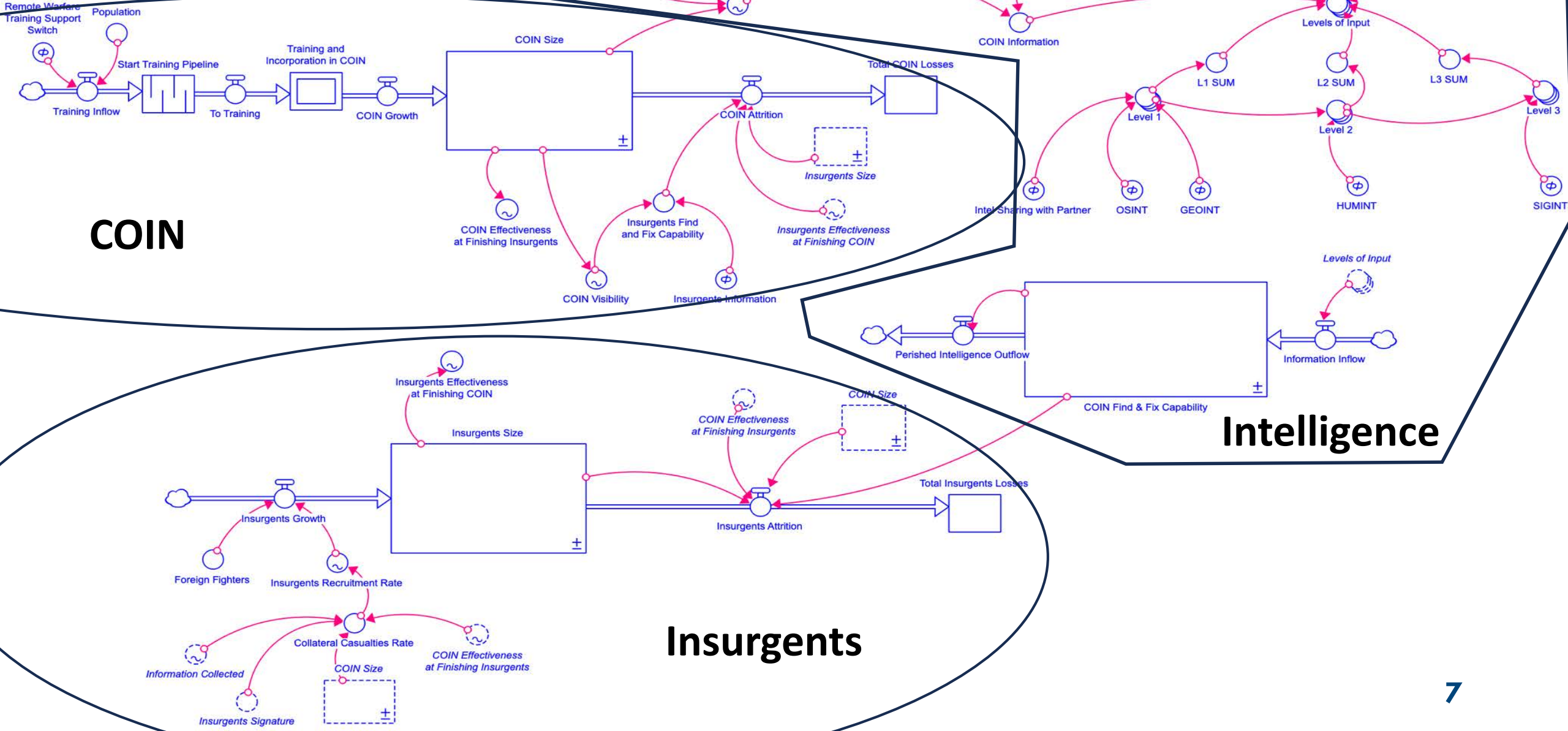
0,01   0,055   0,1

Level 1

Level 2

Level 3

# 4. Model

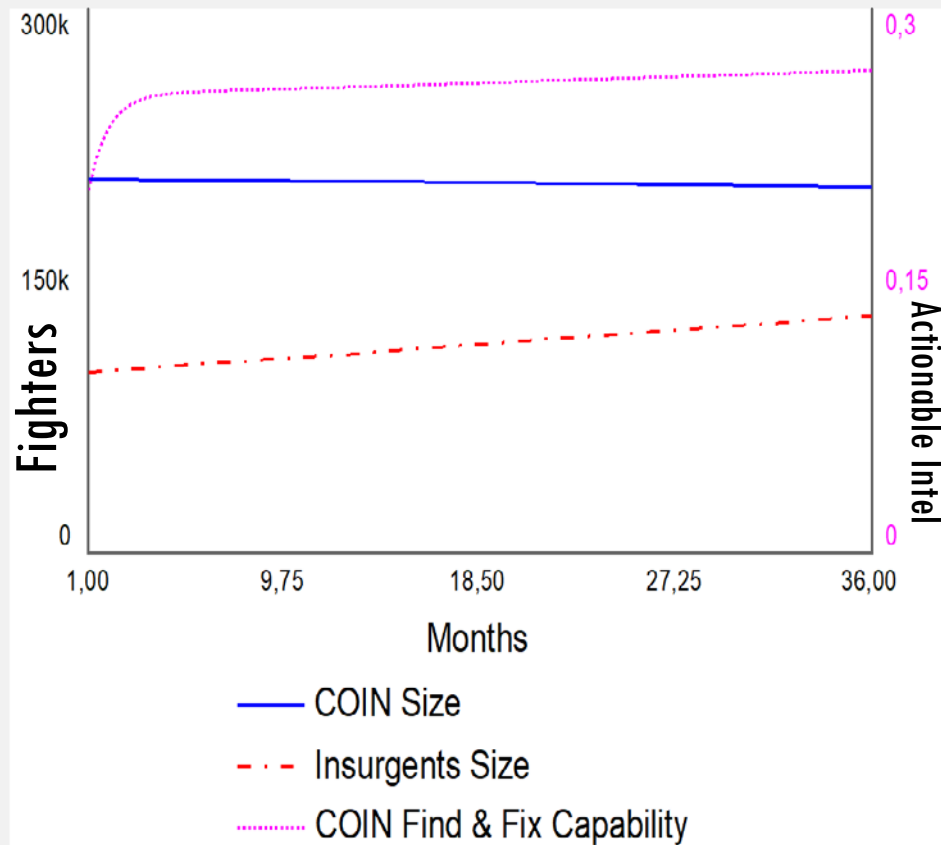






# 5. Data Analysis – Scenario 1

## No Support



	Insurgents Size	COIN Size	COIN Find & Fix Capability
1	100k	206k	0,2
2	101k	206k	0,237
3	102k	206k	0,248
4	103k	206k	0,252
5	103k	206k	0,254
6	104k	206k	0,255
7	105k	206k	0,255
8	106k	205k	0,255
9	107k	205k	0,256
10	108k	205k	0,256
11	108k	205k	0,256
12	109k	205k	0,257

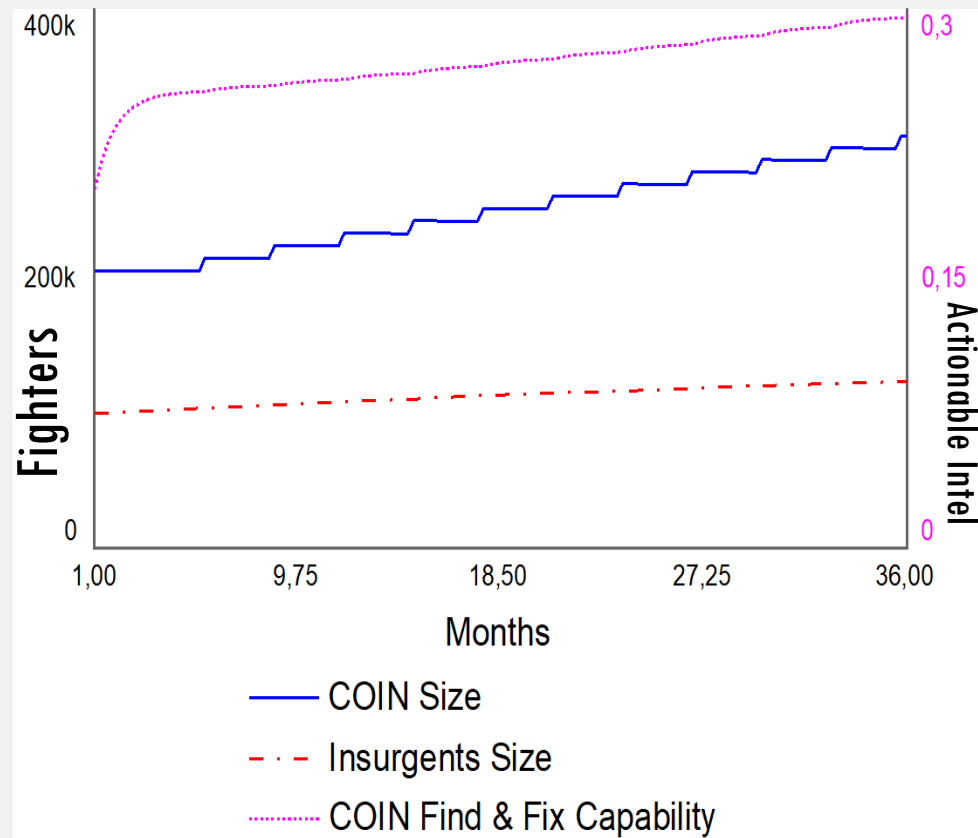
<b>Final</b>	<b>125k</b>	<b>202k</b>	<b>0,263</b>
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# 5. Data Analysis – Scenario 2

## Training Support



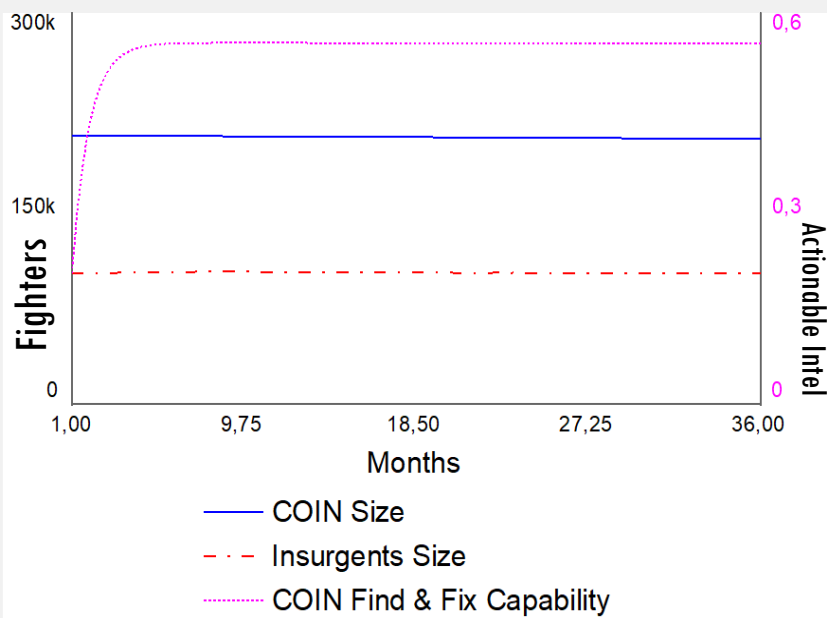
	Insurgents Size	COIN Size	COIN Find & Fix Capability
1	100k	206k	0,2
2	101k	206k	0,237
3	102k	206k	0,248
4	103k	206k	0,252
5	104k	206k	0,254
6	104k	215k	0,255
7	105k	215k	0,257
8	106k	215k	0,257
9	106k	225k	0,258
10	107k	224k	0,26
11	108k	224k	0,261
12	109k	234k	0,262

<b>Final</b>	<b>117k</b>	<b>306k</b>	<b>0,29</b>
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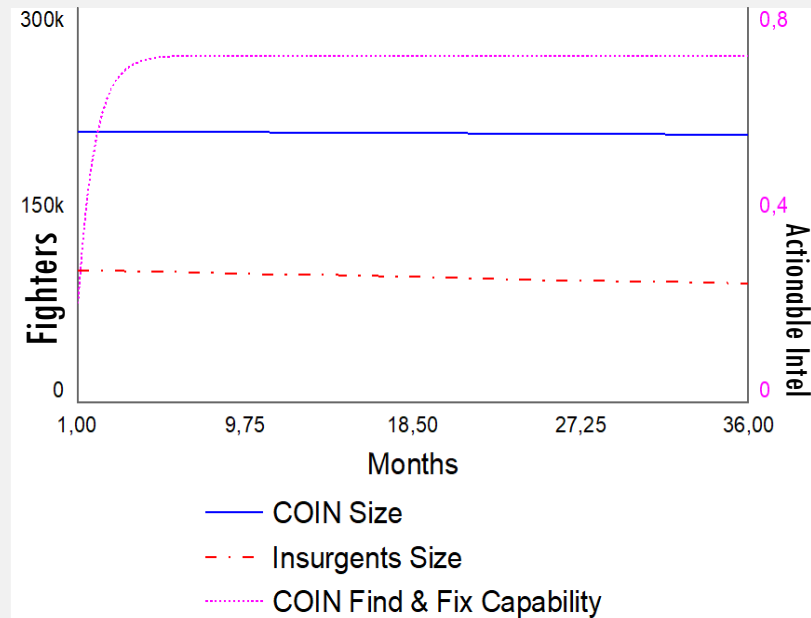


# 5. Data Analysis – Scenario 3 Intelligence Support

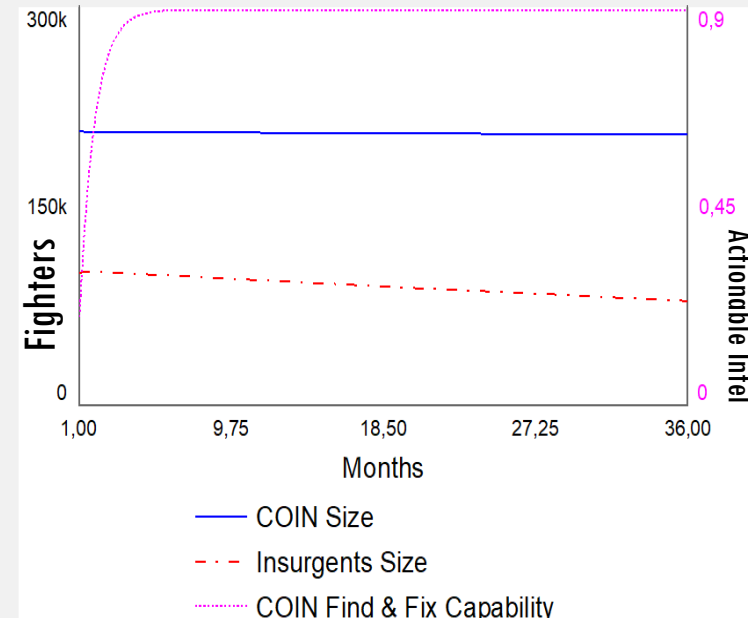
Level 1



Level 2



Level 3



Insurgents Size    COIN Size    COIN Find and Fix Cap

Final	100k	203k	0,553
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Insurgents Size    COIN Size    COIN Find and Fix Cap

Final	90,5k	204k	0,702
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Insurgents Size    COIN Size    COIN Find and Fix Cap

Final	78,6k	204k	0,893
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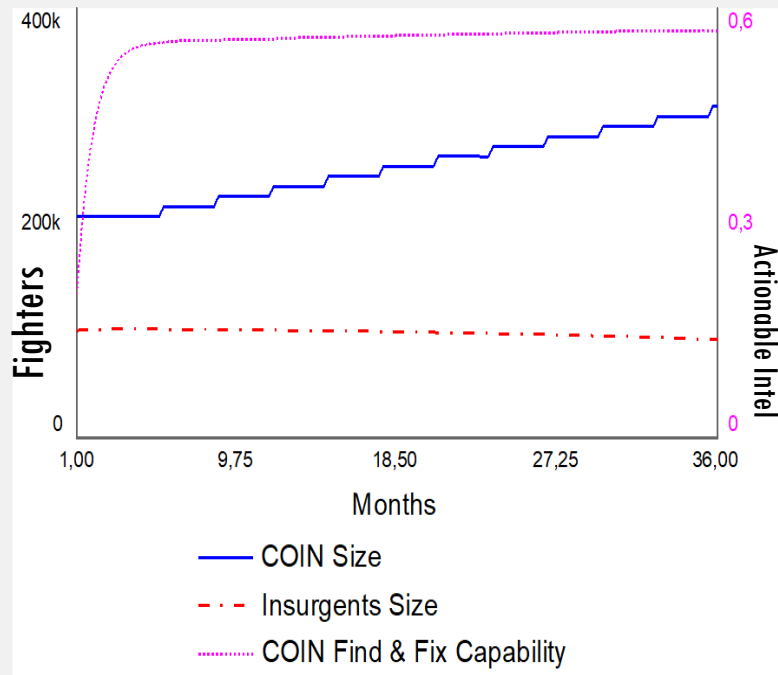


# 5. Data Analysis – Scenario 4 Training Support & Intelligence Support

Level 1

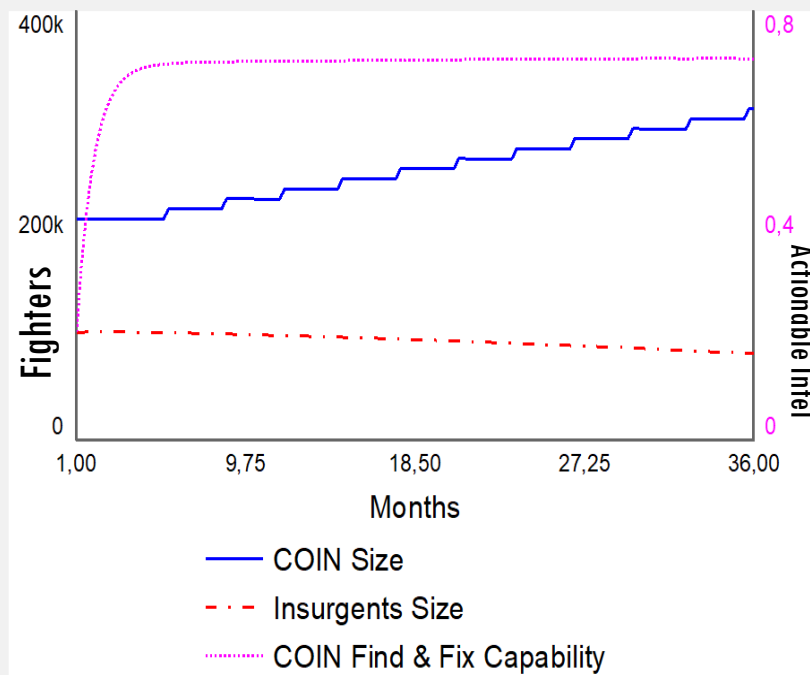
Level 2

Level 3



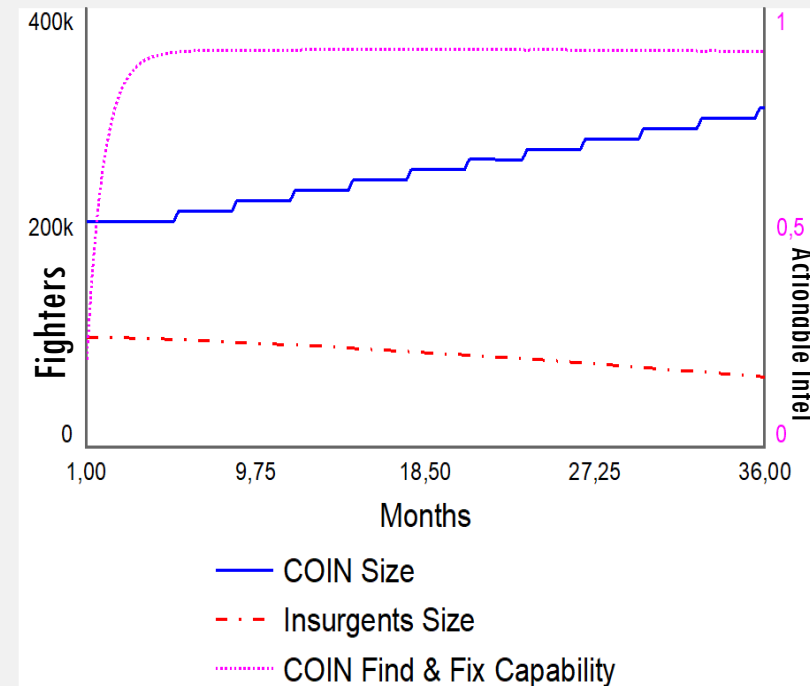
Insurgents Size    COIN Size    COIN Find and Fix Cap

Final	90,9k	308k	0,569
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Insurgents Size    COIN Size    COIN Find and Fix Cap

Final	80,2k	309k	0,711
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Insurgents Size    COIN Size    COIN Find and Fix Cap

Final	64,2k	309k	0,901
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## 6. Findings

### Information as a function of Force Size and multi-source Intelligence gathering

- Training Support increases the COIN Size, while Intelligence Support increases the information component (COIN Find and Fix Capability).
- Information remains a function of COIN Size and Insurgents' Size, but it is more a function of the added synergy of multi-int provided by the Remote Warfare Intelligence Support.

### The Impact of Remote Warfare Support type on Insurgents' Size

- Scenarios 3 and 4 demonstrate that Intelligence Support is the only type of support, to a lesser or a greater degree depending on the Level, able to decrease the Insurgents' Size.
- There is a relationship between an increasing Find and Fix Capability and the decreasing Insurgents' Size.



## 6. Findings

### Growth in COIN Size, Limited Impact of Training Support on Insurgent Size

- Without external intervention in the insurgent conflict, the Insurgents' Information advantage counterbalances their Size disadvantage.
  - Insurgents' Size continues to grow.
- A growing COIN Size has little to no impact on Insurgents' Size if the Insurgents are relatively invisible to COIN forces.

### Kinetic air support and the attrition gap

Actual data on insurgents yearly attrition	Model's yearly attrition	Yearly gap
22,000 deads	12,000 deads	10,000 deads



## 7. Conclusion

- Small Western nations should more carefully consider the proportion of different forms of remote support they provide to the local partner in a conflict.
- **Growing the partner's force size through training is ineffective** if remote intelligence support is not provided.
- **Intelligence support** to a partner nation's force routinely enhances its ability to find and fix the insurgent force, **reducing the latter's size** and effectiveness.
- **Smaller Western countries should prioritize intelligence support**

Questions?