DIGITAL WAR

A CRITICAL INTRODUCTION
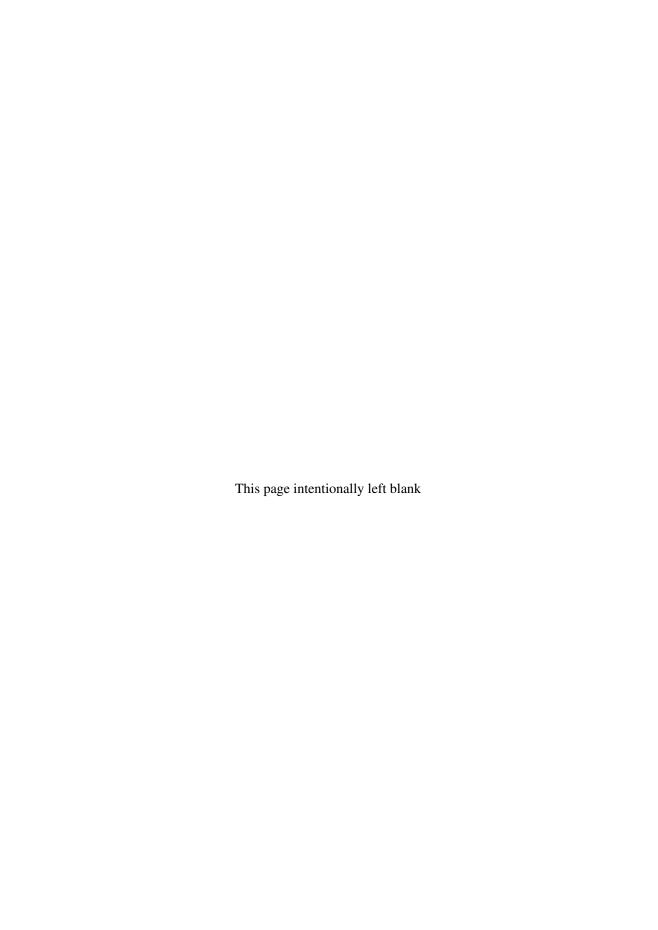
William Merrin

Digital War

Digital War offers a comprehensive overview of the impact of digital technologies upon the military, the media, the global public and the concept of 'warfare' itself.

This introductory textbook explores the range of uses of digital technology in contemporary warfare and conflict. The book begins with the 1991 Gulf War, which showcased post-Vietnam technological developments and established a new model of close military and media management. It explores how this model was reapplied in Kosovo (1999), Afghanistan (2001) and Iraq (2003), and how, with the Web 2.0 revolution, this informational control broke down. New digital technologies allowed anyone to be an informational producer leading to the emergence of a new mode of 'participative war', as seen in Gaza, Iraq and Syria. The book examines major political events of recent times, such as 9/11 and the War on Terror and its aftermath. It also considers how technological developments such as unmanned drones and cyberwar have impacted upon global conflict and explores emerging technologies such as soldier-systems, exo-skeletons, robotics and artificial intelligence and their possible future impact.

This book will be of much interest to students of war and media, security studies, political communication, new media, diplomacy and IR in general.

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Abbreviations

Political, military and technological terminology is full of abbreviations. I've usually initially given the full name of phenomena with the abbreviation in brackets and then used the abbreviation in later mentions. To help anyone who forgets what the abbreviation is, this is a list of the most commonly-used ones in the book.

9/11	The terrorist attacks on the USA of September 11, 2001
A2/AD	Anti Access/Area Denial
ABC	The American Broadcasting Company
AFB	Air Force base
AFSOC	Air Force Special Operations Command
AI	Artificial intelligence
ANA	Afghan National Army
APT	Advanced persistent threat
AQAP	al-Qaeda in the Arabian Peninsula
AQEA	al-Qaeda in East Africa
AQI	al-Qaeda in Iraq
AQIM	al-Qaeda in the Islamic Maghreb
AR	Augmented reality
ARPA	Advanced Research Projects Agency (later DARPA)
AUMF	Authorization for the Use of Military Force
BBC	The British Broadcasting Corporation
BCI	Brain-computer interface
C+C	Command and control
C2W	Command and control warfare
C3W	Command, control and communications warfare
C3IW	Command, control, communications and intelligence warfare
C4IW	Command, control, communications, computers and intelligence warfare
CBS	Columbia Broadcasting System
CCDCE	Cooperative Cyber Defence Centre of Excellence
CCW	Convention on Certain Conventional Weapons
CENTCOMM	Central Command
CI	Critical infrastructure
CIA	Central Intelligence Agency
CITRU	Counter Terrorism Internet Referral Unit
CNA	Computer network attack
CND	Computer network defence
CNE	Computer network exploitation

CNN	Cable News Network
CNO	Computer network operations
COIN	Counter-insurgency
CONTEST	Counter Terrorism Strategy
COTS	Commercial off-the-shelf
CPA	Coalition Provisional Authority
CVE	Countering Violent Extremism
DARPA	Defense Advanced Research Projects Agency
DCGS	Distributed Common Ground System
DDoS	Distributed denial of service
DHS	Department for Homeland Security
DOD	Department of Defense
DOS	Denial of service
DMZ	Demilitarized Zone
EDT	Eastern Daylight Time
EEG	Electroencephalography
EIT	Enhanced interrogation techniques
EST	Eastern Standard Time
EW	Electronic warfare
FATA	Federally Administered Tribal Areas
FBI	Federal Bureau of Investigation
FISA	Foreign Intelligence Surveillance Act
FLIR	Forward-looking infrared radar
FPS	First-person shooter
FSA	Free Syrian Army
GA	General Atomics
GCHQ	Government Communications Headquarters
GCS	Ground control station
GPS	Global positioning system
GRU	Main Intelligence Directorate
HMD	Head-mounted display
HUD	Heads-up display
HULC	Human Universal Load Carrier
HUMINT	Human intelligence
HVT	High-value target
IAEA	International Atomic Energy Agency
IDF	Israeli Defense Forces
IED	Improvised explosive device
IO	Information operations
IP	Intellectual property
IS	Islamic State
ISF	Iraqi Security Forces
ISI	Islamic State of Iraq
ISI (PAKISTAN)	Inter-Services Intelligence
ISIL	Islamic State of Iraq and the Levant
ISIS	Islamic State of Iraq and Syria
ISR	Intelligence, surveillance and reconnaissance
ISAF	International Security Assistance Force

IT	Information technology
ITN	Independent Television News
IW	Information warfare
JCS	Joint Chiefs of Staff
JSOC	Joint Special Operations Command
JWICS	Joint Worldwide Intelligence Communications System
KLA	Kosovo Liberation Army
LAWS	Lethal Autonomous Weapons Systems
LW	Land Warrior
MAD	Mutually Assured Destruction
MOD	Ministry of Defence
MP	Military Police
NATO	North Atlantic Treaty Organization
NBC	National Broadcasting Company
NBC	Nuclear, biological, chemical
NCSC	National Cyber Security Centre
NCW	Network-centric warfare
NGO	Non-governmental organization
NIPRNet	Non-classified Internet Protocol Router Network
NORAD	North American Aerospace Defense Command
NSDD	National Security Decision Directive
NSPD	National Security Presidential Directive
NW	Nett Warrior
OCSIA	Office of Cyber Security and Information Assurance
ONR	Office of Naval Research
OPSEC	Operations Security
PGM	Precision-guided munition
PLA	People's Liberation Army
PLC	Programmable logic controller
POV	Point-of-view
PDD	Presidential Decision Directive
PPD	Presidential Policy Directive
Psyops	Psychological operations
R&D	Research and development
RAT	Remote access Trojan
RBN	Russian Business Network
RBSS	Raqqa is Being Slaughtered Silently
RMA	Revolution in Military Affairs
ROE	Rules of engagement
RPV	Remotely-piloted vehicle
SCADA	Supervisory control and data acquisition
SDF	Syrian Democratic Forces
SDI	Strategic Defense Initiative
SEA	Syrian Electronic Army
SFRY	Socialist Federal Republic of Yugoslavia
SIGINT	Signals intelligence
SIPRNet	Secret Internet Protocol Router Network
SOCOM	Special Operations Command

SOF	Special Operations Forces
STRATCOM	Strategic Command
SUGV	Small unmanned ground vehicle
TALOS	Tactical Assault Light Operator Suit
TAO	Tailored Access Operations
TKP	Targeted killing programme
TOR	The Onion Router
TRADOC	United States Army Training and Doctrine Command
TTP	Tehrik-e-Taliban Pakistan
UAS	Unmanned aerial system
UAV	Unmanned aerial vehicle
UCAS	Unmanned combat air system
UCAV	Unmanned combat autonomous vehicle
UGC	User-generated content
UGV	Unmanned ground vehicle
UN	United Nations
UNMOVIC	United Nations Monitoring, Verification and Inspection Commission
UNSCOM	United Nations Special Commission
URL	Uniform resource locator
USAF	United States Air Force
USCYBERCOMM	United States Cyber Command
USSR	Union of Soviet Socialist Republics
USV	Unmanned sea vehicle
UUV	Unmanned undersea vehicle
VR	Virtual reality
WMD	Weapons of mass destruction
WWW	World Wide Web
YPG	People's Protection Units

Timeline 1990–2017

This is a timeline of events covered in the book, from the 1991 Gulf War through to the present. It is inevitably selective, primarily focusing upon the western experience as well as upon those conflicts and issues discussed in the chapters. It includes key events in the War on Terror and the most significant terrorist attacks in Europe and the USA carried out in response to that campaign.

Year	Events
1990	2 August. Iraq invades **Kuwait**.
1991	17 January. The allied air campaign begins against **Iraq**. The 'Gulf War' begins.
	24 February. The allied ground campaign begins against **Iraq**.
	28 February. The allied campaign declares a ceasefire in **Iraq** and victory in the Gulf War.
	1 March – 5 April. Shia Arab and Kurdish uprisings in southern and northern **Iraq** are put down by Saddam Hussein.
	6 April. The USA establishes a no-fly-zone in northern **Iraq**, an extension of the no-fly warning given under 'Operation Provide Comfort' which had begun 3 March. From 1 January 1997 'Operation Provide Comfort' (1 and 2) was renamed 'Operation Northern Watch'. It lasted until 19 March 2003.
1992	26 August. The beginning of the US 'Operation Southern Watch' (which lasted until 19 March 2003) policing a no-fly-zone in Southern **Iraq**.
	5 December. 'Operation Restore Hope', begins: a US-led, UN-sanctioned, multinational force in **Somalia** (lasting until 4 May 1993). On 9 December 1992, the UNITAF (Unified Task Force) troops landed on the Somalian beaches to a media circus.
1993	26 February. A truck bomb explodes at the World Trade Centre in New York City, **USA**, killing 6 people and injuring over 1,000. It was an Islamist terrorist attack, masterminded by Ramzi Yousef with advice and funding from Khaled Sheikh Mohammed (who would later plan 9/11).
	12 April. NATO launch 'Operation Deny Flight', enforcing a UN no-fly-zone over **Bosnia and Herzegovina** (lasting until 20 December 2005).

Year	Events
	22 August. US Special Operation Forces launch 'Operation Gothic Serpent' in **Somalia** (until 13 October). It includes the 'Battle of Mogadishu', 3–4 October.
1994	11 December. A test explosion on **Philippines** Airlines Flight 434 exposes the Islamist terrorist 'Bojinka Plot' planned by Ramzi Yousef and Khaled Sheikh Mohammed.
1995	11–13 July. The 'Srebrenica massacre' of 8000 men and boys in **Bosnia and Herzegovina** by the Bosnian Serb army.
	30 August. NATO launches 'Operation Deliberate Force', the bombing of Bosnian Serbian army forces in **Bosnia and Herzegovina** (lasting until 20 September).
1996	25 June. The 'Khobar Towers bombing', targeting US servicemen in Khobar, **Saudi Arabia**, kills 20 and injures 372 people. Iran and Hezbollah are suspected of the attack.
	3 September. The USA launch 'Operation Desert Strike', with cruise missile strikes on **Iraq** in response to an Iraqi military offensive in the Kurdish civil war.
1997	17 November. 'The Luxor massacre': Egyptian Islamist terrorists kill 62 people, mostly foreign tourists, at Deir el-Bahri, **Egypt**, a major archaeological and tourist site.
1998	7 August. Al-Qaeda carries out bomb attacks on the US embassies in Nairobi, **Kenya**, and Dar es Salaam, **Tanzania**, killing 224 people and wounding over 4,000. The USA responds with 'Operation Infinite Reach', with cruise missile strikes on **Sudan** and **Afghanistan** on 20 August.
	16–19 December. The USA launches 'Operation Desert Fox', with cruise missile attacks on **Iraq** in response to its failure to comply with UN Security Council resolutions and obstruction of United Nations Special Commission weapons inspectors.
1999	24 March–11 June. NATO launches 'Operation Allied Force', a bombing campaign on **Yugoslavia** (mainly **Serbia**) in defence of **Kosovo**. On 3 June Milosevic accepts peace conditions and the Serbs withdraw from Kosovo ending the 'Kosovo War'.
	20 September. The discovery of 'Moonlight Maze' – the US term for ongoing computer attacks, most likely from **Russia**, dating back to March 1998.
2000	12 October. A terrorist attack by al-Qaeda on the USS *Cole* in Aden harbor, **Yemen**, kills 17 and injures 39 US servicemen.
2001	11 September. '9/11': Terrorist attacks on the World Trade Centre and the Pentagon in the **USA** kill 2996 people (including 19 hijackers). The attacks were organized by al-Qaeda, being masterminded by Khaled Sheikh Mohammed under Osama Bin Laden's direction.
	7 October. The USA launches 'Operation Enduring Freedom', the beginning of their global 'War on Terror', with attacks on **Afghanistan**. The 'Afghan War' begins.
	13 November. Kabul falls in **Afghanistan**.
	22 December. The al-Qaeda-trained terrorist, Richard Reid, known as the 'Shoe Bomber', is arrested after failing to detonate explosives packed into his shoe on the **USA** American Airlines flight from Paris to Miami.
2002	4 July. 'Recon', the first version of the 'America's Army' videogame is released.

Year	Events
	12 October. Islamist terrorists carry out 'the Bali bombings' in the tourist district of Kuta, on the Indonesian island of **Bali**, killing 202 people and injuring 240.
2003	20 March. The allied invasion of **Iraq**. The 'Iraq War' begins.
	15 April. The allies declare the invasion of **Iraq** over.
	1 May. President Bush gives his 'mission accomplished' speech, declaring the end of major hostilities in the 'Iraq War'.
	12 May. The 'Riyadh Compound bombings' by Islamist terrorists in **Saudi Arabia** kill 39 people and injure over 160.
	5 August. An Islamist terrorist car-bomb attack on the Marriott Hotel in South Jakarta, **Indonesia**, kills 12 and injures 150 people.
	15 and 20 November. Terrorist bombings in **Istanbul** kill 57 people and injure over 700.
	13 December. US troops launch 'Operation Red Dawn', capturing Saddam Hussein in a farm compound near Tikrit, **Iraq**.
2004	11 March. An al-Qaeda-inspired terrorist cell carries out the 'Madrid train bombings' in **Spain**, killing 191 and injuring 1800 people.
	28 April. The US TV programme *60 minutes II* broadcasts a story about systematic prisoner abuse at Abu Ghraib prison in **Iraq** by US servicemen.
	29 May. Al-Qaeda terrorists carry out the 'Al-Khobar massacre', **Saudi Arabia**, killing 22 people and injuring 25.
2005	7 July. The 'London bombings': four UK Islamist suicide-bombers kill 52 people and injure 784 in blasts on the underground network and on a bus in London, **UK**.
	21 July. The 'failed London bombings': five UK Islamist terrorists fail to properly ignite their explosives on the public transport system in London, **UK**. The suspects were later arrested.
	22 July. Armed London Metropolitan police mistake the Brazilian Jean Charles de Menezes for a suspect in the previous day's failed bombing attack and shoot him dead on a train at Stockwell Tube Station, London, **UK**.
	19 October. The trial of Saddam Hussein by the Interim Iraqi Government begins in **Iraq**. Saddam is charged with the killing of 148 Shiites from Dujail in retaliation for the failed assassination attempt on 8 July 1982.
	9 November. The 'Amman bombing': Coordinated bomb attacks on three hotels in Amman, **Jordan**, by Al-Zarqawi's al-Qaeda in Iraq (AQI), kills 60 and injures 115 people.
	December. The discovery of 'Titan Rain' – the US designation for attacks on its computer systems since 2003 originating in **China**.
2006	11 July. The 'Mumbai train bombings' in Mumbai, Maharashtra, **India**, kill 209 people and injure over 700.

Year	Events
	21 August. A second and separate trial of Saddam Hussein begins in **Iraq**, trying Saddam and six co-defendants for genocide during the Anfal military campaign against the Kurds of Northern Iraq.
	5 November. Saddam Hussein is found guilty in **Iraq** of the killing of 148 Shiites and sentenced to death by hanging
	30 December. Saddam Hussein is executed at 'Camp Justice', an Iraqi army base in north-eastern Baghdad, **Iraq**.
2007	11 April. Al-Qaeda in the Islamic Maghreb (AQIM) carry out the bombings in Algiers, **Algeria**, killing 33 people.
	27 April. Cyberattacks begin on **Estonia** following a dispute with Russia and ethnic Russians over the relocation of 'the Bronze Soldier of Talinn' World War II memorial. The attacks are almost certainly coordinated from Russia.
	29 June. Two car-bombs are discovered and disabled in London, **UK**. They were linked to the terrorist attack in Glasgow the next day.
	30 June. Two Islamist-inspired terrorists drive a vehicle laden with petrol and propane tanks into the main terminal of Glasgow International Airport, Scotland, **UK**, injuring 5 people.
	11 December. Al-Qaeda in the Islamic Maghreb (AQIM) explode two car bombs in Algiers, **Algeria**, killing 41 and injuring 170.
2008	2 June. Al-Qaeda bomb the Danish embassy in Islamabad, **Pakistan**, killing 6-8 people and injuring 24. It was in response to the Danish republication of cartoons of Mohammed in February.
	5 August. Cyberattacks begin against **Georgia** from **Russia** prior to the outbreak of the 'Russo-Georgia War' and continue through the ground campaign on 7–12 August.
	20 September. Terrorists carry out a suicide truck bomb attack on the Marriott Hotel in Islamabad, **Pakistan**, killing 54 and injuring 266 people.
	26 November. Members of the Pakistan Islamist terrorist group Lashkar-e-Taiba carry out coordinated terrorist attacks in Mumbai, **India**, killing 164 people and injuring over 600.
	27 December. The 'Gaza War' begins. Israel launches 'Operation Cast Lead' with airstrikes on the **Gaza** strip in response to Hamas rocket attacks. The war lasted 22 days until 18 January 2009 when Israel announced a unilateral ceasefire.
2009	28 March. The discovery of 'Ghostnet' – the US term for a series of computer cyber-espionage intrusions in 103 countries coordinated from **China**.
	30 April. UK forces end operations in **Iraq**.
	1 June. The 'Little Rock recruiting office shooting' by an Islamic convert in Little Rock, Arkansas, **USA**, kills 1 and wounds 1 other.
	29 June. US forces withdraw from Baghdad and **Iraq**.
	7 August. Cyberattacks on social networking sites aimed at one blogger in **Georgia**.

Year	Events
	5 November. A US Army Major and psychiatrist kills 13 and injures over 30 in the 'Fort Hood shootings', in Texas, **USA**. Many claim it was a terrorist attack, motivated by radical Islam.
	25 December. A failed al-Qaeda 'Christmas Day bombing attempt' on the **USA** Northwest Airlines Flight 253 from Amsterdam to Detroit in which Umar Farouk Abdulmutallab ('the underwear bomber') tried to set off plastic explosives sewn into his underwear. December. 'Operation Aurora': the US name for a series of cyber-espionage hacking attacks on Google and 20 other companies by **China**, lasting until January 2010.
2010	5 April. Wikileaks releases 'Collateral Murder' – video of the 12 July 2007 Baghdad, **Iraq**, airstrike that killed Iraqi civilians and two Reuters journalists.
	25 July. Wikileaks begin the release of the 'Afghan War logs' – leaked classified US military documents relating to the war in **Afghanistan**.
	September. The USA and Israel attack the Natanz nuclear facility in **Iran** with the cyber-weapon, the Stuxnet worm, to slow down the country's nuclear programme.
	22 October. Wikileaks release the 'Iraq War Logs' – leaked classified US military documents relating to the war in **Iraq**.
	29 October. The 'Cargo plane bomb plot' is discovered. Following Saudi intelligence, two US cargo planes from **Yemen** to the **USA** are found to contain explosives. Al-Qaeda in the Arabian Peninsula (AQAP) claim responsibility.
	28 November. Wikileaks begin release of leaked American diplomatic cables.
	17 December. Mohammed Bouazizi kills himself in **Tunisia**, leading to protests and a 'Tunisian revolution' that ousts President Ben Ali on 14 January 2012. This was the beginning of the 'Arab Spring'.
2011	25th January. Inspired by the Tunisian revolution, protests begin in **Egypt**, leading to the 'Egyptian revolution' that ousts President Mubarak on 11 February.
	15 February. Protests begin in Benghazi, **Libya**, against Muammar Gaddafi's rule, leading to an armed uprising and the 'Libyan Civil War'.
	15 March. Protests begin in **Syria** that will lead to the 'Syrian Civil War'.
	17 March. UN Security Council Resolution 1973 is passed, demanding a ceasefire in **Libya**, establishing a no-fly-zone and authorizing military intervention to protect civilians.
	2 May. Osama Bin Laden is shot and killed in Abbottabad, **Pakistan** by US special forces.
	16 September. The **Libyan** National Transitional Council is recognized by the UN.
	20 October. Muammar Gaddafi is killed whilst trying to escape from Sirte in **Libya**.
	23 October. The Libyan NTC declares the liberation of **Libya** and the official end of the war.
2012	11–27 September. A series of terrorist attacks are carried out on US and European diplomatic missions worldwide, considered as a reaction to the controversial film *Innocence of the Muslims*, available on YouTube.
	14–21 November. Israel launches operation 'Pillar of Defence' against **Gaza** strip militants.

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2013	15 April. Two Chechen Islamist brothers explode two bombs at the Boston Marathon, in the **USA**, killing 3 and injuring 264.
	22 May. The British Army soldier, Fusilier Lee Rigby, is murdered by two UK Islamist extremists near the Royal Artillery Barracks in Woolwich, London, **UK**.
	6 June. Edward Snowden reveals details to the press of the **USA** Government's global, mass-surveillance programs.
	3 July. President Mohamed Morsi, elected in the June 2012 elections, is deposed by a military coup in **Egypt**.
	14th August. Security forces carry out 'the Rabaa massacre' in Cairo, **Egypt**, attacking supporters of the ousted president Mohamed Morsi, killing at least 817 and perhaps more than 1,000 people.
	21 August. The Syrian government carry out a chemical weapons attack on the rebel-held Ghouta suburbs of Damascus in **Syria**, killing between 281 and 1,729 people.
	21 September. Islamist gunmen from al-Shabaab kill 67 and wound 175 people in attack on the Westgate shopping mall in Nairobi, **Kenya**.
	16 December. UK Prime Minister David Cameron declares 'mission accomplished' in **Afghanistan**, prior to the withdrawal of UK forces by the end of 2014.
	19 December. Two British people are found guilty of the murder of Lee Rigby in the **UK**.
2014	22 February. The **Ukraine** parliament votes to remove pro-Russian President Yanukovych after demonstrations in Kiev leave about 100 dead.
	26 February. Pro-Russian unrest in **Ukraine** leads to an insurgency against the Kiev authorities.
	21 March. The Russian Federation confirms the annexation of Crimea from the **Ukraine**.
	5 June. ISIS ('The Islamic State of Iraq and the Levant') begins a major offensive in Northern **Iraq** against government forces. The city of Mosul is taken on the 10 June.
	29 June. ISIS, now renamed 'Islamic State' (IS), announces the establishment of an Islamic 'Caliphate' covering Northern **Iraq** and part of **Syria**.
	8 July. Israel launches operation 'Protective Edge' against the **Gaza** Strip, following Hamas rocket attacks and the killing of three Israeli teenagers in June.
	17 July. Malaysia Airlines Flight 17 is shot down by a missile fired from pro-Russian insurgent territory in the **Ukraine**, killing 284 people.
	8 August. The USA begins an air-campaign to halt the spread of Islamic State in Northern **Iraq**.
	20 August. IS releases a video of the beheading of US journalist James Foley in **Syria**.
	2 September. IS in **Syria** releases a video of the beheading of US journalist Steven Sotloff.

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13 September. IS in **Syria** releases a video of the beheading of UK humanitarian aid worker David Haines.

3 October. IS in **Syria** releases a video of the beheading of UK humanitarian aid worker Allan Henning.

16 November. IS in **Syria** releases a video of the beheaded body of the US aid worker Peter Kassig.

15–16 December. The Islamist-inspired terrorist Man Haron Monis holds 18 hostages in a café in Sydney, **Australia**. Monis and 2 hostages are killed in the rescue operation.

16 December. Islamist militants attack the Army Public School in Peshawar in **Pakistan**, killing 145 people, including 132 schoolchildren.

20 December. An islamist-inspired attacker injures 3 policemen with a knife in a police-station near Tours, in **France**.

21 December. An Islamist-inspired terrorist injures 2 people after a vehicle-ramming attack in Dijon, **France**.

2015   7 January. An Islamist terrorist attack on the offices of the satirical magazine *Charlie Hebdo* kills 12 and injures 7 in Paris, **France.** The gunmen are killed on 9 January. A police officer is killed in a related shooting in Paris, on 8 January and on 9 the gunman who killed him laid siege to and killed 4 people in a kosher supermarket in Paris before being killed by police.

January. IS in **Syria** releases videos of the beheadings of Japanese hostages Haruna Yukawa and Kenji Goto.

3 February. IS in **Syria** releases a video of the execution of the captured Jordanian airforce pilot Muath al-Kasasbeh, who was killed by immolation.

10 February. The death of Kayla Mueller, a US hostage held by IS in **Syria**, is confirmed.

14–15 February. Three separate shootings by an IS-inspired gunman occur in Copenhagen, **Denmark**, killing 2 people and injuring 5.

8 March. Boko Harem in **Nigeria** pledge allegiance to IS.

18 March. A terrorist attack at the Bardo museum in **Tunisia** kills 22 and injures around 50. IS claims responsibility.

20 March. Suicide bombings at mosques in **Yemen** kill at least 137 people. IS claims responsibility.

2 April. Al-Shabaab gunmen kill at least 150 people and wound at least 79 at Garissa University College in Garissa, **Kenya**.

3 May. 'The Curtis Culwell Centre attack', Texas**, USA**: Two Islamic gunmen open fire at an exhibition building hosting cartoons of the prophet Mohammed, injuring one person before being killed. Islamic State claim responsibility.

26 June. There are three terror attacks across three continents. In **Kuwait** a suicide attack on a Shia mosque by an IS-affiliated group kills up to 25; in **France** a man is beheaded in an

Year	Events

Islamist attack on a US-owned gas factory near Lyon; and in **Tunisia** 38 people, mostly western tourists, are killed by an Islamist gunman in an attack on tourist hotels at Sousse.

16 July. 'The Chattanooga shootings', Tennessee, **USA**: an Islamist-inspired terrorist opens fire on two US military installations, killing 5 and injuring 6 people before being killed by police.

21 August. A highly-armed Islamist terrorist injures 4 people on a Thalys train in **France** on its way from Amsterdam to Paris. A massacre is averted when he is restrained by 3 passengers.

31 October. A Russian airliner carrying 217 passengers and 7 crew, travelling from **Egypt** to Russia, crashes in Northern Sinai killing everyone on board. IS's Sinai affiliate claims responsibility for downing the airliner with a bomb.

12 November. Mohammed Emwazi, the British citizen known as 'Jihadi John' who carried out executions on video for Islamic State in **Syria**, is killed by a US drone strike.

13–14 November. Eight, armed suicide-bombers and terrorists attack a number of venues overnight in Paris, **France**, killing 130 people and leaving 413 injured. Islamic State claims responsibility for the attacks.

5 December. A mass-shooting by an Islamic State-inspired married couple in the Inland Regional Center in San Bernardino, California, **USA** leaves 14 people dead and 12 injured.

5 December. A lone-attacker attempts to behead a tube-passenger during an Islamic State-inspired rampage at Leytonstone tube station in London, **UK**. He injures 3 people before being arrested.

2016 7 January. An Islamist terrorist is killed when he attacks a police-station in Paris, **France**.

22 March. Three coordinated Islamist suicide-bomb attacks are carried out in Brussels, **Belgium**, two at Zaventem airport and one on a train at Maelbeek Station, killing 32 people and injuring 340. Islamic State claim responsibility.

12 June. A gunman who had pledged allegiance to Islamic State kills 49 and injures 53 in a terrorist hate-crime at 'Pulse', a gay nightclub in Orlando, Florida, **USA**.

13 June. Two French policemen are killed in Paris, **France**, by a convicted Islamist terrorist who had pledged allegiance weeks before to IS.

28 June. A gun and bomb attack on Ataturk International Airport, **Turkey**, kills 41 and wounds 239. Islamic State are blamed.

July. There are multiple attacks across Europe. On the 14 July 84 people are killed and 303 injured when a terrorist drives a 19-tonne truck through crowds celebrating Bastille Day on the Promenade des Anglais in Nice, **France** before being killed by police. On the 18 July a teenage Afghan refugee hacks at train passengers on a train in Wuerzburg, **Germany**, wounding 5 before being shot. On 24 July, a Syrian refugee kills a woman with a machete and wounds 5 others in Reutlingen, **Germany**, before being arrested. Also on 24 July a Syrian refugee blows himself up outside a bar in Ansbach, **Germany**, wounding 15 people. On 26 July, a priest is killed in an attack on a church near Rouen, **France** by two men claiming to be from Islamic State. Most of the attacks were identified as acts of Islamist terrorism inspired by Islamic State.

Year	Events
	17 September. A stabbing attack at a shopping mall in Minnesota, **USA**, injures 8 people. Islamic State claim responsibility for the attack online. Also on the 17 September, though unrelated, a pipe-bomb explodes in Seaside Park, New Jersey, **USA**, near a 5km run in support of US marines. Possibly linked to this, a bomb explodes that night in Chelsea, NYC, **USA**, injuring 29 people. A second bomb device is found nearby. On 19 September five pressure-cooker-type bomb devices are found in New Jersey. The bomber, Ahmad Khan Rahimi, was motivated by Islamist ideology.
	28 November. An Islamic State-inspired terrorist carries out a vehicle-ramming and knife attack at Ohio State University, **USA**, injuring 13 before being shot and killed.
	19 December. An Islamist terrorist drives a truck into a Christmas market in **Berlin**, killing 12 and injuring 56. He is discovered and shot by Italian police in Milan, **Italy** on 23 December.
2017	3 February. An Islamist terrorist carries out a machete attack at the Louvre, Paris, **France**, injuring 1 soldier.
	22 March. An Islamic State-inspired terrorist drives a car into pedestrians on Westminster Bridge and stabs a policeman to death near the Houses of Parliament, London, **UK**, killing 4 people in total and injuring 49 before being shot dead.
	7 April. A highjacked truck is driven into pedestrians by an Islamist terrorist in Stockholm, **Sweden**, killing 4 and injuring at least 15.
	20 April. An Islamist gunman kills 1 policeman and injures 2 others and a civilian on the Champs-Élysées, Paris, **France**, before being shot dead.
	22 May. An Islamist suicide-bomber kills 22 and injures 129 in an attack on a concert at the Manchester Arena in Manchester, **UK**.
	3 June. Three Islamist attackers drive a van into the public on London Bridge, London, **UK**, and stab others, killing 8 and wounding 48 before being shot dead.
	6 June. An Islamic State-inspired attacker is shot and arrested after attacking a police officer with a hammer outside Notre Dame Cathedral, Paris, **France**, injuring 1.
	18 August. 'The Catalonia attacks': following the failure of a gas-bottle explosive attack, three Islamist terrorists use vehicles and knives to attack pedestrians on La Rambla in Barcelona and in Cambrils, **Spain**. They kill 16 and injure 152 with the perpetrators being shot dead by police.
	15 September. A 'bucket bomb' on a tube train at Parsons Green station, London, **UK** fails to properly ignite, injuring 29.
	31 October. 8 Killed and over a dozen injured in Manhattan, **USA**, when a truck drives into pedestrians. The driver was inspired by Islamic State videos and material.
	11 December. A failed bomb attack on the Port Authority bus terminal, Manhattan, New York City, **USA**. Four people, including the bomber, are wounded.

Introduction

A new field

The book's title is 'digital war', but it's best to begin by explaining what I don't mean by that. My intention here isn't to identify a new *type* of war: I don't want to theorize a new form to stand alongside others covered in this book, such as 'virtual war', 'non-war', 'postmodern war', 'information war' or 'network-centric warfare'. The question of how the properties and biases and uses and applications of digital technology have impacted upon conflict is central to the book, but I don't want to define and defend one overarching military concept. Instead I want to do something broader and more interesting. I want to suggest that the term 'digital war' identifies and conceptualizes today, not a new form of war, but an entire, emerging research field.

The origins of this book lie in my university's novel decision around 2009 to move the media studies staff into a new department, whilst leaving the media studies degree behind for other staff to run. Finding myself adrift in my new home of 'political and cultural studies' I decided to change my teaching to better fit in. As my primary interest was the digital and as I had a long-standing interest in war I created a module called 'Digital War'. Having come up with the title, I then realized I had to think about what it might include.

Since the 1991 Gulf War there had been an explosion of work within media studies on war and media and I was especially grateful to Donald Matheson and Stuart Allan's 2009 book *Digital War Reporting* for filling a lot of my module. But my problem with media studies was that its focus on media coverage of wars, journalism and war-reporting was too limiting. The discipline was often hostile to technology, seeing any discussion of it as 'technological determinism', and it had too little interest in developments in politics or military technology and theory (for example, issues around drones, cyberwar, information war, and network-centric war etc.). Most of all, it couldn't break free from its broadcast-era origins and biases and (with exceptions such as Matheson and Allan's book) it was painfully slow to deal with the ongoing digital revolution that was making traditional mass media processes and concepts obsolete.

The politics, international relations and security studies literature offered much of value, but it had its own limitations – technological issues and media were often only cursorily treated, and the literature on digital media and many military developments were over-looked. Cultural studies and cultural theory were also useful, making important contributions to war that were, in turn, overlooked within media and politics. But to really understand what was happening in war today I had to move beyond the humanities. I had to look at commentators on the military and military theorists, at technological commentators and cybersecurity experts, at policy organizations and think-tanks, at government and military institutions, at scientific and specialist journalists, at public

intellectuals, at AI and robotics researchers, and at popular culture. There was work too I didn't have the space to fit in such as the multi-media experiments of artists in response to war and work on the digitalization and archiving of war materials within library and information studies, all of which I was introduced to in the conferences I attended.

Over the following years my module expanded and its subject matter gained in popular awareness. Wikileaks brought us a new vision of our ongoing wars, popular and academic books on drones and cyberwar began to appear, lethal, autonomous robotics began to be publicly debated, and a growing awareness of the revolutionary impact of social media in conflict zones spread. Topics such as hacking, hacktivism, digital civil wars and government surveillance came to the fore; the success of Islamic State meant everyone was discussing online terrorism and propaganda; wars across the world played out now on social media platforms and people's smartphones with everyone joining in; and new developments in military AI, simulation, augmentation and weaponry made the news. Soon, everyone became conversant with the subject of cyberwar and nation state and hacking group cyberattacks, and discussions of 4Chan, trolling, the weaponization of Facebook, Twitter-bots, Troll-Farms, and Russian information war became common. By the time this book was completed, digital war had gone mainstream.

The aim of this book, therefore, is to offer a survey of this emerging field of digital war: to consider in one place a connected set of phenomena and collect the disparate literature around them into an inter-disciplinary text that will appeal to staff and students in media studies, politics, IR, security studies and cultural studies, and even, hopefully, beyond the humanities too. It is also my aim to provide a context for this knowledge. In recent years, I realized I was now teaching students who were too young to remember 9/11, whose entire lives had been lived under the 'War on Terror' and who often had a very limited or erroneous understanding of the events and developments that had marked their lifetime. I want the book to be able to function as a background primer for the topics it discusses, filling in the historical and political context for its readers. The book is intended to be broadly linear in its scope so that it builds up the reader's knowledge and so that they can follow key themes and issues as they reappear. It takes the 1991 Gulf War as its starting point as that was when developments in new military technology made their spectacular appearance as the stars of a new, live news television show, and it was also when a new wave of academic writing originated, to explain what we'd just seen.

The roots of digital technology in warfare of course predate the Gulf War. If I'd been writing a book on 'digital war' as a concept I'd have begun with the development of modern computing during and after World War II and focused especially on the Vietnam War when drones (UAVs), precision-guided munitions (PGMs, or 'smart bombs') and a smart 'electronic battlefield' were first trialed. These still make their appearance in Chapter 3, providing that longer historical context, but the book focuses on explaining developments in the conduct, operation, mediation and experience of war from 1991 to the present.

Chapter 1 considers how wars were conducted and reported in the 1990s, looking in detail at the 1991 Gulf War and the 1999 Kosovo War. The chapter explores the new model of top-down, military media management introduced in 1991 and reapplied in 1999 that was designed to win over domestic and international support and enable the US military to fight a war in the glare of the world's media. It also looks at the new, western experience of war through real-time, 24-hour, broadcast television news, showing how it palatably repackaged and presented the reality of war. The next two chapters explore the 1990s reactions to these developments. Chapter 2 considers the response of philosophers

and cultural critics and their theorization of 'non-war', 'information war', 'third wave war', 'postmodern war', 'cyborg war', 'virtual war' and 'virtuous war', while Chapter 3 looks at how the US military themselves reconceptualized war through the 'RMA', 'command and control warfare', 'information war', 'information operations', 'cyberwar', 'full spectrum dominance' and 'network-centric warfare'. Most of these military ideas would be applied in Afghanistan and Iraq and throughout the 'War on Terror' and would form the background to the military research into augmentation and robotics discussed in the final two chapters.

Chapter 4 covers the global event of 9/11 and its reporting and the military conduct and media coverage of the 2001 Afghanistan War. Chapter 5 then considers how the political case was made for the invasion of Iraq as part of the 'War on Terror' and the failure of the mainstream media to challenge this narrative. It also looks at the Iraq invasion and its coverage, exploring how the system of US military media management was imposed again and how the military itself became an important informational producer during the invasion. Chapter 6 then considers how this model of military media control finally broke down in the aftermath of the Iraq War with developments in digital technology and with the 2004–05 emergence of 'Web 2.0′ participative platforms and technologies. It begins with a case study of the 2004 Abu Ghraib prisoner abuse scandal, where the perpetrators themselves took the photographic images that exposed the torture, before considering how, over the following years, social media empowered soldiers to produce and share their experiences, much to the consternation of the military authorities.

Chapter 7 begins by considering how the post-invasion fate of both Afghanistan and Iraq was largely overlooked by western media and how the new leaking site, Wikileaks, exposed what the authorities knew about these wars. The chapter explores the controversy over Wikileaks and evaluates its status as a journalistic organization. Chapters 8 and 9 then turn to developments in military technology. Chapter 8 offers an overview of the history and rise of drones, their military application and the issues their use raises, while Chapter 9 traces the history of cyberwar, examining the major cyberattacks, considering the significance of cyberwar and exploring its implications for traditional concepts of warfare.

Chapter 10 considers how, today, everyone in a conflict zone, from militaries, to militias, to terror groups, to civilians, can become an informational producer. It demonstrates how the USA's 1990s' dreams of achieving military, battlefield 'full spectrum dominance' were destroyed by the rise of Web 2.0 platforms, technologies, smartphones and connectivity, leading to a new form of 'participative war' where anyone – including interested parties from around the globe – can share their experiences and images, comment, and promote their preferred cause. It takes as its case studies the 2014 Gaza War and the Syrian Civil War, from 2011 to the present. Chapter 11 explores this further through the case study of Islamic State (IS) and its online presence, propaganda and terror. It considers the operation of IS's media units, their adoption of contemporary digital technologies, the resulting online informational war and the way both the authorities and ordinary people responded to IS and tried to fight back.

The final two chapters consider emerging military technological developments. Chapter 12 looks at the rise of wearable military technologies and the technological augmentation of soldiers, simulations and experiments in brain–computer interfaces (BCI), and Chapter 13 considers developments in robotics and the emergence of Lethal Autonomous Weapons Systems (LAWS). Together they argue that these are continuing military responses to the problems of warfare. Drones have already removed the soldier's body,

allowing a safe telepresence, and robotics promises to go even further and fully automate warfare, removing the human even more from the battlefield. If humans are to be deployed then wearables and augmentation systems are designed to give them a hyper-present capability and clear battlefield advantage. Digital technology is again remaking war, therefore, with new modes of non-presence, tele-presence and hyper-presence transforming military experience and combat.

This isn't an exhaustive overview of what digital war is or could be. It remains introductory, leaving out much and skimming over many technologies, issues and developments that could have been chapters in their own right. Whatever its limitations, my hope is that it's a book whose primary contribution is to raise awareness that there is an emerging field of research here; that the topics I've discussed are connected and are best examined in relation to each other; and that there is scope here for others from a range of backgrounds to contribute to this as a field and converse with each other. As ongoing developments suggest, this is a vital topic whose importance is only increasing. If we are to understand what warfare is in the twenty-first century, how it operates, its effects and where it is going, we need to consider all these elements as a whole.

1 Top-down war

Televising conflict in the 1990s

A new kind of war …

The 1991 Gulf War felt different. A western public who had had little recent experience of conflict tuned in to find a new type of war. This was a war in real-time, occurring on the screens in front of them; a war carried by global 24-hour rolling news channels with live coverage seemingly from the heart of the battlefield; a clean-war of high-tech, high-precision smart weaponry; a press-release war, with daily conferences and generals talking through the day's message; and a video-game war and media spectacle consumed by the domestic audience as entertainment. The reality of the war was, of course, very different – all wars are ultimately about the violent destruction of fragile, physical bodies – but the public perception wasn't wrong. In the military management of both the actual operations and the media coverage this *was* a different kind of war.

The reason why, however, owed a lot to the past. It seemed as if during the Gulf crisis the USA was fighting as much to exorcise the ghosts of Vietnam. Ironically, a conflict that would do so much to define the future model of war was explicitly designed to put to rest the trauma of the past. The Vietnam War was a Cold War-era proxy war, fought by the USA in aid of South Vietnam against the communist North from November 1955 to April 1975. It had ended with the capture of the South by Northern forces and the humiliating withdrawal of the USA after suffering over 58,000 dead and 300,000 injured servicemen. The defeat of the greatest military power by a small, third-world guerrilla army had led to a period of soul searching in the USA and an internal crisis of confidence in American power.

Unable to accept their military defeat, by the 1980s conservative politicians and commentators had come to agree a more palatable explanation for the USA's failure. As Philip Taylor says, 'Middle America and the US establishment remained convinced that an explanation for the single remaining blemish on America's illustrious military record had been found: the enemy within had been their very own media' (Taylor, 1998:2). Vietnam was widely considered the first 'television war', with US journalists free to roam across the combat zone, sending back footage of the conflict for the nightly news. Thus television (and, implicitly, liberal journalism) was blamed for alienating public sympathy and support. The daily, televisual drip-feed of horror, US and civilian casualties, and destruction, it was argued, had turned public opinion against the war, aiding the anti-war movement and weak politicians who hadn't supported the military. In this way, the myth was created that the Vietnam War had been lost on the home front through the television set, rather than militarily. Sylvester Stallone's Vietnam vet John Rambo echoes this

sentiment in the iconic 1985 Neo-Conservative action movie *Rambo: First Blood Part II*. Offered the chance of a return to 'Nam' by his commander Rambo famously asks, 'Do we get to win this time?' Thus, through the 1980s a powerful right-wing argument gained force that the USA needed to overcome the self-imposed paralysis of its defeat – the 'Vietnam syndrome' – to rediscover its pride and reassert itself on the world stage.

The problem remained of how to wage a war that wouldn't be undermined by images of death and returning bodybags. The answer lay in wars with clear outcomes, with minimized casualties, with a prepared population and with tight control of the media. As Taylor points out, the British operation in 'the Falklands War' provided a model for this. The Argentinian military invasion of the Falkland Islands on 2 April 1982 had led the UK to form a naval 'task force' to engage the Argentinian navy and airforce and attempt to retake the islands. What resulted was a short 74-day war, with simple and successful aims and a limited and controlled media coverage encompassing Ministry of Defence (MoD) briefings and reports from journalists accompanying the task force. With their control over access to and communication from the warzone the MoD could dictate terms to the media, including limiting the numbers of reporters, vetting individuals and imposing censorship agreements. The result was a highly successful propaganda campaign involving the suppression of information and the delaying of dangerous news not just to prevent any benefit to the enemy but also to manage domestic morale and opinion. In return for privileged access and caught up in the military operation they were reporting upon, the mainstream UK media proved eager to play this propaganda role, putting patriotism before objectivity.

The USA didn't immediately learn these lessons. In the October 1983 military invasion of Grenada their control of the informational environment was so tight that the press were excluded and even fired upon, whilst in the December 1989 invasion of Panama the press were allowed access but were overly restricted in their movements in order to present an image of a bloodless operation. The Gulf War, however, would see the perfection of the USA's military media management system.

Box 1.1 The Gulf War 1991

The 1991 Gulf War had its roots in existing regional conflicts. Following the 1979 Iranian Islamic revolution that deposed its ally, the Shah, and its humiliation in the Iranian hostage crisis from 1979 to 1981, the USA's regional policy shifted. America looked now to Saddam Hussein's Iraq as a counterweight to both Islamic fundamentalism and to Soviet expansionism (following the latter's invasion of Afghanistan in December 1979). Hence the USA's support for Saddam Hussein when he launched the Iran–Iraq War on 22 September 1980. By 1982 this support included money, intelligence, weapons, equipment and training for Iraqi forces. Saddam's actions were motivated by a history of border disputes with Iran and a fear that their revolution might inspire the suppressed Shia majority in Iraq, but his hopes of an easy victory and territorial gains proved naïve. The war ended after eight years on 20 August 1988 with a strategic stalemate and claimed loss of up to half a million soldiers and countless civilian lives. The war left Iraq with economic problems and debts. Suspecting that Kuwait was over-producing oil to depress Iraqi's much needed oil revenues, it sought to rectify these problems by claiming disputed oil-rich territories on the Kuwaiti border. Having been told by

US ambassador April Glaspie that America had 'no opinion' on Arab–Arab conflicts, Iraq invaded Kuwait on 2 August 1990, seizing control of the country by the next day and deposing its monarch, the Emir. The international community criticized the invasion. The UN Security Council passed resolution 660 on 3 August condemning the invasion and demanding the withdrawal of Iraqi forces, as well as resolution 661 on 6 August, imposing economic sanctions on Iraq, and resolution 678 on 29 November, which gave Iraq a deadline of 15 January to withdraw, authorizing member states to use all necessary means to force compliance after this date.

Alongside international diplomatic and political pressure on Iraq and international sanctions introduced on 6 August 1990 that would last until 2003, the USA launched 'Operation Desert Shield', forming a coalition of 34 countries and building up military forces in the region to defend Saudi Arabia and prepare for war. By the time the deadline passed on 15 January 1991 there were 956,000 coalition troops in the area, 543,000 of them US. When Iraq failed to withdraw, the USA launched 'Operation Desert Storm' on 17 January. The air campaign lasted until 24 February, quickly achieving air supremacy, flying over 100,000 sorties and dropping 88,500 tons of bombs on the Iraqi military and civilian infrastructure. The ground campaign, launched on 24 February was astonishingly successful, being called off after a PR-perfect 100 hours on the 28 February, following the destruction, mass retreat or surrender of the Iraqi army and the liberation of Kuwait.

Although the Iraqi army had been comprehensively defeated, the USA had no intention of pursuing it into Iraq to depose Saddam Hussein. The war aims had been achieved and the USA recognized it needed a strong regional counterweight to Iran. It was also wary of taking responsibility for the long and difficult process of state building that would follow his overthrow. Long-term troop deployment would be costly, unpopular and risk turning into another Vietnam. Instead the USA encouraged uprisings by the Shia in the south and the Kurds in the north but the Iraqi military brutally suppressed these with helicopter gunships. The USA was forced to implement 'no-fly-zones' in northern and southern Iraq which its airforce had to enforce for the next decade. The survival of Saddam, his Republican guard and his weapons programmes, together with Iraqi activity in the no-fly-zones necessitated continued US military action and major missile strikes on Iraq in 1993, 1996 and 1998. These unresolved issues and ongoing US antagonism towards Saddam would lead to Iraq being targeted again in 2003 in the Iraq War.

The Gulf War

Following the Iraqi invasion of Kuwait on the 2 August 1990 and the passage of UN Security Council resolutions demanding Iraqi withdrawal and authorizing the use of force to achieve this, the USA began to prepare for military action. As well as the physical build-up of troops in the region and international diplomacy and coalition building, this required the selling of the war on the domestic front. The US public and politicians needed to be convinced that the war was necessary and that the USA could

overcome the 'Vietnam syndrome' to successfully fight it. Although there was considerable public and media support for war, the cause was helped by President Bush's demonization of Saddam Hussein as equivalent to Hitler (a trope that would become common in the international coverage) as well as by highly publicized stories of Iraqi atrocities.

The most famous of these was the 10 October 1990 testimony of 'Nayirah', a volunteer nurse at the al-Addan hospital in Kuwait who told the US Congressional Human Rights Caucus that she had seen armed Iraqi soldiers enter the hospital and remove equipment and incubators to be taken back to Iraq, leaving the babies to die on the floor. Her story was widely reported, appearing on ABC and NBC TV news, being cited by senators in the Senate debate to approve military action and being quoted repeatedly by President Bush in the following weeks. It was only revealed in 1992 that 'Nayirah' was the daughter of the Kuwait ambassador to the USA and that her participation had been organized by the 'Citizens for a Free Kuwait' campaign run by the US public relations company Hill & Knowlton and funded by the Kuwaiti government. She had not been a volunteer at the hospital and although Iraqi soldiers had been involved in looting and violence there was no evidence to support the incubator story. Such was its emotive power, however, that, as Knightley says, it proved to be 'the definitive moment in the campaign to prepare the American public for the need to go to war' (Knightley, 2000:488).

By the time the UN deadline had passed the US-led coalition was prepared for war. Crucially the USA had realized it would be fighting two wars simultaneously: a physical, military campaign in the middle east and a global informational campaign. This media campaign had three key targets: first, it was aimed at domestic populations to aid morale and retain support for war; second it was aimed at an international audience and especially the broader coalition members to ensure their continued support and to demonstrate the legitimacy of the action; and third it was aimed at the enemy as propaganda, hoping to demoralize the Iraqi leadership by demonstrating the coalition power.

The coalition media campaign had three elements: official briefings by political leaders in Washington and London; closely controlled military briefings from the command centres in Dhahran and Riyadh, and reports from journalists who had been selected for combat zone access. The military developed a 'pool system' whereby a selected number of predominantly Anglo-American journalists were accredited by the military and allowed to operate alongside troops. They were organized in 'media reporting units' overseen by censors, with reports sent to 'forward transmission units' who also had the right to censor and who relayed reports home for copy to be freely distributed among news outlets. In the event, apart from the invasion plans, censorship was rare, partially as the pool system blurred the line between the military and journalists leading to a self-censorship caused by the close identification with the troops and the operations, and partially because there was little to report prior to the ground invasion and little chance to file copy once it had begun.

The Gulf War, Taylor says, 'was the first major conflict fought against the background of accessible global telecommunications' (Taylor, 1998:x). Hudson and Stanier describe it as 'the most widely and swiftly reported war in history' and 'arguably the greatest media event in history' (Hudson and Stanier, 1997:209). This is largely due to the television coverage, with the world's public tuning into a near-continuous feed of 24-hour rolling news mixing studio commentary, expert opinion, official briefings, live coverage from reporters across the region and even, for the first time, broadcasts from the enemy capital

itself. As Sturken argues, it was the Gulf War, not Vietnam, that was a 'television war', as the latter was shot almost exclusively on film and was subject to the delays of the developing process: 'There was always at least a twenty-four-hour delay before images of the Vietnam War reached the United States. The Persian Gulf War, by contrast, took place in the era of satellite technology and highly portable video equipment. It was technologically possible for the world to watch the Persian Gulf War as it happened' (Sturken, 1997:125–26). Cumings goes further: the reason, he says, why this was the *real* television war was not just because of the live reporting or saturation coverage but because of the way in which television itself imploded with the military operations, through its 'radically distanced, technically controlled, eminently "cool" postmodern optic which, in the doing, became an instrument of the war itself' (Cumings, 1992:103).

Indeed, television was almost co-substantial with the war: as Philip Taylor says, 'the Gulf War broke out on television' (Taylor, 1998:31), and viewers followed it that night in real-time. In the USA, ABC captured its outbreak, cutting into their 6.30pm news programme to go live to Gary Shepard in Baghdad who announced, 'something is definitely underway here … Obviously an attack is underway of some sort'. However, it was CNN's coverage of the first night of the bombing that would become one of the most famous moments in media history. Their rental of a 'four-wire' communications system enabled CNN to keep broadcasting after other news organizations were affected by the destruction of Baghdad's communications tower and disruption of power supplies. Over a billion people worldwide watched CNN's through-the-night telephone commentary from the Al-Rashid Hotel by Bernard Shaw, Peter Arnett and John Holliman, including, remarkably, the political leaders in Washington, London and Baghdad, who used it for on-the-spot intelligence as to the progress of the campaign.

Quickly, the daily military briefings from US Central Command in Riyadh became one of the defining elements of the Gulf coverage, representing the most obvious example of the military's control of the global perception of the war. It was here that the military decided upon, produced and disseminated the day's message, narrativizing the conflict and its events for the global media. General Norman Schwarzkopf's explanation of what was happening and the coalition's military operations were aided by a powerful new tool: 'smart-bomb' videos. Laser-guided bombs ('precision-guided munitions', or PGM) had been developed and tested in Vietnam but by 1991, with the development of cheap, miniature computers and guidance systems, a new generation of 'smart' munitions was available. Most used a plane fitted with a nose-cone 'forward-looking infrared radar' (FLIR), which sent a laser signal to pick out a target for a bomb whose light-sensing nose-cone could follow this laser to the target. The aircraft's computer could also send signals to adjust the bomb's control fins in flight to increase its accuracy. The FLIR information could be converted into visible images shown on the computer console in the cockpit whilst some bombs also included nose cameras sending back a record of their fall. The primary aim of these videos was to aid damage assessment but the key development of the Gulf War was to employ them as part of the military briefings.

In this way, the smart-bomb became a dual weapon. As a military explosive it had a localized, precise, destructive effect, but as an image weapon it had a global, resonating, *productive* effect, carrying a message to the world about the US operation. Cumings argues the bomb was a 'video press release', 'simultaneously image, warfare, news, spectacle, and advertisement for the Pentagon' (Cumings, 1992:122). It functioned, therefore, as an advert for US power in the post-Cold War era and for its military and

defence industries, whilst also providing imagery and news for the media and a spectacle for the watching population. Most importantly, the smart-bomb demonstrated a new ideal of a pinpoint, hi-tech, 'clean' war of 'surgical strikes' that avoided the civilian 'collateral damage' of dumb-munitions. As such it played a significant propaganda role by helping transform the image and idea of war itself. As Philip Knightley wrote:

> Ever since the British invented military censorship in 1856 … wartime news management has had two main purposes: to deny information and comfort to the enemy and maintain public support. In the Gulf War the new element has been an effort to change public perception of the nature of war itself, to convince us that new technology has removed a lot of war's horrors.
>
> Taylor (1998:262)

With the smart-bomb, therefore, western violence was presented to its domestic audience as a moral force. As Aksoy and Robins argue

> The clear message was that 'smart' was good, and brilliant was virtuous. 'Smart' weapons, it was being claimed, could actually save the lives of soldiers and civilians alike in the Gulf. To reduce error, to be so deadly accurate and efficient, was a reflection of the virtuous triumph of western technology'.
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> Aksoy and Robins (1991:331)

Broughton similarly sees the videos as aimed at the home front, 'recruiting participation at the hearth of virtually every American living room', with their violence 'soliciting the perceptual complicity of the viewing citizenry' (Broughton, 1996:140). The aim, he says, was to promote the 'New World Order' – the claimed dominance of western values in the post-Soviet era and the belief that these values could be globally policed. With its avoidance of civilian casualties, its precision and its vision of justice being carried out, the smart-bomb clip thus became 'the primary signifier' of this new world, seizing 'the ethical territory' of the moral high-ground. 'Accuracy was transformed into a sign of noble intention', Broughton says, with the bombardment being presented as the 'performative juridical founding of the New World Order' (Broughton, 1996:141).

The video feeds also functioned as a means of personalization and identification for their audiences. Within the anonymous prosecution of the war, Broughton says, 'it was left largely to the missile to provide a model of individuation' (Broughton, 1996:151). The bomb appeared in coalition briefings as an active moral agent and individual, honing in on an unseen enemy edited out of the videos or disintegrated in the explosions. Thus it was the bomb with which we identified, Broughton argues: 'The viewer, falling under the thrall of the smart-bomb video, took up a specific, symbolic position, not as abstract, transcendental subject but as concrete, material body'; one fusing with the projectile and enjoying the scopic pleasure of the descent (Broughton, 1996:150–52). These falling, vertiginous, point-of-view shots simultaneously positioned the spectator physically on the side of the bomb (giving as Broughton says, 'a bomb's-eye view'), whilst also positioning them epistemologically, as all they knew was what the bomb saw, and morally, as the spectator identified with the bomb itself. Hence the McLuhanist electronic implosion into the real offered by television was extended here in an implosion into the military technology itself. Watching these videos, the domestic audience *became* the bomb.

The other major propaganda success for the west was the 'Patriot' missile. Saddam hoped to broaden the conflict by drawing Israel in, hence his launching of ageing Scud missiles from mobile launchers against Israeli cities. Under intense pressure to prevent an Israeli response that would split the coalition, the USA provided a new anti-missile system to stop the threat. The Patriot's fame began on 18 January 1991 when it achieved, Knightley says, 'an historic knockout' as 'the first defensive missile to destroy an incoming offensive missile' (Knightley, 2000:496). What followed was an intense media focus on the continuing US attempts to destroy Scud missiles and launchers. Taylor argues:

> The success of the American patriot missiles in intercepting the Scuds provided, in microcosm, a televisual symbol of the conflict as a whole. It was a technological duel representing good against evil: the defensive Patriots against the offensive Scuds, the one protecting innocent women and children against indiscriminate attack, the other terrifying in their unpredictable and brutal nature. The very resonance of their names implied it all. Here was beneficial high-technology, a spin-off of the American SDI ('Star Wars') programme, being utilized against comparatively primitive weapons of mass destruction from the old Cold-war era: the Patriot was the 'Saviour of the Skies' and the 'Darling of the US Arsenal'.
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> Taylor (1998:70)

Here too, the 'liveness' of the media coverage was used to increase audience identification and excitement. On the night of 17–18 January, for example, western reporters in Israel broadcast updates on the Scud attacks. These included CNN reports from Jerusalem of reporters wearing gas masks, discussing the explosions they could hear and worrying about chemical attacks. As Taylor points out, 'CNN's cameras were pointing at the wrong place. In fact, it was all, in a sense a non-event; Jerusalem was not attacked. Some 25 miles away Tel Aviv was, but not with chemicals' (Taylor, 1998:69). The reality, however, was less important than the media image and its domestic impact.

In contrast to the west's use of the media, Saddam's propaganda efforts appeared clumsy and ineffective. His televisual appearance on 23 August 1990 with western hostages from British Airways Flight 149, captured at Kuwait airport, was intended to demoralize the west whilst reassuring it of the safety of these 'human shields' provided no attacks were launched, but Saddam's avuncular attempt to pose with a young British boy appeared threatening and horrified the global audience. Similarly, Iraqi television's parading of captured coalition pilots on 20 January 1991 had the opposite effect to that intended. Their blank, bruised and beaten faces mouthing the opinions of the Iraqi state convinced no one and only hardened public opinion about the necessity and justice of the bombing.

Iraq also misplayed western journalists. The intelligence value of CNN's live Baghdad reports for the west led to an Iraqi order to cease transmitting on 17 January whilst fears of journalists aiding western damage assessment together with far fewer casualties to display due to the unexpected precision of the coalition weapons led to Iraq expelling all but two western journalists on the 19th. This might have been a mistake as reports from Baghdad-based journalists were controversial in the west, splitting domestic unity, with many critics accusing reporters of becoming mouthpieces of the Iraqi regime. CNN's Peter Arnett, for example, was described by US House of Representatives as 'the voice of Baghdad', whilst Conservative MPs in the UK called the BBC 'the Baghdad Broadcasting Corporation'.

One of the most criticized events took place on 23 January when Peter Arnett reported from a 'baby milk factory' he was taken to, which the Iraqis claimed had been destroyed by coalition bombing a few days earlier. The USA denounced Arnett's report as Iraqi propaganda and insisted the site was 'associated with biological warfare production' (Taylor, 1998:113). All later evidence points to Arnett's report being correct, but Iraq's propaganda coup was fatally holed by two important errors. One was CNN's shots of an Iraqi working inside the factory earlier with a white lab-coat with the words 'baby-milk factory' stitched on the back, and the other was a crude sign shown propped against railings outside the building with the handwritten English words 'Baby Milk Plant'. The interior shots were genuine and were shot in August 1990 and the sign was simply an attempt to draw attention to the site, but both were widely ridiculed in the western media and seen as evidence of Iraqi lies. Here, coalition misinformation trumped truthful Iraqi propaganda.

Saddam was also blamed for things he hadn't done. At the end of January, he was accused of 'environmental terrorism' when Iraqi forces opened valves at the Sea Island oil terminal, dumping oil into the Persian Gulf to prevent a possible sea-borne invasion. Iraq's culpability for this is certain but the images that appeared in the western media on 25–27 January of dying, oil-drenched sea-birds that provoked such sympathy among its animal-loving audiences were misleading. The Iraqi oil-spill hadn't yet reached land and it was only one of several oil-slicks of disputed provenance. The oil-covered cormorants desperately trying to breathe were not killed by the Iraqi oil but by a slick from tankers that the coalition had bombed. Whatever the cause, the claims of an 'environmental disaster' only helped galvanize more support for the war.

Western journalists were allowed back into Iraq by the end of January, with the authorities hoping to make political capital from the destruction by escorting them to sites of civilian casualties. There were still fewer of these than expected, however, and Iraq had little to counter the western narrative of events until 4.30am on 13 February when two 2,000lb laser-guided bombs hit an installation at Amiriyah that was being used as a civilian bomb shelter, killing 408 people, the majority women and children. Iraq immediately lifted all reporting restrictions and the earliest media reports by western journalists were honest and graphic about the deaths.

For once the coalition military authorities were on the back foot. By the time of the evening's Riyadh briefing the line had been worked out, with Brigadier-General Richard Neal declaring 'I'm here to tell you that it was a military bunker. It was a command and control facility'. He even suggested that it was 'plausible' that Saddam had deliberately placed civilians in the bunker for a propaganda coup (Taylor, 1998:194–95). A White House press conference by Marlin Fitzwater later that evening repeated the claim that this was 'a military target' and the intimation that Saddam was responsible for the casualties, commenting: 'We don't know why civilians were at this location but we do know that Saddam Hussein does not share our value in the sanctity of life' (Taylor, 1998:196–97). Soon after, Defence Secretary Dick Cheney confirmed that this was a military facility and similarly suggested Saddam had planned the deaths.

Though many papers repeated these claims as fact, the lack of regret and the repeated insistence of the infallibility of coalition intelligence and precision weapons caused significant damage to the image of the military. Its officials soon admitted privately that this was a simple intelligence mistake, but publicly the American military held the official line. What should have been a significant propaganda coup for Iraq, however, was limited by the nature of the news coverage. The images that were shown were shocking, but sensibilities necessitated a self-censorship of the real horror. Few channels