

# Contemporary Military Innovation

Military Innovation in the Interwar Period Military Innovation in Small States Comparing Defense Innovation Around the World The Diffusion of Military Technology and Ideas The Culture of Military Innovation Winning the Next War China's Emergence as a Defense Technological Power Contemporary Military Innovation US Military Innovation since the Cold War Military Innovation in the Interwar Period Predicting Military Innovation Uncovering Ways of War Predicting Military Innovation The Origins of Victory Technological Innovation Diplomacy, War, and Technology Since 1830 Defence Innovation and the 4th Industrial Revolution The German Way of War Twenty-First Century Military Innovation The Art of Military Innovation Williamson R. Murray Michael Raska Tai Ming Cheung Emily O. Goldman Dmitry (Dima) Adamsky Stephen Peter Rosen Tai Ming Cheung Dima Adamsky Harvey Sapolksy Williamson Murray Thomas G. Mahnken Jeffrey Alan Isaacson Andrew F. Krepinevich Kamal B. Mahdavi Maurice Pearton Michael Raska Robert Michael Citino Marcus Schulzke Edward N. Luttwak

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in 1914 the armies and navies that faced each other were alike right down to the strengths of their companies and battalions and the designs

of their battleships and cruisers differences were of degree rather than essence during the interwar period however the armed forces grew increasingly asymmetrical developing different approaches to the same problems this study of major military innovations in the 1920s and 1930s explores differences in exploitation by the seven major military powers the comparative essays investigate how and why innovation occurred or did not occur and explain much of the strategic and operative performance of the axis and allies in world war ii the essays focus on several instances of how military services developed new technology and weapons and incorporated them into their doctrine organization and styles of operations

this book provides a comprehensive assessment of the global diffusion of the revolution in military affairs rma and its impact on military innovation trajectories in small states although the revolution in military affairs rma concept has enjoyed significant academic attention the varying paths and patterns of military innovation in divergent strategic settings have been overlooked this book seeks to rectify this gap by addressing the broad puzzle of how the global diffusion of rma oriented military innovation the process of international transmission communication and interaction of rma related military concepts organizations and technologies has shaped the paths patterns and scope of military innovation of selected small states in a reverse mode how have selected small states influenced the conceptualization and transmission of the rma theory processes and debate using israel singapore and south korea as case studies this book argues that rma oriented military innovation paths in small states indicate predominantly evolutionary trajectory albeit with a varying patterns resulting from the confluence of three sets of variables 1 the level of strategic organizational and operational adaptability in responding to shifts in the geostrategic and regional security environment 2 the ability to identify anticipate exploit and sustain niche military innovation select conceptual organizational and technological innovation intended to enhance the military s ability to prepare for fight and win wars and 3 strategic culture while the book represents relevant empirical cases for testing the validity of the rma diffusion hypotheses from a policy oriented perspective this book argues that these case studies offer lessons learned in coping with the security and defence management challenges posed by military innovation in general this book will be of much interest for students of military innovation strategic studies defence studies asian politics middle eastern politics and security studies in general

gaining a decisive technological edge is a never ending pursuit for defense establishments and the countries they protect intensifying geo strategic and geo economic rivalry among major powers especially the u s and china and the global technology revolution occurring in the civilian and military domains promise to reshape the nature and distribution of global power this book examines the state of global defense

innovation in a select number of countries chosen because they are representative of the diverse make up of the global defense innovation community these include small countries with advanced defense innovation capabilities israel and singapore closed authoritarian powers north korea and russia large catch up states china and india and advanced large powers u s the chapters in this book were originally published as a special issue of the journal of strategic studies

antologi sikkerhedspolitiske forskere giver deres vurdering af følgerne af informationsalderens opgør med hidtidig kendt våbenteknologi og doktriner i forbindelse med den globale spredning af know how på området

this book studies the impact of cultural factors on the course of military innovations one would expect that countries accustomed to similar technologies would undergo analogous changes in their perception of and approach to warfare however the intellectual history of the revolution in military affairs rma in russia the us and israel indicates the opposite the us developed technology and weaponry for about a decade without reconceptualizing the existing paradigm about the nature of warfare soviet new theory of victory represented a conceptualization which chronologically preceded technological procurement israel was the first to utilize the weaponry on the battlefield but was the last to develop a conceptual framework that acknowledged its revolutionary implications utilizing primary sources that had previously been completely inaccessible and borrowing methods of analysis from political science history anthropology and cognitive psychology this book suggests a cultural explanation for this puzzling transformation in warfare the culture of military innovation offers a systematic thorough and unique analytical approach that may well be applicable in other perplexing strategic situations though framed in the context of specific historical experience the insights of this book reveal important implications related to conventional subconventional and nonconventional security issues it is therefore an ideal reference work for practitioners scholars teachers and students of security studies

how and when do military innovations take place do they proceed differently during times of peace and times of war in winning the next war stephen peter rosen argues that armies and navies are not forever doomed to fight the last war rather they are able to respond to shifts in the international strategic situation he also discusses the changing relationship between the civilian innovator and the military bureaucrat in peacetime rosen finds innovation has been the product of analysis and the politics of military promotion in a process that has slowly but successfully built military capabilities critical to american military success in wartime by contrast innovation has been

constrained by the fog of war and the urgency of combat needs rosen draws his principal evidence from u s military policy between 1905 and 1960 though he also discusses the british army s experience with the battle tank during world war i

china is flexing its growing military and strategic clout in the pursuit of broadening national security interests at the same time the country s economic and technology policies have also become more nationalistic state centered and ambitious china s defense economy has set its sights on catching up with the west by the beginning of the 2020s and is making steady progress in building up its innovation capabilities although this is presently in the form of incremental and sustaining types of activities more high end disruptive forms of innovation that would lead to major breakthroughs are likely to be beyond china s reach in the near to medium term this volume provides a wide ranging and detailed assessment of the present state of the chinese defense economy at a time of rapid change and accelerating advancement in its innovation capabilities and performance this collection of articles has three main goals 1 to locate china s defense innovation dynamics within broader historical technological and methodological frameworks of analysis 2 to assess the performance of the chinese defense economy s six principal subsectors and 3 to compare china s approach to defense industrialization with major counterparts in the asia pacific region this book was originally published as a special issue of the journal of strategic studies

this book explores contemporary military innovation with a particular focus on the balance between anticipation and adaption the volume examines contemporary military thought and the doctrine that evolved around the thesis of a transformation in the character of war known as the information technology revolution in military affairs it rma this innovation served as an intellectual foundation for the us defence transformation from the 1990s onwards since the mid 1990s professional ideas generated within the american defence milieu have been further disseminated to military communities across the globe with huge impact on the conduct of warfare with chapters written by leading scholars in this field this work sheds light on rmases in general and the it rma in the us in particular the authors analyse how military practice and doctrines were developed on the basis of the it rma ideas how they were disseminated and the implications of them in several countries and conflicts around the world this book will be of much interest to students of strategic studies defence studies war and technology and security studies in general

this book explains how the us military reacted to the revolution in military affairs rma and failed to innovate its organization or doctrine to match the technological breakthroughs it brought about many called for the transformation of the us military in the years after the end of

the cold war seeking the changes in organization and doctrine that would complete the rma innovation and a commitment to counter insurgency peace keeping and nation building missions this volume describes the origins uses and limits of the rma technologies examines how each of the five us armed services categorising the special operations as a separate service made their adjustments both to the technologies and the use of force and how the role of the civilian officials and the defense industry altered in this process of change and avoidance of change the book examines the internal politics of the services as well as civil military relations to identify the external pressures on the services for significant change in their doctrine and weapons many have noted the failure of the services to innovate in what can be called the second inter war period the years after the cold war this book offers explanations for this failure and arguments about the possible range and desirability of military innovation in the post cold war era this book will be of great interest to students of strategic studies us defence politics military studies and us politics harvey m sapolsky is professor of public policy and organization in the department of political science at mit and former director of the security studies program benjamin h friedman is a research fellow in defense and homeland security studies at the cato institute and a ph d candidate in political science at mit brendan green is a ph d candidate in political science at mit and an affiliate of the security studies program

a study of major military innovations in the 1920s and 1930s first published in 1996

although military technology is increasingly available and affordable not all states have the capacity to improve military effectiveness by acquiring hardware indeed integrative deficiencies such as inflexible command structures inappropriate doctrine and tactics improper training insufficient support are quite common in the developing world for many states as a result improving military effectiveness requires some level of innovation e g reorganizing command structures introducing new doctrine and tactics modifying training techniques and improving support given that improved military effectiveness generally requires innovation what are the key indicators that intelligence analysts can use to predict whether a state is likely to achieve military innovation the literature reveals four dominant perspectives that attempt to explain military innovation structural realist neorealist societal organizational theory and cultural both strategic culture and organizational culture drawing on these perspectives we deduce hypotheses on military innovation that are tested in three case studies the israeli defense forces 1948 1982 the north vietnamese army 1965 1970 and the chaco war 1932 1935

thomas g mahnken sheds light on the shadowy world of u s intelligence gathering tracing how america learned of military developments in

japan germany and great britain in the period between the two world wars

this annotated briefing documents a research effort aimed at understanding and predicting how militaries may improve their battlefield effectiveness

how the character of war is changing and how militaries can successfully adapt to meet the challenge this book by military strategist andrew f krepinevich jr is the definitive take on the race for military dominance in the twenty first century it shows how militaries that successfully pursue disruptive innovation can gain a major advantage over their rivals while those that fail to do so risk exposing their countries to great danger the precision warfare revolution introduced by the u s military in the first gulf war found the united states enjoying a near monopoly in this form of warfare for several decades but now other powers have these capabilities the u s military also confronts an emerging military revolution driven by advances across a wide range of technologies from artificial intelligence and synthetic biology to quantum computing and additive manufacturing to stay competitive the u s military must pursue disruptive innovation in a race with other militaries to exploit war s changing character clues exist as to the winner s identity they are revealed by militaries that went beyond the bounds of mere innovation to overturn the existing forms of warfare changing the course of history and the fate of nations through exploring their experiences krepinevich shows how the u s military can win the race to identify and exploit the next big thing in warfare

no other book combines so much of modern military history with so rich an exploration of related factors in industry finance education and technology as well as statecraft combining strands of history from all these areas pearton makes an unusually complete and cogent case for the breakdown of traditional distinctions between the civil and the military and even between war and peace this is an excellent work of military and economic history russell f weigley author of the american way of war pearton s historical approach adds needed depth and perspective to many contemporary discussions of the arms problem this is an illuminating and incisive inquiry into a phenomenon of unquestioned importance international affairs

this book examines the implications of disruptive technologies of the fourth industrial revolution 4ir on military innovation and the use of force it provides an in depth understanding of how both large and small militaries are seeking to leverage 4ir emerging technologies and the effects such technologies may have on future conflicts the 4th industrial revolution 4ir the confluence of disruptive changes brought by emerging technologies such as artificial intelligence robotics nanotechnologies and autonomous systems has a profound impact on the

direction and character of military innovation and use of force the core themes in this edited volume reflect on the position of emerging technologies in the context of previous revolutions in military affairs compare how large resource rich states us china russia and small resource limited states israel sweden norway are adopting and integrating novel technologies and explore the difference between various innovation and adaptation models the book also examines the operational implications of emerging technologies in potential flashpoints such as the south china sea and the baltic sea written by a group of international scholars this book uncovers the varying air defence innovation trajectories enablers and constraints in pursuing military technological advantages that will shape the character of future conflicts the chapters in this book were originally published as a special issue of the journal of strategic studies

for frederick the great the prescription for warfare was simple kurz und vives short and lively wars that relied upon swift powerful and decisive military operations robert citino takes us on a dramatic march through prussian and german military history to show how that primal theme played out time and time again citino focuses on operational warfare to demonstrate continuity in german military campaigns from the time of elector frederick wilhelm and his great sleigh drive against the swedes to the age of adolf hitler and the blitzkrieg to the gates of moscow along the way he underscores the role played by the prussian army in elevating a small vulnerable state to the ranks of the european powers describes how nineteenth century victories over austria and france made the german army the most respected in europe and reviews the lessons learned from the trenches of world war i

contemporary war is as much a quest for decisive technological organizational and doctrinal superiority before the fighting starts as it is an effort to destroy enemy militaries during battle armed forces that are not actively fighting are instead actively reengineering themselves for success in the next fight and imagining what that next fight may look like twenty first century military innovation outlines the most theoretically important themes in contemporary warfare especially as these appear in distinctive innovations that signal changes in states warfighting capacities and their political goals marcus schulzke examines eight case studies that illustrate the overall direction of military innovation and important underlying themes he devotes three chapters to new weapons technologies drones cyberweapons and nonlethal weapons two chapters to changes in the composition of state military forces private military contractors and special operations forces and three chapters to strategic and tactical changes targeted killing population centric counterinsurgency and degradation each case study includes an accessible introduction to the topic area an overview of the ongoing scholarly debates surrounding that topic and the most important theoretical implications this book can be read as an overview of the themes that run throughout innovations of varying types or

it can be used by readers who are interested in particular topic areas

why is israel s relatively small and low budget military also the world s most innovative technologically and logistically edward luttwak and eitan shamir look to the idf s unique structure integrating army air force and navy in one service under an officer class constantly refreshed by short tenures the idf is built for agility and change

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