

**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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## **MA (LMDS)**

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# 1 Importance of the Research (200 words)

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 aerial and ground systems (Uncrewed Ground System (UGS) and Uncrewed Aerial System (UAS))<sup>1</sup> 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.

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<sup>1</sup>Also known as ”drones”.



## 2 Implications for the DF (100 words)

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 20<sup>th</sup> century(Cohen 1996). In 2021 Husain<sup>1</sup> 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 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.

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<sup>1</sup>Cohen's 1996 paper provided similar analysis .



## **3 A Review of the Literature (1500 words)**

### **3.1 Introduction**

Much of warfare conducted during the first two decades of the 21<sup>st</sup> century was heavily influenced by the IED. From the bomb-disposal perspective, the threat and the response evolved continually. Actions were followed by counter-actions and vice versa. Crucially, actions were rarely rendered obsolete. Instead, their effectiveness fluctuated over time. I.e., this has proven an evolutionary field rather than a revolutionary. This evolutionary pattern accords with Krepinevich's insistence that genuine revolutions require organisational adaptation alongside technology (A. F. Krepinevich 1992), and Metz's observation that militaries more often cycle through incremental change than achieve true discontinuity (Metz 2000; A. F. Krepinevich 1994). This is perhaps well evidenced by the continued relevance of the Philosophy of IEDD, first developed by the British Army in the 1970s, which endures as international doctrine to-date (Cochrane 2012; Irish Defence Forces 2022). It begs the question of what would constitute a revolutionary change in warfare. Perhaps a revolutionary change would make existing techniques or 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**

To elucidate an RMA, in 1995 and 1996 Eliot A., Cohen suggested that one consider whether the, "basic counting pieces of military power [...] will continue to exist into the future" (Cohen 1995). This appears analogous to considerations regarding relative combat power. Systems whose RCP tend to zero become obsolete. Conversely, systems whose RCP rises with a discontinuity might be considered revolutionary. This 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 organisations willing to adapt. He stressed that information itself would become power and that militaries could not rely on owning all technology when civilian sectors were moving faster. 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 . His later work reaffirmed that true revolutions require the co-evolution of technology, operational concepts, and institutions, rather than technology alone (A. F. Krepinevich 1994). 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, 1996). RMA optimists have felt that evolution in technology and thinking which were displayed during the 1990-1991 Gulf War would clear the "fog of war" (Alach 2008, p. 49).

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 (A. F. Krepinevich 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 (J. Krepinevich A. F. 1996). It also reflects Gray's argument that strategic culture, not hardware, usually decides whether an apparent breakthrough becomes a genuine revolution (Gray, 2005 – no such article). Betts (1996) (and to a lesser extent Owens (2002)) cautioned against concluding that the results of the 1990-1991 Gulf War confirm the existence of an RMA. He assesses it as improbable 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, .p 50-52). His conclusion is that there is an evolution in military affairs rather than a revolution.

## **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 (A. F. Krepinevich 1992). He later extended this logic, showing that historical patterns of military change confirm the decisive role of organisational adaptation over invention alone (A. F. Krepinevich 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 correlate 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 Operation Desert Storm, he observed that apparent technological difficulties were, "rooted in deeper differences of service culture, procedures, and operational concepts".

### **3.5 AI, Autonomy, and Contemporary Debates**

In 2000, Metz posited that historic commanders such as Patton or Guderian would likely have found the U.S. AirLand Battle doctrine 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 Dwight D. Eisenhower and Field Marshall Helmuth Graf 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 recounted actions of General Heinz Guderian are perhaps incongruent. He recalls driving around the battlefield in his staff car to observe and often intervene. For example, his seeking out SS Oberführer Sepp Dietrich who was apparently disobeying orders, only to realise that his subordinate's actions were correct. "I approved the decision taken by the commander on the spot" (Guderian 1952, p. 117). His stylistic preference is also borne out by his positive assessment of SS Gruppenführer Paul Hausser (Yeide 2011, p. 73). General George S. Patton was known for a similar style, often described as "micromanaging" (Zaloga 2010, p. 34). In a well-publicised episode at Bastogne, Major Dick Winters confronted the dilemma of resisting his instinct to relieve Lieutenant Dike and lead Easy Company himself. Mission command required him to restrain personal impulse in favour of his broader responsibility as battalion commander. Yet being close to the action allowed him to intervene by appointing Lieutenant Ronald Speirs, in move which proved pivotal (Winters and Kingseed 2006, p. 186). Steven Metz argues that the AirLand Battle doctrine, synthesised modern technology with Auftragstaktik and rapid tempo in a way that Patton or Guderian would have found familiar (Metz 2000). In 2021, Husain suggested that AI can collapse the OODA Loop, accelerating conflict to machine speed. This suggests that the philosophy of mission command can persist, even when technology accelerates decision cycles.

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". He appears to prefer the former which is perhaps a simplistic interpretation. 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) similarly argues that flatter structures and direct access to information can enhance this dynamic, enabling 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, Betts, Gray, Kaldor (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 (A. F. Krepinevich 1994) to his tempered assessment of Desert Storm's limited revolutionary character (J. Krepinevich A. F. 1996).

## 4 The Research Question (100-150 words)

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 (500 words)**

Not written.





# Bibliography

- Alach, Z. J. (2008). The revolution in military affairs. In: *Slowing Military Change*. [Online], pp. 49+. Available at: <https://link.gale.com/apps/doc/A263786445/AONE?u=nuim&sid=bookmark-AONE&xid=e7caa86e>. (Accessed: 12 June 2025).
- Betts, R. (1996). The downside of the cutting edge. In: *The National Interest* 45. [Online], pp. 80+. Available at: <https://link.gale.com/apps/doc/A18827115/AONE?u=nuim&sid=bookmark-AONE&xid=3a16f899>. (Accessed: 12 June 2025).
- Cochrane, B. (2012). “The Development of the British Approach to Improvised Explosive Device Disposal in Northern Ireland”. [Unpublished]. MPhil thesis. Cranfield University, Defence College of Management and Technology.
- Cohen, E. A. (1995). Come the revolution. In: *National Review* 47.14. [Online], pp. 26+. Available at: <https://link.gale.com/apps/doc/A17367744/AONE?u=nuim&sid=summon&xid=e8a5ebae>. (Accessed: 12 June 2025).
- (1996). A revolution in warfare. In: *Foreign Affairs* 75.2. [Online], pp. 37+. Available at: <https://link.gale.com/apps/doc/A18102376/GBIB?u=nuim&sid=summon&xid=c4fd2389>. (Accessed: 12 June 2025).
- Guderian, H. (1952). *Panzer Leader*. First published in Great Britain by Michael Joseph Ltd, 1952. Futura edition 1974; reprinted 1976, 1977, 1979, 1980, 1982, 1987. London: Futura Publications. ISBN: 0860070883.
- Husain, A. (2021). AI is shaping the future of war. In: *PRISM* 9.3. [Online], pp. 50–61. Available at: <https://www.jstor.org/stable/48640745>.
- Irish Defence Forces (2022). *Explosive Ordnance Disposal Instructions*. Issued by the Director of Ordnance on the instruction of the Chief of Staff. [Internal Document].
- Krepinevich, A. F. (1992). *The Military-Technical Revolution: A Preliminary Assessment*. [Online]. Available at: <https://csbaonline.org/uploads/documents/2002.10.02-Military-Technical-Revolution.pdf>.

- Krepinevich, A. F. (1994). Cavalry to computer: The pattern of military revolutions. In: *The National Interest* 37, pp. 30–42. Available at: <http://www.jstor.org/stable/42896863>. (Accessed: 7 September 2025).
- Krepinevich Andrew F., J. (1996). Revolution in warfare? Air power in the Persian Gulf. In: *Foreign Affairs* 75.4. [Online], pp. 144. Available at: <https://link.gale.com/apps/doc/A18420016/ITOF?u=nuim&sid=summon&xid=7d84949f>. (Accessed: 12 June 2025).
- Metz, S. (2000). The next twist of the RMA. In: *Parameters* 30.3. [Online], pp. 40. Available at: <https://link.gale.com/apps/doc/A67502101/AONE?u=nuim&sid=bookmark-AONE&xid=edea42d1>. (Accessed: 12 June 2025).
- Nicholescu, K. (Mar. 2023). *Remarks at Future Soldier Technology Conference*. Author's personal observation. London, 7 March.
- Owens, W. A. (2002). The once and future revolution in military affairs. In: *Joint Force Quarterly*. [Online], pp. 55+. Available at: <https://link.gale.com/apps/doc/A99817512/AONE?u=nuim&sid=bookmark-AONE&xid=f9fa2e22>. (Accessed: 12 June 2025).
- Winters, R. D. and Kingseed, C. C. (2006). *Beyond Band of Brothers: The war memoirs of Major Dick Winters*. First edition. New York: The Berkley Publishing Group. ISBN: 0425208133.
- Yeide, H. (2011). *Fighting Patton: George S. Patton Jr. through the eyes of his enemies*. [Online]. Available from ProQuest Ebook Central. Minneapolis: Quarto Publishing Group USA. Available at: <https://ebookcentral.proquest.com/lib/nuim/detail.action?docID=3399615>. (Accessed: 12 September 2025).
- Zaloga, S. J. (2010). *George S. Patton*. 1st. Vol. 3. Command. Illustrated by Steve Noon. Oxford: Osprey Publishing. ISBN: 9781846034596.





# 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.

**EDA** European Defence Agency.

**GWoT** Global War on Terror.

**HiTL** Human in the Loop.

**IEDD** Improvised Explosive Device Disposal.

**ISR** Intelligence, Surveillance and Reconnaissance.

**MDMP** Military Decision Making Process.

**OODA** Observe Orientate 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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