



SCORPIUS

SECURITY & INTELLIGENCE SOLUTIONS

Centre of Gravity Analysis

Analytical Skills · An example lesson from the Scorpius training library

Instructor: JJR · Last updated: July 2026



INTEREST & NEED

Why analyse the centre of gravity?

THE IDEA

Every opponent - a state, a group, an individual - draws its power from *something*. Find that source of strength, understand what holds it up, and you can see where it is **vulnerable**.

Centre of Gravity analysis is the tool that takes you from an opponent's strength to the handful of vulnerabilities worth acting against.

WHY IT EARNS ITS PLACE

- Frequently used by military and intelligence staff - a shared language for an opponent's power and its weak points.
- Turns a vague sense of "they're strong" into a targeted list of what to disrupt, and where effort will bear most.
- No longer only about bombs and bullets: the same method now maps malign actors in the information space - the narratives, funding and networks that carry their influence.
- From Daesh's caliphate to a disinformation network, the question is the same: what gives them their strength, and what can we take away?



LESSON OBJECTIVES

By the end of this session you will be able to

1

Define

Define what centres of gravity are

2

Describe

Describe the uses of Centre of Gravity analysis

3

Recognise

Recognise the components - CoG, CC, CR and CV

4

Apply

Understand and work through the stages of the analysis



DEFINITION

What is a centre of gravity?

“

Physical or moral entities that are the primary components of physical or moral strength, power and resistance.

*They don't just contribute to strength; they **ARE** the strength.*

Dr Joe Strange, USMC War College

THE ORIGIN — CLAUSEWITZ, 1832



Carl von Clausewitz
Vom Kriege
(On War), 1832

“To achieve victory we must mass our forces at the hub of all power and movement — the enemy's centre of gravity.”

Meaning shifts with time, place and technology; a CoG exists at every level of command that has a mission.



USES

What the analysis gives you

01

Find the decisive factor

Identifies what is going to be decisive in an operation - the point on which success turns.

02

Anticipate the opponent

Once you know their main strengths, you can reason about likely activity - what, with what, where and with whom.

03

Exploit vulnerabilities

Surfaces the critical vulnerabilities to exploit for success - including narratives, mis- and disinformation.

04

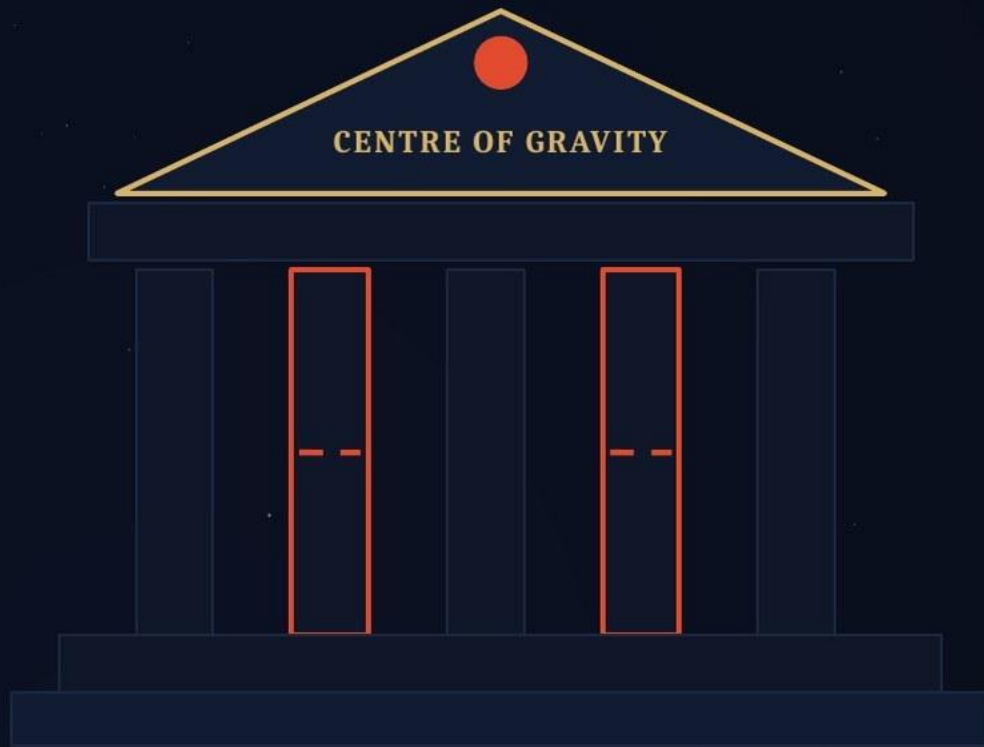
Focus your own effort

Shows where your own effort will bear most success - so you concentrate, not scatter.



THE VOCABULARY

Four terms, one structure



Pediment = **CoG** Columns = **Capabilities** Base = **Requirements** Red = **Vulnerabilities**

CoG

Centre of Gravity

The source of strength - a physical or moral entity (a noun). What everything depends on.

CC

Critical Capabilities

The ways the CoG achieves its aim - actions and functions (verbs).

CR

Critical Requirements

The means each capability needs - conditions, resources, people (nouns).

CV

Critical Vulnerabilities

The requirements or capabilities open to attack or disruption. Where we act.



MICRO-EXAMPLE

A tank, taken apart

Let's say the tank is the enemy's centre of gravity - the manoeuvre and firepower they mean to win with.

Work outward: what it does, what that needs, and what of that we can take away.

Do we need to tackle the tank itself?

CENTRE OF GRAVITY



THE TANK

Manoeuvre & Firepower

CRITICAL CAPABILITIES

Project force: Main gun & machine guns

Resist: Armour

Movement: Quickly over rugged terrain, tracked

Coordinate: Communications, information

CRITICAL REQUIREMENTS *What each capability needs to function*

Ammunition



Fuel



Spares & mechanics



Communications



Skilled crew



Good armour

CRITICAL VULNERABILITIES *What we can target or interdict that enables the requirements*

Ammunition supply



Fuel supply



Crew supply



Communications



TESTING A CANDIDATE

Is it really a centre of gravity?

SEVEN DESCRIPTORS

A CoG is a thing - a noun, an entity (equipment, people, a unit). Sift candidates against these:

- Essential - remove it and the picture changes fundamentally
- Dominant - clearly, strongly significant in the operating area
- Main dependency - other elements rely on it
- Hub of all power & movement - the opponent orients around it
- Resists - a genuine source of strength that can absorb attack
- Strikes effective, heavy blows

Set "effective target" aside for now - whether we can hit it is a separate question from whether it is the CoG.

THE "DOES / USES" TEST

A quick validity check (after Eikmeier): the centre of gravity is an active agent - it acts.

DOES the candidate perform the critical capability (the verb)?

USES the critical requirements to do it?

If a noun does the capability and uses the requirements, it is the CoG. Then confirm it: if you removed it, would the end state fail? If yes, you've found it.

A CoG is not the same as a weakness - it is the strength you attack indirectly, through its vulnerabilities.



THE PROCESS

Five stages

1

Identify the objective / end state

What the organisation being analysed seeks to achieve.

2

Identify the ways (CC)

The critical capabilities - the verbs - that achieve the end state.

3

Identify the means (CR)

The critical requirements the capabilities need - nouns or verbs.

4

Identify the entity - the CoG

From the means, the noun that possesses the capability to achieve the end state.

5

Identify the vulnerabilities (CV)

The CCs and CRs open to attack, neutralisation or disruption.

ENDS → WAYS → MEANS

The stages track the ends-ways-means logic of planning (JP 5-0). Work forward from the objective, then back from the requirements to the entity that does the work.

Test the CoG: remove it in theory - would the end state fail? Expect multiple CoGs across different levels of one problem.



WORKED EXAMPLE

Daesh, c.2014 - 2019

END STATE Establish an Islamic Caliphate

CRITICAL CAPABILITIES (ways / verbs)

- Manoeuvre / offensive operations
- Destroy or neutralise opposition
- Seize and occupy territory
- Enforce sharia law
- Govern provinces
- Fund operations & governance
- Lead, direct and organise
- Motivate and influence forces
- Recruit and maintain forces

CRITICAL REQUIREMENTS (means / nouns)

- Adequate fighter strength
- Military equipment & ammunition
- Leadership & command structure
- Fighter morale / will to fight
- Funding, food, medical, shelter

CRITICAL VULNERABILITIES (where we act)

- Target outside recruitment
- Destroy forces & equipment
- Seize ground
- Restrict funding
- Target leadership

CENTRE OF GRAVITY **Abu Bakr al-Baghdadi** - a moral CoG: a person carrying the movement's will and legitimacy.



PHYSICAL VS MORAL

When the Centre of Gravity is people

A CoG can be physical (a force, a capability) or moral (will, legitimacy, cohesion). Moral centres of gravity begin and end with people - only people create and sustain the will to resist. Strange identifies three:



The leader

A strong-willed individual with the will to develop, execute and sustain opposition - and the ability to exert that will through the armed forces or people.



The ruling elite

A closed group in which real power resides - the "king-makers" who direct policy and wield control over the armed forces or people.



A strong-willed population

A large group sharing a belief set that sets them against another power, held strongly enough to engage in - and sustain - conflict.



GETTING IT RIGHT

Common pitfalls



The CoG is a strength, not a weakness

You attack it indirectly, through its vulnerabilities - don't mislabel a weak point as the CoG.



It's a noun that acts

A CoG does something and uses requirements. If your candidate is a verb or a condition, it's a capability or requirement, not the CoG.



Match it to the level and the moment

There's a CoG for each level of command and it shifts with the objective. Analyse the immediate problem - don't get carried away.



Don't drown in the diagram

It's easy to get lost in a forest of nodes and links and lose the target. Keep it decision-focused.



Vulnerabilities win in combination

One cut rarely decides it. Success usually comes from several vulnerabilities hit together or in sequence - the cumulative effect.



Confirm by removal

Before you commit, test it: if the CoG were gone, would the end state fail? If not, keep looking.



YOUR TURN

Exercise

THE TASK

Using the method from this session, produce a Centre of Gravity analysis of an opponent of your choice.

Work the five stages: end state → capabilities → requirements → the entity (CoG) → vulnerabilities.

- Present it in the same layout as the Daesh example.
- A historical or fictional example works - though the CoG may already be obvious.
- Then ask the exploitation question: which vulnerabilities, hit in what order, unbalance them?

A GOOD CURRENT EXAMPLE

Russian forces in Ukraine

Rich in capabilities and requirements, with vulnerabilities across logistics, command, morale and the information space - and directly relevant to the incident reporting you'll see elsewhere in the Scorpius library.

A blank template is provided with these materials.



SUMMARY

What to carry away

1

A shared method

CoG analysis moves you from an opponent's strength to the few vulnerabilities worth acting on.

2

Four linked terms

Centre of Gravity, Critical Capabilities, Critical Requirements, Critical Vulnerabilities - the pediment, columns, base and cracks.

3

A repeatable process

End state → ways → means → the entity → vulnerabilities, tested by removal.

4

Beyond bombs and bullets

The method now maps the information space - the narratives, funding and networks that carry malign influence, and the conditions needed to blunt them.



FURTHER READING

Sources & to go deeper

Strange & Iron - Centres of Gravity and Critical Vulnerabilities

The foundational monograph. Builds the CoG-CC-CR-CV model on Clausewitz.

theforge.defence.gov.au (ADF Warfare Training Centre PDF)

“Three Approaches to Center of Gravity Analysis” - Joint Force Quarterly 78

Compares the main methods and works the ISIS/Daesh example. Includes Eikmeier's does/uses logic.

ndupress.ndu.edu (National Defense University)

Understanding Centers of Gravity and Critical Vulnerabilities

Strange & Iron's applied model for strategic and operational planning.

theforge.defence.gov.au (Australian Defence College)

Clausewitz, On War (1832)

The origin of the term - the “hub of all power and movement.”

Book VIII; widely available in translation



Thank you!

Questions welcome.

Scorpius Security & Intelligence Solutions

enquiries@scorpius.ltd · <https://www.scorpius.ltd>