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Technology and the Law on the Use of Force

New security challenges in the
twenty-first century

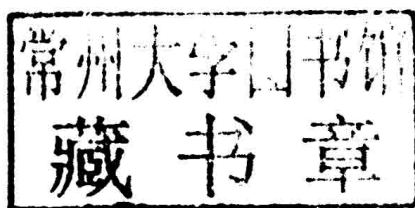
Jackson Maogoto



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Technology and the Law on the Use of Force

As governmental and non-governmental operations become progressively supported by vast automated systems and electronic data flows, attacks of government information infrastructure, operations and processes pose a serious threat to economic and military interests. In 2007, Estonia suffered a month long cyber assault to its digital infrastructure, often described as 'Web War I'. In 2010, a worm – Stuxnet – was identified in the supervisory control and data acquisition systems at Iran's uranium enrichment plant, presumably in an attempt to set back Iran's nuclear programme. These illustrations are testament to the reality that dependence upon telecommunications and information infrastructures puts at risk Critical National Infrastructure, and is now at the core of national security interests.

This book takes a detailed look at new theatres of war and considers their relation to international law on the use of force. Except in cases of self-defence or with the authorisation of a Security Council Resolution, the use of force is prohibited under the *UN Charter* and customary international law. However, the law of *jus ad bellum* was developed in a pre-digital era where current technological capabilities could not be conceived. Jackson Maogoto asks whether the law on the use of force is able to deal with legal disputes likely to arise from modern warfare. Key queries include how one defines an armed attack in an age of anti-satellite weaponry, whether the destruction of a State's vital digital eco-system or the 'blinding' of military communication satellites constitutes a threat, and how one delimits the threshold that would enliven the right of self-defence or retaliatory action. The book argues that while technology has leapt ahead, the legal framework has failed to adapt, rendering States unable to legally defend themselves effectively.

The book will be of interest and use to practitioners, researchers and students of international law generally. Specifically it is of great utility to scholars and practitioners whose interests triangulate use of force, law of armed conflict and the role of established and ascendant technology in these spheres.

Jackson Maogoto is Senior Lecturer at the University of Manchester, UK.

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Dedication

I wish to thank as always my mother – Mary Salome Gesare Maogoto. She first taught me to read and write. But significantly as I embarked on an academic career she reminded me that teaching is a vocation not a matter of a paycheck at the end of the month. Promise you Mama that I will always work hard and stay dedicated.

To my late father – R. Jackson Nyamuya Maogoto Sr. You were always right and an intellectual. I will never forget your view that the search to know constitutes one of the highest values in society.

To the other main ladies in my life – Helena Anne Anolak (my fiancée). Thanks for being there for me always through thick and thin – you are a gem. To my daughter – Lucija Mary Gesare Maogoto – wonderful was the day you entered our lives. The best ever thing I achieved in life besides my love for my Mama and your mother. Your feistiness is a delight and no doubt I will bear your brunt end for the rest of my life! Be careful, the first thing I am getting rid of as you grow up is my credit cards and cheque book!

To my putative parents-in-law – Chief Greg Anolak and Mrs Osija Anolak. Thank you for believing in me for years and accommodating my imperfections and the nugget of wisdom that I should carve my path in life and not allow dark clouds to shadow my career path. Competence can be a rare commodity

To the late Orion Wenhrynowycz (scholar and gentleman) – the great grandfather of our daughter. Continue to rest in eternal peace. I wish that you would have been around to hold your great granddaughter. However, you live in each one of us. The seeds from your orchard thrive on and you will live eternally on Earth as in heaven.

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Second, I acknowledge Mark Sapwell (Editorial Assistant [Law]) at Routledge. Thank you for your patience and tolerance as well as enthusiasm and cheer that made a daunting task much easier.

Third, I wish to express my gratitude to the British Institute of International and Comparative Law (BIICL) for the privilege of spending my six-month sabbatical with them in 2012. The vibrant intellectual environment was a core aspect as I wrestled to firm out and streamline the research on this work. Professor Robert McCorquodale (Director of the Institute) made sure that I was kept on my toes from time to time during group gatherings. I would bolt to the library if I was caught short to firm out my research – thank you. To Geoffrey Sautner (the BIICL Office Manager) – I now know where the coffee machine is, the computer terminals and the Institute's library, but most importantly your all round support and care for all Visiting Scholars and Fellows.

Last and by no means least I wish to thank the Godparents of my daughter – Eric Halidou and Kristi Maksimik – you support me in more ways than you realise. Finally, Commander Timothy Robinson and Mrs Ania Robinson – all I can say is thank you.

Acronyms

ABM	Anti-Ballistic Missile
<i>ABM Treaty</i>	<i>Treaty on the Limitation of Anti-Ballistic Missile Systems</i>
ARAMCO	Saudi Arabian Oil Company
ASAT	Anti-Satellite Weapon
CD	Conference on Disarmament
CNA	Computer Network Attack
CNE	Computer Network Exploitation
CNI	Critical National Infrastructure
COPUOS	Committee on the Peaceful Uses of Outer Space
CPNI	Centre for the Protection of National Infrastructures
DDoS	Distributed Denial of Service
DoD	US Department of Defence
DEW	Direct Energy Weapons
E-Bomb	Electromagnetic Pulse Bombs
EMP	Electromagnetic Pulse
GEO	geo-synchronous orbit
GIG	Global Information Grid
GPS	Global Positioning System
HPM	High-powered Microwaves
ICBM	Inter-Continental Ballistic Missile
ICJ	International Court of Justice
<i>ITC</i>	<i>International Telecommunications Convention</i>
IW	Information Warfare
LEO	low-Earth orbit
<i>Liability Convention</i>	<i>Liability Convention on Damage Caused by Space Objects</i>
MAD	Mutual Assured Destruction
malware	Malicious Software
Maser	Microwave Amplification by Stimulated Emission of Radiation
MoD	Ministry of Defence

NATO CCD COE	NATO Cooperative Cyber Defence Centre of Excellence
NAVSTAR	Navigation Satellite Timing and Ranging
NFIRE	Near Field Infrared Experiment
NATO	North Atlantic Treaty Organisation
OOTW	Operations Other than War
PLC	Programmable Logic Controllers
RMA	Revolution in Military Affairs
SCADA	Supervisory Control and Data Acquisition
SDI	Strategic Defense Initiative
SSO	sun-synchronous orbit
<i>Tallinn Manual</i>	<i>Tallinn Manual on the International Law Applicable to Cyber Warfare</i>
TCA	Transformational Communication Architecture
UK	United Kingdom
UN	United Nations
<i>UN Charter</i>	<i>Charter of the United Nations</i>
US	United States of America
USAF	United States Air Force
US-CCU	United States Cyber-Consequences Unit
USSPACECOM	United States Space Command
USSR	Union of Soviet Socialist Republics (Soviet Union)
WMD	Weapons of Mass Destruction

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International Conflict and Cyberspace Superiority

This book examines cyberspace superiority in nation-state conflict from a theoretical and a practical perspective.

This book analyzes superiority concepts from the domains of land, maritime, and air to build a model that can be applied to cyberspace. Eight cyberspace conflicts between nation-states are examined and the resulting analysis is combined with theoretical concepts to present the reader with a conclusion. Case studies include the conflict between Russia and Estonia (2007), North Korea and the U.S. and South Korea (2009) and Saudi Arabia and Iran in the Aramco attack (2012). The book uses these case studies to examine cyberspace superiority as an analytical framework to understand conflict in this domain between nation-states. Furthermore, the book makes the important distinction between local and universal domain superiority, and presents a unique model to relate this superiority in all domains, as well as a more detailed model of local superiority in cyberspace. Through examining the eight case studies, the book develops a rigorous system to measure the amount of cyberspace superiority achieved by a combatant in a conflict, and seeks to reveal whether cyberspace superiority proves to be a significant advantage for military operations at the tactical, operational, and strategic levels.

This book will be of much interest to students of cyber conflict, strategic studies, national security, foreign policy and IR in general.

William D. Bryant is a career fighter pilot and has a PhD from the School of Advanced Air and Space Studies, Maxwell, USA.