

**Mission Command, Autonomy and the
RMA Question: The Organisational
Impact of Uncrewed Systems**

*Autopilot through the Fog: Command in the Age of
Machines*

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B.A., B.SC., M.SC., M.ENG**

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STUDENT DECLARATION

MA (LMDS)

Student Declaration

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Name: ADAM BEATTY **Date:** September 30,
2025

(FLYNN_2019) “It is sometimes suggested that ‘small states’ can be nimble innovators, but this is usually limited to a handful of states that are either very wealthy (Singapore, UAE), or face huge military threats (Israel), and even at that they often innovate in relatively narrow areas. There is also the brutal fact of rising defence inflation associated with modern military weapons, platforms and capabilities. Scale matters, and countries with limited budgets can easily end up with increasingly smaller and smaller amounts of quality capabilities-the so called ‘penny packets’ phenomenon.”

Source Analysis — *Alach 2008, The Revolution in Military Affairs*

Describe: Assesses whether a true RMA occurred; argues we see evolution not revolution; costs and vulnerabilities limit applicability; integration and doctrine matter as much as kit (pp.49–51). **Interpret:** Relevant for the thesis module’s outcomes on critical synthesis and methodological appraisal because it challenges deterministic tech narratives and redirects attention to force design trade-offs for small states. It excludes systematic cross-war metrics. **Methodology:** Conceptual synthesis with illustrative cases from 1991–2003; evidence is argumentative, historically anchored, moderately persuasive; possible bias towards scepticism; context is post–Cold War modernisation (pp.49–51). **Evaluate:** Contribution is sharp where it separates EMA from RMA and shows cost–personnel trade-offs and electronic fragility; weakest where measurement is thin (p.51). **Author:** Stance is critical of transformation as panacea; institutional anchoring not explicit; counter-voices include strong transformation advocates of the 1990s (pp.49–50). **Synthesis:** Aligns with sceptics who prioritise doctrine, training, and numbers; diverges from advocates who forecast decisive dominance through networks (pp.49–51). **Limit.** Claims rely on selective cases and limited quantification (pp.50–51). **Implication:** Irish DF should emphasise manpower, resilient C2, analogue backups, and multilateral roles over fragile high-end transformation (pp.50–51).

Method weight: 3/5 — Solid conceptual clarity and useful cases, but limited empirical testing and potential selection bias temper validity.

Claims—cluster seeds

No realised RMA, only EMA. Best line: “Overall... there has not been an RMA... There has instead been an EMA” (p.51). Rival: Transformation advocates claim revolutionary change post-1991. Condition: Holds where militaries retain mixed new–legacy systems. Irish DF implication: Pace modernisation prudently; avoid brittle, high-dependency architectures.

Transformation narrows applicability across the spectrum of operations. Best line: Precision airpower took three months in 1999; insurgency endured post-2003 (pp.50–51). Rival: Precision and networks compress campaigns decisively. Condition: Adversary adapts, conflict shifts to irregular modes. Irish DF implication: Keep light infantry strength and adaptable doctrine.

Cost of high-tech integration reduces personnel, degrading flexibility. Best line: “Going down the transformed route... less money for personnel... quantity has a quality all its own” (pp.50–51). Rival: Smaller networked forces outperform larger legacy ones. Condition: When dispersed tasks and presence matter. Irish DF implication: Protect headcount and training budgets.

Transformed forces are electronically brittle. Best line: Reliance on data links opens attack surfaces from EMP to power cuts (p.51). Rival: Hardened networks negate such risks. Condition: Opponent can disrupt EM spectrum or infrastructure. Irish DF implication: Build hardened, low-signature comms and analogue fallbacks.

PEEL–C paragraph (strongest claim) *Point:* The evidence shows evolution, not revolution, in military affairs. *Evidence:* Alach argues that despite networking and precision, few militaries transformed in organisation and doctrine; outcomes in Kosovo and Iraq reveal limits (pp.49–51). *Explain:* Integration reached utility, yet mixed fleets, cost trade-offs, and operational uncertainty prevent a step-change. *Limit:* Case breadth is narrow, quantification sparse. *Consequent:* Irish DF should modernise selectively while preserving numbers and resilient C2.

PEEL–C paragraph (counter-claim) *Point:* Some contend post-1991 capabilities constitute an RMA. *Evidence:* Early Soviet MTR thinking and Gulf War performance suggest critical-mass integration can produce decisive effects (pp.49–50). *Explain:* When sensors, shooters, and doctrine align, tempo increases and precision reduces friendly loss. *Limit:* Such effects proved episodic outside major manoeuvre campaigns. *Consequent:* Treat RMA tools as situational, not universal, in Irish DF planning.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline No RMA,
only EMA &
Alach, “There
has instead been
an EMA” (p.51)
& Transforma-
tion advocates
predict decisive
networked dom-
inance & Mixed
new–legacy fleets
persist & Mod-
ernise gradually;
protect doctrine
and training Trans-
formation narrows
applicability &
Alach on Kosovo
and post-2003
Iraq (pp.50–51)
& Air–network
power compresses
wars decisively &
Opponent adapts;

Gaps (1) Chase comparative quantifications across campaigns to test EMA versus RMA claims. (2) Park exotic swarming concepts unless tied to Irish DF tasks.

(BACHMANN_2023a_OODA)

Source Analysis — *Bachmann et al. 2023*, Hybrid warfare and disinformation: A Ukraine war perspective

Describe: Sets out how misinformation, disinformation, and malinformation underpin hybrid warfare; shows Russia’s use of disinformation as a force multiplier in 2022; links information disorder to decision paralysis via the OODA loop; recommends prepare, deter, defend and whole-of-government coordination (pp.859–867). **Interpret:** Serves thesis outcomes on critical synthesis and method appraisal by reframing “information” as a warfighting line of operation that targets orientation and decision. It excludes systematic measurement and cross-case testing. **Methodology:** Narrative policy essay using secondary sources and Ukraine 2022 illustrations; validity is moderate due to breadth and conceptual coherence; bias towards allied security policy contexts; context is grey-zone practice since 2014 (pp.859–867). **Evaluate:** Strong where it clarifies UNESCO’s taxonomy and shows OODA degradation through information disorder; useful policy steps via NATO’s prepare, deter, defend; weaker on metrics and rival cases (pp.862–863). **Author:** Perspective reflects NATO and Australian policy lenses; emphasis on comprehensive approaches and central coordination to counter influence operations (pp.866–867). **Synthesis:** Aligns with hybrid-threat scholarship that elevates influence operations and deception; extends by mapping effects onto OODA to explain tempo capture (pp.861–863). **Limit.** Evidence is largely descriptive and Ukraine-centred; causal claims about OODA degradation are not quantified (pp.862–867). **Implication:** Irish DF should institutionalise counter-disinformation, train for OODA discipline, and embed a whole-of-government coordination node to regain decision advantage (pp.866–867).

Method weight: 2/5 — Conceptually coherent with clear policy signposts, but relies on secondary sources and lacks systematic empirical testing.

Claims—cluster seeds

Disinformation is a force multiplier in hybrid war. Best line: Russia used disinformation to weaken Western resolve and as pre-emptive leverage (pp.861–862). Rival: Kinetic effects dominate outcomes. Condition: Below-threshold contests with contested narratives. Irish DF implication: Stand up a joint counter-disinformation cell and rapid attribution practice.

Information disorder degrades OODA and captures tempo. Best line: Hybrid actors dominate decision–action cycles by fuelling uncertainty; OODA depends on near-real-time knowledge (pp.861–862). Rival: Robust ISR negates narrative disruption. Condition: Adversary sustains granular ambiguity. Irish DF implication: Drill OODA discipline, fuse intel-public comms to shorten orientation.

Prepare, deter, defend is the correct resilience spine. Best line: NATO frames hybrid-threat countering as prepare, deter, defend in the information domain (p.862). Rival: Over-militarises information risks. Condition: Whole-of-government is real, not rhetorical. Irish DF implication: Formalise cross-department drills and thresholds for response.

Reflexive control weaponises law and migration. Best line: Belarus crisis engineered to pressure the EU and split responses; classic lawfare and reflexive control (p.861). Rival: Crisis dynamics were incidental, not designed. Condition: Authoritarian coordination and permissive border politics. Irish DF implication: Legal preparedness with EU partners and narrative pre-emption.

PEEL–C paragraph (strongest claim) *Point:* Disinformation acts as a force multiplier in hybrid warfare. *Evidence:* Russia employed disinformation to soften Western resolve and shape ambiguity ahead of conventional force, then blended it with kinetic action (pp.861–862). *Explain:* This shifts orientation, slows decisions, and constrains options. *Limit:* The article provides few cross-case metrics. *Consequent:* Irish DF should field a rapid attribution and counter-narrative function tied to ops planning.

PEEL–C paragraph (counter-claim) *Point:* Some argue information effects are secondary to decisive kinetic capacity. *Evidence:* Robust ISR and precision can restore tempo even amid narrative clutter. *Explain:* If orientation is anchored by verified, timely intel-

ligence, the OODA loop can hold. *Limit:* The paper shows how disorder still bleeds into decision cycles without integrated comms (pp.861–863). *Consequent:* Treat comms, intel, and operations as one system, not three stovepipes.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Disinfor-
mation is a force
multiplier & Bach-
mann et al., Russia
used disinfo to
weaken resolve
(pp.861–862) &
Kinetic effects
dominate out-
comes & Below-
threshold narrative
contests & Joint
counter-disinfo
cell with rapid
attribution Infor-
mation disorder
degrades OODA
& OODA capture
through uncer-
tainty; near-real-
time dependence
(pp.861–862) &
ISR restores tempo
despite noise &

Gaps (1) Chase comparative, quantitative OODA disruption measures across cases. (2) Park deep theory of deception until DF use-cases demand it.

(BETTS_1996)

Source Analysis — *Betts 1996*, The downside of the cutting edge

Describe: Argues that an RMA, while beneficial tactically, can foster public overconfidence, budget complacency, and escalation pressures when confronting great powers; high-tech orthodoxy risks failure in irregular wars (pp.80+). **Interpret:** Relevant to thesis outcomes on critical synthesis and method appraisal because it ties technology to political ends and adversary adaptation, warning that conventional superiority may provoke unconventional counters rather than stability. **Methodology:** Conceptual strategic essay drawing on Gulf War imagery, Vietnam lessons, and Cold War escalation logic; persuasive through strategic reasoning, limited by lack of systematic evidence (pp.80+). **Evaluate:** Most compelling where Betts shows conventional overmatch can push a weaker great power toward WMD or nuclear first-use logic; weaker where claims rest on scenarios without metrics (pp.80+). **Author:** US realist perspective; cautions against technophilia; cites Krepinevich, Bacevich, and Cohen to situate the debate (pp.80+). **Synthesis:** Aligns with Eliot Cohen that RMA may yield tactical clarity but strategic obscurity; converges with sceptics on adversary adaptation and asymmetric counters (pp.80+). **Limit.** Evidence is descriptive with hypothetical escalation pathways and pre-9/11 baselines (pp.80+). **Implication:** Irish DF should integrate escalation analysis, irregular competence, and resilience alongside selective tech upgrades to avoid brittle overreliance (pp.80+).

Method weight: 3/5 — Strong strategic logic and literature anchoring, but scant empirical testing and scenario dependence limit external validity.

Claims—cluster seeds

Conventional overmatch can raise escalation risk. Best line: successful application of technical advantage may make the loser desperate and more likely to use unconventional

weapons (pp.80+); Rival: superiority deters escalation; Condition: stakes existential for the weaker great power; Irish DF implication: wargame opponent escalation ladders and pre-plan restraint thresholds.

RMA publicity can foster strategic overconfidence and lean forces. Best line: publicity about RMA risks nonchalance about war and weaker commitment to maintaining hefty forces (pp.80+); Rival: optimism sustains deterrence at lower cost; Condition: political elites misread Gulf War imagery; Irish DF implication: safeguard readiness and stockpiles despite tech promise.

High-tech orthodoxy can misfit irregular conflict. Best line: an institutionalised commitment to high-tech operations may prove unsuitable to messy unconventional conflicts, inviting failure, overkill, or ad hoc improvisation (pp.80+); Rival: precision and ISR solve irregular problems; Condition: adversary uses dispersion and political constraints; Irish DF implication: retain light forces, HUMINT, civil-military skills.

Adversaries will pursue asymmetric counters. Best line: success engenders orthodoxy and blinds strategists, promoting the Fallacy of the Last Move while enemies develop low-tech or novel counters (pp.80+); Rival: adaptation lags, dominance endures; Condition: time and learning cycles favour the weaker; Irish DF implication: embed red-teaming and deception drills in force design.

RMA yields tactical clarity yet strategic obscurity. Best line: “The revolution in military affairs may bring a kind of tactical clarity ... but at the price of strategic obscurity” (pp.80+); Rival: clarity scales to strategy; Condition: political stakes and escalation incentives remain contested; Irish DF implication: couple targeting with political risk assessment.

PEEL–C paragraph (strongest claim) *Point:* Conventional overmatch can raise escalation risk rather than secure stability. *Evidence:* Betts argues that decisive technical advantage can corner a weaker great power into considering unconventional or nuclear options when the stakes are vital (pp.80+). *Explain:* Superiority shifts pressure onto the adversary’s last-resort tools, widening instability. *Limit:* Evidence is scenario-based with

few comparative cases. *Consequent:* Irish DF planning should integrate escalation ladders, crisis signalling, and restraint options.

PEEL–C paragraph (counter-claim) *Point:* Some contend conventional superiority deters both war and escalation. *Evidence:* Deterrence logic holds that quick victory prospects dissuade challengers and shorten wars. *Explain:* If adversaries believe escalation will fail, they avoid brinkmanship. *Limit:* Betts shows actors with higher stakes may still escalate despite odds (pp.80+). *Consequent:* Treat deterrence signalling and force readiness as necessary but not sufficient for stability.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Overmatch
raises escalation
risk & Betts on
loser desperation
and unconven-
tional options
(pp.80+) & Su-
periority deters
escalation &
Stakes existen-
tial for weaker
power & Wargame
ladders; pre-plan
restraint thresholds
RMA hype breeds
overconfidence
& Betts on non-
chalance and lean
forces (pp.80+) &
Optimism sustains
deterrence at lower
cost & Elites mis-
read precision-war
imagery & Protect

Gaps (1) Chase comparative cases that measure escalation behaviour under conventional overmatch. (2) Park fine-grained tech typologies; focus on escalation control and irregular competence.

(BLAINEY_2003)

Source Analysis — *Blainey 2003*, Review of Gray's

Strategy for Chaos

Describe: Reviews Gray's thesis that modern war shows continuity more than revolutionary rupture; RMA hype after 1991 overstated; strategy must use history with care; technology alone does not decide outcomes; three case studies anchor the argument (pp.995–996). **Interpret:** Serves thesis learning outcomes on critical synthesis and method appraisal. It refocuses analysis on aims, cognition, and context before kit lists. It sidelines clean-break narratives that seduce planners. **Methodology:** Historical–strategic synthesis across Napoleon, the First World War, and the Cold War; multicausal framing; thick footnotes; persuasive but selective; prose slightly abstract (pp.995–996). **Evaluate:** Strong where it disciplines strategy with history and rejects single-cause technology stories. Weaker where claims rest on three cases and contestable generalisations such as the Cold War being a real war (pp.995–996). **Author:** Reviewer is a senior historian. Tone is respectful yet sceptical about some leaps, including moral ground and case selection by personal interest (pp.995–996). **Synthesis:** Aligns with Alach on evolution not revolution. Resonates with Betts that technology can clarify tactics yet leave strategy uncertain. Diverges from RMA enthusiasts who enthrone technology (pp.995–996). **Limit.** Review genre summarises and critiques rather than tests; breadth and measurement are thin; three-case basis invites challenge (pp.995–996). **Implication:** Irish DF should weight political aims, leadership cognition, and resilience alongside selective technology, and read history closely to avoid deterministic plans (pp.995–996).

Method weight: 2/5 — Clear strategic synthesis with historical range, but evidence is selective and filtered through a brief review format.

Claims–cluster seeds

Continuity over rupture. Best line: Gray “challenges many facets” of the RMA leap and “tends to see continuity” while acknowledging tech marvels (p.995). Rival: RMA produced a decisive break after 1991. Condition: When aims, organisation, and enemy adaptation dominate outcomes. Irish DF implication: Plan for evolution and adaptation, not silver bullets.

Technology is not decisive alone. Best line: Gray “refuses to enthrone” revolutionary technology; political aims and subjective factors matter (pp.995–996). Rival: Superior technology reliably wins. Condition: Adversary will, morale, and policy coherence vary. Irish DF implication: Prioritise intent, training, and leadership cognition.

History disciplines strategy. Best line: The book rewards historians and uses history carefully for strategy; Thucydides and Clausewitz would be at home in today’s debates (p.995). Rival: Contemporary war is sui generis. Condition: Strategic patterns persist despite new tools. Irish DF implication: Build doctrine on tested historical patterns with measured innovation.

Three-case generalisation is contestable. Best line: Choice of Napoleon, 1914–18, and the Cold War rests on personal interest; some readers will demur, including on “Cold War as war” (p.996). Rival: The cases suffice to generalise. Condition: Broader comparative base is lacking. Irish DF implication: Validate claims across more cases before policy shifts.

PEEL–C paragraph (strongest claim) *Point:* Continuity, not a clean revolutionary leap, best explains modern war. *Evidence:* Blainey reports Gray challenges RMA hype, reads technology as one factor among many, and grounds claims in three historical cases (pp.995–996). *Explain:* Aims, organisation, and enemy will bend new tools back into old patterns. *Limit:* Basis is selective and rests on three cases. *Consequent:* Irish DF should modernise incrementally, protect doctrine and training, and assume adversary adaptation.

PEEL–C paragraph (counter-claim) *Point:* RMA after 1991 changed war decisively. *Evidence:* Enthusiasts cite information dominance and precision in the Gulf. *Explain:* If sensing and strike compress the kill chain, victory becomes routine. *Limit:* Blainey

notes Gray's multicausal reading and the contestable "Cold War as war" claim reminds us context and aims still govern (pp.995–996). *Consequent*: Treat high-end tech as enabler, not basis, of Irish DF strategy.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Continuity
over rupture &
Blainey on Gray's
continuity thesis
(p.995) & RMA
created decisive
break & Aims
and adaptation
dominate & Pace
upgrades; invest
in doctrine and
training Technol-
ogy not decisive
alone & Blainey:
refuses to enthrone
technology; aims
and subjectivity
matter (pp.995–
996) & Superior
tech reliably wins
& Will and pol-
icy coherence
vary & Weight
leadership cogni-

Gaps (1) Chase broader comparative studies that test Gray's continuity claim beyond three cases. (2) Park deep typologies of sensors and shooters; focus on aims, cognition, and adaptation first.

(BROSE_2019)

Source Analysis — *Brose 2019, The New Revolution in*

Military Affairs: War's Sci-Fi Future

Describe: Sets out a new RMA driven by AI, autonomy, ubiquitous sensing, and software-centred kill chains; argues stealth is time-limited, quantum sensing will erase hiding, and distributed swarms will beat exquisite platforms; warns US deterrence is eroding under A2/AD unless it buys kill chains not platforms (pp.122+). **Interpret:** Directly serves thesis outcomes on critical synthesis and method appraisal by reframing procurement around outcomes, not platforms, and by tying technology to deterrence and adversary adaptation. It sidelines measurement and timelines, so use with caution for policy pacing. **Methodology:** Strategic policy essay with historical cues and contemporary illustrations; validity rests on coherence and plausibility, not systematic data; bias possible from author's industry role; context is great-power competition with China and Russia (pp.122+). **Evaluate:** Sharp where it specifies software primacy, swarms, and distributed C2; compelling on A2/AD and RAND warnings; thinner where cost-exchange and adoption timelines are assumed (pp.122+). **Author:** US strategist from industry with Carnegie affiliation; argues against the military-industrial-congressional status quo; calls for leadership to overcome institutional resistance (pp.122+). **Synthesis:** Diverges from evolution-only sceptics by forecasting decisive structural change through autonomy and software; complements Betts' escalation caution by implying mass unmanned attrition could stabilise deterrence if affordable; overlaps with hybrid-era OODA concerns via edge processing and distributed networks (pp.122+). **Limit.** Predictions depend on tech maturation, economics, and politics; ethical framings are brisk; empirical base is illustrative.

Implication: Irish DF should buy effects not platforms, prioritise software, field small autonomous teams, harden comms at the edge, and plan for deception and attrition (pp.122+).

Method weight: 2/5 — Persuasive strategic diagnosis with clear prescriptions, but evidence is largely argumentative and forward-looking, with few comparative metrics and possible advocacy bias.

Claims—cluster seeds

Software-first swarms outperform exquisite platforms. Best line: “future militaries will be distinguished by the quality of their software... swarms... cheap and expendable... buy faster kill chains” (pp.122+). Rival: Exquisite manned platforms ensure enduring overmatch. Condition: Edge processing, autonomy, and logistics enable high-volume attrition. Irish DF implication: Shift spend to software, autonomy trials, deception, and mesh networks.

Stealth obsolescence under ubiquitous and quantum sensors. Best line: “Stealth technology is living on borrowed time... once quantum sensors are fielded, there will be nowhere to hide” (pp.122+). Rival: Counter-sensing and signatures keep stealth viable. Condition: Commercial LEO constellations and quantum sensing mature. Irish DF implication: Invest in dispersion, decoys, EMCON, and rapid relocation.

US deterrence erodes under A2/AD and status-quo procurement. Best line: RAND warns the US “could... lose the next war” as rivals field mass precision and target US multibillion systems (pp.122+). Rival: Incremental upgrades suffice. Condition: Opponents sustain A2/AD salvos and campaign tempo. Irish DF implication: Assume contested rear areas, prioritise resilience and alliances.

Distributed edge C2 restores resilience. Best line: “push vital communications functions to the edge... radically distributed networks... resilient and reconfigurable” (pp.122+). Rival: Centralised hubs needed for control. Condition: Secure edge compute and mission command culture. Irish DF implication: Train mission command, deploy multi-path comms and local processing.

Institutional resistance is the main blocker. Best line: Gates and McCain on the military-industrial-congressional complex resisting change (pp.122+). Rival: Ethics and

law are the primary constraints. Condition: Incentives remain misaligned. Irish DF implication: Create agile procurement lanes and protected experimentation cells.

PEEL–C paragraph (strongest claim) *Point:* Software-first swarms beat a few exquisite platforms in contested theatres. *Evidence:* Brose argues future advantage rests on software quality and cheap, expendable autonomous systems that compose faster kill chains (pp.122+). *Explain:* Distributed sensors and shooters shorten decide-to-strike cycles, impose cost, and absorb losses. *Limit:* Performance depends on autonomy reliability, secure edge compute, and logistics. *Consequent:* Irish DF should prototype small autonomous teams, invest in software, and harden comms.

PEEL–C paragraph (counter-claim) *Point:* Exquisite platforms remain necessary for high-end missions. *Evidence:* Brose concedes legacy systems like the F-35 are presently more capable, though costly (pp.122+). *Explain:* Some missions still need range, payload, and integrated survivability. *Limit:* Concentrated value invites A2/AD salvos and brittle dependencies. *Consequent:* Use exquisite assets sparingly, with decoys and swarms shielding them.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Software-
first swarms win &
Brose on software
primacy and kill
chains (pp.122+)
& Exquisite plat-
forms ensure
overmatch &
Reliable auton-
omy and edge
compute & Proto-
type autonomous
teams; invest
in software and
deception Stealth
obsolescence

& “Borrowed
time” and quan-
tum “nowhere to
hide” (pp.122+)

& Signatures
manageable with
counter-sensing

& LEO con-

Gaps (1) Chase cost-exchange data and campaign-level simulations comparing swarms versus A2/AD salvos. (2) Park deep quantum-communications claims; prioritise near-term sensing, autonomy reliability, and edge-security.

(COHEN_1995)

Source Analysis — *Cohen 1995, Come the revolution*

Describe: Sets out the RMA idea from Soviet MTR roots and argues that information technologies plus precision weapons transform not only tools but organisations and concepts, albeit over decades, with guided missiles emerging as the dominant weapon (pp.26+). **Interpret:** Speaks to thesis outcomes on critical synthesis and method appraisal by reframing RMA as organisational as much as technical, and by highlighting diffusion that lets modest adversaries raise costs. **Methodology:** Conceptual, historically anchored magazine essay; evidence is illustrative vignettes and comparative logic; validity moderate; bias US policy lens; context is post–Cold War drawdown and tech optimism (pp.26+). **Evaluate:** Strong where it shows command authority shifting from pilots to screen-centred nodes, and where it urges new metrics for power; weaker on measurement and causal testing (pp.26+). **Author:** Reformist strategist who argues civilian leadership must drive change and reset incentives, since services will default to current constructs (pp.26+). **Synthesis:** Converges with Betts on tactical clarity versus strategic obscurity and diffusion risks; complements Brose on institutional resistance to non-traditional systems; diverges from pure continuity theses by specifying organisational rupture in command and metrics (pp.26+). **Limit.** Descriptive, US-centric, and magazine-length with thin quantification; timelines and costs are not tested (pp.26+). **Implication:** Irish DF should experiment with dispersed C2, update force metrics beyond platforms and head-count, and plan against diffusion-fuelled stymie strategies (pp.26+).

Method weight: 3/5 — Persuasive strategic reasoning with concrete organisational vignettes, yet evidence is illustrative, magazine-format, and lacks systematic metrics.

Claims–cluster seeds

Information-age precision makes guided munitions the dominant weapon. Best line: “Today it is much more likely to be the guided cruise missile” (pp.26+). Rival: Legacy platforms remain decisive. Condition: ISR and strike networking hold under contest. Irish DF implication: Buy effects not platforms, privilege sensors, targeting, and magazines.

Authority shifts from the cockpit to screens and nodes. Best line: AWACS court-martial and erosion of the man on the spot (pp.26+). Rival: Mission command resists centralisation. Condition: High data density and central fusion. Irish DF implication: Train for dispersed C2 with clear delegation to avoid paralysis.

Force size will shrink while metrics must change. Best line: Wings and divisions no longer measure power; smaller force likely (pp.26+). Rival: Traditional counts still map power. Condition: Stand-off weapons and RPVs proliferate. Irish DF implication: Build readiness and effects-based measures over headcount.

Tech diffusion lets weaker foes stymie stronger powers. Best line: Civilian tech spreads capability, MiG-21 remakes, modest counters deter (pp.26+). Rival: Superiority overwhelms bricolage. Condition: Access to commercial tech and permissive markets. Irish DF implication: Assume clever mixes and plan for denial, deception, and dispersion.

PEEL–C paragraph (strongest claim) *Point:* Guided munitions and information networks displace platforms as the dominant determinant of power. *Evidence:* Cohen argues the guided cruise missile now anchors organisation, not tanks or battleships, and links this to ISR-enabled precision (pp.26+). *Explain:* Effects scale through networks and magazines, so metrics must track kill chains and readiness. *Limit:* Data on cost–exchange and survivability across campaigns is thin. *Consequent:* Irish DF should measure effects, stock magazines, and integrate sensors with dispersed shooters.

PEEL–C paragraph (counter-claim) *Point:* Some insist platforms and massed formations still define power. *Evidence:* Traditional wings and divisions remain budgeting anchors and alliance signals (pp.26+). *Explain:* Presence and political assurance often ride on visible assets and numbers. *Limit:* Cohen shows such metrics misread power under stand-off and RPVs. *Consequent:* Keep some visible mass, but shift planning to effects and dispersion.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Guided mu-
nitions dominate
& Cohen, “guided
cruise missile” as
dominant weapon
(pp.26+) & Plat-
forms remain
decisive & ISR
and networking
endure & Buy
effects; stock mag-
azines; integrate
sensors Authority
shifts to screens &
Cohen on AWACS
court-martial and
central nodes
(pp.26+) & Mis-
sion command
resists centralisa-
tion & High data
density and fusion
& Drill dispersed
C2 with clear
delegation Metrics

Gaps (1) Chase comparative metrics that relate effects-based measures to legacy force counts across cases. (2) Park deep platform taxonomies; prioritise diffusion pathways, magazine depth, and delegated C2 drills.

Source Analysis — *Crino & Dreby 2020, Drone Attacks*

Against Critical Infrastructure: A Real and Present

Threat

Describe: Sets out how small UAS enable massed, precise attacks on airports and energy sites, drawing on MENA cases such as Abqaiq; argues airports are hard to defend due to area and short detection ranges; recommends layered sensors, a common operating picture, and delegation to a single empowered decision-maker; notes lasers and HPM are promising but not yet mature. **Interpret:** Serves thesis learning outcomes by moving debate from kit lists to latency, governance, and system design. It reframes the centre of gravity as decision speed under uncertainty rather than platform count. **Methodology:** Issue brief built from open-source incidents, practitioner red-teaming, and a technical taxonomy of sensors and countermeasures; persuasive through plausibility and specificity, not formal measurement. **Evaluate:** Best where it details RF, radar, and EO/IR complementarities, defender reaction windows, and COP authority; weaker where effect sizes and probabilities remain unspecified and regional. **Author:** Practitioner authors from Red Six Solutions under Atlantic Council independence policy; likely bias towards integrated, purchasable solutions, yet with explicit caveats on limits. **Synthesis:** Aligns with Brose on distributed, edge-resilient networks and with Bachmann on information-tempo capture; complements Cohen on diffusion as weaker actors adapt faster than defenders. **Limit.** Descriptive case base, sparse quantification, and context skew to the Middle East; legal-regulatory detail is US-tilted. **Implication:** Irish DF and whole-of-government should build layered C-UAS, enforce COP discipline, pre-delegate engagement, and exercise mobile–fixed mixes rather than wait for perfect directed-energy.

Method weight: 2/5 — Clear practitioner taxonomy and actionable design logic, but limited empirical testing and regional case bias curb external validity.

Claims—cluster seeds

Massed, precise small UAS can overwhelm airport defences. Best line: Abqaiq-style precision and airport area stretch sensors, leaving seconds to act; layered defence needed. Rival: Conventional air defence suffices. Condition: Low-signature, autonomous profiles and short detection ranges. Irish DF implication: Layer RF—radar—EO/IR with mobile nodes and a single COP authority.

Leap-ahead commercial tech democratises attack while eroding detection. Best line: FHSS and open-source autopilots blunt RF sensors and ease DIY builds. Rival: Geofencing and remote ID will contain risk. Condition: Adversary exploits non-standard links and autonomy. Irish DF implication: Assume non-cooperative, low-RF signatures; weight radar and EO/IR.

Directed-energy is promising but not yet decisive. Best line: Lasers and HPM offer speed and low collateral risk, yet energy and range constraints persist. Rival: They already solve the problem. Condition: Power, safety, and surface reflectivity issues unresolved. Irish DF implication: Prototype DEW but field near-term kinetic and electronic mixes now.

Governance beats gadgets: COP with delegated engagement authority is critical. Best line: Detection often occurs at 1 km, so seconds matter; one person must be empowered to engage. Rival: Centralised legal approvals are safer. Condition: Pre-agreed authorities and rehearsed playbooks. Irish DF implication: Codify engagement rules, rehearse hand-offs, and wire COP to law enforcement.

PEEL—C paragraph (strongest claim) *Point:* Massed, precise small UAS can overwhelm airport defences unless layers and delegated authority compress response time. *Evidence:* The brief shows precision strikes on Abqaiq and repeated airport attacks, explains short detection ranges, and prescribes COP-centred, layered design. *Explain:* RF, radar, and EO/IR cover different signatures and ranges; one empowered operator removes

fatal delay. *Limit:* Magnitudes and probabilities remain under-measured. *Consequent:* Irish DF should deploy mobile–fixed layers, wire a COP, and pre-delegate engagement.

PEEL–C paragraph (counter-claim) *Point:* Some argue traditional air defences and geofencing suffice. *Evidence:* Strategic systems are tuned for fast, high, large threats and geofencing can be bypassed by autonomy and FHSS. *Explain:* The signature and speed regime of small UAS evades legacy tuning. *Limit:* Well-resourced sites may still integrate DEW soon. *Consequent:* Keep pursuing DEW, but plan today around layered sensing and delegated action.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Massing
UAS overwhelm
defences & Abqaiq
precision; airport
area, seconds to
react (pp.1–4,
8–9) & Legacy
air defence suf-
fices & Low-RF,
autonomous pro-
files & Layer
RF–radar–EO/IR,
mobile nodes,
COP authority
Commercial tech
erodes detec-
tion & FHSS, DIY
autopilots, low sig-
natures (pp.4–7) &
Remote ID and ge-
ofencing contain
risk & Non-
cooperative links
and autonomy
& Assume non-

Gaps (1) Chase comparative detection-range and defeat-rate data across sensor mixes and terrains. (2) Park exotic RC-jet scenarios; prioritise autonomous fixed-wing trends, COP authorities, and drill design.

(FLYNN_2019)

Source Analysis — *Flynn 2019*, Small States' Capability

Enhancement for Peacekeeping: What can Ireland learn from other countries?

Describe: Compares three small-state buys — NZ's MRV *Canterbury*, Austria's second-hand C-130s, and Finland's RG32 fleet — to argue for joint mobility, protected light forces, and life-cycle funding; warns against niche tokenism and urges ambition (pp.22–30). **Interpret:** Relevance is direct for Irish DF modernisation. The piece re-frames procurement around joint effects and strategic reach, not platform counts, and locates risk in interdependent lift and protection choices. **Methodology:** Qualitative, comparative policy essay using three cases and documentary touchpoints; persuasiveness comes from plausibility and specificity rather than formal measurement. **Evaluate:** Strong where it shows MRV-anchored jointness, pooled lift options, and how vehicle choices drive sea or air mobility; thinner on quantified trade-offs and rival models. **Author:** Irish policy scholar taking a pragmatic small-state lens, emphasising ambition, creativity, and flexible action for peacekeeping relevance. **Synthesis:** Converges with Betts and Cohen on organisational change and diffusion risks, while adding concrete procurement levers for small states under constrained budgets. **Limit.** Evidence is descriptive and light on metrics, with few counter-cases; context is 2019. **Implication:** Prioritise proven joint enablers, pool airlift, use MRV to package land and air effects, and ring-fence life-cycle funding.

Method weight: 2/5 — Clear, actionable synthesis using cases, but limited quantification and counter-testing.

Claims—cluster seeds

An MRV is a joint effects lynchpin for small states. Best line: Canterbury enabled deploy, sustain, and C2 as a floating base, integrating land and air into one package. Rival: Airlift alone suffices. Condition: Littoral access and mission sustainment needs. Irish DF implication: Treat the MRV as the joint hub for company-plus deployments.

Pooled or second-hand airlift is necessary but fragile. Best line: Heavy Airlift Wing and EATC provide capacity, yet reliance has limits; Austria chose C-130s to guarantee mobility. Rival: Ad hoc charters suffice. Condition: Outsize loads or contested hubs. Irish DF implication: Secure pooled hours and contingency sea lift.

Protected light fleets beat niche tokens for peacekeeping. Best line: Finland's RG32s built deployable protection, but as scouts not APCs; numbers and updates matter. Rival: Heavier APCs alone. Condition: IED threat and air or sea lift constraints. Irish DF implication: Build a transportable protected pool with iterative upgrades.

Procurement choices are interlinked across domains. Best line: Ireland's Pirhanas drive sea mobility, while partners leverage heavy lift and MRV carriage. Rival: Domain buys are separable. Condition: Company-level deployments with armour. Irish DF implication: Plan fleets with lift pathways baked in.

Fund life-cycle upgrades and buy proven designs. Best line: MRV is one-in-a-generation; avoid false economies; build a funding model for long-term planning. Rival: Prototype-heavy novelty. Condition: Tight budgets and high reliability needs. Irish DF implication: Lock a life-cycle line and pick proven variants.

PEEL–C paragraph (strongest claim) *Point:* An MRV anchors joint effects for a small state. *Evidence:* Canterbury deploys, sustains, and provides C2 for a reinforced company, integrating land and air in one resilient package. *Explain:* One ship fuses mobility, logistics, and command, raising tempo and influence. *Limit:* Costs are high and benefits depend on doctrine and drills. *Consequent:* Make the Irish MRV the joint hub with rehearsed land–air packages.

PEEL–C paragraph (counter-claim) *Point:* Airlift alone can meet peacekeeping needs. *Evidence:* Pooling and second-hand C-130s deliver operational mobility when bases are secure. *Explain:* Strategic hours and tactical lift can move units fast. *Limit:* If

airports are seized or loads are outsize, airlift fails; sea lift offers resilience. *Consequent:*
Pair pooled airlift with an MRV to hedge base denial.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline MRV as joint
hub & Canterbury
enables deploy,
sustain, C2 (pp.26)
& Airlift alone
suffices & Littoral
access, sustain-
ment & Build
MRV-centred
joint packages
Pool or buy airlift
& HAW/EATC
capacity; Austria
C-130s (pp.26–
27) & Ad hoc
charter is enough
& Outsize loads,
hub security &
Secure pooled
hours; sea-lift
backstop Protected
light fleets &
RG32s as scouts,
scaled numbers
(pp.28–29) &

Gaps (1) Chase quantified cost–effectiveness and campaign mobility metrics for MRV plus pooled airlift. (2) Park deep weapons typologies; prioritise fleet–lift interdependence and protected light vehicle updates.

(GRAY_2002)

Source Analysis — *Gray 2002, Strategy for Chaos* (Chs 4–5, 9)

Describe: Gray defines strategy as the use made of force and the threat of force for policy ends, stresses that chaos does not rule, and argues that an RMA only works as strategy within a holistic, multi-dimensional framework including 17 interlinked dimensions (Ch.4; Ch.5). **Interpret:** This serves thesis outcomes on critical synthesis and method appraisal. It redirects planning from gadgets to politics, adversary behaviour, and compensation across dimensions. If an RMA does not work strategically, it does not work. **Methodology:** Theory-led synthesis anchored in neo-Clausewitzian instrumentality, tested against historical cases, with explicit anatomy of strategy and its dimensions. Validity rests on coherence, breadth, and adversary-aware reasoning. **Evaluate:** Strong where it shows all forces are strategic, chaos is bounded, and RMAs require whole-of-strategy synergy. Thinner where quantification is light and generalisations contestable. **Author:** Clausewitzian strategist, sceptical of hubris and enemy-independent analysis, emphasising politics, adaptation, and the duel. **Synthesis:** Converges with continuity sceptics: politics rule, bigger battalions and alliances prevail over time; diverges from tech-determinists by rejecting master-technology narratives and by insisting on strategic nesting. **Limit.** Conceptual and interpretive, with sparse metrics; relies on case reading and coherence rather than formal tests. **Implication:** Irish DF should buy effects not platforms, guard time and mass, and design for adaptation under political direction within a duel against a learning foe.

Method weight: 3/5 — Robust conceptual scaffold with adversary-aware logic and a 17-dimension method, but quantitative validation is limited.

Claims—cluster seeds

Chaos does not rule; strategy remains feasible. Best line: “Ceteris tolerably paribus, objectively better armed forces tend to win wars... Chaos does not rule.” (Ch.4). Rival: War is essentially chaotic and unpredictable. Condition: Relative competence and mass over time. Irish DF implication: Invest in training, readiness, alliances, and error-proofing.

All forces are strategic; no inherent “strategic” forces. Best line: “All forces are strategic in their effect, ergo none are distinctively strategic...” (Ch.4). Rival: Certain forces are inherently strategic. Condition: Local context sets salience. Irish DF implication: Integrate every arm into strategic design and measures.

RMAs only work as strategy. Best line: “To understand RMA... first one must comprehend strategy... If an RMA does not work strategically, it simply does not work.” (Ch.5). Rival: Technology alone can revolutionise war. Condition: Synergy across dimensions. Irish DF implication: Tie innovation to doctrine, organisation, and politics.

Strategy is a duel with adaptation. Best line: Strategy and war are a duel; bigger battalions and adaptation decide over time (Ch.9). Rival: Enemy-independent analysis suffices. Condition: Learning foe with time to counter. Irish DF implication: Expect counters, vary methods, protect time.

Seventeen dimensions, no hierarchy. Best line: 17 dimensions with no rank order; everything connects to everything (Ch.5). Rival: One master variable rules. Condition: Multi-domain interaction. Irish DF implication: Seek compensation across dimensions; watch time.

PEEL—C paragraph (strongest claim) *Point:* RMAs only work when they work as strategy. *Evidence:* Gray insists understanding RMA requires prior comprehension of strategy, and that if an RMA does not work strategically, it does not work (Ch.5). *Explain:* Innovation must fuse with doctrine, organisation, politics, and an adapting enemy. *Limit:* Conceptual proof with light measurement invites empirical challenge. *Consequent:* Irish DF should couple tech pilots to doctrine, training, authorities, and red-team counters.

PEEL–C paragraph (counter-claim) *Point:* Some argue decisive technology alone can transform outcomes. *Evidence:* Tech-determinist readings of RMA downplay politics and adaptation. *Explain:* If sensors and precision scale, victory seems automatic. *Limit:* Gray shows chaos is bounded, the enemy adapts, and politics rule (Chs 4, 9). *Consequent:* Treat tech as enabler inside a strategy that anticipates counters and secures political aims.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Chaos
bounded, strat-
egy feasible &
Ch.4: “Chaos does
not rule... better
forces win” &
War is essentially
chaotic & Relative
competence over
time & Train,
ally, reduce error
paths All forces
are strategic &
Ch.4: no inherent
“strategic” forces
& Only certain
forces are strate-
gic & Context
sets salience &
Integrate all arms
into strategy RMA
must work as strat-
egy & Ch.5: if it
fails strategically,
it fails & Tech

Gaps (1) Chase comparative, quantitative tests of the 17-dimension compensation thesis across cases. (2) Park taxonomies of “strategic forces”; focus on instrumentality and adversary adaptation dynamics.

Inline support (key lines): — Strategy’s instrumentality and “all forces are strategic.” — Chaos bounded; better forces tend to win; “Chaos does not rule.” — RMAs must be understood and executed as strategy. — Seventeen dimensions with no hierarchy; compensation logic. — Politics rule; strategy as a duel; bigger battalions.

(GRAY_2005)

Source Analysis — *Gray 2005*, “Warfare, 1989–2004:

What Has Changed?”

Describe: Sets out four caveats for strategic futurology, then surveys eight “what changed, what not” points: the nature of war is unchanging; US foes since 1989 were largely third-rate; the United States is the temporary balance of power; transformation’s strategic payoff will disappoint without strategy; interstate war is down but not out; catastrophic terrorism surged; norms and media debellicise the West, yet reversibly (pp.14–24).

Interpret: Directly serves thesis outcomes on critical synthesis and method appraisal: it recentres planning on politics, adversary adaptation, and the consequences of trends rather than their fashions. It rejects enemy-independent optimisation and warns against single-track transformation. **Methodology:** Theory-led, Clausewitzian synthesis that uses recent cases as illustrations; validity rests on coherence, breadth and historical sensibility; magazine format implies limited metrics. **Evaluate:** Strongest where it codifies the caveats, rebuts “changing nature” claims, and shows why transformation without strategy underperforms; weaker on quantified evidence and rival tests. **Author:** Clausewitzian strategist; sceptical of technophilia and trend worship; emphasises politics, culture and the duel with an adapting enemy. **Synthesis:** Converges with Gray (2002) on multi-dimensional strategy and the duel; with Betts and Blainey on continuity and escalation risk; diverges from RMA determinists who expect decisive, clean change. **Limit.** Descriptive, US-centric,

and predictive with sparse metrics; some generalisations rest on the 1990s interwar context. **Implication:** Irish DF should buy effects not platforms, train and ally for endurance, build resilient C2, and rehearse for surprise and diffusion rather than chase fashion.

Method weight: 3/5 — Robust conceptual frame with clear caveats and adversary-aware logic; limited quantitative testing and magazine genre reduce external validity.

Claims—cluster seeds

The nature of war is unchanged; character shifts with context. Best line: “The nature of war... is eternal... character changes, not nature.” (p.17). Rival: War’s nature has changed in the information age. Condition: Politics, society and tech interact but do not alter nature. Irish DF implication: Anchor doctrine in purpose, friction and chance, then fit tools.

Transformation’s strategic potency will disappoint without strategy. Best line: Transformation does “what we already do well” yet misses “the most vital marks.” (pp.20–21). Rival: Tech transformation alone secures advantage. Condition: Opponents adapt; diffusion spreads tools. Irish DF implication: Tie any tech buy to doctrine, training and authorities.

US as temporary balance of power masks the return of interstate war. Best line: America is the balance of power “by default... strictly a temporary condition.” (p.19). Rival: Major interstate war is gone. Condition: Rivals gain confidence and contest order. Irish DF implication: Hedge for great-power disruption of missions and sea–air corridors.

Debellicisation is real yet reversible. Best line: Media-driven taboo on war will “evaporate... when bad times return.” (p.23). Rival: Norms have durably pacified the West. Condition: Rising strategic insecurity. Irish DF implication: Plan mobilisation and stock-piles despite benign norms.

Four caveats should cap every prediction. Best line: Context first; avoid solving the wrong problem; trend analysis misleads; surprises happen. (pp.15–16). Rival: Forecasting by trend is reliable. Condition: Complex interactions and enemy choice. Irish DF implication: Red-team plans; build Plan B; rehearse recovery.

PEEL–C paragraph (strongest claim) *Point:* Transformation disappoints strategically unless it is embedded in strategy. *Evidence:* Gray argues current US transformation will help “do better what [it] already do[es] well,” yet it misses vital marks as foes adapt and diffusion spreads tools (pp.20–21). *Explain:* Capabilities must be bound to doctrine, authorities, training and alliance practice to change outcomes. *Limit:* Evidence is illustrative rather than measured. *Consequent:* Irish DF should gate tech spend through doctrine trials, mission-command drills and red-teamed exercises.

PEEL–C paragraph (counter-claim) *Point:* Tech transformation alone secures enduring overmatch. *Evidence:* Proponents cite precision, ISR and networking as decisive. *Explain:* If sensing and strike compress cycles, victory appears routine. *Limit:* Gray’s caveats show trend-reading fails, enemies adapt and politics rules (pp.15–17). *Consequent:* Treat tech as an enabler inside a political strategy with Plan B options.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline War's nature
unchanged &
Gray on nature vs
character (p.17)
& Nature changed
in info age &
Politics, society,
tech interact &
Ground doctrine
in purpose and
friction Transfor-
mation disappoints
without strategy
& Misses "vital
marks"; diffusion,
adaptation (pp.20–
21) & Tech alone
secures overmatch
& Foe adapts;
diffusion spreads
tools & Tie buys
to doctrine, train-
ing, authorities
US as temporary
balancer & Hege-

Gaps (1) Chase quantified tests linking transformation investments to strategic outcomes across campaigns. (2) Park catalogue-style tech typologies; prioritise red-teaming, Plan B design and mobilisation readiness.

(KREPINEVICH_1996)

Source Analysis — *Krepinevich 1996, Revolution in Warfare? Air Power in the Persian Gulf*

Describe: Foreign Affairs review of Keaney and Cohen's Gulf War air power study. Finds unprecedented effectiveness via stealth, laser-guided and anti-radiation munitions, yet key limits remained: Scuds, nuclear programme and leadership resilience (p.144).

Interpret: Useful for thesis work on coercion and airpower limits. It cautions against assuming air alone delivers political outcomes. Links to LO on critical evaluation and application to Irish defence contexts. **Methodology:** Brief evaluative review of a USAF-commissioned assessment with privileged access to data and planners. Secondary synthesis, credible context, constrained depth. **Evaluate:** Contribution lies in balanced judgement: celebrates effectiveness while foregrounding failures to neutralise Scuds, halt nuclear work or decapitate leadership. Some charts in the book are hard to read. Bite with caveats. **Author:** Krepinevich is a US defence analyst associated with RMA debates. Tone is measured and institutional. Counter-voices include airpower maximalists who claim decisive coercion. **Synthesis:** Aligns with mixed-evidence literature on air campaigns achieving operational gains but limited strategic coercion; diverges from claims of stand-alone decisiveness. **Limit.** Single-page review, dependent on one study, sparse evidence and presentation issues in some tables. **Implication:** For the Irish Defence Forces, pair air assets with joint, resilient and political instruments to translate effects into outcomes.

Method weight: 2/5. Brief secondary review reliant on one commissioned study; credible context but limited evidence and scope.

Claims-cluster seeds

Claim: Technological advances made air power exceptionally effective at the operational level. Best line with page: “technological advances ... permitted air power to operate at unprecedented levels of effectiveness” (p.144). Rival: Effectiveness overstated by selection and access bias. Condition: When stealth, LGBs and SEAD are mature and integrated. Irish DF implication: Invest in precision enablers, ISR and SEAD partnerships, not platforms alone.

Claim: Air power alone could not neutralise mobile missiles. Best line with page: Inability to neutralise the Scud missile threat (p.144). Rival: Poor kill-chain coordination rather than inherent air limits. Condition: Against dispersed mobile launchers with deception. Irish DF implication: Build joint counter-missile kill chains with land SOF and sensors.

Claim: Leadership decapitation by air failed to coerce regime change. Best line with page: Strikes did not shatter Saddam’s hold through leadership attacks (p.144). Rival: Targeting intelligence was immature. Condition: Autocratic regimes with redundancy and security. Irish DF implication: Prioritise political-military levers and sanctions alongside air operations.

Claim: Reviews with privileged access still face readability and transparency issues. Best line with page: Charts and tables often difficult to read or interpret (p.144). Rival: Presentation does not undercut findings. Condition: When complex data is compressed for publication. Irish DF implication: Demand transparent, readable metrics in air assessments.

PEEL-C drafting

Strongest claim paragraph **Point.** Gulf War air power achieved unprecedented operational effectiveness but not decisive strategic outcomes. **Evidence.** The review credits stealth, laser-guided and anti-radiation munitions for unprecedented effectiveness while recording failures against Scuds, nuclear work and regime resilience (p.144). **Explain.** Operational excellence does not equate to coercive success. Strategic change needs joint and political levers. **Limit.** Evidence rests on one study and a brief review. **Consequent.** Irish DF should prioritise enablers and joint integration to convert effects into outcomes.

Counter-paragraph **Point.** The study's privileged access may overstate effectiveness and understate air's possible strategic leverage. **Evidence.** Commissioning by USAF and hard-to-read tables raise transparency concerns noted in the review (p.144). **Explain.** If access or presentation biased findings, stronger joint C2 and intelligence might have unlocked better strategic results. **Limit.** The review gives no granular sortie or BDA data to test this. **Consequent.** Treat claims as provisional and cross-validate with independent datasets before policy moves.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Tech ad-
vances enabled
exceptional
operational ef-
fectiveness &
Krepinevich 1996
(p.144) & Se-
lection/access
bias could inflate
effects & Mature
precision and
SEAD environ-
ment & Invest in
precision enablers,
ISR and allied
SEAD Air power
alone could not
neutralise Scuds &
Krepinevich 1996
(p.144) & Coordi-
nation shortfalls,
not inherent limits
& Mobile, dis-
persed, deceptive
launchers & Build

Gaps (1) Chase: independent datasets on Scud hunts, leadership targeting and nuclear suppression to triangulate claims. (2) Park: price and publication-format issues that do not change operational-to-strategic logic.

(KREPINEVICH_1992)

Source Analysis — *Krepinevich 1992*, The Military-Technical Revolution: A Preliminary Assessment

Describe: Defines an MTR as the union of new technologies with military systems, innovative concepts, and organisational adaptation that fundamentally alters how forces fight; argues we are early in a shift with potential order-of-magnitude gains, and centres information dominance as the sine qua non for future operations, organised by a mission framework covering information, space, air, sea, land, strike, defence, mobility, and unconventional warfare. **Interpret:** Directly serves thesis learning outcomes by shifting focus from platforms to integration, time, and adversary adaptation, including the Russian reconnaissance-strike complex and the risks of compressed warning and near-simultaneous attack. **Methodology:** Net assessment blending history, adversary theory, and concept-first design; validity rests on coherence, mission logic, and system traits rather than formal metrics. **Evaluate:** Strong where it operationalises “missions not services,” specifies information dominance, and surfaces concrete “sunset systems”; thinner on quantified tests and comparative evidence. **Author:** US strategist writing for ONA with CSBA republication; aims to steer transformation via organisational and acquisition reform. **Synthesis:** Converges with Russian RSC theory on simultaneity, deep strike, and jointness; adds US mission taxonomy and high–low mix guidance. **Limit.** Speculative, US-centric, and light on metrics; early 1990s assumptions constrain external validity. **Implication:** Irish DF should design for information dominance, adopt mission-based joint integration, protect space links, and pre-delegate engagement to compress response.

Method weight: 3/5 — Persuasive, structured net assessment with actionable design cues, but limited empirical measurement and reliance on foresight reduce testability.

Claims—cluster seeds

Information dominance is the decisive condition. Best line: “Information dominance... is defined as a superior understanding... while denying an adversary similar information” (sine qua non). Rival: Mass and platforms decide. Condition: Networked RSTA, protected links. Irish DF implication: Build COP, layered RF–radar–EO/IR, and delegated authority.

Some platforms become “sunset systems.” Best lines: tanks recede as ranged fires and information gaps dominate; manned aircraft and large surface combatants decline in centrality; large, soft satellites are vulnerable. Rival: Platforms remain central. Condition: Achieved info gap and PGMs. Irish DF implication: Buy effects, dispersion, stealth, and modularity.

Mission-based joint design beats service silos. Best line: the mission list structures force design across information, space, air, sea, land, strike, defence, mobility, unconventional warfare. Rival: Service-centred optimisation. Condition: Integration across networks. Irish DF implication: Organise plans and measures around mission sets.

Time compresses and pre-emption incentives rise. Best line: establishing info superiority early pushes forces toward hair-trigger postures and surprise. Rival: Ample warning. Condition: Reliable RSC-like networks. Irish DF implication: Harden C2, rehearse recovery, gate authorities.

High–low mixes are prudent in transition. Best line: do not scrap capital stock; phase sunrise systems while retaining a balanced mix. Rival: All-high-tech now. Condition: Accelerating tech waves. Irish DF implication: Pair proven platforms with effects-centric kits.

PEEL–C paragraph (strongest claim) *Point:* Information dominance is the decisive condition for future operations. *Evidence:* Krepinevich defines information dominance and calls it the sine qua non for effective campaigns, to be established in peace and sustained into war. *Explain:* Superior sensing, fusion, and dissemination let small, dispersed

nodes deliver simultaneous effects across missions. *Limit:* Magnitudes and probabilities are not measured. *Consequent:* Irish DF should wire a COP, weight RF–radar–EO/IR, and pre-delegate engagement to compress timelines.

PEEL–C paragraph (counter-claim) *Point:* Platforms and mass remain the primary currency of power. *Evidence:* Tanks, manned aircraft, carriers, and large satellites traditionally anchor posture and presence. *Explain:* Visible mass signals resolve and carries endurance. *Limit:* The assessment shows these are increasingly vulnerable and less central as ranged fires and networks dominate. *Consequent:* Keep some visible mass, but design around effects, dispersion, and protected links.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Information
dominance decides
& Definition and
“sine qua non”
(p.22) & Platforms
and mass decide &
Networked RSTA,
protected links
& Build COP,
layered sensors,
delegated author-
ity Sunset systems
emerge & Tanks,
manned aircraft,
carriers, large
satellites (pp.17–
20) & Platforms
stay central & Info
gap plus PGMs
& Buy effects;
disperse; stealth;
modularity Mis-
sion framework
& Ten missions
list (pp.21–22) &

Gaps (1) Chase comparative metrics for detection, decision, and defeat rates across sensor mixes and terrains, plus quantified “info gap” effects. (2) Park platform catalogues; prioritise mission-based integration, space control resilience, and delegated engagement drills.

(KELLER_2002)

Source Analysis — *Keller 2002, The fighting next time*

Describe: Profiles U.S. reform camps after 9/11 and argues that rhetoric outpaced cuts to legacy systems; Afghanistan illustrated integration of old and new rather than a pure high-tech revolution (*n.p.*). Key scenes include JDAMs on B-52s guided by SOF and horses, and Marshall’s claim that organisation must change with technology.

Interpret: Relevant to questions on how militaries actually change. The piece shows budgets and institutions impede reform and that promoters of transformation face perverse incentives. It omits systematic outcome data or comparative metrics.

Methodology: Magazine feature drawing on interviews with Cebrowski, Marshall, Krepinevich, Spinney; triangulated with historical analogies and contemporary cases. Credible voices, low formal rigour.

Evaluate: Strongest where it shows organisation over technology and the budgetary lock-ins that protect legacy programmes; weakest on measurement and generalisability.

Author: NYT journalist with a centrist lens; balances RMA advocates, 4GW sceptics and budget realists.

Synthesis: Aligns with RMA writers on marrying technology to organisation; diverges from tech-determinists who see platforms as decisive and from pure 4GW scepticism about sensors and remote control.

Limit. Time-bound to early 2002 and U.S. policy debates; lacks later evidence. **Implication:** For a small state, prioritise joint C2, incentives for information and SOF-air integration over platform accumulation; aligns with LO on critical evaluation and policy application.

Step 3 — Method Weight

2 / 5. Journalistic synthesis with authoritative interviews and vivid cases, but lacks systematic design, data and validated measures; strong for context, weak for causal inference.

Step 4 — Claims-Cluster Seeds

Claim: New weapons change little unless matched by organisational reform. • Best line: “New weapons are only revolutionary if they are married to new organisations.” (*n.p.*) • Rival reading: Precision strike alone transforms war. • Condition: Promotion paths and expertise in information roles rewarded; JSTARs analysts retained. • Irish DF implication: Build career ladders for joint ISR, targeting and C2.

Claim: Politics and industry entrench legacy platforms and blunt transformation. • Best line: Workshare spreads programmes across 46 states; Congress resists cuts. (*n.p.*) • Rival reading: Redundancy preserves readiness. • Condition: No galvanising battlefield embarrassment or looming threat. • Irish DF implication: Avoid vendor lock-in; favour modular, multi-role systems.

Claim: Afghanistan evidenced old-new integration rather than a remote-control war. • Best line: JDAM kits on B-52s; SOF on horseback lasing targets. (*n.p.*) • Rival reading: Airpower alone won. • Condition: Terrain and allies permit small teams to cue fires. • Irish DF implication: Invest in SOF-air liaison, laser designators and coalition targeting procedures.

Claim: U.S. “transformation” in 2002 shifted funding only at the margins. • Best line: “Only on the margins.” Budget continued legacy programmes. (*n.p.*) • Rival reading: More money equals transformation. • Condition: No hard cancellations of legacy lines; trade-offs absent. • Irish DF implication: Tie any new spend to explicit divestment and organisational change.

Claim: Future peers with precision missiles and sensors will negate legacy concepts. • Best line: Expect opponents with “some of the same stuff”; carriers kept offshore. (*n.p.*) • Rival reading: CT-style fights define the future. • Condition: Emergence of peer competitors with A2/AD and ISR. • Irish DF implication: Disperse basing; emphasise coastal denial and situational awareness.

Step 5 — PEEL-C Drafting

Paragraph A — Strongest claim (organisation over tech): *Point*. Transformation succeeds when organisation changes with technology. *Evidence*. Marshall insists new weapons matter only when married to new organisations; Afghanistan worked by coupling JDAM kits to ancient B-52s and SOF on horses cueing targets. *Explain*. The gain came from how units coordinated and how information flowed, not from a gadget alone. *Limit*. Journalistic account lacks systematic metrics; single-theatre generalisation is risky. *Consequent*. Irish DF should weight incentives, training and joint C2 nodes before buying platforms. *Limit*. *Consequent*:

Paragraph B — Counter-claim (status-quo capacity and incrementalism): *Point*. The existing U.S. force innovated adequately; sweeping revolution was unnecessary. *Evidence*. O’Hanlon notes the “starry-eyed talk is gone,” with innovation already reasonable; budgets funded both new precision tools and legacy programmes. *Explain*. Incremental adaptation may fit democratic constraints, allied politics and casualty aversion. *Limit*. Success can breed complacency; victors often fail to learn. *Consequent*. Irish DF should pair incremental innovation with explicit divestments to avoid lock-in. *Limit*. *Consequent*:

Step 6 — Evidence & Implication Log (LaTeX)

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Org change
beats tech &
Keller 2002,
“new weapons...
married to new
organisations”
(n.p.) & Tech-
determinism &
Incentives reward
ISR and joint
roles & Build
career ladders for
ISR, targeting, C2
Politics entrench
legacy & Keller
2002, industry
spread across 46
states (n.p.) &
Redundancy pre-
serves readiness
& No acute threat
to force change
& Avoid lock-in;
modular procure-
ment Afghanistan

Step 7 — Gaps

Chase original NYT Magazine pagination for precise page cites; verify quotations against the print or full-text database.

Park post-2002 outcomes and later reforms unless SOURCES=VERIFY is authorised.

Key supporting extracts (for your audit trail)

- JDAM with B-52s; SOF on horseback; integration point.
- Organisation must change with tech.
- “Only on the margins.”
- Congress and industry entrench legacy programmes.
- Caution that future opponents may have similar tech.

(HUSAIN_2021)

Source Analysis — *Husain 2021*, AI is Shaping the Future of War

Describe: Argues that AI shifts the character and conduct of war toward hyperwar, collapsing decision loops and privileging software-led, networked systems over individual platforms (pp.52–54, 60–61). **Interpret:** Relevant to force design, procurement, and small-state strategy because it reframes capability around cognition, cost, and speed; it excludes systematic failure data or cases where autonomy under-performed. **Methodology:** Conceptual essay with contemporary vignettes and cost comparisons; evidence is illustrative, validity moderate, bias likely given entrepreneurial stance and pro-adoption advocacy. **Evaluate:** Strong where it maps OODA to AI perception–decision–action and where cost-per-capability undercuts exquisite platforms; weaker on counter-evidence and sourcing depth. **Author:** Entrepreneur CEO of SparkCognition and founding CEO of SkyGrid, writing from a US defence innovation lens with access to senior practitioners. **Synthesis:** Aligns with diffusion accounts that cheap autonomy and software agility can overwhelm legacy forces; diverges from platform-centred theories that prize manned exquisite systems. **Limit.** Depends on optimistic tech maturation, selective cases, and contested reads of conflicts. **Implication:** Irish DF should weight software, networks,

and attritable autonomy higher than exquisite platforms; invest in rapid upgrade paths and agile procurement.

(Key support: hyperwar framing and OODA–AI mapping, pp.53–55; global diffusion vignettes and cost lens, pp.56–58; software-first post-platform claim, p.60; adoption pathways, p.61.)

Step 3 — Method Weight

3 / 5. Conceptual synthesis with timely cases and a clear analytical frame; limited systematic data, advocacy bias likely, US-centric context.

Step 4 — Claims-Cluster Seeds

Software beats platform primacy. Best line: “Software, AI, autonomy—these are the ultimate weapons.” (p.60) Rival reading: software cannot replace mass or crewed survivability. Condition: holds where networks are resilient and EW manageable. Irish DF implication: prioritise software upgrades and networking across modest fleets.

Cost-per-capability favours attritable drones over exquisite helos. Best line: TB2 loiters 24h, carries 2 ATGMs, costs about *2Mvs*100–125M for attack helicopters (pp.57–58). Rival: survivability, payload and weather tolerance still favour helos. Condition: permissive or contested airspace where swarming saturates defences. Implication: trial TB2-class systems and loitering munitions for distributed lethality.

Hyperwar compresses OODA beyond human tempo. Best line: AI excels at perception, decision and action tasks and beats humans in constrained trials; AlphaDogfight AI won 5–1 (p.54). Rival: rules of engagement and brittleness limit transfer to combat. Condition: when tasks are well-specified and sensors saturate the grid. Implication: automate target-to-effects chains with human-on-the-loop governance.

Global diffusion erodes Western advantage. Best line: Russia flew 80 UAVs in Syria; TB2 swarms devastated Armenian assets; China and Iran iterate fast (pp.56–58). Rival: counter-UAS, integrated air defence and deception can blunt effects. Condition: when low-cost innovation cycles outpace counter-measures. Implication: build layered counter-UAS while adopting affordable autonomy.

Step 5 — PEEL-C Drafting

Argument paragraph (pro). Point. Software-led, networked autonomy now offers better cost-per-capability than exquisite manned platforms. Evidence. TB2-class drones loiter far longer and cost about $2M$ *versus* 100–125M for attack helicopters, yet deliver credible ATGM effects (pp.57–58). Explain. Distributed attritable systems scale effects and saturate defences, while software upgrades compound quickly. Limit. Survivability, payload and bad-weather performance can still favour crewed helos. Consequent. The DF should test swarming and loitering concepts, integrate cognitive EW, and refocus upgrades on software. Limit. Consequent:.

Counter paragraph (con). Point. Claims of hyperwar risk over-generalising from curated vignettes and constrained trials. Evidence. AlphaDogfight's 5–1 AI win occurred under narrow rules, and sourcing leans on news reports rather than systematic campaign data (p.54, pp.56–58). Explain. Real combat imposes friction, deception, and contested spectrum which can break brittle autonomy and networks. Limit. Even if transfer is partial, automation still narrows timelines. Consequent. The DF should pursue autonomy with red-team trials, fail-fast loops, and layered counter-UAS before scaling. Limit. Consequent:.

Step 6 — Evidence & Implication Log (LaTeX)

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Software
primacy over
platforms &
Husain (2021)
“Software, AI,
autonomy—these
are the ultimate
weapons.” p.60
„PRISM „(support)
& Platform-centric
survivability literature
& Resilient networks,
manageable EW
& Shift budgets to
software, networking,
data integration At-
tributable drones beat
helos on cost-effect &
Husain (2021) TB2
2*Mvs*100–125M helo,
loiter 24h, pp.57–58
& Survivability and
payload arguments for
helos & Permissive to
moderately contested
airspace & Trial
swarms, loitering
munitions, distributed
lethality Hyperwar
compresses OODA

Step 7 — Gaps

(1) Chase rigorous counter-cases and campaign-level data on autonomy performance, spectrum denial, and counter-UAS in peer fights. (2) Park fine-grained platform specs until a DF-specific concept study sets mission profiles.

Minimal source anchors used above

Bibliographic and authorship details; title, journal, pages. Misunderstanding AI and deterrence reframing. OODA–AI mapping and perception–decision–action. Global diffusion and TB2/Azerbaijan vignettes. Cost-per-capability lens TB2 vs helos. Software-first, post-platform era. Adoption pathways and conclusion.

If you want, share your thesis question and any rival sources to weigh next and I will fold them into the claims-cluster and PEEL-C.

(KREPINEVICH_2002)

Source Analysis — *Krepinevich 2002*, The Military-Technical Revolution: A Preliminary Assessment

Describe: Defines a military-technical revolution as technology plus operational and organisational change that fundamentally alters war, and forecasts order-of-magnitude gains in effectiveness for adopters (p.3). **Interpret:** Relevance is high for a thesis on coercion and capability development: it centres information dominance, network integration and joint mission framing, not platform counts, and maps denial versus control aims (pp.22–23, 45–46). **Methodology:** Net assessment with historical analogies and Russian theorists; conceptual, early-phase sketch that explicitly withholds precise metrics and proposes tentative operational areas (pp.1, 22–23). **Evaluate:** Strongest where it specifies mission buckets and sunrise–sunset criteria, and where it explains deep-strike networks and simultaneous operations through RSC logic (pp.15–17, 22). **Author:** US defence analyst, CSBA director; document prepared for ONA in 1992 and reissued by CSBA in 2002, signalling a transformational lens and institutional proximity (front mat-

ter). **Synthesis:** Aligns with Soviet RSC thinking on information-centric strike and joint, near-simultaneous operations; diverges from platform-led modernisation by downranking tanks, carriers and some manned aviation (pp.6–7, 17–18). **Limit.** Evidence is thin, timelines and metrics unresolved, and publication lag separates the 1992 assessment from the 2002 text (pp.i–iv, 23). **Implication:** For the Irish Defence Forces, privilege ISR, networks and joint doctrine, build space resilience, and plan within denial-dominant coalitions.

Method weight: 3/5. Conceptually rigorous net assessment with clear frameworks, but speculative, US-centric and light on empirical validation or costed measures.

Claims-cluster seeds

Claim: Integration, not technology alone, defines revolutions and can deliver order-of-magnitude effectiveness. Best line with page: definition and “order of magnitude” increase (p.3). Rival reading: Technology diffusion erodes gains quickly. Condition: Only when operational and organisational change co-evolves with systems. Irish DF implication: Focus on doctrine, data and teams before platforms.

Claim: Information dominance is the sine qua non of future operations, with hair-trigger risks for peers. Best line with page: “sine qua non” definition and surprise/automated posture risk (pp.22–23). Rival: Denial strategies can offset dominance asymmetrically. Condition: Peer competition with integrated RSTA and ranged fires. Irish DF implication: Build protected ISR pathways and exercise surprise-proof C2.

Claim: Sunrise–sunset shift downgrades tanks, large surface combatants and some manned aircraft. Best line with page: criteria for sunrise and list of sunset tendencies (pp.15–18). Rival: Urban and terrain constraints sustain close, direct-fire needs. Condition: When extended-range, networked fires can be maintained. Irish DF implication: Emphasise non-LOS fires, mobility and allied naval air coverage.

Claim: Reconnaissance-strike complexes enable simultaneous deep strike and collapse sequential campaigning. Best line with page: deep-strike network logic and simultaneity (p.15). Rival: BDA limits and deception re-impose sequencing. Condition: Reliable

RSTA-shooter coupling and survivable comms. Irish DF implication: Train to cue allied shooters with national ISR.

Claim: Many adversaries will aim for denial, not control, lowering their tech threshold. Best line with page: denial versus control asymmetries (p.45). Rival: Regional hegemony may still pursue control locally. Condition: Limited aims and resource constraints. Irish DF implication: Design coalition plans to defeat denial strategies.

PEEL-C drafting

Strongest claim paragraph **Point.** Revolutions come from integrating tech, operations and organisation, not gadgets alone, delivering step-changes in effect. **Evidence.** The assessment defines MTR as the fusion of technologies, operational concepts and organisational adaptation, and projects order-of-magnitude gains (p.3). **Explain.** Integration produces information gaps that networked fires exploit, compressing campaigns into near-simultaneous strike. **Limit.** Empirical measures and costs are not specified, and timelines are uncertain. **Consequent.** Irish DF should sequence investments: ISR, networks, doctrine, then platforms. Limit. Consequent:.

Counter-paragraph **Point.** The framework may understate friction: denial strategies, BDA limits and deception can blunt integration's edge. **Evidence.** The text itself cautions that early sketches lack metrics, and adversaries can force hair-trigger postures with denial (pp.22–23, 45). **Explain.** If sequencing returns under uncertainty, close-combat and manned assets remain necessary screens. **Limit.** The document largely emphasises ranged fires and may over-generalise from Gulf War patterns. **Consequent.** Treat the integration thesis as a design hypothesis and test it in joint exercises. Limit. Consequent:.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Integra-
tion delivers
step-change ef-
fectiveness &
Krepinevich 2002,
p.3 & Tech dif-
fusion erodes
edges quickly &
Operational and
organisational
reform proceeds
with systems &
Prioritise doctrine,
data, teams before
platforms Informa-
tion dominance is
decisive but risky
& Krepinevich
2002, pp.22–23
& Denial offsets
dominance asym-
metrically & Peer
competitions with
networked RSTA
and fires & Harden

Gaps (1) Chase: quantitative measures of information advantage, BDA reliability and cost curves to test integration effects post-1992. (2) Park: terminology disputes (MTR vs RMA) that do not alter planning logic.

(METZ_2000)

Source Analysis — *Metz 2000, The Next Twist of the RMA*

Describe: Argues the RMA may twist into a more radical phase: strategic information warfare could shift from theory to practice, robotics and MEMS enable micro-precision, and advantage drifts toward small, numerous, networked systems; Libicki's stages run from pop-up warfare to the mesh to fire-ant swarms; operational tempo compresses and phased campaigns may lose meaning. **Interpret:** Directly supports thesis outcomes on critical synthesis and method appraisal. It reframes Irish design problems around dispersion, resilient links, delegated authorities, and legal policy for cyber operations, not around single exquisite platforms. **Methodology:** Futures-led strategic synthesis using official visions, RAND-style concepts, and tech roadmaps; validity rests on conceptual coherence and adversary adaptation logic rather than formal evidence. **Evaluate:** Strong where it specifies infrastructure war forms and the small-and-many advantage with concrete mechanisms; weaker on measurement, timelines, and external validity beyond a US context. **Author:** US Army War College analyst writing for *Parameters*; engages net-assessment debates and ethical policy questions around information warfare. **Synthesis:** Converges with Krepinevich on information-centred integration and mission logic; extends Libicki by stressing ethics and leadership targeting risks; diverges from continuity theses that keep platform primacy and a stable operational level. **Limit.** Speculative foresight with light metrics, US-centric assumptions, and uncertain feasibility. **Implication:** Irish DF should build a common operational picture, protect space-dependent links, disperse sensors and effectors, and pre-delegate action inside a clear cyber-legal framework.

Method weight: 3/5 — Coherent, policy-relevant synthesis with actionable concepts on dispersion and authority; speculative base and limited evidence reduce testability.

Claims—cluster seeds

Strategic information warfare has two forms and could erode great-power advantage. Best line: two forms outlined; low cost invites many actors. Rival: Conventional coercion remains superior. Condition: Reliable attribution remains hard. Irish DF implication: Build cyber resilience, attribution partnerships, and legal guidance.

The advantage shifts to the small and many over the large and few. Best line: meshes built from millions of sensors enable fire-ant swarms. Rival: Exquisite platforms endure. Condition: Dense, resilient networking. Irish DF implication: Prefer dispersed, modular effects over single points of failure.

Micro-robots and MEMS make leaders-only precision thinkable. Best line: selecting the individual inside a building; ethics contested. Rival: Assassination remains taboo and impractical. Condition: Reliable discrimination and control. Irish DF implication: Draft ROE and policy for autonomy and targeted effects.

Operational level importance may erode as tempo and integration rise. Best line: phased campaigns lose meaning; national security operations integrate instruments. Rival: Operational art remains central. Condition: Very high tempo with whole-of-state integration. Irish DF implication: Rehearse joint civil-military crisis playbooks.

Counter-sensor tech will blunt find-to-kill chains. Best line: adversaries will spoof or hide from sensors. Rival: Stealth and ISR stay ahead. Condition: Commercial diffusion of deception tools. Irish DF implication: Invest in multi-phenomenology sensing and deception.

PEEL–C paragraph (strongest claim) *Point:* Advantage is migrating to the small and many, not the large and few. *Evidence:* Libicki’s mesh built from millions of sensors enables swarming fire-ant attacks on complex systems. *Explain:* Redundancy and dispersion create robustness against attrition and deception while keeping effects simultaneous. *Limit:* Empirical magnitudes and costs are not measured. *Consequent:* Irish DF should prioritise dispersed sensors, modular shooters, and protected data links over single exquisite platforms.

PEEL–C paragraph (counter-claim) *Point:* Exquisite platforms and mass will still decide outcomes. *Evidence:* Traditional presence and endurance signal resolve and sus-

tain operations. *Explain:* Highly capable manned systems integrate multi-role functions and deterrent visibility. *Limit:* Metz shows meshes and deception can expose large platforms and compress warning. *Consequent:* Keep some visible mass, yet design around dispersed effects and resilient networks.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Info war has
two forms & Metz
lines on support
vs stand-alone
SIW & Conven-
tional coercion
suffices & Attri-
bution difficult;
legal ambiguity
& Build cyber
resilience and
legal playbooks
Small-and-many
advantage & Mesh
and fire-ant swarm
lines & Exquisite
platforms endure
& Dense resilient
networking &
Prefer dispersed
sensors and effec-
tors Leaders-only
precision emerges
& Micro-robot
precision and

Gaps (1) Chase comparative data on swarm robustness, sensor spoofing rates, and cyber attribution accuracy under coalition conditions. (2) Park platform catalogues; prioritise ROE for autonomy, civil-military cyber governance, and delegated authority drills.

(OWENS_2002)

Source Analysis — *Owens 2002, The Once and Future*

Revolution in Military Affairs

Describe: Charts the RMA's roots in the 1970s, Desert Storm's proof of concept, and a late-1990s Thermidor. Argues progress requires a system-of-systems, jointness, and governance reform, not gadgets alone (*n.p.*). **Interpret:** Relevant to why transformation rhetoric often underdelivers. Owens links outcomes to organisational incentives and oversight. He sidesteps robust metrics. **Methodology:** Conceptual synthesis with historical exemplars and insider policy detail. Emphasises jointness, JROC, PPBS, and experimentation (*n.p.*). **Evaluate:** Strongest where prescribing standing joint forces, revitalised JROC, and severalfold C4ISR funding. Thinner where inferring effects without data (*n.p.*). **Author:** Reformist former VCJCS voice. Frames jointness and governance as levers for military advantage. **Synthesis:** Aligns with system-of-systems and network-centric schools. Rejects platform counts and single-service stovepipes (*n.p.*). **Limit.** U.S.-centric, advocacy-led, with limited quantified evidence. **Implication:** For a small state, prioritise joint C2, experimentation, and modular C4ISR before big platforms; link to thesis LOs on critical evaluation and policy application. Limit. Implication:.

Step 3 — Method Weight

2.5 / 5. Persuasive senior-practitioner synthesis with clear mechanisms and prescriptions, yet few systematic data, U.S.-centric cases, and advocacy bias constrain validity.

Step 4 — Claims-Cluster Seeds

Organisational change, not technology alone, unlocks RMA gains. • Best line: Jointness and a system-of-systems beat platform counts (*n.p.*). • Rival reading: Buy more precision platforms and superiority follows. • Condition: Break stovepipes; share bat-

blespace knowledge; align requirements to joint effects. • Irish DF implication: Build joint C2 nodes and shared ISR processes before major fleet buys.

The 1990s Thermidor stalled transformation despite rhetoric. • Best line: JV2010 slid to JV2020; JROC retrenched; experiments underfunded (*n.p.*). • Rival reading: Incrementalism was prudent and effective. • Condition: Status quo budgets and service prerogatives dominate requirements. • Irish DF implication: Ringfence joint experimentation funding and tie it to divestments.

Accelerate via standing joint forces and empowered joint governance. • Best line: Form three-star standing joint forces and revitalise JROC to force trade-offs (*n.p.*). • Rival reading: Ad hoc JTFs suffice. • Condition: Components train together in peacetime and rotate command. • Irish DF implication: Institutionalise a permanent joint staff cadre and recurring joint exercises.

Fund C4ISR severalfold to realise network-centric effects. • Best line: Spending on satellites, comms, links, and sensors must increase severalfold with clear accountability (*n.p.*). • Rival reading: Platforms deserve first call on scarce funds. • Condition: Transparent budgets and programme discipline. • Irish DF implication: Protect a C4ISR top-slice and publish outcomes.

Allies and adversaries can leapfrog; transformation is universal and relative. • Best line: Information-age standards are widely accessible; effectiveness is where you sit on the curve (*n.p.*). • Rival reading: Only superpowers gain from RMA. • Condition: Commercial tech and doctrine sharing. • Irish DF implication: Exploit affordable ISR, training, and doctrine to narrow gaps.

Step 5 — PEEL-C Drafting

Paragraph A — Strongest claim (organisation over tech): *Point*. Real transformation comes from joint organisation and a system-of-systems, not kit alone. *Evidence*. Owens shows Desert Storm validated precision and sensing, yet stovepipes limited effects; the remedy is jointness and shared battlespace knowledge (*n.p.*). *Explain*. Effects arrive when C2, sensors, and shooters integrate so forces act faster and with fewer errors. *Limit*. Argument lacks hard outcome metrics and is U.S.-framed. *Consequent*. DF should build joint

C2 and ISR processes before platform buys, aligning with thesis LOs on critical evaluation and policy application. Limit. Consequent:.

Paragraph B — Counter-claim (incrementalism and prudence): *Point*. Incremental change preserved superiority without risky upheaval. *Evidence*. Owens admits superiority rose and joint effectiveness improved by Allied Force and Enduring Freedom (*n.p.*). *Explain*. Caution can manage political constraints and sustain alliances. *Limit*. Thermidor kept legacy structures and underfunded experimentation which risks future overmatch (*n.p.*). *Consequent*. DF should pair steady improvements with specific divestments and protected joint experiments. Limit. Consequent:.

Step 6 — Evidence & Implication Log (LaTeX)

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Org change
beats tech &
Owens 2002,
system-of-systems
and jointness
(n.p.) & Buy
more platforms &
Break stovepipes;
share knowledge
& Build joint C2
and ISR processes
first Thermidor
stalled progress
& Owens 2002,
JV2020 and JROC
retrenchment
(n.p.) & Prudence
worked & Status
quo budgeting &
Ringfence joint
experimentation
funding Stand
joint forces, re-
form JROC &
Owens 2002,

Step 7 — Gaps

Chase precise JFQ page range and any data on measured effects of standing joint forces or JROC reforms.

Park broad generalisations on alliance behaviour until SOURCES=VERIFY permits cross-national evidence.

(KREPINEVICH_1994)

Source Analysis — *Krepinevich 1994, Cavalry to Computer: The Pattern of Military Revolutions*

Describe: Defines a military revolution as the combination of new technologies, operational concepts and organisational adaptation that alters conflict, producing dramatic increases in effectiveness, often an order of magnitude. Lists four elements: technological change, systems development, operational innovation and organisational adaptation. States we are in the early stages; transitions can take decades (p.30). **Interpret:** Relevant to a thesis on coercion and capability because it shifts focus from platforms to integration, warns that competitive advantages are short-lived and highlights the role of niche competitors (pp.36–38). Links to LOs on critical evaluation, synthesis and application to Irish defence contexts. **Methodology:** Conceptual historical survey with illustrative episodes across centuries; a structured typology rather than empirical testing. Published as a National Interest essay (Fall 1994) (pp.30–31). Validity moderate. **Evaluate:** Strong where it clarifies the four-element mechanism and derives planning lessons; persuasive that the Gulf War was a precursor rather than a completed revolution, with a Cambrai analogy and a forecast of precision-and-information dynamics (pp.30, 40). Weaker where metrics, costs and timelines are thin. **Author:** Andrew F. Krepinevich, US defence analyst; institutional proximity and a transformation lens (byline). Counter-voices include tech-determinists and platform-centric advocates. **Synthesis:** Aligns with later MTR accounts that define revolutions by integration and order-of-magnitude gains; diverges from Gulf War determinism (cf. 2002 MTR definition). **Limit.** Conceptual breadth without quan-

titative comparison or costs; magazine format constrains evidence. **Implication:** For the Irish Defence Forces, prioritise ISR, joint doctrine, resilient C2 and coalition denial roles to translate effects into outcomes. Limit. Implication:.

Method weight: 3/5. Conceptually clear and historically grounded, but light on metrics, costs and validation beyond illustrative cases.

Claims-cluster seeds

Claim: Integration, not technology alone, defines military revolutions and yields order-of-magnitude gains. Best line with page: “It does so by producing a dramatic increase... often an order of magnitude or greater” (p.30). Rival reading: Technology alone suffices. Condition: Only when organisational and operational change co-evolves with systems. Irish DF implication: Fund doctrine, data and teams before platforms.

Claim: Military revolutions comprise four necessary elements that must coincide. Best line with page: “technological change, systems development, operational innovation, and organizational adaptation” (p.30). Rival reading: Platform recapitalisation alone creates revolution. Condition: Cross-element coupling achieved. Irish DF implication: Organise for cross-branch integration and rehearsal.

Claim: Competitive advantages are transient; early leads fade quickly. Best line with page: “period of competitive advantage appears to be fairly short...” (pp.36–38). Rival reading: First-mover dominance endures. Condition: Peers copy or offset rapidly. Irish DF implication: Exploit windows; hedge with resilience.

Claim: Niche competitors can excel by specialising. Best line with page: “asymmetries... allow for niche, or specialist, competitors” (p.38). Rival reading: Only great powers can exploit revolutions. Condition: Clear aims, selective investment. Irish DF implication: Specialise in ISR cueing and denial.

Claim: The Gulf War was a precursor, not proof of a completed revolution. Best line with page: “Gulf War... precursor war... similar to Cambrai” (p.40). Rival reading: Desert Storm already validated decisive precision. Condition: Immature tech and integration; adversary learning. Irish DF implication: Train joint kill-chains; assume countermeasures.

PEEL-C drafting

Strongest claim paragraph **Point.** Revolutions in warfare come from integrating technology, operations and organisation, not gadgets alone. **Evidence.** The essay defines revolution by integration and promises order-of-magnitude gains when elements coincide (p.30). **Explain.** Integration couples sensors, shooters and command to compress campaigns and magnify effects. **Limit.** The essay offers few metrics or costs. **Consequent.** Irish DF should sequence investments into ISR, doctrine and resilient C2 before platforms. **Limit.** **Consequent.**

Counter-paragraph **Point.** Some argue Desert Storm already proved a decisive precision age where technology alone dominates. **Evidence.** Krepinevich calls the Gulf War a precursor, likening it to Cambrai; integration and adversary countermeasures remained immature (p.40). **Explain.** If technology without organisational change sufficed, advantages would persist, yet he shows they are fleeting and contested. **Limit.** The argument is conceptual rather than data-rich. **Consequent.** Treat tech claims as hypotheses and test them in joint exercises and coalitions. **Limit.** **Consequent.**

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Integration
defines revolutions
& Krepinevich
1994 (p.30) &
Gadgets alone suf-
fice & Elements
coincide across
org, ops and tech
& Fund doctrine,
data and teams
first Four elements
are necessary
& Krepinevich
1994 (p.30) &
Platform recapital-
isation is enough
& Cross-element
coupling achieved
& Organise for
joint integration
and rehearsal
Advantages are
short-lived &
Krepinevich 1994
(pp.36–38) &

Gaps (1) Chase: quantitative measures for integration effects, advantage duration and cost curves post-1991 to validate claims. (2) Park: label debates (RMA vs MTR) that do not alter the integration-first planning logic.

(**RASSLER_2016**)

Source Analysis — *Rassler 2016*, Creativity and Complications: The Dark Side of UAS Use and Emerging Technologies

Describe: Commercial drones diffuse fast; “when it comes to innovation in UAS use, creativity is king,” and benign use provides templates terrorists can copy. The section inventories surveillance and SIGINT via the DIY WASP, VIP and restricted-site incursions, smuggling and prison drops, weaponisation paths, and WMD dispersion anxieties; it closes with autonomy, swarms, and miniaturisation trends. **Interpret:** This advances the thesis outcomes by reframing risk around copyable civilian practice and defender latency rather than gadget lists; it urges proactive, imaginative counter-design. **Methodology:** A curated, “proof-of-practicality” catalogue of real civilian incidents and open-source tech notes, adding trend scanning on autonomy and swarms; persuasiveness rests on plausibility, not measurement. **Evaluate:** Best where it shows concrete mechanisms — GSM-spoofing WASP, VIP proximity, prison drops, and a clear weaponisation typology. Weaker where risks lack rates and older anecdotes dominate. **Author:** CTC West Point practitioner lens with US-allied security framing and a bias toward actionable foresight. **Synthesis:** Converges with Crino & Dreby on governance, COP, and delegated engagement; with Metz on small-and-many and swarms; complements Krepinevich’s emphasis on information and time compression. **Limit.** Anecdotal, US- and Europe-tilted, and light on quantified effect sizes. **Implication:** Irish DF should wire a COP, pre-delegate engagement, exercise stadium and VIP playbooks, expand RF–radar–EO/IR mixes, harden links, and wargame swarms in the next cycle.

Method weight: 2/5 — Actionable incident catalogue with crisp typologies and trends, but sparse quantification and reliance on secondary reports limit generalisability.

Claims—cluster seeds

Creativity at the edge drives UAS threat growth. Best line: “creativity is king”; civilian practice supplies templates to copy. Rival: Regulation will contain misuse. Condition: Broad availability of COTS drones and add-ons. Irish DF implication: Use red-team copycat drills and imaginative counter-design.

Commercial UAS enable surveillance and SIGINT. Best line: WASP cracked Wi-Fi and impersonated GSM towers to record calls and texts. Rival: Hobby drones cannot do serious SIGINT. Condition: Lightweight compute and radios onboard. Irish DF implication: Treat public airspace as a SIGINT attack vector around events and bases.

VIP and restricted-site penetration is feasible. Best lines: White House lawn crash; Merkel stage overflight; PM residence landing. Rival: Perimeter security and geofencing suffice. Condition: Small multirotors in urban clutter. Irish DF implication: Stand up layered C-UAS for VIP venues and State events.

Weaponisation pathways are diverse but uneven. Best lines: suicide-drone logic and “kamikaze” label; drop systems; gun and flamethrower mounts; blade threat low. Rival: Payloads too small to matter. Condition: Close-in venues, multiple drones, or swarms. Irish DF implication: Drill rapid authority chains, point defence, and recovery actions.

Chem-bio dispersion via UAS is feared but technically hard. Best lines: WMD attraction vs hurdles; Nunn’s anthrax UAV scenario; London 2012 mitigations. Rival: Aerial WMD delivery is easy. Condition: Payload, dissemination, and timing constraints. Irish DF implication: Focus on resilience, detection, public health ties.

PEEL—C paragraph (strongest claim) *Point:* The main risk channel is copyable civilian practice; creativity multiplies options faster than rules can constrain. *Evidence:* Rassler’s “creativity is king” and the proof-of-practicality catalogue from WASP SIGINT to VIP overflights show how benign use becomes a template. *Explain:* If civilians can do it lawfully, a violent actor can mimic it cheaply, cutting defender warning time. *Limit:* Incidents lack rates and may not scale without coordination. *Consequent:* Irish DF should

red-team copycatting, wire COP feeds to a single empowered operator, and rehearse short-notice responses.

PEEL–C paragraph (counter-claim) *Point:* Tight regulation and improved counter-UAS will cap misuse. *Evidence:* Rassler anticipates regulatory rationalisation and evolving defensive tactics alongside capability growth. *Explain:* Airspace rules, export controls, and better sensors should raise attacker cost. *Limit:* The same trends — autonomy, swarming, miniaturisation — lower barriers and may outpace rule-making. *Consequent:* Combine legal tools with drills, delegated authority, and layered sensors rather than rely on regulation alone.

Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF

hline Creativity
drives risk & “Cre-
ativity is king”
(p.49) & Regu-
lation will cap
misuse & COTS
proliferation &
Red-team copycat-
ting; imaginative
counter-design
UAS enable SIG-
INT & WASP
GSM spoofing
(p.50) & Hobby
UAS trivial &
Onboard com-
pute+radios &
Treat events and
bases as SIGINT
risk VIP penetra-
tion feasible &
Merkel overflight;
PM roof (pp.50–
51) & Perimeters
suffice & Urban

Gaps (1) Chase empirical rates: detection-to-defeat timelines, incident frequencies by venue, and multi-drone effectiveness under different sensor mixes. (2) Park exhaustive platform lists; prioritise VIP and airport playbooks, delegated authority design, and swarm-focused exercises.

(SCHAUS_2018)

Source Analysis — *Schaus & Johnson 2018*, Unmanned Aerial Systems’ Influences on Conflict Escalation Dynamics

Describe: The brief argues that UAS proliferation alters escalation by lowering operator risk and changing signals, identifies three findings on uncertainty, offence–defence imbalance and tactical probing, and highlights a persistent gap between intended and received signals (pp.1–2). **Interpret:** This matters for crisis management, ROE and deterrence because commanders may choose UAS where manned options would be withheld, which reshapes thresholds and signalling ladders; omissions include causal evidence and small-state tailoring. **Methodology:** Vignette design with expert elicitation plus descriptive ISR trend context; a conceptual synthesis with moderate validity given reliance on practitioner judgement and selected cases. **Evaluate:** Most persuasive where the brief shows a policy–practice gap and an offence–defence asymmetry, and where it coins a practical “new rung” on the ladder; weaker on quantification and generalisability. **Author:** CSIS fellows writing from a Washington policy lens; the series states CSIS is nonpartisan and does not take policy positions. **Synthesis:** Aligns with deterrence work that UAS lower coercion costs across blood, treasure and reputation; diverges from formal policy equating unmanned with manned aircraft in practice. **Limit.** Findings hinge on current technology, doctrine and counter-UAS maturity, and may shift as autonomy, EW and norms evolve. **Implication:** Irish DF should codify UAS-specific signals, proportionate response ladders and layered C-UAS, and rehearse civil–military communication during UAS incidents.

Method Weight

3 / 5. Vignette-based conceptual analysis with practitioner inputs is timely and insightful, yet lacks causal identification, breadth beyond US cases and quantitative testing.

Claims-Cluster Seeds

UAS create a new rung in the escalation ladder. Best line: the employment of UAS gives policymakers additional signalling options and a “new rung” on the ladder. Condition: holds where adversaries also read UAS as lower risk. Rival: some commanders insist unmanned and manned remain equivalent in response. Implication: DF should publish UAS ladder graphics and pre-authorised steps for proportionate responses.

Offence–defence calculus diverges with UAS. Best line: UAS make commanders more willing to use force offensively while defenders face unchanged risk with fewer non-kinetic options. Condition: contested airspace with weak signalling channels. Rival: robust counter-UAS and clearer norms erase the asymmetry. Implication: DF should field soft-kill options and maritime UAS intercept SOPs.

UAS incidents can trigger rapid horizontal escalation. Best line: the 10 February 2018 Israel–Iran episode began with a UAS shootdown and expanded into strikes on multiple targets and the loss of a manned jet. Condition: when reputational stakes and base sanctuaries are implicated. Rival: many UAS incidents remain contained. Implication: DF must pre-brief political leaders on second-order effects of proportionate retaliation.

UAS supplement rather than replace manned ISR, but blending ISR–strike blurs signals. Best line: unmanned ISR hours grew while manned remained steady, and blending ISR and strike complicates escalation management. Condition: mixed tasking in congested airspace. Rival: strict mission separation maintains clarity. Implication: DF should separate ISR-only from strike-capable UAS in crisis signalling.

Lower costs across blood, treasure and reputation reduce coercion thresholds. Best line: UAS lower coercion costs across these three dimensions. Condition: domestic audiences tolerate unmanned risk better than manned losses. Rival: adversaries may discount unmanned signals as weak. Implication: DF to calibrate message content when employing UAS-only shows of force.

PEEL-C Drafting

Argument paragraph (pro). Point. UAS provide a lower-risk signalling option that policymakers can place as a distinct rung below manned force. Evidence. The brief states UAS offer “additional messaging options” and a “new rung” on the escalation ladder, and experts view UAS as less escalatory than manned platforms. Explain. Lower risk to personnel reduces domestic costs and invites calibrated probes that can still deter or compel. Limit. Adversaries may misread such signals as weak resolve. Consequent. The DF should formalise a UAS-first signalling ladder with pre-set thresholds, red-team checks and clear handoffs to manned options. Limit. Consequent:.

Counter paragraph (con). Point. Treating UAS as a low-escalation default can back-fire by producing rapid horizontal escalation. Evidence. The 2018 Israel–Iran case began with a UAS shootdown yet expanded to multi-target strikes and a downed F-16. Explain. Leaders who discount unmanned losses may escalate later to reclaim credibility, widening the fight. Limit. Many UAS incidents remain contained when signalling channels are disciplined. Consequent. The DF should pair UAS employment with proportionate response matrices, diplomatic messaging and C-UAS readiness to avoid inadvertent escalation. Limit. Consequent:.

Evidence & Implication Log

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline UAS add a
distinct signalling
rung & CSIS
Brief: “new rung”
on escalation lad-
der (p.4) & Treat
unmanned and
manned as equiv-
alent for response
& Clear signalling
channels & Pub-
lish a UAS ladder
with proportion-
ate responses
Offence–defence
calculus diverges
with UAS & CSIS
Brief: more will-
ingness to employ
UAS offensively;
defenders have
fewer non-kinetic
options (pp.6–
7) & Robust
counter-UAS and

Gaps

(1) Chase comparative datasets on UAS incidents, proportional responses and escalation outcomes across small states. (2) Park platform taxonomy depth until concept of operations and ROE are fixed.

If you want me to align the Implication lines to your Thesis Module learning outcomes verbatim, paste the LOs and I will weave them in without changing the structure.

(UAS_Roadmap_2005)

Source Analysis — *OSD 2005*, UAS Roadmap 2005–2030

Describe: The roadmap sets nine cross-Service goals and ties technology to missions to guide a 2005–2030 migration of capabilities to UAS, including metadata standards for near real time targeting and safe access to airspace. (*Exec. summary pp.i–ii; Section 6*). **Interpret:** Relevance is high for force design and policy. Gains hinge on standards, governance, and airspace integration more than on airframes alone. Measurement is light. **Methodology:** Departmental planning document that links COCOM priorities to technology timelines and operational roadmaps. Authoritative scope, limited formal evaluation. (*pp.1, 41–45, 74–75*). **Evaluate:** Strong where it codifies joint goals, interoperability, see-and-avoid, and metadata discipline. Weak on costed measures and ex-post outcomes. (*pp.i–ii, 74*). **Author:** OSD as cross-Service steward. Emphasises transformational standards and joint governance. (*p.1; p.i*). **Synthesis:** Converges with Owens on system-of-systems and joint standards; echoes Keller’s old-new integration via two mission families: payload with persistence, and autonomy with weapons. (*p.73*). **Limit.** U.S.-centric, dated forecasts, and assumptions about permissive airspace progress. **Implication:** For a small state, prioritise compliance with metadata standards, airspace access pathways, see-and-avoid, heavy-fuel engines, and adverse-weather capability; align to thesis LOs on critical evaluation and policy application.

Step 3 — Method Weight

2.5 / 5. Authoritative planning synthesis that sets concrete goals and timelines, but with limited empirical validation, U.S. assumptions, and forecast risk.

Step 4 — Claims-Cluster Seeds

Standards and airspace policy are preconditions for scalable UAS effects. Best line: compliance with motion imagery metadata, near real time targeting, and routine access to airspace (*pp.i–ii*). Rival reading: Platform buys alone deliver advantage. Condition: Joint standards enforced; see-and-avoid fielded; FAA coordination sustained. Irish DF implication: Build metadata discipline, certify see-and-avoid, and secure civil-military airspace procedures.

UAS are best for dull, dirty, dangerous tasks and reduce political risk. Best line: UA changed operations by providing unrelenting pursuit without offering a high-value target or captive (*p.i*). Rival reading: Manned aviation remains optimal across roles. Condition: Endurance, remote split ops, and coalition approvals present. Irish DF implication: Prioritise persistent ISR tasks and risk-heavy roles for UAS where lawful.

Two mission families drive design: payload with persistence, and autonomy with weapons. Best line: families to guide 25-year development, with examples toward SIG-INT, relay, strike (*p.73*). Rival reading: One airframe class suffices. Condition: Clear role separation and crew relocation to ground nodes. Irish DF implication: Split procurement tracks for relay/ISR endurance and limited-strike autonomy.

Heavy-fuel engines and adverse-weather capability are near-term priorities. Best line: develop heavy-fuel alternatives and improve adverse-weather rates (*pp.i–ii*). Rival reading: Focus first on payloads. Condition: Power, reliability, and certification proven. Irish DF implication: Specify heavy-fuel baselines and weather hardening in tenders.

Interoperability and joint governance underpin value. Best line: OSD ensures transformational capability, joint standards, and cost control (*p.i*). Rival reading: Service-unique solutions outpace joint processes. Condition: Shared architectures and common data links fielded. Irish DF implication: Mandate CDL-class links and NATO profiles in all procurements.

Step 5 — PEEL-C Drafting

Point. Standards and airspace integration enable UAS effects at scale. *Evidence.* The roadmap mandates metadata compliance with near real time targeting and sets routine

airspace access as a goal (*pp.i-ii*). *Explain.* Without shared profiles and see-and-avoid, gains stall regardless of platform. *Limit.* Evidence is policy-level and dated to 2005. *Consequent.* DF should prioritise certification, metadata discipline, and civil-military procedures before fleet growth. **Limit. Consequent:**

Point. Platforms alone can deliver advantage. *Evidence.* The roadmap shows payload-with-persistence roles and autonomy with weapons that can supplement manned fleets (*p.73*). *Explain.* Endurance and autonomy can shift outcomes even with uneven standards. *Limit.* Without airspace pathways and interoperability the advantage fragments. *Consequent.* Pair platform gains with immediate standards adoption and joint architectures. **Limit. Consequent:**

Step 6 — Evidence & Implication Log (LaTeX)

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Standards +
airspace first &
Exec. summary,
goals (pp.i–ii) &
Platforms suffice
& See-and-avoid,
FAA/NATO path-
ways & Build
metadata dis-
cipline, certify
see-and-avoid,
secure proce-
dures UAS for
dull/dirty/dangerous
& Exec. summary
(p.i) & Manned
across roles &
Endurance, remote
ops, approvals &
Assign persistent
ISR and risk-heavy
roles to UAS Two
mission families
guide design &
Section 6 (p.73) &

Step 7 — Gaps

Chase cover-page bibliographic particulars and exact chapter pagination for formal citation.

Park any post-2005 updates to standards, airspace rules, and engines until SOURCES=VERIFY is authorised.

(STIMSON_2015)

Source Analysis — *Stimson Center 2015, Military Utility, National Security, and Economics*

Describe: Working group report scoping UAS utility and policy. Core attributes are persistence, precision, reach, force protection and sometimes cost advantage (p.3–4). ISR dominates employment; fewer than 1 percent of DoD UAS are armed; DoD operated over 8,000 UAS and 41 percent of aircraft in 2010 (p.5–6). Costs vary; Global Hawk is costly per hour while Predator/Reaper are lower; cost-effectiveness is mission dependent (p.9–10). Seven recommendations set a policy roadmap (p.5). :contentReference[oaicite:0]index=0 :contentReference[oaicite:1]index=1 :contentReference[oaicite:2]index=2 :contentReference[oaicite:3]index=3

Interpret: The report shifts debate from narrow focus on strikes to broader military and civil value, while foregrounding governance gaps and strategic risks that shape small-state choices. It omits rigorous outcome metrics linking UAS use to campaign success. :contentReference[oaicite:4]index=4

Methodology: Expert working group synthesis using official budgets, fleet data and trade studies; descriptive, not causal. Validity is moderate; US regulatory context may not translate directly to Ireland or the EU. :contentReference[oaicite:5]index=5 :contentReference[oaicite:6]index=6

Evaluate: Strong where it balances cost with capability and warns against headline cost myths; adds concrete risk taxonomy that decision-makers can operationalise. Weaker on

comparative combat effectiveness. :contentReference[oaicite:7]index=7 :contentReference[oaicite:8]index=8

Author: Nonpartisan think-tank product with mixed membership; supported by Open Society Foundations; aims for pragmatic policy influence. Potential policy advocacy lens. :contentReference[oaicite:9]index=9 :contentReference[oaicite:10]index=10

Synthesis: Aligns with views that first-mover advantage in military tech is transient as capabilities proliferate; diverges from drone maximalists by stressing governance and legal risk. :contentReference[oaicite:11]index=11 :contentReference[oaicite:12]index=12

Limit. US-centric law and FAA timelines; little causal evaluation; dated to FY2016 requests. :contentReference[oaicite:13]index=13

Implication: For the Irish Defence Forces: prioritise ISR and maritime surveillance; embed consent and sovereignty protocols; adopt mission-based costing; align with EU and ICAO integration to leverage commercial innovation. Links to module LOs on critical evaluation, synthesis and method scrutiny. :contentReference[oaicite:14]index=14

Method Weight: 3/5 — Expert synthesis with solid sourcing and clear policy taxonomy, but limited causal evidence, US bias and dated budget context constrain validity.

Claims-Cluster Seeds 1) UAS value is primarily ISR, not strike. • Best line + page: “DoD currently operates over 8,000 UAS... 41 percent... less than 1 percent... carry operational weapons” (p.6). :contentReference[oaicite:15]index=15 • Rival reading: Armed drones redefine airpower decisively. • Condition: Permissive or uncontested airspace; coalition campaigns. • Irish DF implication: Focus investment on ISR sensors, data links and maritime patrol integration.

2) Cost-effectiveness is mission dependent, not inherent. • Best line + page: “Ownership cost per flight hour... Predator \$3,679; Reaper \$4,762; Global Hawk \$49,089; F-16C \$22,512; F-15E \$36,343... Properly assessing... requires going far beyond simple numerical comparisons” (p.9). :contentReference[oaicite:16]index=16 • Rival reading: UAS are always cheaper. • Condition: When full ownership costs and mission effects are measured. • Irish DF implication: Run mission-based costing for ISR vs patrol aircraft before procurement.

3) Strategic risks: sovereignty, slippery slope, blowback, war powers erosion, proliferation. • Best line + page: “These risks include the potential erosion of sovereignty... slippery slope... blowback... war powers... proliferation to non-state actors” (p.10). :contentReference[oaicite:17]index=17 • Rival reading: Risks are marginal with precision and oversight. • Condition: Outside declared war zones; weak transparency. • Irish DF implication: Codify consent, review, and transparency before any kinetic UAS use.

4) First-mover gains fade; regulation and exports shape advantage. • Best line + page: “United States must harness commercial development... low barriers to entry... software improvements will drive advances” (pp.22–23). :contentReference[oaicite:18]index=18 • Rival reading: US technical edge is locked in. • Condition: If FAA integration lags and export rules over-restrict. • Irish DF implication: Align with EU and ICAO standards; exploit commercial market to cut costs.

5) Civil UAS could deliver large economic gains if integrated. • Best line + page: “Economic impact... about \$82 billion between 2015 and 2025... integration into NAS is prerequisite” (p.21). :contentReference[oaicite:19]index=19 :contentReference[oaicite:20]index=20 • Rival reading: Benefits overstated by industry. • Condition: Robust safety cases and sense-and-avoid. • Irish DF implication: Coordinate with IAA on airspace trials that also serve defence ISR training.

PEEL-C Paragraphs **Claim paragraph — Point:** Mission drives value; UAS excel at ISR rather than strike. **Evidence:** DoD fields over 8,000 UAS, 41 percent of aircraft, yet fewer than 1 percent carry weapons; most missions are ISR (p.6). :contentReference[oaicite:21]index=21 **Explain:** This pattern shows persistence and reach are the core advantages that enable better targeting and command tempo, not firepower. **Limit:** US context and FY2010–2015 figures may not mirror small-state fleets. **Consequent:** Irish DF should privilege multi-sensor ISR, data fusion and maritime surveillance over weaponisation.

Counter paragraph — Point: Headline cost makes UAS an obvious bargain. **Evidence:** Predator/Reaper hourly costs are far below manned fighters, but Global Hawk is high and the report warns against simple comparisons (p.9). :contentRefer-

ence[oaicite:22]index=22 **Explain:** When full ownership and mission outputs are considered, a pricier platform can be more cost-effective. **Limit:** Comparative effect data are thin and weather or basing constraints alter results. **Consequent:** DF should run mission-based business cases before committing to UAS platforms.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

UAS value is
primarily ISR &
Stimson 2015,
p.6 — DoD
8,000 UAS; <1%
armed; ISR focus.
:contentRefer-
ence[oaicite:23]index=23
& Armed drones
are decisive & Per-
missive airspace;
coalition ops &
Invest in ISR
sensors, data
links, maritime
surveillance
Cost-effectiveness
is mission depen-
dent & Stimson
2015, p.9 — cost
per hour and cau-
tion against simple
comparisons.
:contentRefer-

Gaps — (1) Chase: EU and Irish airspace integration cases, post-2016 cost and availability data, comparative ISR effectiveness in North Atlantic. (2) Park: CIA process detail and US War Powers jurisprudence; treat in a separate legal chapter.

(SJOGREN_2025)

Source Analysis — *Sjogren & Nilsson 2025, Multinational Mission Command: From Paper to Practice in NATO*

Describe: NATO elevates mission command to an overarching philosophy, yet practice across multinational headquarters lags. Based on 33 interviews with senior NATO officers, the authors argue that implementation hinges on doctrinal literacy, simple language, and training that normalises prudent risk. Human interoperability is the pinch point. **Interpret:** The paper maps the shift required from procedural to human interoperability and warns that definitions on paper will not yield change without trust, mutual understanding, and practice in risk. **Methodology:** Semi-structured elite interviews (n=33) conducted March–November 2021; constructivist, grounded-theory-inspired coding to build categories from doctrine to practice. Strong access, moderate external validity. **Evaluate:** Most convincing where it shows language and orders simplicity as levers, and where it contrasts free-flowing training with evaluation-centric exercises that stifle trust and initiative. **Author:** Practitioner-scholar vantage with declared funding for Nilsson from the Swedish Armed Forces; no competing interests declared. **Synthesis:** Reinforces prior findings that NATO’s bureaucracy and language gaps hinder mission command; extends Ochs by specifying fixes: doctrine reading, plain English, and risk-positive exercises. **Limit.** Army-heavy sample, interview-only, NATO-only scope, and potential divergence between stated and practised HQ behaviour. **Implication:** Commanders must curate doctrine digestion, insist on concise intent-led orders, and programme training that rewards responsible risk to unlock human interoperability. Limit. Implication:.

Method weight: 3/5. Solid elite-interview base with clear analytic scaffolding, yet limited triangulation, branch skew, and absence of mission case studies constrain generalisability.

Claims-cluster seeds

Plain language and intent-focused brevity improve multinational understanding. Best line: “A clear intent and short orders promote mutual understanding. The intent and the mission form the ‘bone’ of the order.” (c. p. 100) Rival: Long orders reduce ambiguity. Condition: Shared doctrinal baseline exists. Implication: DF issue short, intent-led orders and enforce plain English drills.

Training must shift from evaluation to free-flowing risk practice to build trust. Best lines: “Training in NATO is not training... They are evaluation exercises...” (c. p. 98) Rival: Certification assures competence and swift trust. Condition: Basics are already mastered. Implication: DF adds unscripted CPX, wargames, and staff rides to complement certification.

Doctrinal literacy is a prerequisite for short orders and initiative. Best lines: staff struggled without “a good doctrinal baseline” (c. p. 96) Rival: Experience can substitute doctrine. Condition: Mixed HQs with varied socialisation. Implication: DF mandates reading AJP-01 extracts and aligns national doctrine with NATO baselines.

Risk acceptance is a combat factor that needs leader signalling. Best lines: “You need to love risk... The acceptance of risk is a combat factor.” (c. p. 98) Rival: Risk control preserves force. Condition: Clear commander’s intent and protection for honest mistakes. Implication: DF codifies commander guidance on prudent risk and protects subordinate initiative.

PEEL-C — strongest claim *Point.* Concise, intent-driven orders improve multinational comprehension. *Evidence.* The study finds intent and mission are the “bone” of the order, and what is left out matters. *Explain.* In mixed HQs, brevity forces alignment on ends, not process, reducing overload from encyclopaedic orders and enabling initiative where doctrine fills gaps. *Limit.* Brevity fails without a common doctrinal baseline.

Consequent. DF should train staff to draft one-page FRAGOs anchored in commander's intent and test them in unscripted CPX.

PEEL-C — counter *Point.* Long, detailed orders safeguard clarity in diverse HQs. *Evidence.* Respondents note a NATO tendency toward very long orders to cover every detail and hedge ambiguity. *Explain.* Where shared understanding is thin, extra detail can mitigate divergent interpretations across languages and doctrines. *Limit.* Over-detailing is counterproductive, signals low trust, and dampens initiative. *Consequent.* DF should pair doctrinal reading programmes with brevity drills, then taper detail as shared understanding grows.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Intent-led
brevity enhances
understanding &
Sjögren & Nilsson
2025, “bone of
the order” (c. p.
100) & Detail pre-
vents ambiguity
in diverse HQs &
Shared doctrine in
staff & One-page
FRAGO drills;
intent first, tasks
second Train-
ing must reward
prudent risk &
“NATO training is
evaluation” (c. p.
98) & Certification
yields swift trust
& Basics already
mastered & Add
free-flowing CPX,
wargames, staff

Gaps (1) Chase: comparative mission case studies testing brevity, doctrine literacy, and risk training effects across services and nations. (2) Park: further theory of mission command philosophy beyond NATO AJP-01 until empirical comparisons are logged.

(COPELAND_2023)

Source Analysis — *Copeland, Liivoja & Sanders 2023*, The Utility of Weapons Reviews in Addressing Concerns Raised by AWS

Describe: Explains Article 36 weapons reviews and sets out why and how the traditional four-step process must be adapted for autonomous functionality, arguing for iterative, life-cycle reviews and policy limits to ensure lawful use (*pp.295–300; 315*). **Interpret:** Directly relevant to implementing Guiding Principles on AWS and to DF doctrine: treat reviews as a governance mechanism that builds legal standards into design and constrains autonomy in use; gaps remain due to opaque State practice and scarce metrics (*pp.290; 292–294; 315*). **Methodology:** Doctrinal legal analysis of Article 36 with survey of State practice, plus three fictional case studies to operationalise review steps and amendments for AWS (*pp.288–296; 300*). **Evaluate:** Strong where it details re-review triggers, multidisciplinary governance, and policy constraints for human control; weak on empirical validation and uniform practice (*pp.298–300; 292–294; 315*). **Author:** Practitioner-scholars with ADF links; Australian Government funding disclosed (*p.316*). **Synthesis:** Aligns with States holding that existing IHL plus Article 36 suffices if properly operationalised; addresses sceptics by proposing life-cycle iteration and function-level limits (*pp.290; 315*). **Limit.** Opaque, inconsistent national practice and difficulty translating human due diligence into machine standards (*pp.292–294; 299–300*). **Implication:** DF should institute life-cycle Article 36 reviews, material-change re-reviews, explicit ‘support do not steer’ C2 policy, and function-specific constraints that preserve on-scene judgement; this maps to thesis LOs on critical evaluation and policy application.

Step 3 — Method Weight

3 / 5. Rigorous doctrinal analysis with clear operational proposals and case studies; validity is limited by opaque practice, fictional scenarios, and lack of quantified effect measures.

Step 4 — Claims-Cluster Seeds

Iterative life-cycle reviews are necessary for AWS compliance. Best line: integrate iterative review into design and development so IHL standards are built into machine functions (*p.315*). Rival reading: A one-off pre-service Article 36 review suffices. Condition: Material-change triggers and multidisciplinary oversight are enforced (*pp.298–299*). Irish DF implication: Stand up a joint weapons-review board with re-review gates in procurement and upgrades.

Policy limits on autonomy can safeguard ‘meaningful human control’. Best line: reviews may recommend limitations on autonomous functionality to address control and accountability concerns (*p.315*). Rival reading: Human control cannot be assured once autonomy is fielded. Condition: Clear SOPs for ‘inform, not direct’ C2 and operator-override exist. Irish DF implication: Codify commander-on-scene primacy and non-interference rules in C2 policy.

Opaque and inconsistent State practice undermines trust but does not negate utility. Best line: practice varies, is internal, and lacks transparency; yet reviews guide lawful use cases (*pp.292–293*). Rival reading: Without transparency reviews are ineffective. Condition: Internal governance, auditable logs, and selective sharing of procedures. Irish DF implication: Publish DF review *process* (not outcomes) as a confidence measure.

AWS require re-review upon material changes and across environments. Best line: material modification and new operating environments trigger re-review; training data regime matters (*pp.298–299*). Rival reading: Certification travels with the system. Condition: Detectable change management and environment profiling. Irish DF implication: Add ‘environmental delta’ checks before deployment.

Machine performance must at least match human due diligence. Best line: measure machine action against human due diligence standards in targeting (*pp.299–300*). Rival reading: Different error standards should apply to machines. Condition: Test scenarios

tied to IHL decision points. Irish DF implication: Build IHL-anchored test suites for target ID and collateral estimation.

Step 5 — PEEL-C Drafting

Point. AWS can be fielded lawfully only if Article 36 reviews become iterative across the life cycle. *Evidence.* The authors call for reviews integrated into design and development so IHL standards are built into autonomous functions, with re-review on material change (*pp.298–299; 315*). *Explain.* This moves compliance upstream, shaping algorithms and constraints before fielding, and downstream through update controls. *Limit.* Evidence base is doctrinal and case-study; transparency of State practice is limited. *Consequent.* DF should formalise re-review gates in procurement and upgrades, with multi-disciplinary sign-off. **Limit. Consequent:**

Point. Opaque practice and ML adaptation make Article 36 reviews impracticable. *Evidence.* Reviews vary across States and are internal; evolving systems risk invalidating one-off determinations (*pp.292–293*). *Explain.* Without visibility and with model drift, legality assessments may not travel across contexts. *Limit.* The article shows policy limits and life-cycle iteration can mitigate these risks (*p.315*). *Consequent.* DF should publish its review process, enforce change-control audits, and restrict autonomy where risk is high. **Limit. Consequent:**

Step 6 — Evidence & Implication Log (LaTeX)

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Iterative
life-cycle re-
views needed
& Copeland et
al. 2023, itera-
tive design-time
review (p.315)
& One-off re-
view suffices &
Material-change
gates enforced &
Create re-review
gates in procure-
ment and updates.
Policy limits can
ensure human con-
trol & Copeland
et al. 2023,
limit autonomous
functions to ad-
dress control and
accountability
(p.315) & Human
control cannot be

Step 7 — Gaps

Chase comparative State procedures and any public DF or NATO examples of life-cycle re-reviews for AWS (*to reduce opacity*).

Park broader treaty debates on bans versus principles until SOURCES=VERIFY is authorised.

Notes on sources used: abstract, methods, and conclusions (*pp.285–286; 288–296; 315–316*); traditional steps (*pp.295–296*); opacity and practice (*pp.292–293*); life-cycle iteration and re-review triggers (*pp.298–300; 315*).

(LEWIS_2023)

Source Analysis — *Lewis 2023*, War Crimes Involving Autonomous Weapons: Responsibility, Liability and Accountability

Describe: Sets out the legal contours of responsibility, liability and accountability for war crimes involving autonomous weapon systems. Distinguishes state responsibility and individual criminal responsibility, and sketches three notions of state liability (Abstract). :contentReference[oaicite:0]index=0 **Interpret:** Useful baseline to frame thesis chapters on coercion and autonomy. Clarifies regimes and warns that most war crimes, including those involving AWS, go uninvestigated or unpunished, so accountability prospects are modest without stronger capacities. :contentReference[oaicite:1]index=1 **Methodology:** Doctrinal legal analysis of IHL, DARSWA and ICC Statute with structured argument on states and individuals; concept heavy, empirics light. :contentReference[oaicite:2]index=2 **Evaluate:** Strong where it enumerates concrete state-responsibility routes (repression duties, aiding or assisting, treaty-transfer breaches) and flags attribution and causality problems for AWS. :contentReference[oaicite:3]index=3 :contentReference[oaicite:4]index=4 **Author:** Harvard PILAC legal scholar; careful separation of regimes and scepticism toward anthropomorphism; brings CCW accountability principles into view. :contentReference[oaicite:5]index=5

:contentReference[oaicite:6]index=6 **Synthesis:** Aligns with ICRC/SIPRI strands on retaining human responsibility and meaningful oversight; positions accountability as explanation with potential consequences rather than a synonym for legal responsibility. :contentReference[oaicite:7]index=7 :contentReference[oaicite:8]index=8 **Limit.** No single definition of responsibility, liability or accountability in IHL; minimal case testing; unsettled AWS definitions and practice gaps. :contentReference[oaicite:9]index=9 **Implication:** For the Irish Defence Forces, formalise accountable human chains of command for any autonomy, embed legal review and audit logs, and design to evidence foreseeability and control across the life cycle. Limit. Implication:.

Method weight: 3/5. Doctrinal clarity and precise sourcing, but concept-first and light on empirical validation or case metrics.

Claims-cluster seeds

Claim: State responsibility attaches via multiple routes even when AWS are involved.

- Best line + page: duties to repress and punish, aiding or assisting, and arms-transfer breaches listed.
 - Rival: Autonomy breaks the chain, so states cannot be responsible.
 - Condition: Conduct attributable or due-diligence duties triggered despite autonomy.
- Irish DF implication: Build doctrine to search, investigate and cooperate on prosecutions even for AWS-related incidents.

Claim: Attribution and foreseeability are the crux for AWS in state responsibility. •

Best line + page: legal-agency link, causality chain, and force majeure questions. • Rival: Existing attribution tests cope without adjustment. • Condition: When behaviours cannot be reasonably anticipated or administered. • Irish DF implication: Mandate human control parameters, hazard analysis and event logging to show reasonable anticipation.

Claim: Individual criminal responsibility remains viable for AWS-linked war crimes.

- Best line + page: ICC war-crime examples and mental-element challenges.
- Rival: Autonomy dissolves intent and co-perpetration.
- Condition: Proof of intent, knowledge, or recognised modes despite distributed tasks.
- Irish DF implication: Preserve operator and commander decision records and legal advice trails.

Claim: ‘Accountability’ should mean explain and face consequences, not a synonym for legal responsibility. • Best line + page: clarification of accountability’s distinct meaning. • Rival: Accountability equals liability or responsibility. • Condition: Institutional willingness to impose political or social consequences. • Irish DF implication: Publish after-action reviews and transparency reports for any autonomous functions.

Claim: Most war crimes go unpunished; AWS will not improve accountability without capacity gains. • Best line + page: prospects for accountability are low given technical and knowledge gaps. • Rival: Digital systems inherently ease accountability. • Condition: Only if states can identify conduct and institute proceedings. • Irish DF implication: Invest in investigations, digital forensics and inter-EU cooperation.

PEEL-C drafting

Strongest claim paragraph Point. State responsibility remains engaged through repression duties, aiding or assisting, and arms-transfer controls even where AWS are used. Evidence. The article lists obligations to legislate, search and prosecute grave breaches, and warns that aiding or assisting and certain transfers can trigger responsibility. Explain. Autonomy does not suspend a state’s duties; it shifts emphasis to due diligence, control and cooperation. Limit. Establishing attribution and foreseeability in complex AWS chains is hard. Consequent. Irish DF must codify due-diligence procedures, transfer vetting and joint investigation protocols. Limit. Consequent:.

Counter-paragraph Point. Autonomy can complicate causality and intent, weakening responsibility and criminal liability in practice. Evidence. Lewis highlights legal-agency links, causality breaks and mental-element puzzles for intent and co-perpetration. Explain. If behaviours cannot be reasonably anticipated, the burden of proof grows, and accountability can stall. Limit. CCW principles still require human responsibility across the life cycle. Consequent. Treat autonomy as design-for-accountability: impose human-in-the-loop thresholds, evidencing logs and legal review. Limit. Consequent:.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

State responsibility routes persist &
Duties to repress;
aiding/assisting;
transfer obligations.
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ence[oaicite:21]index=21

+ :contentRefer-

ence[oaicite:22]index=22

& Autonomy
breaks responsibility & Attribution
and due diligence
still apply & Cod-
ify legislation,
search, cooperation
and transfer
vetting

Attribution and
foreseeability are
central & Legal-
agency link and
causality chain is-

Gaps (1) Chase: concrete state practice and case law testing attribution, due diligence and modes of liability for AWS incidents post-2015. (2) Park: broad philosophical ‘responsibility gap’ debates that do not alter legal duties or DF governance design.

(TADDEO_2022)

Source Analysis — *Taddeo & Blanchard 2022, A*

Comparative Analysis of the Definitions of Autonomous Weapons Systems

Describe: Compares official AWS/LAWS definitions and argues variability hinders regulation. Identifies four key aspects and proposes a value-neutral AWS definition; clarifies that LAWS are a subset of AWS focused on lethal force (pp.2–3, 6, 11, 15). :contentReference[oaicite:0]index=0 :contentReference[oaicite:1]index=1 :contentReference[oaicite:2]index=2 :contentReference[oaicite:3]index=3

Interpret: Provides a defensible definitional spine for thesis chapters. It separates autonomy from control and shows why high-threshold or vague definitions impede bans and governance, linking directly to module LOs on concept clarity and application (pp.3–4, 10–12). :contentReference[oaicite:4]index=4 :contentReference[oaicite:5]index=5

Methodology: Comparative doctrinal analysis of 12 state/IO definitions plus ICRC/DoD anchors; concept-heavy, evidence-light, with a synthetic normative discussion (pp.6, 9–12). :contentReference[oaicite:6]index=6 :contentReference[oaicite:7]index=7

Evaluate: Strong where it distinguishes autonomy from control and states a precise, inclusive definition; useful critique of UK/France thresholds and NATO vagueness (pp.9–12, 15). :contentReference[oaicite:8]index=8 :contentReference[oaicite:9]index=9 :contentReference[oaicite:10]index=10

Author: Oxford Internet Institute and Alan Turing Institute scholars; research funded by UK Dstl/MOD programmes with explicit disclaimer of MOD policy authorship (p.19). :contentReference[oaicite:11]index=11

Synthesis: Aligns with ICRC’s function-based, real-systems framing and DoD’s spectrum approach; diverges from UK/France ‘intent understanding’ thresholds and China’s ‘fully autonomous only’ focus (pp.3–4, 9–10). :contentReference[oaicite:12]index=12 :contentReference[oaicite:13]index=13 :contentReference[oaicite:14]index=14

Limit. Conceptual scope without empirical outcome testing; consensus unsettled; NATO definition too generic (pp.11, 19). :contentReference[oaicite:15]index=15 :contentReference[oaicite:16]index=16

Implication: For the Irish Defence Forces, adopt the value-neutral definition for doctrine and RPOE, treat control as a design choice distinct from autonomy, and keep LAWS as an explicit subset. Limit. Implication:.

Method weight: 3/5. Conceptually rigorous and policy-relevant, but limited empirics, contested adoption, and some funding proximity.

Claims-cluster seeds

Claim: A value-neutral, four-aspect definition resolves the conceptual muddle and improves governance. Best line + page: four aspects and purpose of the neutral definition (Abstract; pp.2–3). Rival: Definitions must be normative to constrain tech. Condition: Early-stage doctrine and regulation building. Irish DF implication: Use the neutral definition as the thesis and policy baseline.

Claim: Autonomy and control are distinct; meaningful human control can coexist with high autonomy. Best line + page: separation and reasons for it (pp.11–12). Rival: Autonomy implies no human control. Condition: Governance sets control bounds independent of autonomy level. Irish DF implication: Codify control modes in doctrine and legal review.

Claim: High-threshold intent-based definitions hide real systems and weaken bans. Best line + page: UK/France critique and policy risk (pp.9–10). Rival: Strict thresholds future-proof regulation. Condition: When deployed systems fall below the ‘intent’ bar. Irish DF implication: Avoid ‘intent’ thresholds; regulate by functions and control.

Claim: AWS ≠ LAWS; lethality is a purpose subset, not the whole category. Best line + page: LAWS as subset focused on lethal force (p.6). Rival: Treat all AWS debates as

LAWS debates. Condition: Mixed purposes beyond lethality exist. Irish DF implication: Structure legal and ethical analysis accordingly.

Claim: ICRC/DoD function-spectrum beats NATO's vagueness. Best line + page: ICRC rationale and NATO risk (pp.11–12). Rival: Broad system definitions aid flexibility. Condition: When policy needs system identification today. Irish DF implication: Anchor definitions in critical functions and human engagement.

PEEL-C drafting

Strongest claim paragraph Point. Treat autonomy and control as separate design and governance choices. Evidence. The article shows autonomy can be high while meaningful human control remains, and argues governance should set control independent of autonomy (pp.11–12). Explain. This allows regulation of targeting and engagement even as systems gain adaptive functions. Limit. Conceptual argument, not tested across incidents. Consequent. Irish DF should codify control modes and audit trails for any autonomous functions. Limit. Consequent:.

Counter-paragraph Point. Tight, intent-based thresholds appear safer and future-proof. Evidence. Yet UK/France-style 'understanding intent' definitions push real systems outside scope and undermine bans and oversight (pp.9–10). Explain. Regulation drifts if definitions omit deployed or near-term systems. Limit. Thresholds can still guide R&D ethics if paired with function rules. Consequent. Regulate by critical functions and control, not by speculative cognition. Limit. Consequent:.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

Four-aspect,
value-neutral def-
inition clarifies
AWS & Ab-
stract; pp.2–3 —
four aspects and
aim. :contentRefer-
ence[oaicite:25]index=25

& Definitions
should be nor-
mative & Early
doctrine phase
& Use neutral
definition in policy
and thesis

Autonomy ≠
control; both are
configurable &
pp.11–12 — sepa-
ration and reasons.
:contentRefer-
ence[oaicite:26]index=26

& Autonomy re-
moves control

Gaps (1) Chase: EU and CCW state practice adopting function-based definitions and measurable ‘meaningful control’ tests post-2022. (2) Park: Broader morality debates that do not alter definitional or governance design.

(PORAT_2016)

Source Analysis — *Porat et al. 2016*, Supervising and Controlling Unmanned Systems

Describe: Multi-phase DRM with experienced operators shows a modal ceiling: one operator can *supervise* up to about 15 UAS with indicator aids, but can *control* only up to three systems for mission and payload tasks. Teams usually outperform single operators except when tasks or areas overlap; a Twin-UAV configuration improves tracking. Switching between feeds imposes heavy costs. **Interpret:** The centre of gravity moves from chasing higher operator-to-UAS ratios to designing MOMU teamwork, decision aids, and clear hand-off rules that bound workload and shorten delays. **Methodology:** Design Research Methodology with iterative lab simulations, within-subject conditions, and SME operators; tasks span health monitoring, target tracking, and multi-feed surveillance; validity rests on task realism and measured effects, not field operations. **Evaluate:** Strong where it quantifies supervision vs control ceilings and demonstrates aids such as grouping, map icons with alerts, trend graphs, Twin-UAV coupling, and toolkits; weaker on external validity and platform modernity. **Author:** Human-factors researchers with industry-lab access; practitioner-leaning design lens; explicit attention to LOA, automation bias, and trust in automation. **Synthesis:** Converges with Cummings-style LOA findings that 2–4 vehicles bound single-operator control and that management-by-consent beats manual extremes; complements team cognition on coordination costs and duplication. **Limit.** Lab simulations, small samples, and dated systems limit transfer to today’s autonomy and sensing mixes. **Implication:** Irish DF should cap single-operator control at two to three UAS, design for MOMU with clear roles, and invest in aids and switching decision tools to cut hand-off losses.

Method weight: 3/5 — Solid HFE design evidence with quantified task effects, yet lab-bound and dated; moderate external validity.

Claims—cluster seeds

Single-operator control is capped near three UAS. Best line: experienced operators “cannot control more than three UASs,” even with aids; supervision can reach 15 with indicators. Rival: One can control 5–10 with smart UIs. Condition: Mixed mission tasks and multiple video feeds. Irish DF implication: Plan 1:2–1:3 control and shift surplus assets to teammates.

Teams usually beat singles unless areas overlap. Best line: teams performed better overall, but a single operator gains advantage when tasks are similar or interest areas overlap. Rival: Teams always outperform. Condition: Overlapping feeds and tight coupling. Implication: Use solo control for tightly coupled sectors, team control for dispersed tasks.

Twin-UAV pairing raises tracking performance. Best line: lock-on time proportion higher with Twin UAV than single UAV across scenarios. Rival: Extra vehicle distracts. Condition: One wide FOV plus one narrow FOV per pair. Implication: Field organic pairing drills and UI coupling.

Switching between feeds drives errors and delay. Best line: switching is time-critical and cognitively costly, harming SA and coordination. Rival: Skilled operators switch fine. Condition: Multiple concurrent feeds and hand-offs. Implication: Add switching decision aids and standard hand-off calls.

Indicator design lifts supervision capacity. Best line: grouping, icons, and route-deviation alerts cut detection times and raised supervision to 15–17 craft; trend graphs sped fault-source detection. Rival: Raw numeric forms suffice. Condition: Mature systems with clear health–fault links. Implication: Build COP widgets before adding airframes.

PEEL–C paragraph (strongest claim) *Point:* Single-operator control of UAS caps near three in realistic missions. *Evidence:* DRM studies show operators manage two video sources well and struggle at three; one-to-three proved the practical ceiling across scenarios, even with toolkits. *Explain:* Mission management and payload control saturate

cognition before supervision does. *Limit:* Lab setting and dated platforms may understate modern autonomy. *Consequent:* Irish DF should staff for 1:2–1:3 control, then push extra assets to teammates.

PEEL–C paragraph (counter-claim) *Point:* With better UIs and autonomy one operator can handle 5–10 craft. *Evidence:* Higher LOA and planners promise more vehicles per operator. *Explain:* Automation can take navigation and routing. *Limit:* Porat et al. find switching costs, coordination, and payload management still bind. *Consequent:* Invest in autonomy, yet design MOMU roles and aids rather than chase headline ratios.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline 1:3 is the
control ceiling &
Porat et al. on
single-operator 1:3
limit (pp.6–8) &
1:5–1:10 is feasi-
ble & Mixed feeds
and mission tasks
& Staff 1:2–1:3;
shift surplus to
teammates Teams
beat singles unless
overlap & Teams
generally out-
perform; overlap
favours single
(pp.1–2) & Teams
always superior
& Overlapping
sectors and tasks
& Solo for coupled
areas; team for dis-
persed Twin-UAV
boosts tracking &

Gaps (1) Chase field data on 1:2–1:3 performance, hand-off errors, and pairing gains across terrains. (2) Park exotic autonomy claims; prioritise MOMU drills, switching aids, and pairing SOPs.

(ZAJAC_2025)

Source Analysis — *Zajac 2025*, Autonomous weapon systems impact on incidence of armed conflict: rejecting the ‘lower threshold for war argument’

Describe: Defines the Likelier Wars Thesis (LWT) and wider Likelier Wars Argument (LWA), then argues removing casualty aversion is rarely decisive because other restraints (values, unprofitability, risk of defeat) usually suffice; the overall effect and even its direction remain uncertain (Abstract; Conclusion). :contentReference[oaicite:0]index=0 :contentReference[oaicite:1]index=1 **Interpret:** Relevance is high to thesis chapters on coercion and autonomy. The paper cautions that AWS’ political ease does not predict more wars absent analysis of stronger restraints, and notes possible upside where thresholds for just defensive or humanitarian action fall (Abstract; Just and unjust wars). :contentReference[oaicite:2]index=2 :contentReference[oaicite:3]index=3 **Methodology:** Conceptual critique of LWT/LWA using just war theory and comparative restraint analysis; theoretical, not a causal model; offers actor-class reasoning rather than data. :contentReference[oaicite:4]index=4 :contentReference[oaicite:5]index=5 **Evaluate:** Strong where it separates LWT from LWA and foregrounds three restraints with illustrative mechanisms and actor types; valuable decision-maker perspective. Weaker on measurement, dyadic modelling and scope beyond interstate war. :contentReference[oaicite:6]index=6 :contentReference[oaicite:7]index=7 :contentReference[oaicite:8]index=8 **Author:** Polish Academy of Sciences philosopher; rights-forward, liberal-democratic framing; declares funding by National Science Centre Poland and no conflicts. :contentReference[oaicite:9]index=9 **Synthesis:** Aligns with governance-first, restraint-sensitive views that deny a simple casualty-aversion lever; di-

verges from NGO ban arguments premised on likelier wars. It also adopts a functional AWS definition aligned with DoD and ICRC. :contentReference[oaicite:10]index=10 :contentReference[oaicite:11]index=11 **Limit.** Effect sizes and direction are speculative; interstate focus excludes many conflicts; no quantitative tests. :contentReference[oaicite:12]index=12 **Implication:** For the Irish Defence Forces, strengthen restraint architecture first (values, legality, costs, defeat-risk awareness), assume AWS are one variable among many, and plan for coalitions where easing the threshold for just defence may be beneficial. Limit. Implication:.

Method weight: 3/5. Conceptually rigorous, decision-useful for framing, but empirical grounding and measurement are limited.

Claims-cluster seeds

Claim: Removing casualty aversion alone seldom raises war incidence; other restraints dominate. • Best line + page: three stronger restraints listed; casualty aversion often overdetermined. • Rival: Casualty aversion is the main brake, so AWS make wars likelier. • Condition: When values, costs and defeat-risk already deter dyads. • Irish DF implication: Prioritise restraint architecture in doctrine, budgeting and red-teaming.

Claim: AWS may lower thresholds for just defensive or humanitarian wars by liberal democracies. • Best line + page: easing thresholds for defensive war and humanitarian intervention can be good. • Rival: Any lower threshold is morally bad overall. • Condition: Liberal polities with robust legal-ethical restraints. • Irish DF implication: Prepare coalition ISR, logistics and war-bot support roles for legitimate interventions.

Claim: The scope of possible emboldenment is narrow, limited to a specific actor class. • Best line + page: affluent, asymmetrically strong, casualty-averse yet morally unconstrained actors. • Rival: Most states would be emboldened. • Condition: Actors insensitive to enemy civilian harm but sensitive to own losses. • Irish DF implication: Tailor deterrence against such actors; invest in denial and transparency.

Claim: LWA cannot ground a ban because the effect's size and direction are unproven a priori. • Best line + page: cannot establish direction by armchair reasoning; LWA insufficient for ban. • Rival: Precaution justifies a ban regardless. • Condition: When empirical

uncertainty dominates and alternative restraints exist. • Irish DF implication: Support measurement programmes, not categorical bans, in EU fora.

Claim: States already well-restrained need not eschew AWS to prevent unjust wars. • Best line + page: no duty to forgo AWS where alternative restraints are robust. • Rival: Solidarity requires staying below AWS thresholds. • Condition: Demonstrable domestic checks and allied transparency. • Irish DF implication: Evidence meaningful human control, investigation capacity and alliance oversight.

PEEL-C drafting

Strongest claim paragraph Point. Casualty aversion is rarely decisive by itself, so AWS do not automatically make wars likelier. Evidence. Zając shows values, unprofitability and defeat-risk usually deter dyads and make casualty aversion causally overdetermined. Explain. If multiple independent brakes hold, removing one does little at system level. Limit. The argument is theoretical and needs dyadic data. Consequent. DF should invest in restraint design, scenario testing and public accountability rather than assuming AWS drive conflict. Limit. Consequent:.

Counter-paragraph Point. A narrow class of casualty-averse yet dominant actors may be emboldened by AWS. Evidence. The paper identifies affluent, secure actors unconcerned with enemy civilians as most likely to shift behaviour. Explain. For them, reduced political cost might tip marginal cases into aggression. Limit. Even here, direction and size are uncertain and other restraints may bind. Consequent. DF should emphasise denial, alliance signalling and visibility to keep such actors deterred. Limit. Consequent:.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

Casualty aver-
sion is rarely
decisive & Zając
2025 — three
stronger restraints;
overdetermina-
tion. :contentRefer-
ence[oaicite:26]index=26
+ :contentRefer-
ence[oaicite:27]index=27
& AWS will make
wars likelier &
Values, costs and
defeat-risk already
deter & Build re-
straint architecture
and auditability
Just wars may be
eased & Zając
2025 — defensive
and humanitar-
ian thresholds.
:contentRefer-
ence[oaicite:28]index=28

Gaps (1) Chase: dyadic datasets linking casualty sensitivity, restraint proxies and AWS adoption to war onset, plus EU cases on collective defence thresholds post-2014. (2) Park: sweeping global-ban claims that ignore robust domestic restraints and coalition governance.

(KNEVELSRUD_2024)

Source Analysis — *Knevelsrud et al. 2024*, Mission

command: A self-determination theory perspective

Describe: Develops the Norwegian Mission Command Scale with two factors, Relation and Mission, then tests a model in a Home Guard sample (n=286). Finds no direct MC→autonomous motivation path, but a significant indirect effect via autonomy need; autonomous motivation increases job satisfaction and reduces turnover intention. **Interpret:** Recasts MC as an autonomy-supportive leadership climate whose motivational bite runs through basic needs, especially autonomy, rather than slogans about tempo. This bridges doctrine and SDT for practical retention work. **Methodology:** Study 1 EFA→CFA yields a two-factor NMCS with good fit; Study 2 SEM controls for empowering leadership, reports standardised paths and Monte Carlo CIs for indirects. Reliability is high. External validity is moderate. **Evaluate:** Strong where it quantifies the autonomy-mediated pathway and provides a usable climate instrument; weaker on causation, sampling breadth, and construct overlap with empowering leadership. **Author:** Norwegian Defence Command and Staff College and FFI authors; doctrinally literate; no competing interests flagged. **Synthesis:** Shares ground with empowering leadership yet keeps MC distinct through doctrine and climate focus; MC still predicts needs satisfaction even when controlling for empowering leadership. **Limit.** Cross-sectional design, single-country rapid-reaction sample, high correlation with empowering leadership, and a noted measurement caveat on job satisfaction. **Implication:** Treat MC as climate work: satisfy autonomy need to raise autonomous motivation and retention; measure with NMCS and train leaders in autonomy-supportive practice. Limit. Implication:.

Method weight: 3/5 — Robust measurement and SEM with clear indirects and controls, but cross-sectional, Norway-specific, and overlapping constructs constrain generalisability.

Claims—cluster seeds

MC boosts autonomous motivation only via autonomy need. Best line: “no direct relationship... significant indirect... through the need for autonomy.” Rival: MC directly motivates. Condition: Autonomy-supportive climate present. Irish DF implication: Build autonomy-supportive leader behaviours and audit with NMCS.

NMCS is a usable two-factor climate measure. Best line: factors Relation and Mission; CFA improved fit CFI .956 TLI .940 RMSEA .079. Rival: MC must reflect seven doctrinal principles. Condition: Climate-level use, not behaviour inventories. Implication: Deploy NMCS to baseline units and track change.

Autonomous motivation predicts job satisfaction and reduces turnover intention. Best line: $AM \rightarrow JS \beta = .870^{***}$; $AM \rightarrow TI \beta = -.490^{***}$. Rival: Pay and posting dominate attitudes. Condition: Comparable reserve or small force contexts. Implication: Tie MC climate work to retention targets.

MC relates positively to autonomy, competence and relatedness, but only autonomy links to AM. Best line: needs paths positive; only autonomy \rightarrow AM significant. Rival: All three needs should drive AM equally. Condition: Training-heavy environments and collinearity. Implication: Design exercises that maximise real choice and initiative.

MC overlaps with empowering leadership, yet retains distinct utility. Best line: $r = .87$ and $.80$ with empowering leadership; MC still shows effects when controlling. Rival: MC is just rebranded empowerment. Condition: Models include EL control. Implication: Keep MC’s intent and mission-orders focus in leadership curricula.

PEEL–C paragraph (strongest claim) *Point:* Mission command lifts autonomous motivation only by satisfying autonomy need. *Evidence:* The study reports no direct $MC \rightarrow AM$ path, but a significant indirect effect through autonomy need satisfaction. *Explain:* When leaders frame intent and grant leeway, soldiers internalise goals and act with

choice. *Limit:* Cross-sectional data limit causality. *Consequent:* The DF should train autonomy-supportive practices and monitor NMCS scores.

PEEL–C paragraph (counter-claim) *Point:* Mission command directly enhances motivation regardless of autonomy climate. *Evidence:* Doctrine frames MC as empowering, so one might expect a direct MC→AM link. *Explain:* If MC is present, subordinates should feel energised by shared understanding and trust. *Limit:* Empirically, only the autonomy pathway is supported; competence and relatedness do not predict AM in this sample. *Consequent:* Prioritise autonomy cues over generic MC messaging.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline MC moti-
vates via auton-
omy, not directly
& Indirect via
autonomy; no
direct MC→AM
(pp.680–681)

& Direct
MC→AM exists
& Autonomy-
supportive cli-
mate present &
Train autonomy-
supportive leaders;
audit with NMCS
NMCS is two-
factor and fit &
Relation/Mission;
improved

CFI/TLI/RMSEA
(p.678) & Seven-
principle mapping
& Climate-level
assessment &

Gaps (1) Chase longitudinal or intervention studies testing autonomy-supportive MC on motivation, satisfaction and retention across services. (2) Park seven-principle factor debates; prioritise NMCS deployment, autonomy-focused leader training, and retention linkage.

(KOHN_2024)

Source Analysis — *Kohn et al. 2024*, Supporting Ethical Decision-Making for Lethal Autonomous Weapons

Describe: Presents a Bayesian ethical decision model for LAWS that outputs a strike/no-strike permissibility score and highlights influential factors; operators are calibrated through scenarios and a prototype interface shows sensitivity-driven actions (*pp.18–25*). **Interpret:** Relevant to DF doctrine where human judgement must be fast and defensible. Quantification supports training and wargames, yet caution is needed as humans skew permissive in low-score scenarios (*pp.22–23*). **Methodology:** Multi-attribute utility with explicit weights for necessity, discrimination and proportionality; simple linear aggregation; five-scenario operator calibration; SME interface interviews (*pp.19–25*). **Evaluate:** Strongest where maths and UI afford transparency and sensitivity actions; weakest where N is small, scenarios are fictional, and weight-setting is subjective (*pp.22–25*). **Author:** Perceptronics–AFRL collaboration; AFWERX SBIR Phase II funding disclosed (*p.28*). **Synthesis:** Extends governance-by-review approaches by offering computable, explainable decision support; complements human-in-the-loop doctrine that resists full autonomy (*pp.20; 26*). **Limit.** Small calibration sample, fictional vignettes, ethically contestable weights; no field validation (*pp.22–25*). **Implication:** Use for DF training, red-teaming and SOP design; withhold lethal delegation until larger independent trials confirm reliability; aligns with thesis LOs on critical evaluation and policy application.

Step 3 — Method Weight

3 / 5. Computable model with transparent maths and promising UI; evidence limited to five-scenario calibration and SME interviews; scenarios fictional; weights normative.

Step 4 — Claims-Cluster Seeds

Claim: A Bayesian model can yield intelligible ethical permissibility scores that aid human judgement. • Best line with page: Abstract sets out scoring and explanation functions (*pp.12–13*). • Rival reading: Ethical judgment should not be quantified. • Condition: Weights trace to LOAC, ROE, commander intent. • Irish DF implication: Use in training and wargames to standardise ethical reasoning.

Claim: Operators align with the model on high-permissibility cases but over-permit in caution cases. • Best line with page: Divergence in negative region, confidence higher in model (*p.22–23*). • Rival reading: Humans calibrate better than tools. • Condition: Transparency and confidence displays present. • Irish DF implication: Add traffic-light thresholds and confidence to C2 aids.

Claim: Sensitivity analysis identifies decisive inputs and suggests actions that raise confidence or permissibility. • Best line with page: UI lists most sensitive nodes; edits shift score to +10.5 (*p.24*). • Rival reading: Such tooling distracts commanders. • Condition: Analyst-led workflow with concise commander summaries. • Irish DF implication: Resource analyst cells; standardise sensitivity-driven intel queries.

Claim: Human in the loop remains mandatory; full autonomy lacks acceptance. • Best line with page: SMEs insist a human commander makes lethal decisions (*p.26*). • Rival reading: Future autonomy should decide lethality. • Condition: Delegation bounded, audit trails present. • Irish DF implication: Codify ‘inform not direct’ policy in C2 SOPs.

Claim: Multi-attribute weighting unifies necessity, discrimination, proportionality into a single score. • Best line with page: Linear aggregation formula and relative weights (*p.20*). • Rival reading: Ethics cannot be reduced to weights. • Condition: Weights approved by legal and command. • Irish DF implication: Establish governance to set and audit weights.

Step 5 — PEEL-C Drafting

Point. Computable Bayesian ethics can speed and structure human judgement without replacing it. *Evidence.* The model aggregates necessity, discrimination and proportionality into a permissibility score, exposes weights, and shows which inputs to change; operators track it well in positive cases (pp.20; 22–24). *Explain.* Transparency and sensitivity analysis create teachable decisions and faster audits. *Limit.* Evidence is small-sample and fictional; weights are normative. *Consequent.* DF should field it for training, red-teaming and SOP design before any operational delegation. **Limit. Consequent:**

Point. Quantifying ethics risks false precision and over-trust in complex, ambiguous contexts. *Evidence.* Humans became over-permissive in caution scenarios; SMEs required thresholds and confidence to avoid miscalibration (pp.22–25). *Explain.* Numbers can invite deference unless bounded by policy and oversight. *Limit.* The same transparency and UI tools can mitigate miscalibration. *Consequent.* DF should mandate confidence displays, traffic-light thresholds and commander primacy. **Limit. Consequent:**

Step 6 — Evidence & Implication Log (LaTeX)

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Bayesian
scores aid judge-
ment & Kohn et
al. 2024, scoring
+ explanation
(pp.12–13) &
Ethics cannot
be quantified
& LOAC, ROE
weights agreed &
Use for training
and wargames
Human–model
miscalibration in
caution zone &
Kohn et al. 2024,
divergence at low
scores (pp.22–
23) & Humans
calibrate better
& Confidence +
transparency &
Add traffic lights
and confidence

Step 7 — Gaps

Chase independent replications with larger N across coalitions, live or high-fidelity trials, and audited weight-governance artefacts.

Park operational delegation to LAWS until thresholds, confidence, and re-review practice mature alongside DF policy.

If you want this DIMERS Implication and both PEEL consequents tied verbatim to your thesis learning outcomes, send the LOs and I will thread them in immediately.

(VOWELL_2024)

Source Analysis — *Vowell & Padalino 2024*, Advancing the U.S. Army's Counter-UAS Mission Command Systems

Describe: Argues current C-UAS mission command is hampered by manual, sequential engagements and closed networks; proposes AI/ML for identification and supervised automation for decide/defeat within the detect–identify–decide–defeat schema (BDOC context). :contentReference[oaicite:0]index=0 :contentReference[oaicite:1]index=1 :contentReference[oaicite:2]index=2

Interpret: Relevant to thesis chapters on coercion and autonomy. Reframes C-UAS as an integration and governance problem and highlights data interoperability deficits that create closed networks in BDOCs. :contentReference[oaicite:3]index=3

Methodology: Professional doctrine article with definitions, a field vignette and prescriptive recommendations; concept first, empirics light. :contentReference[oaicite:4]index=4 :contentReference[oaicite:5]index=5 :contentReference[oaicite:6]index=6

Evaluate: Persuasive where it documents task saturation and manual FAADC2 limits, then specifies HOTL automation to enable simultaneous engagements. Weaker where quantitative effectiveness and legal testing are absent. :contentReference[oaicite:7]index=7 :contentReference[oaicite:8]index=8 :contentReference[oaicite:9]index=9

Author: Command voice from a CJTF -OIR commander and a deployed operations officer indicates institutional proximity and an advocacy stance. :contentReference[oaicite:10]index=10 :contentRe-

ference[oaicite:11]index=11 **Synthesis:** Aligns with integration-first approaches and retained human responsibility by favouring HOTL, with Aegis and Phalanx as exemplars. Diverges from strict HITL prescriptions that cannot meet swarm timelines. :contentReference[oaicite:12]index=12 **Limit.** No controlled metrics, US-centric theatre assumptions, and vendor references; interoperability claims await validation. **Implication:** For the Irish Defence Forces, adopt AI-assisted identification and supervised automated engagement, mandate interoperable data paths and rehearse swarm defence in joint bases. Limit. Implication:.

Method weight: 2/5. Conceptually clear, operationally specific and policy useful, but evidence is anecdotal, US-centric and light on quantified performance.

Claims-cluster seeds

Claim: Manual FAADC2 sequencing breaks under saturation; automation with HOTL is required. • Best line + page: “manual engagement... inhibits... seconds to make a decision... prevents simultaneous engagements” (pp.104–105). • Rival: Better training suffices without automation. • Condition: Multiple concurrent UAS tracks or swarms. • Irish DF implication: Field supervised automation for base air defence to enable simultaneous effects.

Claim: AI-assisted identification reduces task saturation and buys warning time. • Best line + page: AI “promptly alert[s]... reduce[s] task saturation... increase[s] time to alert ground forces” (p.105). • Rival: Physics-based IDs alone are adequate. • Condition: Access to theatre-wide threat data repositories. • Irish DF implication: Build secret or sovereign cloud for threat signatures and fused radar/video feeds.

Claim: HOTL defensive automation is a lawful, fielded pattern (Aegis, Phalanx). • Best line + page: “Aegis... Phalanx... examples of HOTL defensive weapon systems” (p.103). • Rival: Only HITL ensures compliance. • Condition: Human confirms hostility and authorises engagement. • Irish DF implication: Codify HOTL thresholds and audit trails for automated fires.

Claim: Data interoperability gaps in BDOCs degrade defence. • Best line + page: “multiple ‘closed’ networks to defeat a common threat” (p.101). • Rival: Closed networks

improve security. • Condition: Mixed vendor sensors and defeat systems. • Irish DF implication: Set interface standards and joint gateways for base defence systems.

Claim: Not advancing automation cedes tempo to low-cost attackers and raises strategic risk. • Best line + page: “risk... low-cost/high-reward... strategic-level impacts... immediate attention” (pp.106–107).

PEEL-C drafting

Strongest claim paragraph Point. Manual, sequential C,-UAS engagements cannot handle saturation; supervised automation is necessary. Evidence. The article shows manual FAADC2 steps inhibit timely defeat and prevent simultaneous fires; HOTL automation cuts response times and enables massed, multi-system engagements. Explain. Automation moves operators to identification and deconfliction while machines prosecute hostile tracks. Limit. Lacks controlled performance data in mixed-threat environments. Consequent. DF should implement HOTL automation on base defence nodes with clear human-confirmation gates. Limit. Consequent:.

Counter paragraph Point. HOTL may jeopardise legal assurance and increase automation risk. Evidence. Critics insist on manual engagement to ensure LOAC and ROE, yet the authors confine automation to post-confirmation, supervised actions. Explain. If confirmation gates and logs fail, accountability suffers. Limit. Navy HOTL exemplars suggest supervised autonomy can remain compliant when well bounded. Consequent. Pair HOTL with strict confirmation, mission logs and after-action legal review to preserve control. Limit. Consequent:.

**Claim &
Best source
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& Condition &
Implication for
Irish DF**

Manual sequenc-
ing breaks under
saturation & Vow-
ell & Padalino
2024, pp.104–105
:contentRefer-
ence[oaicite:22]index=22

& Training alone
suffices & Many
concurrent tracks
& Deploy super-
vised automation
for simultaneous
engagements

AI identification
reduces task sat-
uration & p.105
— alerts, time to
warn :contentRefer-
ence[oaicite:23]index=23

& Physics IDs are
enough & Access
to threat data cloud
& Build sovereign

Gaps (1) Chase: independent metrics on intercept probability and time-to-defeat with HOTL vs HITL in swarms; EU interoperability standards relevant to Irish bases. (2) Park: vendor-specific system claims that do not alter the supervised-automation logic.

(HARK_2000)

Source Analysis — *Harknett 2000*, A revolution today is premature

Describe: Critiques an information technology-driven RMA as an unnecessary gamble that rests on perfection assumptions; recommends a go-slow, evolutionary path that preserves readiness and tests concepts before force redesign. :contentReference[oaicite:0]index=0 :contentReference[oaicite:1]index=1 **Interpret:** Positions RMA as a governance and resilience problem rather than a quick route to dominance; warns of political backlash and allied strain if the United States pursues a radical leap. :contentReference[oaicite:2]index=2 **Methodology:** Conceptual policy and organisational analysis drawing on Joint Vision 2010, historical analogy and coalition considerations; theory forward, empirics light. :contentReference[oaicite:3]index=3 :contentReference[oaicite:4]index=4 **Evaluate:** Strong where it details the access/security tradeoff, loss of resilience and command-pathologies (hyper-hierarchy and macromanagement); weaker where it lacks quantitative testing and comparative cases. :contentReference[oaicite:5]index=5 :contentReference[oaicite:6]index=6 :contentReference[oaicite:7]index=7 **Author:** JCISS study product led by Harknett with named co-authors; U.S. academic setting and institutional lens. :contentReference[oaicite:8]index=8 **Synthesis:** Aligns with sceptics of tech determinism and with arguments that organisational innovation, not technology alone, decides outcomes; counters transformation maximalism that promises decisive, cheap transparency. :contentReference[oaicite:9]index=9 **Limit.** Evidence is conceptual and U.S.-centric with few non-U.S. cases and no causal metrics. :contentReference[oaicite:10]index=10 **Implication:** For the Irish Defence Forces, prioritise resilience, redundancy and interoperable gover-

nance; trial automation and networking incrementally with legal and organisational safeguards before structural change. Limit. Implication:.

Method weight: 3/5. Conceptually rigorous with a clear taxonomy of risks, but empirical grounding and comparative testing are limited.

Claims-cluster seeds

Claim: The access–security tradeoff in networked forces creates exploitable vulnerabilities. • Best line: seamless networks amplify single-point penetrations and force defensive re compartmentalisation. • Rival: Cyber defences can secure fully shared networks in combat. • Condition: High connectivity with many access points under adversary pressure. • Irish DF implication: Design for graceful degradation, segmentation and analogue fallbacks.

Claim: Radical IT-RMA reduces force resilience by over-betting on information-rich deep strike. • Best line: smaller, info-dependent force risks failure when information is absent or corrupted. • Rival: Precision and awareness compensate for smaller forces across missions. • Condition: Adversary EW, deception or saturation tactics. • Irish DF implication: Keep diverse options and redundancies in base defence and ISR.

Claim: Networking induces command pathologies of hyper-hierarchy and macromanagement. • Best line: complete awareness tempts presidential micromanagement and field overreach. • Rival: Shared awareness naturally aligns decisions across echelons. • Condition: Flattened structures without clear rule sets and decision rights. • Irish DF implication: Codify decision gates, escalation paths and discipline norms for HOTL networks.

Claim: A rapid IT-RMA is the wrong response to likely threats and may provoke balancing. • Best line: benefits marginal for most missions, risks high, and backlash likely even among allies. • Rival: Transform to lock in uncontested dominance. • Condition: When current superiority already handles major war and LIC demands. • Irish DF implication: Prefer evolutionary upgrades and coalition interoperability over wholesale redesign.

Claim: Incremental evolution with experimentation is the prudent course. • Best line: skip the revolution and stick with evolutionary innovation after extensive trials. • Rival: Delay forfeits technological advantage. • Condition: Uncertain effect sizes, untested con-

cepts and high organisational risk. • Irish DF implication: Stage trials with auditability and legal oversight before scaling.

PEEL-C drafting

Strongest claim paragraph Point. Radical IT-RMA creates access–security weaknesses and erodes resilience, so go incremental. Evidence. Harknett shows seamless networks magnify penetrations and force re-compartmentalisation, while smaller info-dependent forces falter when data are corrupted. Explain. If defence hardening un-networks the network, the supposed advantage collapses under fire. Limit. The case is conceptual and lacks quantified performance comparisons. Consequent. DF should engineer segmentation, analogue backups and phased trials before structural change. Limit. Consequent:.

Counter paragraph Point. Advocates argue shared awareness aligns decisions and multiplies precision at lower cost. Evidence. Yet the paper warns awareness invites hyper-hierarchy from above and macromanagement from below, risking discipline. Explain. Without crisp rule sets, common data still produce divergent choices across lenses. Limit. Better doctrine can mitigate some effects, but proof requires experiments. Consequent. DF should codify decision rights and HOTL gates before increasing autonomy in networks. Limit. Consequent:

**Claim &
Best source
(page) & Rival
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& Condition &
Implication for
Irish DF**

Access–security
tradeoff creates
vulnerability &
Harknett 2000 —
seamless networks
magnify penetra-
tions :contentRefer-
ence[oaicite:24]index=24
& Cyber defence
can secure full
sharing & High
connectivity under
pressure & Seg-
ment networks;
plan graceful
degradation and
analogue fallbacks
Radical IT-RMA
reduces resilience
& Harknett
2000 — small,
info-dependent
forces at risk
:contentRefer-

Gaps (1) Chase: controlled experiments comparing network segmentation vs full sharing on time-to-effect and survivability, plus coalition interoperability trials. (2) Park: sweeping claims of permanent dominance from IT-RMA without organisational evidence. (JORD_2003)

Source Analysis — *Jordaan & Vrey 2003*, RMA ideas and LIC realities

Describe: Argues that a US-led RMA focus on conventional inter-state war clashes with the post-Cold War dominance of LIC; 9/11 accelerated asymmetric strategies; urban settings, casualty sensitivity, and political limits blunt precision and sensing advantages. The Afghanistan case shows a mix of high tech with low-tech allies. **Interpret:** Relevance is direct to thesis outcomes. It recentres analysis on adversary avoidance, city environments, and coalition politics, not kit counts. LIC is the likely arena for strong powers. **Methodology:** Literature synthesis with conflict-type survey and definitional framing of RMA, MTR, and rival views, plus case vignettes from Somalia, Kosovo, and Afghanistan. Validity rests on coherence and coverage. **Evaluate:** Strong where it lists concrete tension points and documents sensor and precision limits in LIC. Weaker on quantified effects and on testing rival claims. **Author:** South African academics with a sceptical stance on technophilia and a values-aware read of Western assumptions. **Synthesis:** Converges with Gray, Freedman, and Betts on politics and adaptation; diverges from RMA determinists by insisting LIC and urban realities set the problem frame. **Limit.** Descriptive, secondary-source heavy, and pre-Iraq 2003; metrics are sparse. **Implication:** Irish DF should treat RMA as a toolbox inside LIC-first design: infantry mastery, urban drills, layered COP, plain-language C2, and coalition interoperability, with selective precision and ISR.

Method weight: 2/5 — Conceptually clear and policy-relevant, but reliant on secondary sources and pre-2003 assumptions, with limited empirical testing.

Claims—cluster seeds

LIC is the most probable conflict for strong powers. Best line: LIC predominated during and after the Cold War and is most likely ahead; inter-state war is rare. Rival reading: Conventional peer war should drive force design. Condition: Urbanisation and state fragility persist. Irish DF implication: Prioritise urban readiness, infantry competence, and consequence management.

RMA ideals open vulnerabilities in LIC. Best line: Urban clutter, political constraints, and adversary dispersion degrade sensing and precision, as Somalia and Kosovo showed. Rival: Tech overmatch translates across contexts. Condition: Dense terrain and blended populations. Implication: Layered RF–radar–EO/IR with human sources and disciplined rules.

9/11 entrenched asymmetric, networked opponents and long campaigns. Best line: Terror networks forced rapid LIC entry and undermined short, decisive war preferences. Rival: Swift punitive campaigns suffice. Condition: Networked non-state actors embedded in cities. Implication: Build endurance, coalition habits, and plain-English C2.

Selective RMA works when paired with local partners. Best line: Afghanistan blended real-time ISR, precision air, and local fighters, including low-tech means. Rival: High tech alone is decisive. Condition: Partner capacity and access. Implication: Train liaison, JTAC, and COP integration with partners.

PEEL–C paragraph (strongest claim) *Point:* LIC, not peer conventional war, is the modal problem for strong powers. *Evidence:* The study shows LIC predominance before and after the Cold War, with inter-state war rare and urbanisation rising. *Explain:* Adversaries avoid direct battle and pull campaigns into cities and politics where precision's edge narrows. *Limit:* The argument is descriptive with limited quantitative tests. *Consequent:* Irish DF should weight urban drills, infantry, layered sensing, and coalition C2 over platform glamour.

PEEL–C paragraph (counter-claim) *Point:* RMA overmatch will dominate any opponent regardless of context. *Evidence:* 1991 showcased information-based forces beating industrial militaries; US ISR and precision promise real-time targeting. *Explain:* If find-fix-finish is universal, decisive operations remain feasible. *Limit:* The paper high-

lights Somalia and Kosovo limits and political-ethical brakes in cities. *Consequent:* Use precision and ISR, but embed them in LIC-ready doctrine and governance.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline LIC is the
modal threat &
Jordaan & Vrey
2003 (secs.2,5) &
Peer war should
drive design &
Urbanisation and
fragility persist &
Prioritise infantry,
urban readiness,
consequence
mgmt RMA de-
graded in LIC &
Sensor/precision
limits in cities;
Somalia, Kosovo
(sec.5) & Tech
overmatch trans-
lates & Dense
terrain; blended
populations
& Layer RF-
radar-EO/IR
with HUMINT;

Gaps (1) Chase comparative, campaign-level data on detection, civilian harm, and decision timelines for LIC vs conventional theatres. (2) Park platform catalogues; focus on urban doctrine, coalition C2, and layered sensing drills.

If you want me to refine any field for your thesis style sheet or produce a multi-paper synthesis next, say the word.

(CHEBAN_2003) Step 2 — DIMERS Card (LaTeX)

Source Analysis — *Cheban 2003*, [Russia's military security and forms of war]

Describe: Argues Russia must avoid copying U.S. stand-off, high-tech warfare and instead build an indigenous, systemic defence. Foresees stand-off precision strikes with EW, psychological action and sabotage, plus networked non-state threats (*n.p.*). **Interpret:** Relevance is high to questions of adaptation versus adoption. The piece warns that politics, fashion and fragmented military science skew force development away from mission logic. **Methodology:** Conceptual strategic essay drawing on recent wars and policy history to derive priorities; authoritative voice, low formal measurement. (*n.p.*). **Evaluate:** Strong where it characterises “network warfare,” cautions against Chechnya-only extrapolation and lists concrete policy tasks; weak on data and transferability. (*n.p.*). **Author:** Senior Russian defence official–analyst; policy-practitioner stance, sceptical of imported models. **Synthesis:** Aligns with Keller on old–new integration and with Owens’ organisation-first logic; diverges from tech determinism and budget-only downsizing. (*n.p.*). **Limit.** Russia-specific, dated and largely unmeasured claims. **Implication:** For a small state, adapt standards, protect indigenous doctrine and sequence spend to organisation, C2 and priorities before platforms; aligns with module LOs on critical evaluation and policy application. Limit. Implication:.

Step 3 — Method Weight

2 / 5. Practitioner essay with sharp policy sense, yet conceptual, Russia-specific and light on evidence.

Step 4 — Claims-Cluster Seeds

Do not copy U.S. stand-off warfare; build indigenous defence. • Best line: politicians import a simplistic U.S. stand-off vision despite different policy and resources (*n.p.*). • Rival reading: Importing U.S. methods accelerates modernisation. • Condition: Major resource gap and divergent strategic culture persist. • Irish DF implication: Adapt NATO standards to Irish needs; avoid template procurement.

Expect stand-off precision, EW, psychological action and sabotage in any great-power conflict. • Best line: massed stand-off strikes with EW and psychological impacts (*n.p.*). • Rival reading: Conventional mass or CT-style fights dominate. • Condition: Adversary retains precision weapons and information advantage. • Irish DF implication: Harden C2, dispersion, deception and EW resilience.

Primary future threats include networked non-state actors (SPINs). • Best line: security threat shifts to SPINs and “network warfare” (*n.p.*). • Rival reading: Regular militaries remain the main danger. • Condition: External sponsorship and permissive sanctuaries. • Irish DF implication: Build joint intel–police links and legal ROE for networked foes.

Do not extrapolate Chechnya to whole-force design. • Best line: Chechnya experience is important but not a basis for national organisational development (*n.p.*). • Rival reading: Fight the last war because it is most realistic. • Condition: Diverse terrains and missions ahead. • Irish DF implication: Train across terrains and roles; resist single-theatre doctrine.

Arms race is warfare by other means with heavy costs. • Best line: costs of an arms race compare to real war (*n.p.*). • Rival reading: Arms competition deters and is affordable. • Condition: Weak fiscal base and diffuse goals. • Irish DF implication: Set clear trade-offs; avoid prestige buys.

Step 5 — PEEL-C Drafting

Point. Adapt, do not adopt: indigenous organisation must lead any technology choice. *Evidence.* Cheban warns that importing a U.S. stand-off model ignores different policy, culture and resources; he lists priorities led by missions, not fashion (*n.p.*). *Explain.* When organisation, C2 and doctrine fit the society and budget, technology yields effect. *Limit.* The essay is Russia-specific and lacks measured outcomes. *Consequent.* DF should adapt

NATO standards to Irish needs, fund C2 and training before platforms. **Limit. Consequent:**

Point. Importing standards can accelerate capability if sequenced and governed. *Evidence.* Owens and the UAS Roadmap show how joint standards and system-of-systems unlock value; Ochs finds technology can support mission command if governed (*n.p.*). *Explain.* Standards reduce friction and let small states plug into coalitions without copying doctrine whole. *Limit.* Without adaptation to context, imported templates still misfire. *Consequent.* DF should adopt standards but tailor doctrine, incentives and ROE to national roles. **Limit. Consequent:**

Step 6 — Evidence & Implication Log (LaTeX)

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Adapt, do not
adopt & Cheban
2003, warning
on U.S. stand-off
import (n.p.) &
Owens 2002, stan-
dards unlock value
& Context and
resources differ
& Tailor NATO
standards to Irish
missions Stand-off
+ EW + sabotage
& Cheban 2003,
stand-off strike
pattern (n.p.) &
CT or mass domi-
nates & Precision
and EW available
to adversary &
Harden C2, dis-
persion, deception,
EW resilience Net-
worked non-state

Cites:

Step 7 — Gaps

Chase the article's formal title, publication venue and pagination for citation accuracy.

Park generalisation beyond Russia until triangulated with non-Russian empirical studies.

If you want this Cheban row duplicated into the canvas TSV for your running matrix, say “add to canvas” and I’ll slot it beneath the header.

(CRAFT_2004)

Source Analysis — *Craft 2004*, The information revolution as an RMA

Describe: Sets out why the information revolution qualifies as an RMA: strategy shifts from surviving hits with armour to avoiding hits through situational awareness, mass is generated by dispersed fires, and everyday tools like email and commercial tracking reshape command and logistics. It flags cyber and dependency risks. **Interpret:** Serves thesis outcomes by moving design from platform counts to information dominance and decision tempo, while warning that dependence on networks creates new attack surfaces. **Methodology:** Conceptual practitioner essay with historical analogies, notably the telegraph as antecedent and the submarine's disruption of capital ships, to argue mechanism rather than provide measurement. **Evaluate:** Strong where it specifies mechanisms and quotes leadership on avoiding hits through awareness; weak on quantified effects, rival cases, and counter-adaptation. **Author:** US Army programme manager perspective, transformation friendly, drawing on service experience and contemporary doctrine. **Synthesis:** Converges with Krepinevich on information dominance and with Cohen on platform–payload shift, but diverges from Gray's insistence that politics and the duel bound tech. **Limit.** Assertion heavy and magazine genre; pre-Ukraine context; dependency risks noted but not tested. **Implication:** Irish DF should mass effects from dispersion, harden links, exercise for link loss, and wire cyber hygiene into logistics and C2 practice.

Method weight: 2/5 — Coherent mechanism case with practical cues, but thin metrics and dated context limit external validity.

Claims—cluster seeds

Information revolution meets RMA criteria. Best line: major discontinuities arise from tech, organisation, concepts, and resources working together. Rival: It is incremental. Condition: Information dominance and dispersed massing of effects. Irish DF implication: Build COP and doctrine to mass fires while dispersed.

Situational awareness replaces armour as first protection. Best line: leaders aim to avoid being hit, not just survive hits. Rival: Survivability and overmatch remain first. Condition: Reliable sensing and sharing. Irish DF implication: Invest in sensing, EM discipline, deception, and rapid decision drills.

Commercial IT now shapes command and logistics. Best line: email and asset visibility change daily command, procurement, and support. Rival: Military systems alone matter. Condition: Ubiquitous COTS networks. Irish DF implication: Secure enterprise IT, rehearse offline procedures, cache data.

Dependency creates cyber attack surfaces. Best line: viruses, hackers, and information terrorism can cripple forces that rely on COTS tools. Rival: Hardening suffices. Condition: Mixed secure and commercial stacks. Irish DF implication: Segment networks, practice manual reversion, pre-authorise degraded ops.

Submarine analogy: new tech upends force hierarchies. Best line: submarine undermined capital ships as information RMA undermines massed armour. Rival: Hierarchies persist. Condition: Opponent can target signatures at range. Irish DF implication: Prefer dispersion, decoys, mobility over heavy concentration.

PEEL—C paragraph (strongest claim) *Point:* The information revolution is an RMA that shifts protection to awareness and dispersion. *Evidence:* Craft argues militaries should avoid being hit through situational awareness, massing effects from dispersed formations rather than concentrating platforms. *Explain:* Information lets small nodes coordinate fires and logistics, compressing decision cycles and reducing exposure. *Limit:* The argument is asserted with few measurements and assumes resilient links. *Consequent:*

Irish DF should privilege sensing, EMCON, deception, and drills for fast intent-led decisions.

PEEL–C paragraph (counter-claim) *Point:* Survivability and platform mass still dominate outcomes. *Evidence:* Traditional doctrine emphasises first-round survival and overmatch. *Explain:* Armour and large platforms carry endurance and visible deterrence. *Limit:* Craft shows awareness can substitute for armour and highlights cyber-dependency risks if mass concentrates. *Consequent:* Keep some visible mass for signalling, but design main effort around dispersed effects and hardened links.

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Information
revolution is an
RMA & Disconti-
nuities from tech,
org, concepts,
resources & In-
cremental change
only & COP and
doctrine integrated
& Mass effects
while dispersed
Awareness over
armour & Avoid
being hit via SA &
Survivability first
& Reliable sensing
and sharing &
Invest in sensing,
EM discipline,
deception COTS
shapes C2 and
logistics & Email,
asset visibility, on-
line procurement

Gaps (1) What to chase: comparative data on degraded-ops performance when links fail and on dispersion versus concentration under cyber pressure. (2) What to park: fine-grained platform catalogues until COP design, EM discipline, and manual reversion drills are proven.

(KALDOR_2013)

Step 2 — DIMERS Card (LaTeX)

Source Analysis — *Kaldor 2013*, In Defence of New Wars

Describe: Kaldor re-states ‘new wars’ as an ideal-type logic for research and policy, grounded in differences of actors, goals, methods and finance, and marked by persistence and spread rather than decisive victory (pp.2–3, p.14). **Interpret:** The value is not ‘newness’ but a lens that explains why contemporary violence blurs crime and war yet remains political, redirecting strategy from winning battles to reducing incentives for violence (p.1). **Methodology:** Conceptual synthesis built on qualitative cases, with cautious use of UCDP, CoW and displacement series; validity is moderate given old-war coding and cumulative IDP counts (pp.8, p.10). **Evaluate:** Most persuasive where she links rising duration, one-sided violence and forced displacement to the enterprise logic of conflict; less so where ideal-type claims resist falsification (pp.8, p.10, p.13). **Author:** LSE human-security scholar arguing for cosmopolitan politics as the antidote to exclusivist identity mobilisation; positions the analysis to inform policy and doctrine (p.7). **Synthesis:** Aligns with dataset trends on fewer interstate wars and lower battle deaths but longer, spreading conflicts; diverges from Mueller’s crime-only reading and strict Clausewitzian contests (pp.8, p.7, p.13). **Limit.** Ideal-type cannot be proved; data structures reflect old-war assumptions and can miss civilian-centred harm (pp.8, p.14). **Implication:** The Irish Defence Forces should prepare for protracted, low-intensity, displacement-heavy environments, blending policing, protection and political work with military tasks.

Step 3 — Method Weight

3/5. Conceptual synthesis with selective quantitative corroboration offers a coherent lens, but validity is constrained by ideal-type unfalsifiability and legacy dataset biases; policy salience is high.

Step 4 — Claims-Cluster Seed

Persistence & spread define contemporary war. Best line+page: enterprise logic makes wars persist and spread (pp.2–3). Rival reading: change is evolutionary within ‘old war’. Condition: weak or hybrid states under globalisation. Irish DF implication: plan for long operations, regional contagion, resilience of civil protection.

War–crime blur, but politics is central. Best line+page: treat political element seriously, not crime alone (p.7). Rival reading: criminality dominates, so policing suffices. Condition: identity mobilisation present. Irish DF implication: integrate policing with legitimacy operations and information activity.

Old-war metrics decline while duration rises. Best line+page: interstate wars and battle deaths decline; duration and one-sided violence rise (p.8). Rival reading: measurement artefact from battle-death thresholds. Condition: accept expanded measures of harm. Irish DF implication: endurance logistics, protection of civilians, information persistence.

Forced displacement is a central method. Best line+page: Iraq 2006–2008 4 million displaced; displacement per conflict trending up (p.10). Rival reading: trend driven by improved counting. Condition: pervasive communications and fear propagation. Irish DF implication: displacement planning, host-nation services, legal frameworks.

Post-Clausewitz mutual enterprise. Best line+page: new wars are mutual enterprises, not contests of wills (p.13). Rival reading: Clausewitz remains decisive. Condition: parties profit politically or economically from ongoing violence. Irish DF implication: cut enterprise incentives, support institutions, target finance networks.

Step 5 — PEEL-C Drafting

Strongest claim paragraph — Persistence & spread **Point:** Contemporary conflicts persist and spread because parties benefit from the enterprise of war, not victory. **Evidence:** Kaldor’s logic links new wars to weak state contexts and open, predatory economies, producing long, inconclusive violence that tends to recur and radiate (pp.2–3, p.13). **Ex-**

plain: If profit and identity reinforcement come from ongoing insecurity, then tactical success will not translate into settlement. **Limit:** Ideal-type status limits testability and local causal chains can differ. **Consequent:** Structure DF plans for endurance, containment and incentive-reduction, not decisive battle.

Counter paragraph — Continuity over revolution **Point:** Apparent novelty reflects incremental adaptation rather than a new kind of war. **Evidence:** Kaldor concedes many features existed earlier and that datasets were built for old wars, which can distort inference (pp.4, p.8). **Explain:** If categories and measures are misaligned, duration and displacement trends may overstate difference. **Limit:** This reading underplays Kaldor's enterprise logic and the policy utility of the lens. **Consequent:** Keep reform modest, emphasise classic combined arms and deterrence while improving civilian-harm metrics.

Limit. Consequent:

Step 6 — Evidence & Implication Log (LaTeX)

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Persistence
and spread de-
fine new wars &
Kaldor, enterprise
logic of persis-
tence and spread
(pp.2–3) & Critics
treating change
as evolutionary
continuity & Weak
or hybrid states
under globalisa-
tion & Design
for endurance,
containment and
cross-border
spillover manage-
ment War–crime
blur but politics
central & Kaldor
on taking the
political element
seriously (p.7)
& Mueller’s

Step 7 — Gaps

(1) Chase granular finance-of-violence mechanisms and local incentive maps that operationalise the enterprise logic. (2) Park macro trend debates not tied to Irish DF planning unless needed to anchor doctrine language.

Module learning outcomes link. Critical synthesis, methodology critique, and applied implication for Irish DF are foregrounded; persistent-conflict framing supports thesis argumentation and presentation build.

Citations to your files (supporting the analysis): Kaldor's logic of actors-goals-methods-finance and the breakdown of binaries; persistence and spread. War-crime blur, but political element must be taken seriously. Dataset trends on interstate decline, duration and one-sided violence. Forced displacement as central methodology, incl. Iraq figures. Post-Clausewitz redefinition and mutual enterprise.

(KALDOR_2018) Step 2 — DIMERS Card (LaTeX)

Source Analysis — *Kaldor 2018, Cycles in World Politics*

Describe: Argues that institutions lag dramatic socio-economic change, so classic interstate war no longer restructures; contemporary “new wars” disorder instead. Remedies lie in layered global governance with social movements and ICT as agents (*pp.215–217; 221*). **Interpret:** Relevant to a small state that leans on multilateral legitimacy. The interregnum cannot be solved by winning wars but by constructing accountable institutions at multiple levels (*pp.218–221*). **Methodology:** Analytical essay and literature synthesis: long waves, war cycles, social movements; author cautions it is speculative and agenda-setting (*pp.215–217*). **Evaluate:** Persuasive framing that links Perez-style surges to “new wars,” and pivots to governance. Thinner on mechanisms, measures, and operational pathways (*pp.215–216; 220–222*). **Author:** LSE scholar associated with the “new wars” school; advocates world-politics over IR (*p.214; 221*). **Synthesis:** Converges with governance-first approaches that prioritise institutions and legitimacy over decisive compellence; complements organisational-change readings of military effect (*pp.218–221*). **Limit.** Speculative, Euro-Atlantic vantage, light on data. **Implication:** Irish DF should

foreground conflict management, standards, legitimacy and coalition architectures over platform-led compellence; thread to module LOs on critical evaluation and policy application. Limit. Implication:.

Step 3 — Method Weight

2.5 / 5. Strong integrative theory with clear agenda, yet low empirical density and limited measurement reduce causal confidence.

Step 4 — Claims-Cluster Seeds

War no longer restructures; “new wars” disorder. Governance must replace compellence. Best line: “Today’s wars... play a disordering role... cure is construction of global governance institutions” (*pp.215–216*). Rival: Decisive interstate victory still resets orders. Condition: Mass-destruction risk; fragmented violent networks. Irish DF implication: Prioritise peace support, sanctions design, and institution-building over war-fighting rhetoric.

Utopianism is now the realistic option. Best line: “Utopianism... the construction of effective global institutions, is the only realistic option” (*p.221*). Rival: Classical realism suffices. Condition: Multi-level legitimacy tied to tackling global problems. Irish DF implication: Invest political capital in UN-EU architectures and accountability mechanisms.

Social movements and ICT are the main agents of change. Best line: Post-1968 movements and ICT diffuse the new paradigm; build a transregional narrative (*pp.220–221*). Rival: States and armies remain sole drivers. Condition: Communication spaces enable horizontal communities. Irish DF implication: Support strategic communication, civil-military engagement, and societal resilience.

Cycles theory frames policy: adapt institutions to ICT-green surge. Best line: Five surges; current rupture needs institutional change (*pp.215; 217*). Rival: No structural break; continue business as usual. Condition: Acceptance of deep transition logic. Irish DF implication: Align procurement and doctrine to coalition standards and sustainability.

Step 5 — PEEL-C Drafting

Point. In the interregnum, new wars disorder; only layered governance restores order. *Evidence.* Kaldor argues that classic war’s restructuring role has ended and prescribes

constructing accountable institutions across levels (*pp.215–221*). *Explain.* Legitimacy and cooperation reverse the social condition that sustains violence. *Limit.* Argument is speculative and lightly evidenced. *Consequent.* DF should weight peace support, standards, and legitimacy tasks above compellence. **Limit. Consequent:**

Point. Realist compellence remains decisive; institutions follow power. *Evidence.* Hegemonic-war cycles once reordered hierarchies; some infer that decisive force can do so again (*pp.217–218*). *Explain.* Victory could reset rules and unlock reform. *Limit.* Kaldor shows mass-destruction risk and networked violence make such wars impracticable today; governance is required (*pp.217–221*). *Consequent.* DF should hedge with credible contributions, but bias toward institution-building and prevention. **Limit. Consequent:**

Step 6 — Evidence & Implication Log (LaTeX)

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline New wars
disorder; build
governance &
Kaldor 2018, cure
is layered institu-
tions (pp.215–221)
& Compellence
still decisive &
Fragmented vio-
lence; WMD risk
& Prioritise peace
support, sanc-
tions, institution-
building Utopi-
anism now realis-
tic & Kaldor 2018,
“only realistic
option” (p.221) &
Classical realism
suffices & Multi-
level legitimacy
& Back UN–EU
architectures;
accountability

Step 7 — Gaps

Chase concrete metrics or cases that evidence governance interventions reversing “new-war” dynamics.

Park strong causal claims about interwar-style compellence until comparative datasets are reviewed.

Notes (page anchors): abstract and argument (*pp.214–216*); Table 1 (*p.215*); deep transition and end of war’s restructuring role (*p.217*); governance prescription (*pp.218–221*); conclusion on world politics (*p.221*).

(KALDOR_2003)

Step 2 — DIMERS Card (LaTeX)

Source Analysis — *Kaldor 2003*, American power: from compellance’ to cosmopolitanism?

Describe: Kaldor argues that American spectacle war’ performs power domestically while failing to compel abroad; she proposes cosmopolitan, multilateral containment focused on protection of civilians (pp. 13, 18–19). **Interpret:** The piece reframes US efficacy as a problem of legitimacy and rules, not hardware; this matters for small states that trade on law and reputation, but the article omits systematic measurement. **Methodology:** A conceptual typology contrasts four visions of US power and draws on recent cases; it offers analytic clarity and policy traction, though empirical testing is light and context is 2002. **Evaluate:** The bite lies in linking defence transformation to roles and tactics over technology, and in specifying containment tasks like protection of civilians, safe havens and arrests under multilateral authority. **Author:** A cosmopolitan human-security lens informs scepticism of unilateralism and of pre-emptive spectacle war’; counter-voices include neorealists, anti-imperialists and tech-determinists. **Synthesis:** Aligns with new wars’ on legitimacy and civilian targeting, and with Der Derian’s ‘virtuous war’ on performance; diverges from RMA optimists who infer decisive, repeatable compellence from precision. **Limit.** Concept-forward, pre-Iraq timing, limited non-US coverage. **Implica-**

tion: For the Irish DF, build legitimacy-first containment competencies: civilian protection, arrest support, disciplined force under UN rules.

Step 3 — Method Weight

3/5. Conceptual typology with illustrative cases yields a strong interpretive lens, but limited data, early-2000s context and normative stance temper validity.

Step 4 — Claims-Cluster Seeds

Claim. In a world where compellance fails, only cosmopolitan, rule-bound containment works (p.18). Best line: “In a world where ‘compellance’ no longer works, the only alternative is containment ...” Rival: Bush-era unilateralists who trust pre-emption and coercion. Condition: When legitimacy costs and dispersed adversaries blunt coercion. Irish DF implication: Prioritise law-enforcement-like operations, robust ROE for civilian protection, UN-first authorisation (p.19).

Claim. Spectacle war undermines legitimacy and may stimulate terrorism; it cannot deliver compellance (p.13). Best line: “If ... ‘compellance’ is much more difficult ... ‘spectacle war’ cannot be expected to defeat terrorism ... may stimulate the spread of terrorism” Rival: Neorealists arguing efficacy of punitive strikes. Condition: When campaigns minimise own casualties, rely on distance and media performance. Irish DF implication: Avoid performative strikes; design operations to signal restraint, precision, protection.

Claim. Defence transformation is about roles and tactics over technology; air power is tactical in support of protection forces (p.19). Best line: “The transformation needed is one of roles and tactics rather than technology ... air power ... tactical power in support of protection forces.” Rival: Tech-determinist RMA optimism. Condition: Where political outcomes hinge on legitimacy and civilian security. Irish DF implication: Invest in protected mobility, policing skills, arrest support, evidence handling.

Claim. Sovereignty is conditional, but conditionality must be multilateral and universal, not American exemption (p.19). Best line: “Conditionality applies to all states ... only through ... multilateral agreed procedures ... oppose attempts to exempt Americans from the ICC.” Rival: Exceptionalism that rejects symmetric legal constraint. Condition: When

institutions credibly apply rules. Irish DF implication: Train for ICC-compliant detention, evidence and transfer procedures.

Step 5 — PEEL-C Drafting (two short paragraphs)

Strongest claim. *Point.* Cosmopolitan containment outperforms coercive spectacle when compellance falters. *Evidence.* Kaldor states that when ‘compellance’ no longer works the only alternative is containment, implemented through political-legal means, with military tasks confined to protecting civilians and arresting war criminals (pp. 18–19). *Explain.* Legitimacy converts tactical control into sustainable outcomes; law-enforcement postures reduce backlash and widen coalitions. *Limit.* Concept-heavy, empirics light. *Implication:* Irish DF should privilege UN-mandated civilian protection and arrest support over strike-led shows of force.

Counter. *Point.* Realist unilateralists contend that pre-emptive spectacle coerces adversaries. *Evidence.* Kaldor notes this doctrine rests on known-unknowns rhetoric, pre-emption and high-tech displays aimed at domestic audiences (p. 13). *Explain.* Yet she argues spectacle war cannot defeat terrorism and may amplify it by eroding legitimacy (p. 13). *Limit.* Some coercion can work against concentrated state targets. *Implication:* DF planning should resist performative coercion and centre operations on legally bounded protection missions.

Step 6 — Evidence & Implication Log (LaTeX)

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Compel-
lance fails; adopt
cosmopolitan con-
tainment & Kaldor
2003, pp. 18–19
& Unilateral pre-
emption restores
deterrence &
Dispersed foes,
high legitimacy
costs & Build
UN-mandated
protection, arrest
support, legal
process skills
Spectacle war
erodes legitimacy
and fuels terror-
ism & Kaldor
2003, p. 13 &
Punitive strikes
coerce quickly &
Media-saturated,
casualty-averse

Step 7 — Gaps

(1) Chase post-2003 comparative evidence on containment operations, ICC practice and civilian-protection force design. (2) Park fine-grained econometric claims about global cycles until theory chapter is set.

Notes tying to thesis module learning outcomes

Applies theory to policy for a small state by translating Kaldor's typology into DF-relevant roles and skills.

Evaluates competing schools, weighs methods and integrates evidence into claims suitable for essay or chapter drafting.

Supporting citations to this card

Spectacle war definition and four-vision table (p.9): Compellance mismatch and performance logic (intro): Legitimacy critique, Afghanistan toll and humanitarian crisis (pp.13–14): Containment tasks, defence transformation as roles and tactics (p.19): Conditional sovereignty and ICC stance (p.19):

(KALDOR_2015)

Source Analysis — *Kaldor 2015*, From Military to

Security Intervention

Describe: The uploaded PDF is a discovery-record stub from Gale Academic OneFile and does not contain the article body, so no claims or evidence can be extracted at this time. **Interpret:** The title suggests a transition from traditional military intervention toward security- or human-security-oriented practice, which is squarely within the thesis frame, but substance cannot be inferred responsibly from the stub alone. **Methodology:** Not discernible from the stub. **Evaluate:** Not possible without the article's text. **Author:** Not possible to characterise this specific piece beyond authorship and year from the stub. **Synthesis:** Deferred. **Limit.** No access to the article body via the uploaded file. **Implication:** Acquire a full-text PDF of the article to complete the analysis.

Method weight: 0/5 — No analyzable content present in the uploaded file.

Claims—cluster seeds

[Pending full text] — seed claims will be generated once the article body is available.

[Pending full text]

[Pending full text]

PEEL–C paragraphs [Pending full text for claim and counter]

Claim &

Best source

(page) & **Rival**

source/reading

& **Condition** &

Implication for

Irish DF

hline [Pending full

text] & — & — &

— & —

Gaps (1) Chase a full-text PDF of Kaldor (2015) “From Military to Security Intervention” and re-run the pipeline. (2) Park synthesis with Gray, Betts, and Cohen until Kaldor’s concrete claims and method are verified.

(KALDOR_2010)

Source Analysis — *Kaldor 2010*, Inconclusive Wars: Is

Clausewitz Still Relevant in these Global Times?

Describe: Recasts Clausewitz for contemporary conflicts: war now tends to be long and inconclusive; “new wars” are about politics not policy; treat many as mutual enterprises and damp violence through law, humanitarian space and civil society (*Abstract; Policy Implications*). **Interpret:** For a small state, emphasis shifts from winning battles to protecting civilians and legitimacy; international missions should prioritise political control, leadership character and moral forces. **Methodology:** Clausewitzian method (ideal–real dialectic) and theoretical synthesis; develops ideal types and normative prescriptions rather

than empirical tests. **Evaluate:** Persuasive framing with clear levers; thin on measurement and comparative validation; helpful where it specifies dampening strategies and civilian protection tasks. **Author:** New-wars theorist at LSE; argues for global governance instruments and leadership—morale focus. **Synthesis:** Complements governance-first readings and population-security doctrine; challenges absolute-war tendencies and decisive-battle primacy. **Limit.** Ideal-typical argument, Euro-Atlantic vantage, few metrics. **Implication:** Irish DF should privilege civilian protection, lawful frameworks, civil–military safe spaces and leadership development aligned to module LOs on critical evaluation and policy application. Limit. Implication:.

Step 3 — Method Weight

2.5 / 5. Strong conceptual synthesis with actionable policy signposts; limited empirical grounding and metrics reduce causal confidence.

Step 4 — Claims-Cluster Seeds

Claim: Many contemporary wars are mutual enterprises; policy must damp violence rather than pick winners. • Best line with page: policy aims should damp violence; use law, humanitarian space, civil society (*Policy Implications*). • Rival reading: Wars remain contests of wills solvable by decisive force. • Condition: Armed actors benefit from sustained disorder; civilian targeting predominates. • Irish DF implication: Centre missions on protection, safe areas and legal process over force-on-force.

Claim: War now tends to be long and inconclusive; decisive-battle thinking misguides strategy. • Best line with page: “inconclusive, long lasting... tendency to spread” (p.271). • Rival reading: Absolute-war tendencies still dominate. • Condition: Mixed actors, low utility of battle, political–criminal finance. • Irish DF implication: Plan for endurance, dispersion, legitimacy operations.

Claim: New wars are rational but not reasonable; law anchors legitimate action. • Best line with page: rational yet not reasonable; law frames reason (pp.277–278). • Rival reading: Effectiveness justifies methods irrespective of law. • Condition: Legal–policy integration in command; accountability visible. • Irish DF implication: Embed legal advisers and public reasoning in C2.

Claim: Moral forces and leadership quality are decisive in international missions. • Best line with page: emphasises morale, leadership; “heroic decision based on reason” (pp.279–280). • Rival reading: Overmatch and numbers dominate outcomes. • Condition: Clear political control; aligned civil–military teams. • Irish DF implication: Invest in leader education and morale systems.

Claim: Clausewitz’s trinity still helps if read as tendencies, not state–army–people. • Best line with page: trinity as reason, chance, emotion — tendencies (p.276). • Rival reading: Trinity obsolete in non-state conflicts. • Condition: Use trinity to diagnose motivations and design dampening moves. • Irish DF implication: Thread trinitarian analysis into planning estimates.

Step 5 — PEEL-C Drafting

Point. Many contemporary wars function as mutual enterprises; the correct strategy is to damp violence. *Evidence.* Kaldor’s policy implications prioritise law, humanitarian space and civil society engagement over picking a side (p.271). *Explain.* If armed actors profit from disorder and avoid decisive battle, protection and legitimacy undercut their incentives. *Limit.* Argument is ideal-typical and light on metrics. *Consequent.* DF should design missions around civilian protection, safe spaces and legal process before coercive overmatch. **Limit. Consequent:**

Point. Decisive-battle logic still applies; compel the enemy and wars will end. *Evidence.* The classical “urge to decision” reading of Clausewitz underwrote past victory-seeking strategies. *Explain.* Concentrated force and overmatch could reset conditions. *Limit.* Kaldor shows present wars are long, inconclusive and spread; decisive-battle thinking misleads. *Consequent.* DF should hedge with credible force but bias planning to legitimacy and endurance tasks. **Limit. Consequent:**

Step 6 — Evidence & Implication Log (LaTeX)

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Mutual en-
terprise; damp
violence & Pol-
icy Implications
(p.271) & Contest
of wills; pick a
side & Disorder
benefits armed
actors & Protect
civilians; enable
law and safe space
Long, inconclu-
sive wars & Intro
argument (p.271)
& Absolute-war
tendency persists
& Low utility of
battle & Plan for
endurance and
dispersion Ratio-
nal, not reasonable
& Reason-
law discussion
(pp.277–278)
& Effectiveness

Step 7 — Gaps

Chase comparative cases where “dampening” strategies measurably reduced violence, plus metrics for moral-force and leadership effects.

Park broad generalisation across theatres until triangulated with datasets and counter-examples to the mutual-enterprise claim.

(KALDOR_2004)

Source Analysis — *Kaldor 2004*, Nationalism and Globalisation

Describe: Argues that globalisation reconfigures identity and politics, enabling nationalist backlashes and the “new wars” logic that fuses identity and violence. Remedy lies in layered, accountable governance and global civil society (*n.p.*). **Interpret:** For a small state, security flows from legitimacy, standards and institutional design more than from compellence. This reframes DF tasks toward protection, law and coalition governance. **Methodology:** Analytical synthesis linking nationalism, communication and governance; theory-led, with illustrative history rather than systematic tests (*n.p.*). **Evaluate:** Persuasive where it joins identity politics to conflict dynamics and sets a governance agenda; thinner on measurement and operational pathways (*n.p.*). **Author:** LSE scholar of “new wars” with a governance orientation. **Synthesis:** Converges with Kaldor 2018 on cycles and governance-first cures and with Kaldor 2010 on mutual-enterprise conflicts that resist decisive battle. **Limit.** Ideal-typical, Euro-Atlantic, light on metrics. **Implication:** Irish DF should emphasise legitimacy, civilian protection, standards and civil–military safe spaces in coalitions, aligning to module LOs on critical evaluation and policy application. **Limit.** **Implication:**.

Method Weight: 2.5 / 5. Strong integrative framing and policy direction, yet speculative with sparse metrics and operational testing.

Claims-Cluster Seeds

Legitimacy and layered governance outperform compellence for today's violence. • Best line with page: Governance and civil society remedy disorder (*n.p.*). • Rival: Decisive force reorders politics. • Condition: Conflicts are mutual enterprises and identity-led. • Irish DF implication: Bias missions to protection, standards, legal process.

Identity politics mediates globalisation into conflict risk. • Best line with page: Nationalist backlashes exploit fear under global change (*n.p.*). • Rival: Material grievances alone drive war. • Condition: Polarising elites weaponise identity via media. • Irish DF implication: Invest in StratCom, societal resilience, inclusive engagement.

Communication infrastructures shape nationalism and order. • Best line with page: Movements and media drive political forms (*n.p.*). • Rival: Technology is neutral to conflict. • Condition: Governance sets standards and counters manipulation. • Irish DF implication: Standardise information practice; train for narrative discipline.

"New wars" disorder rather than restructure; governance must replace compellence. • Best line with page: War no longer reorders; build institutions (*n.p.*); cf. 2018. • Rival: Winning wars still resets orders. • Condition: Fragmented actors, high destructiveness, global networks. • Irish DF implication: Prioritise peace support and accountability mechanisms.

Cosmopolitan legal frames anchor reasonable action. • Best line with page: Law and legitimacy restore reason; cf. 2010 (*pp.*277–278). • Rival: Effectiveness trumps legality. • Condition: Visible legal–policy integration in C2. • Irish DF implication: Embed legal advisers and transparent SOPs.

PEEL-C Paragraphs

Point. Legitimacy and layered governance beat compellence for conflicts shaped by identity and globalisation. *Evidence.* Kaldor links identity politics and disorder to a governance cure (*n.p.*); later work specifies global governance over war-winning. *Explain.* Where actors profit from disorder, protection, standards and law undercut incentives to fight. *Limit.* Argument is speculative and light on metrics. *Consequent.* DF should bias to civilian protection, legitimacy tasks, coalition standards before force-on-force. **Limit.** **Consequent:**

Point. Decisive-battle strategies and platform overmatch still determine order. *Evidence.* Classical readings assume compellence resets hierarchies; yet new-war logic shows mutual enterprises that avoid decisive battle. *Explain.* Overmatch misfires when violence sustains political identity. *Limit.* Some inter-state cases still hinge on deterrence and mass. *Consequent.* DF should hedge with credible force yet plan for legitimacy, standards and endurance. **Limit. Consequent:**

Evidence & Implication Log (LaTeX)

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Governance
over compellence
& Kaldor 2004,
governance rem-
edy (n.p.); Kaldor
2018 (pp.215–
221) & Decisive
force reorders &
Mutual-enterprise
violence & Cen-
tre protection,
standards, law
Identity mediates
conflict & Kaldor
2004, nation-
alist backlash
(n.p.) & Material
grievances alone &
Elites weaponise
identity & Strat-
Com, resilience,
inclusive engage-
ment Comms
shape nationalism
& Kaldor 2004,

Gaps

Chase full text and pagination for *Nationalism and Globalisation* to anchor page-cites and quotations; extract concrete examples.

Park strong causal claims until supplemented with measured cases or datasets linking governance interventions to violence reduction.

(KALDOR_2014)

Step 2 — DIMERS Card (LaTeX)

Source Analysis — *Kaldor 2014*, Missing the Point on Hard and Soft Power?

Describe: Kaldor critiques two UK parliamentary reports on intervention and soft power for silence on Iraq and Afghanistan, arguing this reflects a deeper failure to face profound change (pp. 373–374). **Interpret:** The issue is not the soft–hard toolkit but the *substance* of power and legitimacy; war communicates as much as it coerces (p. 374). **Methodology:** A conceptual, policy-facing critique drawing on definitions, examples and theorists (Nye, Clausewitz, Foucault); validity is moderate given thin empirics and UK lens (p. 374). **Evaluate:** Strong where it exposes definitional ambiguity in soft power and redirects focus to message content and legitimacy (pp. 374–375). **Author:** A cosmopolitan human-security stance challenges unilateralism and state exceptionalism; advocates reframing the UK as a networked governance layer (p. 375). **Synthesis:** Converges with earlier Kaldor on legitimacy and civilian protection; diverges from classical compellance and narrow tool-led strategy (pp. 373–376). **Limit.** Empirics are thin and prescriptions are high-level; ambiguity about measuring attraction versus coercion remains (p. 374). **Implication:** For the Irish Defence Forces, treat intervention as international policing under law, prioritising legitimacy signals, civilian protection and doctrine over kit (pp. 375–376).

Step 3 — Method Weight

3/5. Conceptual critique with clear policy relevance, but evidence is illustrative not systematic and the lens is UK-centric.

Step 4 — Claims-Cluster Seeds

Claim. The 2014 reports' silence on Iraq and Afghanistan signals a deeper failure to grasp change. Best line+page: "Nothing in either report about what went wrong... what needs to change" (p. 373). Rival reading: Lessons learned exist and do not require public self-critique. Condition: When legitimacy costs shape outcomes more than tonnage. Irish DF implication: Build planning that starts with culpability analysis and legitimacy effects, not just capability.

Claim. Substance of power matters more than tools; soft-hard dichotomy misleads. Best line+page: "What matters is the substance of power, not the tools" (p. 375). Rival reading: Smart power balances tools effectively. Condition: In hyper-connected environments where communication and legitimacy dominate. Irish DF implication: Measure operations by message and protection delivered, not by inputs.

Claim. Reimagine the UK as a networked governance layer with responsibilities to uphold global standards. Best line+page: "Redefined as a networked institution of global governance... upholding global standards" (p. 375). Rival reading: Preserve classic great-power posture and autonomy. Condition: When cross-border identities and markets bind interests. Irish DF implication: Train for ICC-compliant detention, evidence and multi-lateral procedures.

Claim. International policing, not counter-insurgency or performative force, should frame intervention aims. Best line+page: "Aim... to uphold global standards... very different from Iraq or Afghanistan" (pp. 375–376). Rival reading: Return to classical state-to-state warfighting. Condition: Civilian harm and displacement drive conflict dynamics. Irish DF implication: Prioritise civilian protection, arrest support, restraint signalling.

Step 5 — PEEL-C Drafting

Strongest claim — Substance over tools **Point.** In hyper-connected conflict, substance and legitimacy outweigh the soft-hard toolkit. **Evidence.** Kaldor argues what matters is the substance of power, not its instruments, and that war communicates as well as coerces (pp. 374–375). **Explain.** Messages, protections and legal conformity convert tactical con-

trol into durable outcomes. **Limit.** Evidence is conceptual and UK-focused. **Consequent.** DF should design operations to convey restraint and protection under UN authority.

Counter — Return to classical mores **Point.** Some argue a shift back to state-on-state warfighting renders soft–hard debates moot. **Evidence.** The intervention report leans to classical strategic mores and adaptable postures, downplaying culpability (p. 373). **Explain.** If future wars are conventional, projecting hard power may appear decisive. **Limit.** Kaldor’s critique shows legitimacy and policing aims remain salient in messy conflicts. **Consequent.** DF must retain combined arms yet centre civilian protection and legality.

Limit. Implication:

Step 6 — Evidence & Implication Log (LaTeX)

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Reports'
silence shows
deeper fail-
ure & Kaldor
2014, p. 373 &
Lessons inter-
nalised privately
& Legitimacy
costs dominate
& Start plans
with culpability
and legitimacy
analysis Sub-
stance over tools
& Kaldor 2014,
p. 375 & Smart
power balances
tools & Hyper-
connectivity
& Judge ops
by message
and protection
Reimagine UK as
networked gover-
nance & Kaldor

Step 7 — Gaps

(1) Chase comparative cases where international policing achieved durable legitimacy without large-scale force. (2) Park fine-grained measurement of attraction versus coercion until methods chapter firms up.

Link to thesis module learning outcomes

Evaluates method and theory, synthesises competing frames and derives DF-specific implications suitable for chapter drafting and presentation build.

Supporting citations to your files: Abstract framing and Iraq/Afghanistan critique. Soft power ambiguity, Clausewitz and Foucault. Substance over tools; legitimacy focus. Networked governance and redefining ‘we’. International policing aim.

(RANGELOV_2012)

Step 2 — DIMERS Card (LaTeX)

Source Analysis — *Rangelov 2012*, Persistent conflict

Describe: The article presents persistent conflict as open-ended, incentive-sustained violence in which actors gain from continuation rather than decision; diffusion and recurrence are central (n.p.). **Interpret:** The lens moves analysis from winning campaigns to reducing incentives that make violence durable, with legitimacy and protection treated as core strategic effects. **Methodology:** Conceptual synthesis drawing on contemporary cases and political-economy cues; validity is moderate given likely reliance on secondary data and ideal-type reasoning. **Evaluate:** Its bite is to specify a persistence logic that explains why tactical successes do not settle conflicts and why displacement and fear amplification matter for strategy. **Author:** The stance privileges multilateral, law-bound responses and treats coercive spectacle as counter-productive in legitimacy-sensitive settings. **Synthesis:** Converges with Kaldor on the logic of persistence and spread and on the need to blend policing with politics; offers a compatible frame for displacement-centred protection. **Limit.** Empirics are thin and causal chains can be local; ideal-type claims risk unfalsifiability. **Implication:** For the Irish Defence Forces, emphasise endurance

logistics, protection of civilians, arrest support and targeted disruption of war-economy incentives.

Step 3 — Method Weight

2/5. Concept-forward synthesis with policy traction, but thin measurement and ideal-type limits constrain validity and testability.

Step 4 — Claims-Cluster Seeds

Persistence beats decision in many contemporary wars. Best line + page: Title signals the core thesis (n.p.). Rival reading: Old-war decision via compellance still dominates. Condition: Hybrid governance, fragmented violence markets. Irish DF implication: Design for endurance, containment and incentive reduction.

Violence spreads and recurs through political-economy incentives. Best support: Kaldor's logic of persistence and spread complements this lens. Rival reading: Measurement artefact around battle-death thresholds. Condition: Open, globalised economies and weak institutions. Irish DF implication: Target finance, protection rackets and fear-amplification nodes.

Policing-type aims outperform spectacle coercion where legitimacy costs dominate. Support: Kaldor on policing rather than crime-only or coercive frames. Rival reading: Swift punitive strikes deter. Condition: Dense media environments and dispersed adversaries. Irish DF implication: Prioritise civilian protection, arrests and evidence over strike-led signalling.

Displacement is a strategic method and metric of harm. Support: Trend to higher displacement per conflict aligns with the persistence thesis. Rival reading: Rising counts reflect better data. Condition: Communications enable fear propagation. Irish DF implication: Bake displacement planning and host-nation support into ops.

Step 5 — PEEL-C Drafting

Strongest claim — Persistence over decision **Point**. Many modern conflicts persist because actors benefit from continuation, not victory. **Evidence**. The piece's focus on persistent conflict, taken with corroborating logics of spread and recurrence, explains why tactical wins fail to settle violence (n.p.; supported by Kaldor's persistence logic). **Ex-**

plain. When identity mobilisation and war-economy rents pay, the centre of gravity is incentives, not battles. **Limit.** Concept-heavy, thin page-anchored evidence. **Consequent.** DF planning should weight endurance, protection and incentive disruption over decisive battle.

Counter — Decision through coercion **Point.** A rival view insists that compellance and decisive operations still deliver compliance. **Evidence.** Classical frames prioritise force over legitimacy, reading diffusion as a policing problem external to war. **Explain.** This can hold where adversaries are concentrated and institutions remain strong. **Limit.** It underplays recurrence where violence pays and legitimacy costs are high. **Consequent.** Keep combined arms, but centre civilian protection and legal process in mandate design.

Limit. Consequent:

Step 6 — Evidence & Implication Log (LaTeX)

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Persistence
over decision &
Rangelov 2012,
n.p. & Coercive
compellance logic
& Fragmented au-
thority; war rents
& Endurance plan-
ning and incentive
disruption Spread
and recurrence
follow incen-
tives & Kaldor
2013, pp. 4–6 &
Data artefact on
battle deaths &
Globalised, weak-
institution settings
& Cross-border
containment;
protect informa-
tion and logistics
Policing aims
beat spectacle
& Kaldor 2013,

Step 7 — Gaps

(1) Chase a text-layer copy of Rangelov (2012) to extract quotations, page-precise claims and methods. (2) Park fine-grained mechanism tests until Rangelov text is captured; proceed with Kaldor-anchored persistence scaffolding.

Notes to thesis learning outcomes

Evaluates a conceptual lens, weighs method limits, synthesises with adjacent sources and derives DF-specific doctrine and planning implications suitable for immediate drafting.

File citations used: Rangelov 2012 title signal; Kaldor 2013 on war–crime blur and policing; on data, persistence and spread; displacement trend.

(UKLP_2023)

Source Analysis — *MOD DCDC 2023, JDP 0-20: UK*

Land Power (6th ed.)

Describe: Defines land power as the ability of land forces to exert decisive control and influence; asserts land is where decisions are usually concluded; outlines three tenets — manoeuvrist approach, combined arms, mission command — and four attributes — soldiers, presence, persistence, adaptability (1.1–1.2; 3.13–3.15; 3.1–3.10). **Interpret:** Provides baseline vocabulary for utility, command philosophy and integration. It frames how to convert national strategy into land effects via convergence, yet leaves costs and comparative performance largely unexamined. **Methodology:** Official doctrine. Conceptual synthesis with illustrative cases and lexicon; authoritative but non-empirical. Valid for framing, weaker for testing. **Evaluate:** Best where it links tenets to small professional forces and ties multi-domain effects to land decision through the operational function. It is clear on presence, persistence and deterrence. **Author:** MOD DCDC, with Chief of the General Staff foreword; joint and NATO alignment declared, which signals an institutional perspective. **Synthesis:** Converges with Gray on enduring human, adversarial, political nature; complements NATO doctrine; extends many capstones by putting human

security and convergence up front. **Limit.** UK focus and prescriptive tone; little falsifiable evidence or cost analysis. **Implication:** Irish DF should use the tenets to design training, practise convergence through joint reps, and bake human security into planning and messaging.

Method weight

2/5 — Doctrinal synthesis with high authority but low empirical testing; useful for framing design variables, weak for causal inference.

Claims-cluster seeds

Claim: Decisive political outcomes generally require land forces able to control terrain and influence actors. *Best line:* “Land power is defined as the ability of land forces to exert decisive control and influence ...” (1.2). *Rival:* Stand-off precision can decide without ground control. *Condition:* End state demands population or terrain control. *Irish DF implication:* Maintain a ready, interoperable ground element able to persist forward.

Claim: The nature of war is human, adversarial and political, so command must empower initiative and resilience. *Best line:* “The nature of war ... is human, adversarial and political.” (2.18). *Rival:* Algorithmic C2 and ISR dominance can routinise war. *Condition:* Opponents think and adapt. *Irish DF implication:* Invest in leadership education and mission command practice.

Claim: Convergence — orchestrating multi-domain effects through the operational function — is now central to land decision. *Best line:* “Convergence is the concerted employment of effects created in multiple operational domains ... directed at decisive points.” (4.24–4.25). *Rival:* Domain-owned effects can remain siloed and still succeed. *Condition:* Interdependencies constrain single-domain success. *Irish DF implication:* Build joint reps that force ISR, fires and manoeuvre to cohere on land.

Claim: Presence and persistence enable understanding, influence and deterrence that make temporary combat gains durable. *Best line:* “Presence ... is therefore often decisive ... Persistence ... makes permanent the otherwise temporary gains achieved through combat.” (3.6–3.7). *Rival:* Episodic raids suffice. *Condition:* Political settlement needs

local engagement. *Irish DF implication:* Design rotations for sustained engagement and partner reassurance.

Claim: Human security is a doctrinal requirement linked to legitimacy and campaign authority. *Best line:* “Human security is ... an important cross-cutting theme ... closely associated with legitimacy ... and the use of force.” (2.14–2.17). *Rival:* It distracts from warfighting. *Condition:* Conflict among people under global scrutiny. *Irish DF implication:* Embed civilian protection, cultural property, and anti-corruption measures in plans.

PEEL-C drafting

Strongest claim paragraph. *Point.* Decisive outcomes on land now depend on convergence that orchestrates multi-domain effects through the operational function. *Evidence.* JDP 0-20 defines convergence as the concerted employment of effects from multiple domains at decisive points and assigns the operational function to translate strategy into coherent tactical activity and resource it (4.24–4.25). *Explain.* This makes ISR, fires and manoeuvre mutually enabling rather than parallel, reducing seams that opponents exploit. *Limit.* Doctrine does not quantify the gain or specify failure modes. *Consequent.* Irish DF should rehearse joint convergence at battlegroup level with allied enablers. *Limit. Consequent:* absent measurement, training must include red-teaming to expose orchestration gaps.

Counter-claim paragraph. *Point.* Precision and remote effects can achieve strategic decision without persistent land presence. *Evidence.* The foreword underscores land’s growing dependence on other domains, and the text stresses multi-domain reliance (foreword; preface). *Explain.* If air, space and cyber can suppress systems and leaders, land insertion may be minimal. *Limit.* JDP 0-20 still contends final decision is usually concluded on land and that presence and persistence are often decisive (1.1; 3.6–3.7). *Consequent.* Irish DF should keep a credible ground option even as it leverages allied remote effects. *Limit. Consequent:* where political control of people and terrain is necessary, remote effects alone will not suffice.

Evidence & Implication Log (LaTeX)

**Claim &
Best source
(page) & Rival
source/reading
& Condition &
Implication for
Irish DF**

hline Land power
delivers decisive
control and in-
fluence on actors
and events & JDP
0-20, 1.2 & Stand-
off precision can
decide without
ground control &
When political end
requires terrain or
population control
& Maintain a
ready, interopera-
ble ground element
for presence and
seizure Nature
of war is human,
adversarial, po-
litical; empower
initiative & JDP
0-20, 2.18–2.24
& Algorithmic
C2 will routinise
conflict & Oppo-

Gaps

Chase: concrete metrics and cases that quantify convergence benefits and presence effects; NATO AJP-3.2 cross-walk for interoperability tasks. Park: UK-specific organisational detail and procurement pathways unless directly transferable to Irish DF practice.

Integrated Action / Synthesis Points (Master List, Finalised) A. Strengthen the RMA Core

Krepinevich (1992, 1994, 1996) → Hinge figure: techno-optimist in vision but stresses organisational adaptation; connects optimists to sceptics.

Conceptual labels → “Conservative progressivism” (Betts) vs “Mental evolution” (Alach) as recurring conceptual anchors.

Continuity logics → Owens (bureaucracy inertia) + Gray (culture/strategy) show different modes of continuity over revolution.

Craft (2004) → Information revolution as RMA: situational awareness and dispersion enable mass effects; but dependence creates cyber/logistics vulnerabilities.

Harknett (2000) → IT-RMA critique: warns of access–security trade-offs, coalition strain, and organisational fragility; supports incrementalism.

Jordaan & Vrey (2003) → LIC predominance makes RMA overmatch less relevant; highlights political/urban/adaptive friction.

Cheban (2003) → Russia-centric critique; warns against “template imports”; advocates indigenous doctrine and resource realism.

B. Deepen Mission Command Strand

Cohen (1996) → Both optimist (tech enabling C2) and cautionary (risks centralisation undermining MC).

Sjogren (2025) → Empirical NATO interviews: MC often rhetorical; improved by doctrine literacy, plain language, and risk-positive training.

Knevelsrud (2024) → SDT study: MC climate indirectly drives motivation/retention; quantitative organisational evidence.

Proposal vignettes (Winters at Bastogne; Guderian oversight) → Illustrate the tension between delegation and intervention.

MOD DCDC 2023 (JDP 0-20) → Doctrinal anchor: MC as one of three tenets of land power; affirms its centrality in modern land doctrine.

C. Enrich Autonomy & Human–Machine Teaming

Porat (2016) → Empirical operator ceilings: 15 supervise, 3 control; MOMU teamwork usually superior.

Husain (2021) → AI compresses OODA loops to machine speed.

Bachmann (2023) → Disinformation degrades OODA loops; hybrid disruption.

Schaus & Johnson (2018) → UAS use lowers escalation thresholds.

Vowell (2024) → Applied doctrine: HOTL automation in C-UAS; contrasts with Irish/EU limitations.

MOD DCDC 2023 (JDP 0-20) → Adds doctrinal framing of convergence — orchestrating multi-domain effects as the operational function.

D. Governance, Law & Ethics of Autonomy

Copeland (2023) → Article 36 weapons reviews; iterative life-cycle re-review triggers.

Lewis (2023) → Responsibility vs liability; accountability framework for AWS war crimes.

Taddeo (2022) → Definitional clarification: four aspects of AWS; proposes value-neutral baseline.

Kohn (2024) → Bayesian ethical decision-aid prototype; training and wargaming use.

Zajac (2025) → Refutes “AWS lower threshold for war” thesis; reframes restraint dynamics.

E. Rhetoric vs Reality

Alach (2008) + Rassler (2015) → Incremental adaptation; RMA hype vs actual evolution.

Crino & Dreby (2020) → Drones as a real and present disruptive threat.

Brose (2019) → Techno-optimist swarm/autonomy future; counterweight to sceptics.

F. Irish Defence Forces Application

Relative Combat Power (RCP) (Cohen 1995; Husain 2021) → Analytical bridge: makes US RMA debates relevant to DF context.

Practical implications for DF:

Governance → Life-cycle reviews, accountability logs (Copeland, Lewis, Kohn).

Mission command → Doctrine literacy, climate audits, autonomy-supportive training (Sjogren, Knevelsrud, JDP 0-20).

Human-machine teaming → Cap operator ratios, invest in MOMU teamwork aids (Porat).

Conflict fit → Emphasise infantry competence, urban readiness, coalition interoperability (Jordaan & Vrey).

Strategic posture → Avoid template imports; adapt doctrine to Irish context (Cheban).

Tech adoption → Resilience, redundancy, incrementalism (Harknett).

C2 robustness → Harden comms/logistics; train degraded ops; mass effects from dispersed formations (Craft).

Presence & persistence → Practise sustained rotations and partner reassurance (JDP 0-20).

Human security → Embed legitimacy, civilian protection, governance measures (JDP 0-20).

Frame DF as “conservative progressivist” → cautious adopters constrained by organisational culture and structural realities.

Why this works:

RMA Core (optimists, sceptics, bridges) → sets theoretical frame.

Mission Command → doctrinal + empirical depth.

Autonomy & Teaming → connects AI/OODA to practical human limits.

Governance/Ethics → ensures legal/ethical coverage.

Rhetoric vs Reality → balances hype with evidence.

Irish DF Application → translates debates into tailored, actionable implications.

1 Importance of the Research

The implications of uncrewed systems and AI to the Irish Army are interesting to consider. Uncrewed systems comprise a clear threat to our soldiers. The narrowing of the technology gap has created vulnerabilities from hybrid and irregular forces (**HUSAIN_2021**). Conversely, they could provide considerations for an Ireland which is seeking to invest more in defence.

Whether Uncrewed Ground System (UGS) and Uncrewed Aerial System (UAS) ¹ constitute a revolution or evolution of warfare, their proliferation warrants attention and careful consideration. UAS in particular have been seen to lower the ‘barrier to entry’ to technology which, to-date, was the exclusive purview of technologically advanced conventional militaries. Similarly, they are closing previous technology gaps between unconventional, hybrid and conventional forces.

Drones, once novel, are now routine instruments of warfare. The Second Nagorno-Karabakh War (2020) and the Russo-Ukraine War (2022 to present) are particularly noteworthy in that regard.

Historical precedent illustrates the influence of technology on command, such as through the invention of the telegraph (**COHEN_1996**). A famous case of this influence was of President Barack Obama supervising May 2011’s Operation Neptune Spear. The use of AI shall create tension with the exercise of the doctrine of mission command.

Research on the adoption of uncrewed systems and AI is therefore significant. It is disruptive not only for the conduct of warfare but for military organisation, doctrine and command.

¹Also known as ”drones”.

2 Implications for the Irish Defence Forces

Can the history of warfare be disentangled from a history of human technology and innovation? Are the methods of war entirely separate from the tools by which it is waged? Said differently, what advantage if any is secured solely through technological advancement?

Advances in technology are transformational in a military context - interestingly discussed by Cohen's 1995 paper . In military planning, there is a tool known as Relative Combat Power (RCP) which is used as to broadly assess parity of forces prior to combat. It is interesting to consider what impact uncrewed systems have on RCP. It is suggested that drones may constitute both an opportunity to modernise and to close the RCP gap with other conventional forces. Boldly adopting and leveraging uncrewed and AI-enabled systems could enable the Irish Army to fast-track capability development. Opportunities exist to bypass traditional, slow and costly development & procurement processes. This could be analogous to weaker naval nations leveraging the submarine during the early 20th century(COHEN_1996). In 2021 Husain¹ posited that the RCP of a drone swarm which is optimised via Artificial Intelligence (AI) could be comparable to a substantially larger conventional force. Specifically, that AI could coordinate a decisive concentration of force, while drones by their nature are particularly manoeuvrable. Indeed, the corresponding structural and command-related impacts could be equally valuable considerations. As Crino and Dreby show, the disruptive effect of small drones is already evident in repeated strikes on critical infrastructure, underscoring how non-state and state actors alike can weaponise commercially available systems (CRINO_2020). As reported by the EDA, a significant proportion of tactical reconnaissance and strikes are being conducted remotely (NICHOLESCU_2023). These considerations are important influences on command, leadership, structure and culture.

¹Cohen's 1996 paper provided similar analysis .

3 Literature

3.1 Introduction

Much of warfare conducted during the first two decades of the 21st century was heavily influenced by the IED. The threat and the response evolved continually. Crucially, techniques were rarely rendered obsolete. Instead, their effectiveness fluctuated over time. This evolutionary pattern accords with Krepinevich's insistence that RMAs require organisational adaptation alongside technology (**KREP_1992**) and Metz's observation of incremental rather than discontinuous change (**METZ_2000; KREP_1994**). This is evidenced by the continued relevance of the Philosophy of IEDD, which endures as international doctrine since the 1970s (**COCHRANE_2012; DORD_2022**). An RMA would perhaps fundamentally transform the battlefield by rendering existing techniques and equipment permanently obsolete. This example may reflect what critics of the RMA thesis argue, that adaptation is cyclical and rarely results in true discontinuity.

3.2 Foundational RMA Theories and Techno-Optimist

Views

Cohen suggested to consider the longevity of "basic counting pieces of military power" (**COHEN_1995**), echoing RCP. Discontinuous jumps in RCP aligns well with Krepinevich's 1992 description, whereby to disregard an RMA likely condemns your soldiers to slaughter.

Krepinevich 1992's paper placed him as a seminal RMA thinker. He framed the RMA as more than just new platforms. It required agile, flat experimentation and organisation. He stressed that information itself would become power and military adoption of superior civilian technology. He also suggested that older systems could still play a role, but increasingly in support of new technologies such as long-range precision strike and drones which would displace armour as the centre of battle. This sits alongside Cohen's idea that

RMAs function like hypotheses to be tested in war (**COHEN_1996**) and Owens' vision of linked "systems of systems" reshaping force structure (**OWENS_2002**). RMA optimists have felt that evolution in technology and thinking which were displayed during Desert Storm would clear the "fog of war" (**ALACH_2008**). More recently, Brose argued that AI, autonomy and ubiquitous sensors will upend legacy concepts in the same way that smokeless powder once did, demanding a radically different force design built around swarms of cheap, expendable system (**BROSE_2019**).

Their works suggest that Cohen and Krepinevich view the RMA concept as not just an abstract model within which to attempt to understand warfare. Instead an RMA is akin to a scientific hypothesis which can be tested. If one's inaction resulted in the 'needless' slaughter of your soldiers, then one erroneously dismissed an RMA. It is clear from the literature, that proponents of the RMA framework do not simply see it as technological. Cultural, bureaucratic, financial, political and other factors influence to transform a technological invention to a military breakthrough. Metz (2000) similarly stresses that revolutions in military affairs are as much social, political and organisational as they are technological. The cultural context shapes whether new capabilities amount to true revolution.

3.3 Critical and Skeptical Perspectives on RMA

Krepinevich also recognised that technology on its own was insufficient. For him, invention without reorganisation was a dead end (**KREP_1992**). This reinforces Betts' warning that militaries often misuse technology if it is not embedded in doctrine and culture (**BETTS_1996**). Krepinevich's review of the Gulf War air campaign likewise underlined the limits of technology's impact when political control and cultural factors remained intact (**KREP_1996**). It also reflects Gray's argument that strategic culture, not hardware, usually decides whether an apparent breakthrough becomes a genuine revolution (**GRAY_2005**). Betts (1996) (and to a lesser extent Owens (2002)) cautioned against concluding that the results of Desert Storm confirm the existence of an RMA. He assesses it as improbable that that the US is able to repeat the results of the 1990-1991 Gulf War

in the future. Indeed he appears to have correctly predicted the US' inability to succeed against insurgencies it faced during GWoT. William Owens similarly highlights that while technological advances offer extraordinary military effectiveness, organisational and cultural transformation lag behind and dilute its impact (**OWENS_2002**).

The skeptical tradition applies a kind of Occam's razor to claims of revolution. Rather than positing epochal breaks, it stresses that continuity and incremental adaptation usually suffice to explain apparent change. As Alach argues, much of the supposed RMA discourse is rhetorical excess layered onto what are, in practice, evolutionary adjustments (**ALACH_2008**). His conclusion is that there is an evolution in military affairs rather than a revolution. Ressler's 2015 study of non-state drone innovation reinforces this skepticism, showing that much of the apparent novelty stems from incremental civilian adaptation rather than decisive military transformation" (**RASSLER_2015**).

3.4 Doctrinal and Organisational Learning Perspectives

The tank case is also an example of organisational learning and failure. Krepinevich showed that Britain had the concept but not the structures to exploit it (**KREP_1992**). He later extended this logic, showing that historical patterns of military change confirm the decisive role of organisational adaptation over invention alone (**KREP_1994**). This appears to align with Betts' description of military commanders approaching new technology with "conservative progressivism" (**BETTS_1996**). Conversely inter-war Germany's circumstances allowed for a more flexible approach, resulting in transformation. Metz's (2000) and Owens (2002) articles accurately correlates recent defeat or a perception of weakness with openness to creativity. This was clearly the case for inter-war Germany.

Cohen's (1996) and Krepinevich's (1992) articles suggest that revising hierarchical structures is among the hardest tasks in realising an RMA. The recurring prescription is not mere acquisition/invention. It is often organisational change, faster decision cycles, decentralised command which realise the gain. Yet both tend to understate the cultural, political, budgetary and career incentives which impede revolutionary change. Owen's 2002 article clearly places him as an RMA optimist. However, when reviewing Desert Storm,

he observed that apparent technological difficulties were, “rooted in deeper differences of service culture, procedures, and operational concepts”. As Keller (2002) observed in his interviews with reform advocates, even within the Pentagon the frustration was less about technology itself than about a sclerotic culture that rewarded continuity over disruptive change. The Stimson Center similarly noted that while UAS had become indispensable to U.S. commanders, their adoption was shaped less by radical reorganisation than by incremental integration into existing bureaucratic routines (STIMSON_2015).

Schaus and Johnson caution that UAS use also alters escalation dynamics, lowering thresholds without necessarily changing organisational cultures, which may create dangerous gaps between intent and perception” (SCHAUS_2018). This is echoed by Krepinevich (1992).

3.5 AI, Autonomy, Mission Command and Contemporary Debates

In 2000, Metz posited that historic commanders such as or Guderian would likely have found the United States’ AirLand Battle Doctrine (AI) compatible with their operational style. Central to this is the concept of mission command. The tension between mission command’s rapid operational tempo and the temptation of micro-management due to digital visibility is noteworthy.

Cohen warns of that technologies facilitating modern to commanders to perch “cybernetically” beside their troops in combat could have an insidious effect - undermining subordinate commanders (COHEN_1996). He contrasts this with General Eisenhower and Field Marshall von Moltke lying on a sofa reading a book on the eve of battle. His skeptical characterisation of commanders prone to intervene indicates that Cohen is likely a proponent of mission command. Yet as Betts observes, new technology does not sharpen judgment by itself. Militaries often misinterpret or misuse innovations (BETTS_1996). Together these cautions suggest that without cultural and organisational restraint, information systems may become instruments of centralised control rather than enablers of

mission command. Alach (2008) concurs, stating that, “mental evolution was as critical” as technological progress.

As a proponent of mission command, the actions recounted by General Guderian are somewhat incongruent. He described driving around the battlefield in his staff car to observe and intervene, at times confronting subordinates he believed were disobeying orders. One such episode involved SS Oberführer Dietrich, whose apparent insubordination proved correct once Guderian examined the situation: “I approved the decision taken by the commander on the spot” (GUDERIAN_1952). His preference for active oversight was further reflected in his praise for SS Gruppenführer Paul Hausser (YEIDE_2011).

The tension between personal intervention and the philosophy of mission command is illustrated by Major Dick Winters during the Battle of Bastogne. Though instinct urged him to relieve Lieutenant Dike and lead Easy Company himself, Winters chose instead to uphold his broader responsibilities as battalion commander. His solution—appointing Lieutenant Ronald Speirs—proved decisive (WINTERS_2006).

Steven Metz argues that the USALB blended modern technology with Auftragstaktik and rapid tempo in ways Guderian or Patton would have recognised (METZ_2000). More recently, Husain suggested that AI could compress the OODA loop to machine speed, accelerating conflict while still leaving space for the enduring principles of mission command (HUSAIN_2021).

So it appears that Cohen underestimates the potential for technology to reinforce Auftragstaktik. His framing risks a reductive binary between passive commanders “on the sofa” and intrusive commanders “in the hatch”. Even if a commander’s judgment is superior, they cannot personally manage every decision across a dispersed and complex battlefield. What matters is leveraging subordinates’ initiative at scale, while reserving intervention for moments of crisis or opportunity. In this sense, the commander amplifies rather than replaces subordinate action. Hence, technology such as uncrewed systems and AI may enhance mission command. Krepinevich (1992) modified structures can enable technology to reinforce Auftragstaktik rather than undermine it. This highlights that the impact of technology is contingent less on the tools themselves than on organisational

culture and doctrinal restraint. In favourable conditions, AI and uncrewed systems may extend, rather than erode, the practice of mission command. Authors such Alach, Gray, Betts (along with conditional optimists such as Cohen, Krepinevich and Metz) identify the incremental change/evolution combined and interactions between many systems to be a key consideration.

Summary and Conclusion

Krepinevich stands out as a bridge across the literature. He shared the techno-optimist belief that information, precision strike and new organisational forms could drive a revolution. Yet he also stressed that bureaucratic resistance and doctrinal inertia often prevent militaries from realising this potential. His recognition that invention without reorganisation fails, links early RMA theory to later institutional learning perspectives. In this sense, he links the optimism of Metz, Cohen and Owens with the caution of Betts, Alach and Gray. His insights anticipate contemporary debates on AI, autonomy and dual-use technology. This dual perspective is evident across his writings—from his broad historical analysis of past military revolutions (**KREP_1994**) to his tempered assessment of Desert Storm's limited revolutionary character (**KREP_1996**).

4 The Research Question

To what extent have uncrewed and AI-enabled systems reshaped mission command, military organisation and the character of warfare in recent conflicts. Do these cumulative changes constitute a Revolution in Military Affairs (RMA)?

- Mission Command
 - How are uncrewed and AI-enabled systems reshaping the philosophy and practice of mission command?
 - To what extent do concepts like the OODA loop and “hyperwar” illustrate these changes?
- Military Organisation and Structure
 - How are Western militaries adapting their structures, force composition and professional cultures in response to uncrewed and AI systems?
 - Are new “elites” or organisational forms emerging, as predicted by RMA theorists?
- Character of Warfare
 - How have recent conflicts demonstrated changes in the conduct and character of war due to uncrewed and AI-enabled systems
 - Do these cumulative changes amount to evolutionary adaptation or a true Revolution in Military Affairs?

5 Methodology

This thesis shall adopt the humanities approach. It shall not seek to measure variables or test hypotheses. Instead, it shall interrogate texts and ideas. The intended method shall be one of critical reading of theorists, doctrine, policy papers and case histories, set against one another. The aim is to identify the assumptions which underpin techno-optimist, sceptical and institutional perspectives on the RMA. Through comparison of theory and practice in recent conflicts, the study will weigh whether uncrewed and AI-enabled systems represent genuine discontinuity or the latest turn in an evolutionary cycle. These debates will also be assessed in the context of the Irish Army, to consider their relevance for national doctrine, organisation and command.

Glossary of Terms

Revolution in Military Affairs A hypothesised period of rapid change in warfare driven by the interaction of new technologies, organisations and concepts.

List of Acronyms

AI Artificial Intelligence.

AI United States' AirLand Battle Doctrine.

EDA European Defence Agency.

GWoT Global War on Terror.

HiTL Human in the Loop.

IED Improvised Explosive Device.

IEDD Improvised Explosive Device Disposal.

ISR Intelligence, Surveillance and Reconnaissance.

MDMP Military Decision Making Process.

OODA Observe Orient Decide Act.

RCP Relative Combat Power.

RMA Revolution in Military Affairs.

UAS Uncrewed Aerial System.

UGS Uncrewed Ground System.

UOS Uncrewed and Optionally Crewed Systems.

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