

OPINION

# Killer Robots and the Laws of War

By KENNETH ANDERSON AND MATTHEW WAXMAN

With each new drone strike by the United States military, anger over the program mounts. On Friday, in one of the most significant U.S. strikes, a drone killed Pakistani Taliban leader Hakimullah Mehsud in the lawless North Waziristan region bordering Afghanistan. Coming as Pakistan is preparing for peace talks with the Taliban, the attack on this major terrorist stirred outrage in Pakistan and was denounced by the country's interior minister, Chaudhry Nisar Ali Khan, who said the U.S. had "murdered the hope and progress for peace in the region."

Autonomous weapons are coming and can save lives. Let's make sure they're used ethically and legally.

Recent reports from Amnesty International and Human Rights Watch have also challenged the legality of drone strikes. The protests reflect a general unease in many quarters with the increasingly computerized nature of waging war. Looking well beyond today's drones, a coalition of nongovernmental organizations—the Campaign to Stop Killer Robots—is lobbying for an international treaty to ban the development and use of "fully autonomous weapons."

Computerized weapons capable of killing people sound like something from a dystopian film. So it's understandable why some, scared of the moral challenges such weapons present, would support a ban as the safest policy. In fact, a ban

is unnecessary and dangerous.

No country has publicly revealed plans to use fully autonomous weapons, including drone-launched missiles, specifically designed to target humans. However, technologically advanced militaries have long used near-autonomous weapons for targeting other machines. The U.S. Navy's highly automated Aegis Combat System, for example, dates to the 1970s and defends against multiple incoming high-speed threats. Without them, a ship would be helpless against a swarm of missiles. Israel's Iron Dome missile-defense system similarly responds to threats faster than human reaction times permit.

Contrary to what some critics of autonomous weapons claim, there won't be an abrupt shift from human control to machine control in the coming years. Rather, the change will be incremental: Detecting, analyzing and firing on targets will become increasingly automated, and the contexts of when such force is used will expand. As the machines become increasingly adept, the role of humans will gradually shift from full command, to partial command, to oversight and so on.

This evolution is inevitable as sensors, computer analytics and machine learning improve; as states demand greater protection for their military personnel; and day's drones, a coalition of nongovernmental organizations—the Campaign to Stop Killer Robots—is lobbying for an international treaty to ban the development and use of "fully autonomous weapons."

Computerized weapons capable of killing people sound like something from a dystopian film. So it's understandable why some, scared of the moral challenges such weapons present, would support a ban as the safest policy. In fact, a ban



The morning news in Peshawar, Pakistan, Nov. 2.

noncombatants and has rules to limit collateral damage. As a moral matter, critics do not believe that decisions to kill should ever be delegated to machines. As a practical matter, they believe that these systems may operate in unpredictable, ruthless ways.

Yet a ban is unlikely to work, especially in constraining states or actors most inclined to abuse these weapons. Those actors will not respect such an agreement, and the technological elements of highly automated weapons will proliferate.

Moreover, because the automation of weapons will happen gradually, it would be nearly impossible to design or enforce such a ban. Because the same system might be operable with or without effective human control or oversight, the line between legal weapons and illegal autonomous ones will not be clear-cut.

If the goal is to reduce suffering and protect human lives, a ban could prove counterproductive. In addition to the self-protective advantages to military forces that use

them, autonomous machines may reduce risks to civilians by improving the precision of targeting decisions and better controlling decisions to fire. We know that humans are limited in their capacity to make sound decisions on the battlefield: Anger, panic, fatigue all contribute to mistakes or violations of rules. Autonomous weapons systems have the potential to address these human shortcomings.

No one can say with certainty how much automated capabilities might gradually reduce the harm of warfare, but it would be wrong not to pursue such gains, and it would be especially pernicious to ban research into such technologies.

That said, autonomous weapons warrant careful regulation. Each step toward automation needs to be reviewed carefully to ensure that the weapon complies with the laws of war in its design and permissible uses. Drawing on long-standing international legal rules requiring that weapons be capable of being used in a discriminating manner that limits

collateral damage, the U.S. should set very high standards for assessing legally and ethically any research and development programs in this area. Standards should also be set for how these systems are to be used and in what combat environments.

If the past decade of the U.S. drone program has taught us anything, it's that it is crucial to engage the public about new types of weapons and the legal constraints on their design and use. The U.S. government's lack of early transparency about its drone program has made it difficult to defend, even when the alternatives would be less humane. Washington must recognize the strategic imperative to demonstrate new weapons' adherence to high legal and ethical standards.

This approach will not work if the U.S. goes it alone. America should gather a coalition of like-minded partners to adapt existing international legal standards and develop best practices for applying them to autonomous weapons. The British government, for example, has declared its opposition to a treaty ban on autonomous weapons but is urging responsible states to develop common standards for the weapons' use within the laws of war.

Autonomous weapon are not inherently unlawful or unethical. If we adapt legal and ethical norms to address robotic weapons, they can be used responsibly and effectively on the battlefield.

Mr. Anderson is a law professor at American University and a senior fellow of the Brookings Institution. Mr. Waxman is a professor at Columbia Law School and a fellow at the Council on Foreign Relations. Both are members of the Hoover Institution Task Force on National Security and Law.

CORPORATE NEWS

# KT Chief Offers to Quit

By MIN-JEONG LEE

SEOUL—The chief executive of South Korea's biggest fixed-line operator, KT Corp., has offered to resign amid a corruption probe, in a setback for the company's plans to boost revenue through overseas mergers and acquisitions.

Lee Suk-chaе, a 68-year-old former communications minister who has led the company for four years, submitted his resignation letter to the board late Sunday, KT said in a written statement.

"I deeply apologize for the damage that has been incurred on KT's [brand] image because of the recent series of events," Mr. Lee was quoted as saying in the statement. He said he would do his best to clear any allegations made against the company.

Earlier this year, a nongovernmental organization accused Mr. Lee of an undervalued sale of office buildings owned by KT. The organization alleged that Mr. Lee sold sev-

Lee Suk-chaе said he would do his best to clear any allegations made against the South Korean telephone company.

eral office properties at prices below their estimated market value, resulting in a loss for the company of more than 80 billion won (\$75 million). KT has denied the allegations. Between 2010 and 2012, KT sold

39 office buildings, according to the company.

In October, the prosecutor's office raided KT's offices in Seoul as part of an investigation into the allegations against Mr. Lee, but has yet to release its findings.

KT, which has been in fierce competition with SK Telecom Co. to attract more mobile subscribers, posted a third-quarter net profit of 136 billion won on Friday, down 63% from a year earlier.

As a means to boost its revenue, the company has been trying to buy or invest in overseas companies, a move that might need to be put on hold pending the board's decision on whether to appoint a new chief executive. In April, a person familiar with the matter said KT was close to buying an African Internet service provider from Telkom SA.

# Australia's Nine Readies IPO

Entertainment Company's Listing Would Follow Financial Rescue

By ROSS KELLY

SYDNEY—Just a year after it was pulled from the brink of insolvency, Nine Entertainment Co. announced an initial public offering of stock that would give it a market value of about US\$2 billion, the biggest-ever listing of an Australian media company.

Nine said in a prospectus on Monday that it intends to offer shares at between 2.05 Australian dollars and 2.35 Australian dollars each, valuing the company at as much as A\$2.17 billion. In October last year, lenders including U.S. hedge funds and Goldman Sachs Group Inc. agreed to a multibillion-dollar debt restructuring to secure the Australian free-to-air broadcaster's future.

The entertainment company, bought by CVC Capital Partners at the top of the market in 2007 from billionaire James Packer, was undone by a cyclical downturn in traditional media and falling advertising revenue. Since then, the company has been helped by better programming and a more manageable debt load.

Nine's listing plan comes as improving stock prices, as well as poor returns from cash and bonds because of low interest rates, are spurring a revival in IPO activity globally. It would be Australia's largest share offer since coal hauler QR National Ltd., a railway network, listed in 2010.

The Sydney-based broadcaster—which brought TV to the country in the 1950s and played on Australia's love of sports to lead television ratings for decades—might face challenges in persuading investors to back its IPO, however.

New shareholders would own about 33% of the company, raising as much as A\$697.3 million. Existing shareholders including U.S. hedge funds Apollo Global Management LLC and Oaktree Capital Management LP would own the rest. The deal would eclipse the next-biggest media IPO: the 1999 listing of regional cable-television provider Astar, which raised A\$321 million.

"The price looks quite full," said Simon Marais, managing director of fund manager Allan Gray Australia. "I don't know if we will participate, but we probably won't," said Mr. Marais, who manages investments



Nine Entertainment is seeking the largest listing for an Australian media firm.

in Australian media assets including an 11% holding in newspaper publisher Fairfax Media Ltd.

Nine's assets include Nine Network Australia, Ticketek, Allphones Arena and a 50% interest in online portal ninemsn. It competes in the free-to-air television space with Seven West Media Ltd. and Ten Network Holdings Ltd.

Challenges facing the company include tepid advertising markets and the growing popularity of watching films and television online or on pay-TV networks. Almost one-third of Australian households subscribe to cable television.

At the same time, free-to-air networks in Australia still attract millions of viewers each day. Recent programming successes, such as local talent show "The Voice" and U.S. situation-comedy "The Big Bang Theory," have brought Nine close to the top-ranked Seven network in the battle for ratings and advertising dollars. Since Feb. 10, the start of the official ratings season, Seven has held a 30.7% share of viewers, compared with 29.1% for Nine, according to ratings-measurement group OzTam.

Nine recorded a net profit for the year through June of A\$136.7 million, and is forecasting a modest rise for the current financial year to A\$139.5 million.

Mr. Marais, the Allan Gray managing director, said the Nine offer

price appears to assume that Nine won't give up ground in TV ratings, including to the fourth-ranked Ten network, which is losing viewers.

"At this price, you'd have to assume that's the case," Mr. Marais said. "It's not a good deal if Ten comes back."

Nine has made a number of comebacks in its 56-year history. It hit a rough patch in the late 1980s when it was owned by Alan Bond, who sold the network back to the Packer family for a fraction of the A\$1 billion he had paid two years earlier. Under the late media billionaire Kerry Packer's control again, Nine bloomed and consistently led the local TV ratings, partly thanks to popular sporting events such as cricket and rugby.

After Mr. Packer's death, his son James sold Nine to CVC to help build his casino empire. The challenges facing Nine—as consumers moved away from free-to-air TV and advertising revenue fell—were made worse by cash flowing out of the business on interest payments rather than investment in better programming, despite a cash injection of A\$1.9 billion from CVC between 2007 and 2008.

CVC last year wrote off its investment in Nine of more than A\$5 billion, in what became the largest loss for a private-equity company on a single transaction in the Asian-Pacific region.

# Ex-Tabloid Editor Accused of Coverup

By JENNY GROSS AND CASSELL BRYAN-LOW

LONDON—Prosecutors alleged that former News Corp executive Rebekah Brooks conspired with her husband, her longtime assistant and others she trusted as part of an elaborate coverup to hide potential evidence from police, during a probe of phone hacking and other alleged wrongdoing by the company's journalists.

The allegations came on the fourth day of the prosecution's opening arguments in the high-profile criminal trial that stems from a phone-hacking scandal here at News Corp's now-closed News of the World newspaper. The prosecution in court on Monday alleged that in July 2011, at the height of the scandal and around the time Ms. Brooks was arrested, she worked with the others to remove seven boxes of her archived notebooks, as well as computer equipment, storage devices and other records—some of which they said was dumped at an underground garage at her London home.

Ms. Brooks, a longtime protégé of News Corp Executive Chairman Rupert Murdoch, served as top editor for the News of the World and later of its daily sister publication the Sun before becoming chief executive of News Corp's U.K. newspaper division. She has pleaded not guilty to five charges related to obstruction of justice, bribery and illegal voice-mail interception, known as phone hacking.

Prosecutors allege the conspiracy to hide evidence from police included Ms. Brooks's husband, Charlie Brooks—a longtime friend of British Prime Minister David Cameron—as well as her assistant, Cheryl Carter, and a security director at News Corp's U.K. newspaper unit. Those three individuals have also pleaded not guilty to obstructing justice.

Public rebuke of News Corp's U.K. newspaper unit over the long-simmering phone-hacking scandal reached new levels in July 2011 fol-

lowing a report that News of the World journalists had intercepted voice-mail messages on the mobile phone of missing teenager Milly Dowler, who later was found dead. The widespread public outrage prompted the company to close the 168-year-old weekly News of the World and apologize for the hacking of Ms. Dowler's phone.

Lead prosecutor Andrew Edis alleged that starting the day before the company announced the closure of the weekly tabloid, Ms. Brooks conspired with her assistant, Ms. Carter, to remove the boxes of archived notebooks dating from 1995 to 2007, from Ms. Brooks's time as a reporter and editor at the News of the World and the Sun. The notebooks haven't been found, Mr. Edis said.

In court on Monday, Mr. Edis zeroed in on the days around July 17, 2011, when Ms. Brooks was scheduled to be questioned by police as a suspect in their phone-hacking probe—the day she also was arrested.

On that day and the day after, Ms. Brooks and her husband worked with the security director and security contractors to hide computer equipment and other records from the police, Mr. Edis alleged. Some of the items—a laptop, a briefcase and some papers—were found by a cleaner dumped by the garbage bins in the underground garage below the Brookses' London apartment, according to the prosecutor. He added that they had been left there by one of the security contractors employed by News Corp's U.K. newspaper unit to look after Ms. Brooks.

"The only possible explanation for it was that it was designed to hide material so police wouldn't get it," Mr. Edis said in court.

News Corp declined to comment. News Corp, which owns The Wall Street Journal, was part of a larger company also called News Corp. that in June split in two, spinning off its television, movie and entertainment businesses into a new company, 21st Century Fox Inc.

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By OLIVIA WANG

Hong Kong-based ink artist Fung Ming Chip is humble when talking about his accomplished career spanning over 30 years. "So many good things have happened to me, I don't think I deserve it. I'm just lucky," he says over tea as we discuss his exhibition, "Meaning in Timing," opening here on Friday. The artist's integrity to tradition and contemporary approach to the ancient art of calligraphy have

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made his work appealing to Chinese and Western collectors alike.

Mr. Fung owned a car-mechanic shop in Hong Kong and was recuperating from tuberculosis when he first took up seal-carving in his mid-20s. He began teaching himself calligraphy as a way to improve his seal-carving technique. At 30, he decided to become a calligraphy artist full-time, much to the disappointment of his parents.

Being self-taught has given Mr. Fung the creative freedom to go beyond the boundaries of tradition. Besides the master calligraphers, Mr. Fung is also inspired by the American artists like Franz Kline and Robert Motherwell. Whereas some contemporary calligraphy artists have discovered ways to push art forward by altering Chinese characters and obfuscating their meaning, Mr. Fung has chosen a more subtle approach.

Since the early 20th century, Chinese artists have assimilated Western aesthetics into ink paintings. Yet calligraphy is inextricably tied to Chinese language. This anchor to Chinese culture

has helped contemporary calligraphers resist Western influences. But it has also kept them from responding to change.

By deconstructing and reassembling the calligraphic lines and strokes, Mr. Fung reinterprets this ancient art form, giving it new life. The artist has

also invented over one hundred of his own calligraphic scripts—a remarkable feat given that there are basically only five script types in the calligraphic tradition.

His works sit in prominent private and public collections around the world, including the Hong Kong Museum of Art, the Princeton University Art Museum and Oxford University's Ashmolean Museum. In December his work will be included in a major exhibit at New York's Metropoli-

tan Museum of Art called "Ink Art: Past as Present in Contemporary China." Cambridge University's Jesus College also displayed a charcoal mural produced by the artist when he was an in residence there in 2004.

Not bad for someone with only a primary-school education. Born in a small village in Guangdong province in 1951, Mr. Fung grew up in Hong Kong and immigrated to the United States at 26. He worked as a deliveryman in New York to support himself as he studied calligraphy. In the 1980s, as his calligraphic work developed, he gradually spent more time in Asia, finally settling in Hong Kong, where he has lived since 2006.

Mr. Fung is fascinated with the concept of time as an essential element of calligraphy. "Meaning in Timing," his exhibition opening Friday at Hong Kong's Sin Sin Fine Art, explores the concept of time by replacing the characters in his calligraphy with numbers in a series of 12 hanging scrolls. Continuity and line—essential elements to numbers and characters—are two key

components of time. Mr. Fung explains: "Whereas the concept of time is not immediately visible in words, numbers are more obviously tied to time, continuity and sequence." Although characters are absent, all the elements of calligraphy—line, continuity and literal meaning—are maintained.

By breathing creative life into calligraphy, Mr. Fung proves that, as he puts it, "There is no such thing as being 'outdated' or 'in.'" While contemporary Chinese art today carries Western overtones, he thinks this will change over time. "In 50 years, I believe ink painting will be a dominant art form. As China becomes more powerful, its artists will become more aware of its culture and heritage."

"But," he smiles, "by then I won't be around." I suggest that he will leave behind his artistic legacy. "That I don't know," he replies, "but hopefully."

Ms. Wang is an independent curator, art consultant and director of Scholar's Ink Studio Ltd., an art advisory organization in Hong Kong.