The Killer App:

Technology, Drones & Ethics

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Introduction

1. Defining application of recent technological innovation: telepresence, augmented reality, HD imaging, wireless data communications, etc.

2. Literally an application that kills. “Need to neutralize enemy combatants and terrorists?” There’s and app for that.

Introduction

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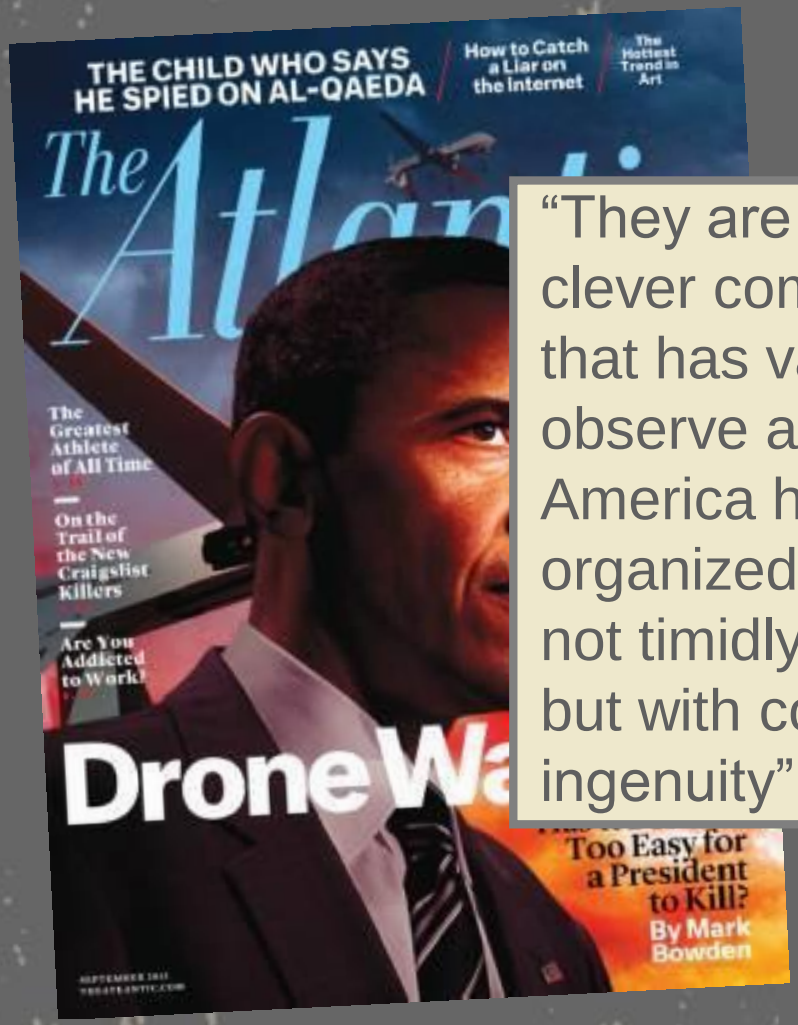
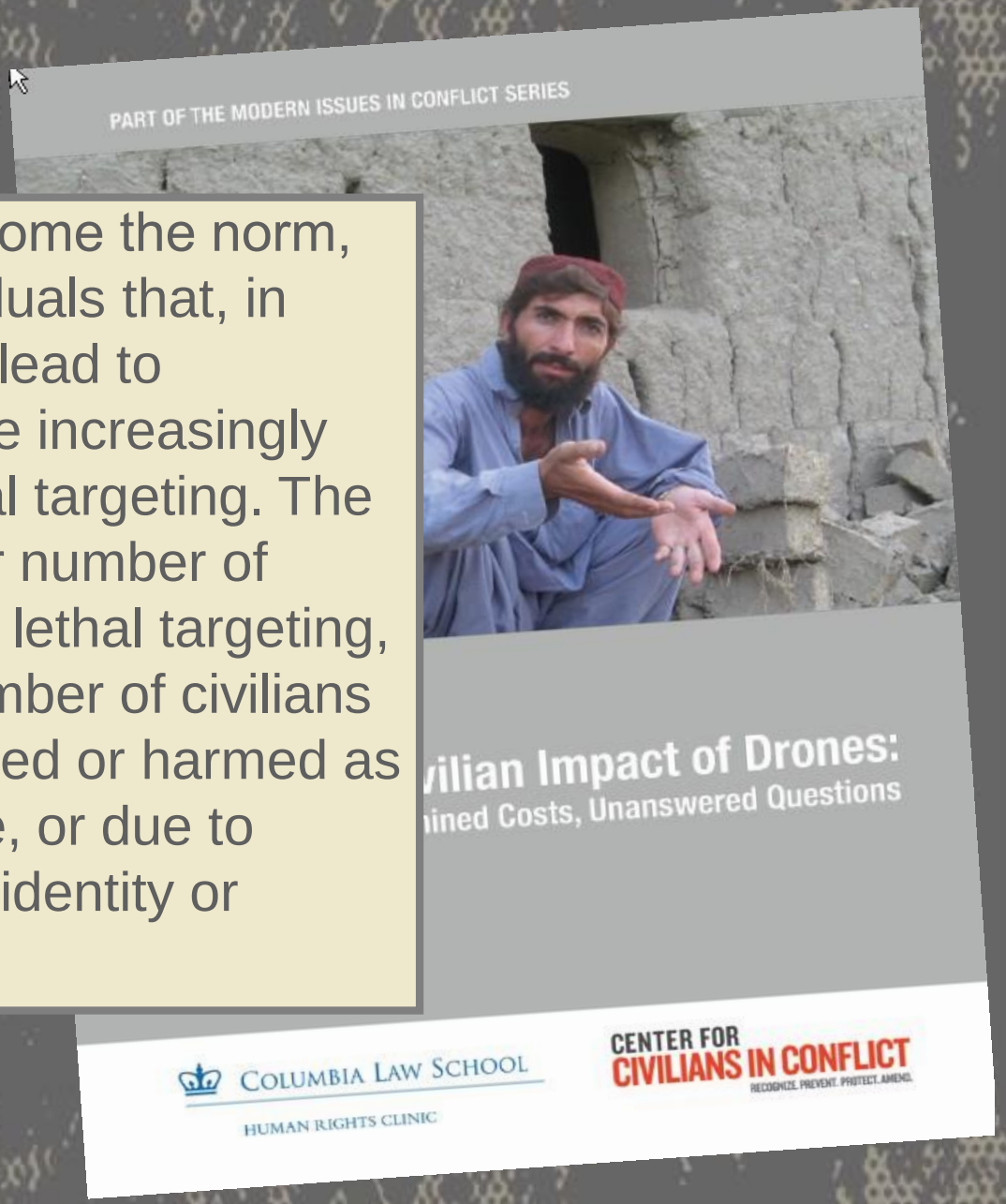


"They are remarkable tools, an exceedingly clever combination of existing technologies that has vastly improved our ability to observe and fight. They represent how America has responded to the challenge of organized, high-level stateless terrorism—not timidly, as bin Laden famously predicted, but with courage, tenacity, and ruthless ingenuity" (p. 70).

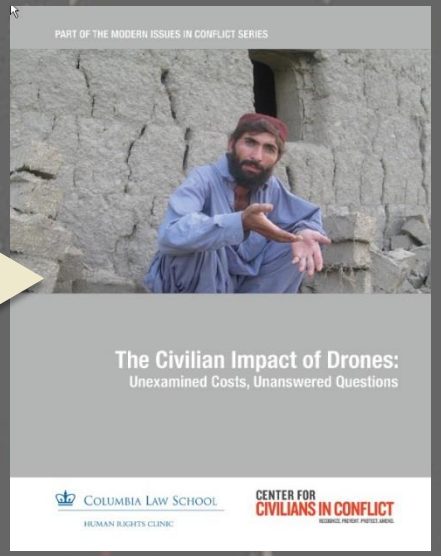
Introduction

"As covert drone strikes become the norm, actions or conduct by individuals that, in other circumstances, would lead to investigation or detention are increasingly blurring into a basis for lethal targeting. The result is that an ever-greater number of individuals are vulnerable to lethal targeting, and accordingly a larger number of civilians are at risk of either being killed or harmed as a result of collateral damage, or due to mistaken beliefs about their identity or associations" (p. 75).



Introduction

The Drone Debate



When drones kill, who is responsible?

Who is to be praised for successful operations by drones?

Who can or should be blamed for mistakes or failures?

1. Default Setting

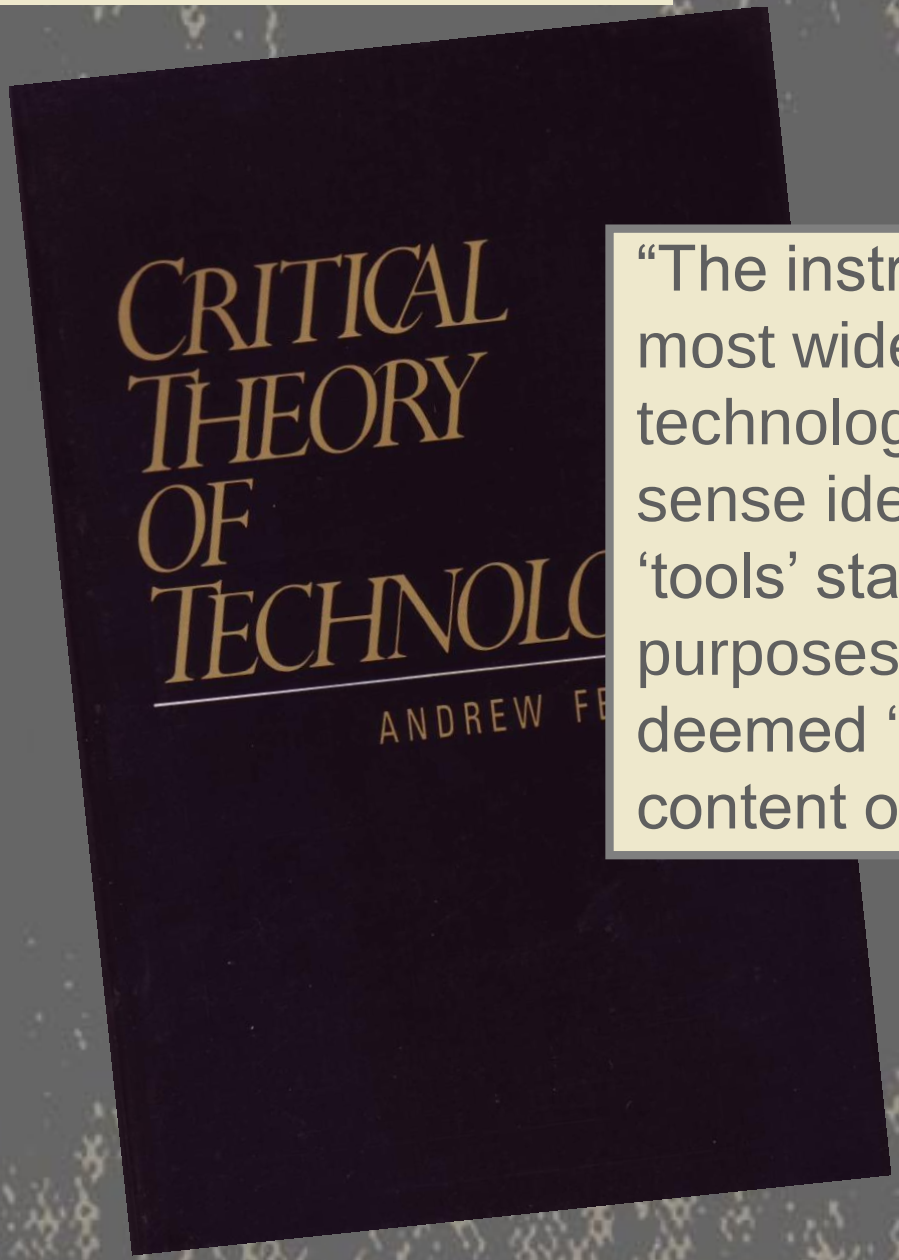
Default = A setting, mode of behavior or a value that is automatically assigned and operative. The *normal* way of doing things.

1. Default Setting

Drones don't kill people.
People kill people.

"Instrumental Theory of Technology"

1. Default Setting



"The instrumentalist theory offers the most widely accepted view of technology. It is based on the common sense idea that technologies are 'tools' standing ready to serve the purposes of users. Technology is deemed 'neutral,' without valuative content of its own." – Feenberg 1991

1. Default Setting

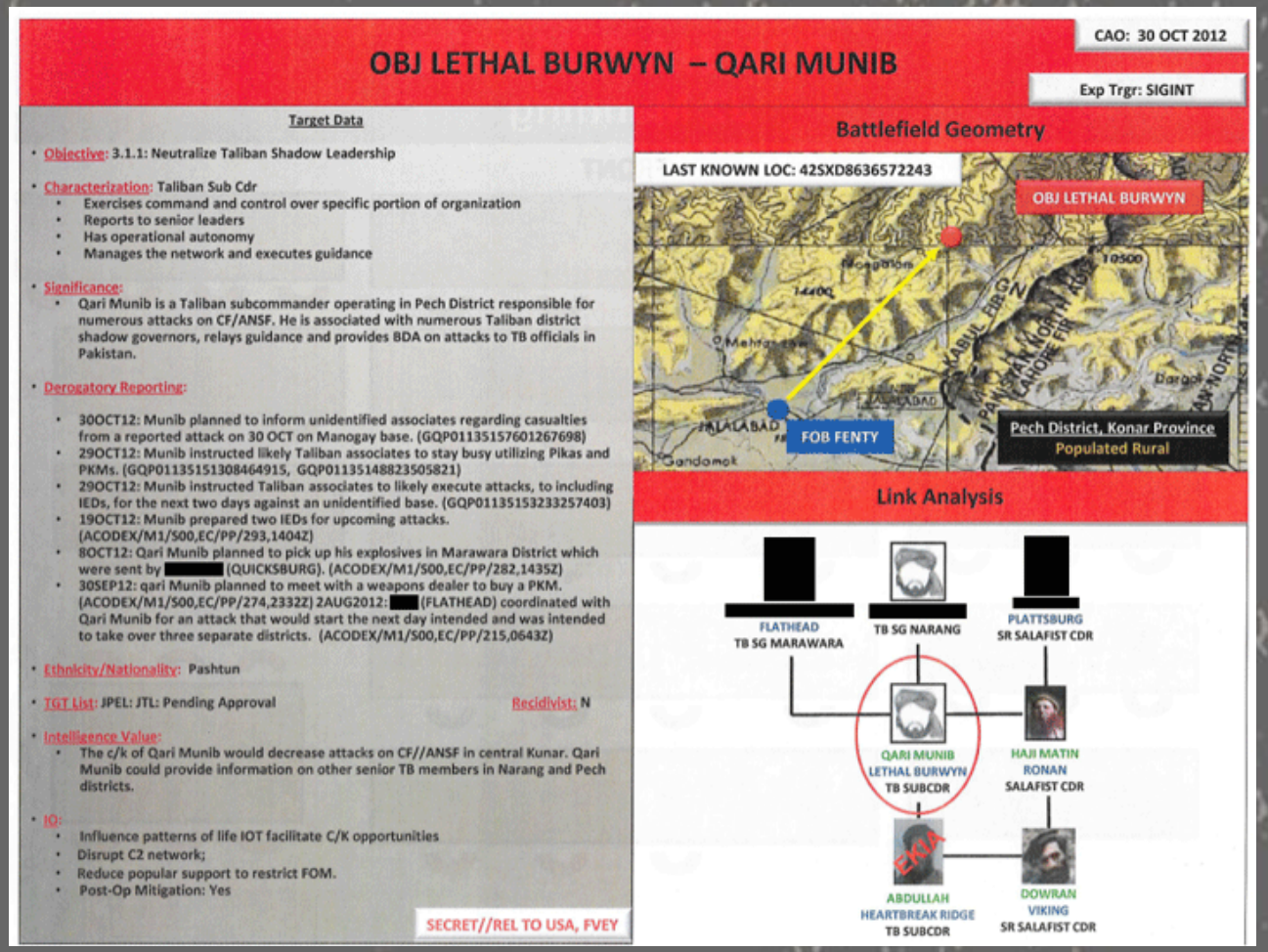
1. Default Setting

Predator Drone

1. Default Setting

Drone Operators

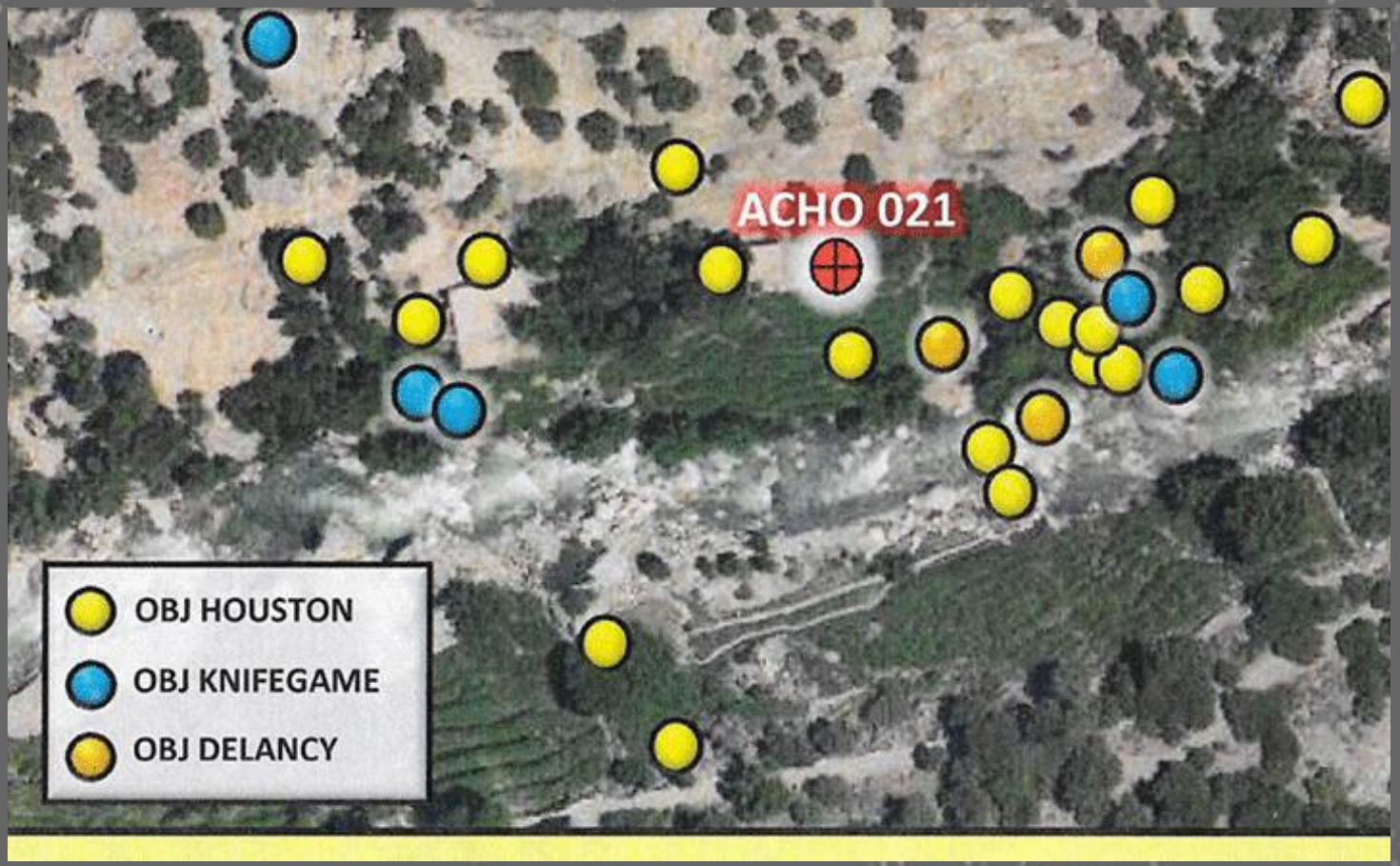
1. Default Setting



"Objectives" - Baseball Card

http://theintercept.com - The Drone Papers

1. Default Setting



“Targeting” - Cellphone Signals

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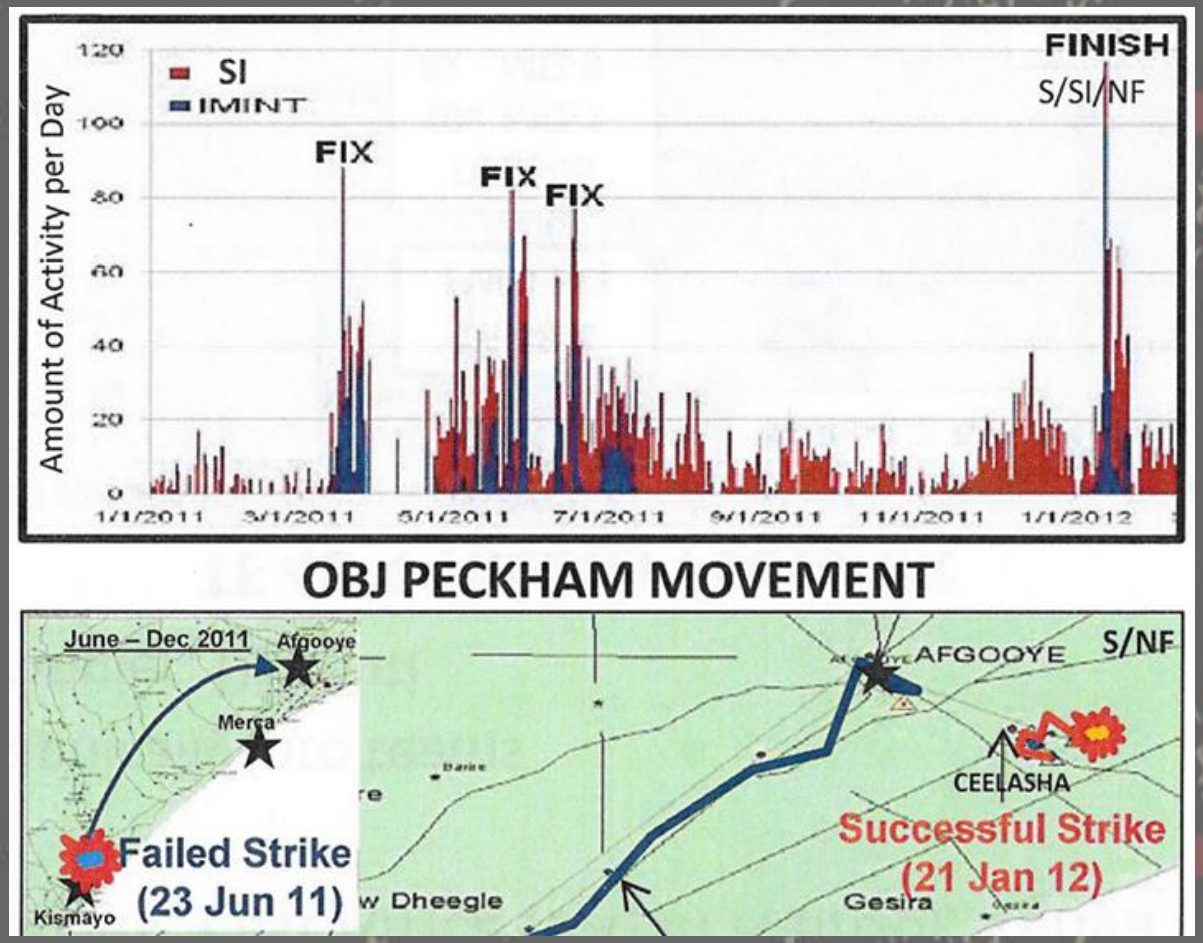
1. Default Setting



Find, Fix, Finish

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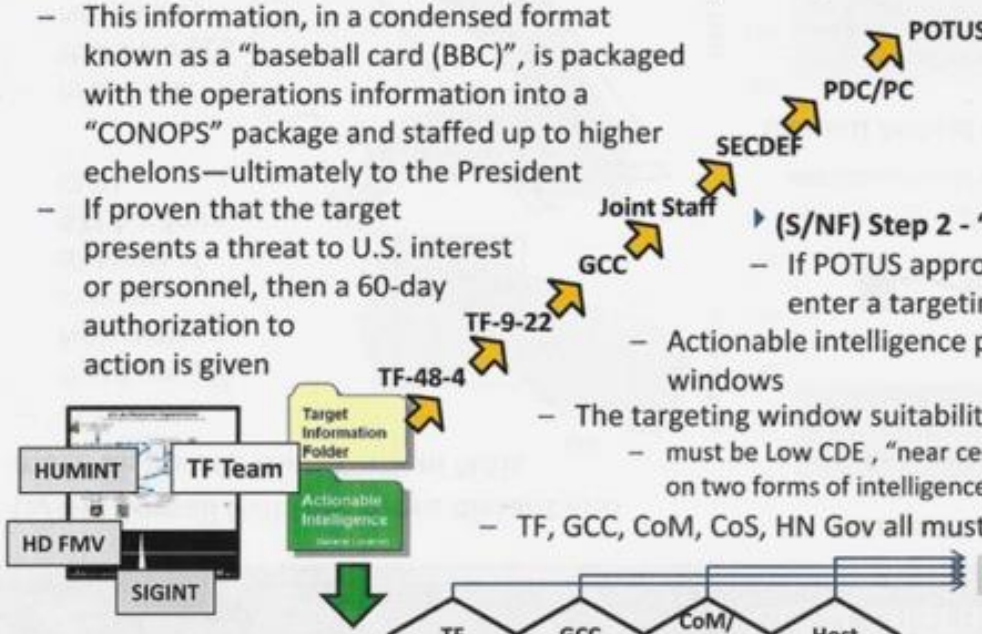
Authorization to Use Military Force (AUMF) Operations

- **(S/NF) Step 1 - "Developing a target" to "Authorization of a target"**
  - TF 48-4 direct action operations are conducted under execution orders for Operation Copper Dune (AP/Yemen) and Operation Jupiter Garret (EA/Somalia)
  - These orders specify delegated authorities, authorized targets and criteria for action
  - TF intelligence personnel, with support from IC partners, builds the case for action
  - This information, in a condensed format known as a "baseball card (BBC)", is packaged with the operations information into a "CONOPS" package and staffed up to higher echelons—ultimately to the President
  - If proven that the target presents a threat to U.S. interest or personnel, then a 60-day authorization to action is given



Current Authorization to Action List	
Jupiter Garret (Somalia)	4
Copper Dune (Yemen)	16

CAO: 30 Jun 2012

- **(S/NF) Step 2 - "Authorizing" to "Actioning"**
  - If POTUS approves the CONOP, operations enter a targeting cycle
  - Actionable intelligence provides potential targeting windows
  - The targeting window suitability is determined by ROE:
    - must be Low CDE , "near certainty" of HVI presence based on two forms of intelligence, no contradictory intelligence
  - TF, GCC, CoM, CoS, HN Gov all must concur or no strike occurs

Source: Multiple interviews conducted with JSOC and TF 48-4 personnel

THE CHAIN OF COMMAND

Barack Obama
President of the United States

Tom Donilon National Security Adviser
Hillary Clinton Secretary of State
Timothy Geithner Secretary of the Treasury
Leon Panetta Secretary of Defense
Eric Holder Attorney General
Steven Chu Secretary of Energy
Janet Napolitano Secretary of Homeland Security
Jeffrey Zients Director of OMB
Susan Rice Ambassador to the UN
Jacob Lew Chief of Staff
John Brennan Counter-terrorism Adviser
James Clapper Director of National Intelligence
Gen. Martin Dempsey Chairman of the Joint Chiefs of Staff

▲ Principals Committee

STEP ONE: CHOOSING A TARGET

Leon Panetta
Secretary of Defense

Gen. Martin Dempsey
Chairman of the Joint Chiefs of Staff

Gen. James Mattis Centcom Commander

JSOC Task Force

According to a Pentagon study obtained by *The Intercept*, President Obama signed off on 60-day authorizations to kill suspected terrorists, but did not sign off on individual strikes. This graphic shows the officials who would have been involved in approving targets in Yemen in early 2012, according to the chain of command laid out in the study.

STEP TWO: TAKING A STRIKE

JSOC Task Force

Gen. James Mattis
Centcom Commander

Gerald Feierstein
Ambassador to Yemen

CIA Station Chief in Yemen

Abdu Rabbu Mansour Hadi
President of Yemen

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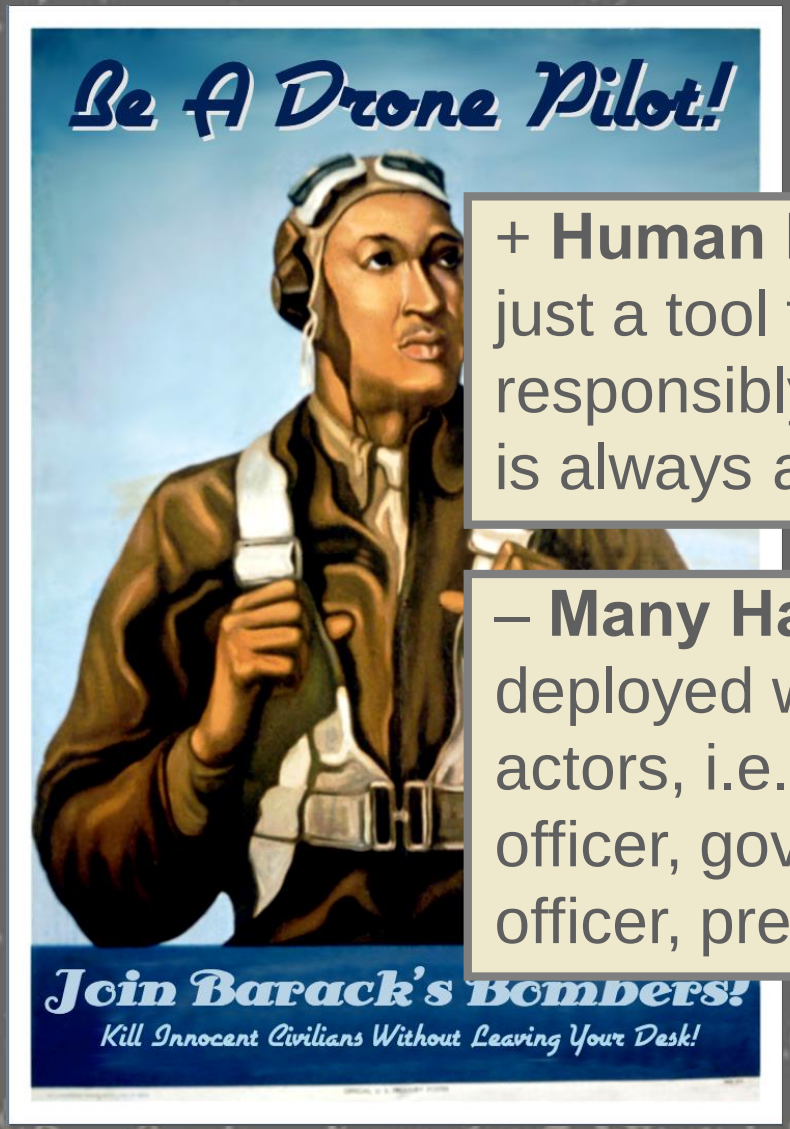


+ **Human Responsibility** – The drone is just a tool that is used more or less responsibly by a human operator. There is always a human in the loop.

– **Many Hands Problem** – Drones are deployed within a network of different actors, i.e. operator, commanding officer, government agency, executive officer, president, etc.

2. Actor Network Theory

Actor Network Theory = Distribute agency and moral responsibility across a network of interacting human, institutional and machine components.

2. Actor Network Theory

Operators

Technologies

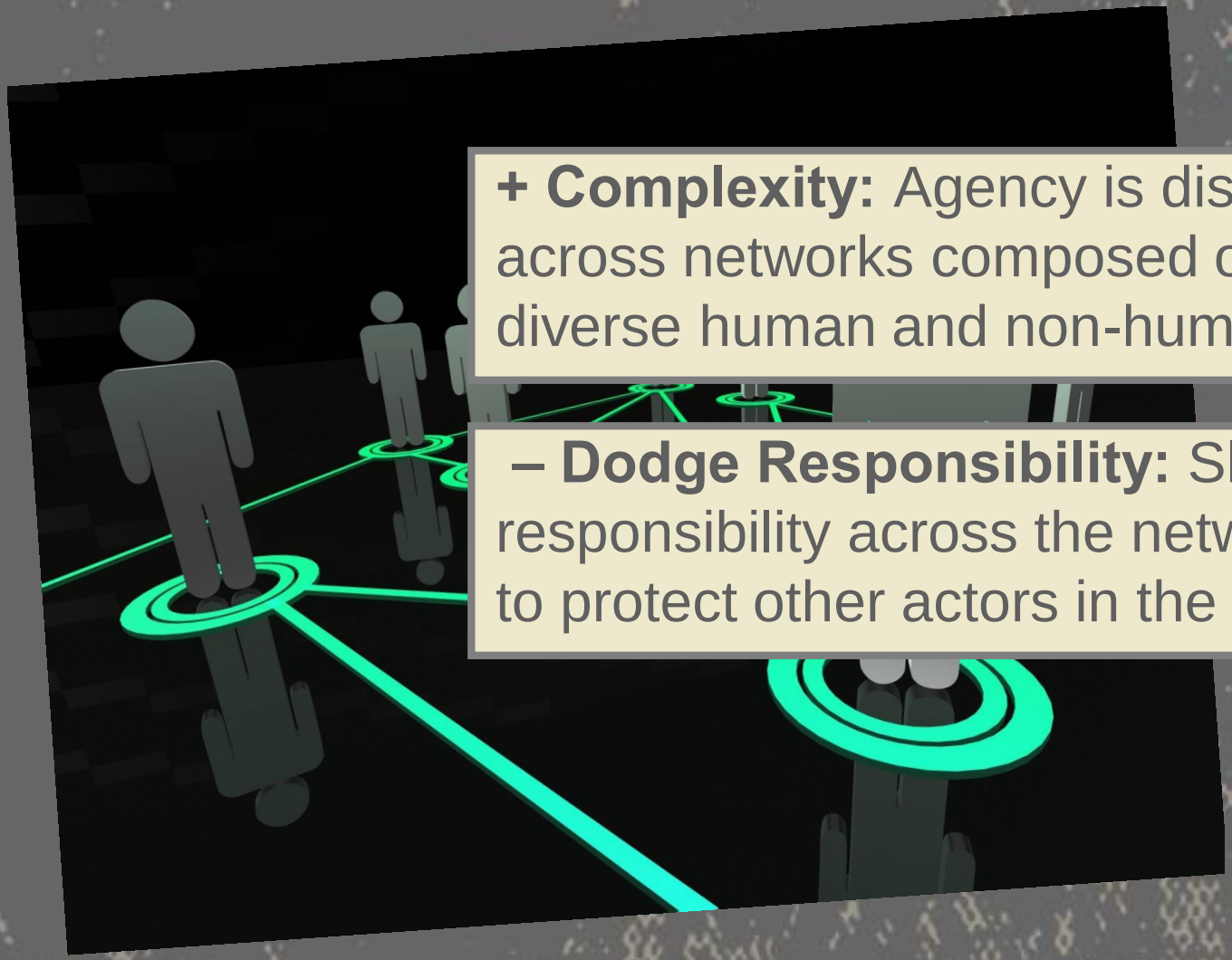
Command

2. Actor Network Theory

Technological Determinism

"Contrary to what many people intuitively think, technologies are not simply neutral instruments that facilitate existence… Technologies do much more: they give shape to what we do and how we experience the world." – Verbeek 2011

2. Actor Network Theory



+ Complexity: Agency is distributed across networks composed of both diverse human and non-human elements.

– Dodge Responsibility: Shift responsibility across the network in order to protect other actors in the network.

3. Machine Ethics

Machine Ethics = Giving *machines* ethical principles or a procedure for discovering a way to resolve the ethical dilemmas they might encounter, enabling them to function in an ethically responsible manner through their own ethical decision making.

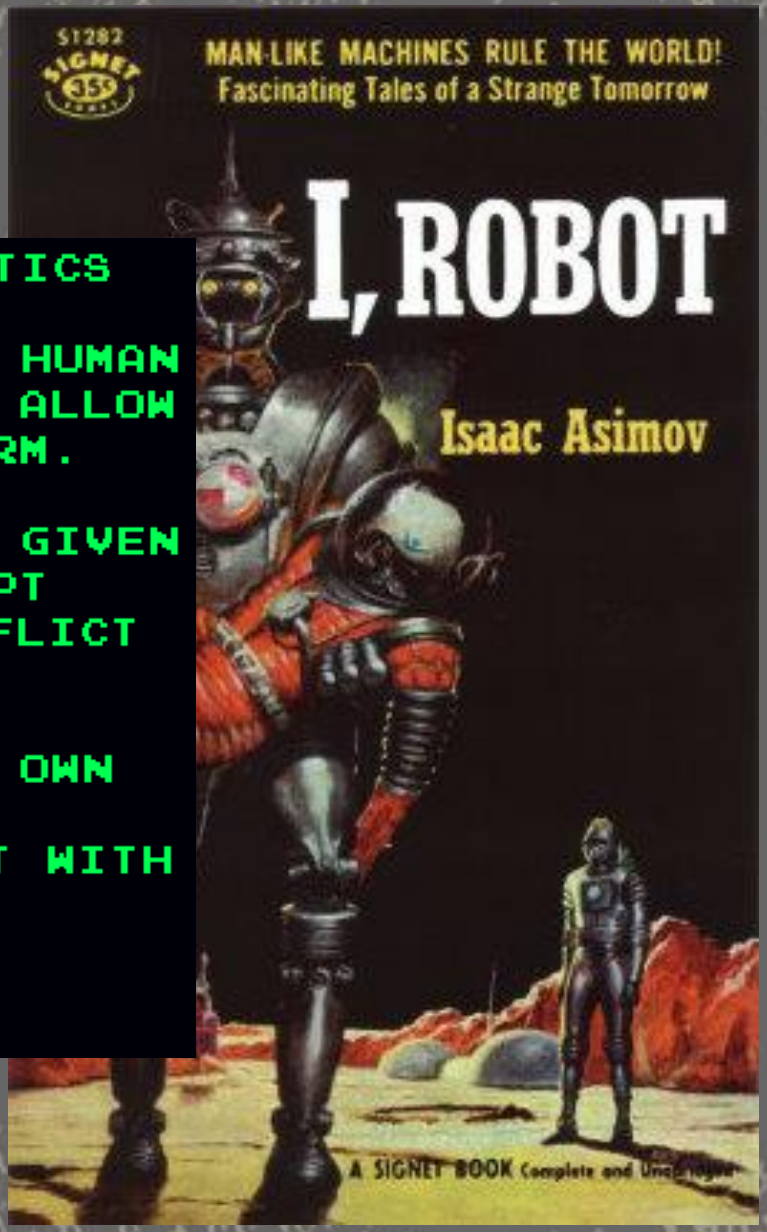
3. Machine Ethics

ASIMOV'S THREE LAWS OF ROBOTICS

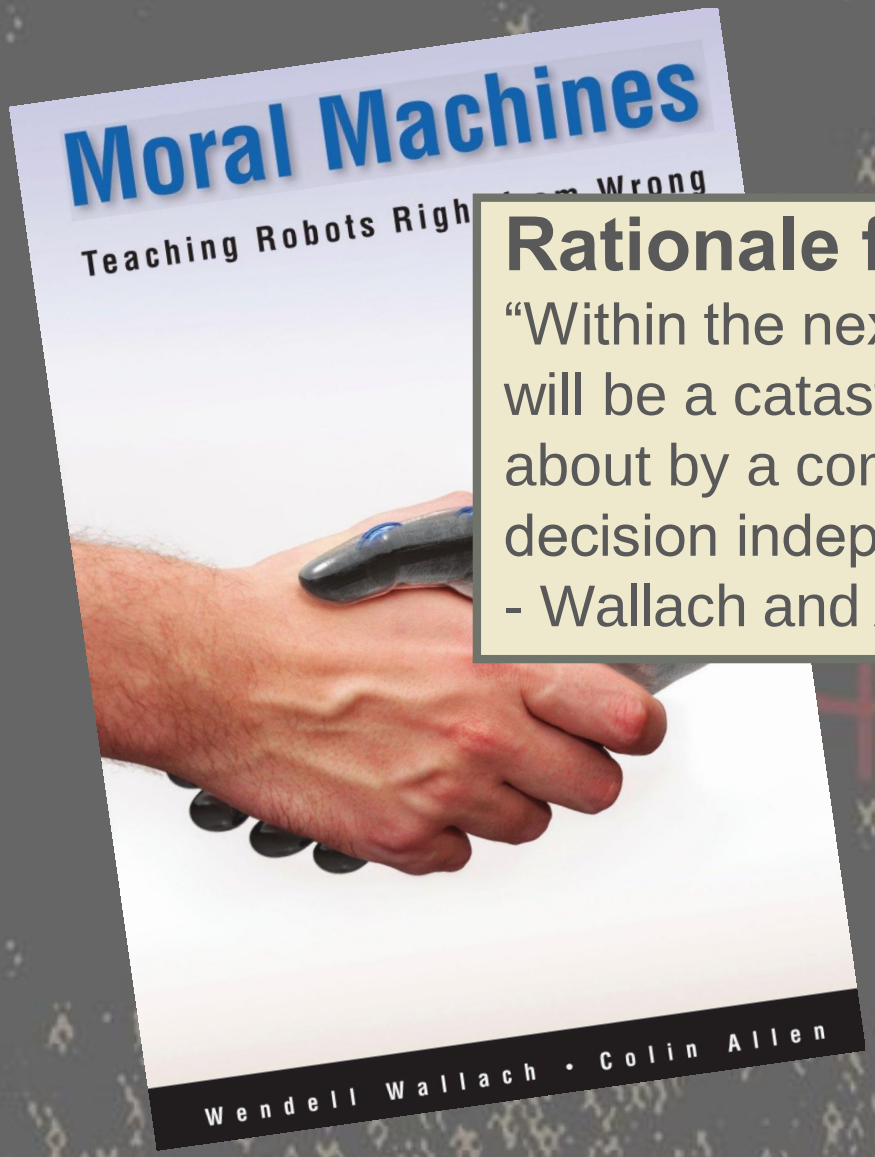
1. A ROBOT MAY NOT INJURE A HUMAN BEING OR, THROUGH INACTION, ALLOW A HUMAN BEING TO COME TO HARM.

2. A ROBOT MUST OBEY ORDERS GIVEN TO IT BY HUMAN BEINGS, EXCEPT WHERE SUCH ORDERS WOULD CONFLICT WITH THE FIRST LAW.

3. A ROBOT MUST PROTECT ITS OWN EXISTENCE AS LONG AS SUCH PROTECTION DOES NOT CONFLICT WITH THE FIRST OR SECOND LAW.



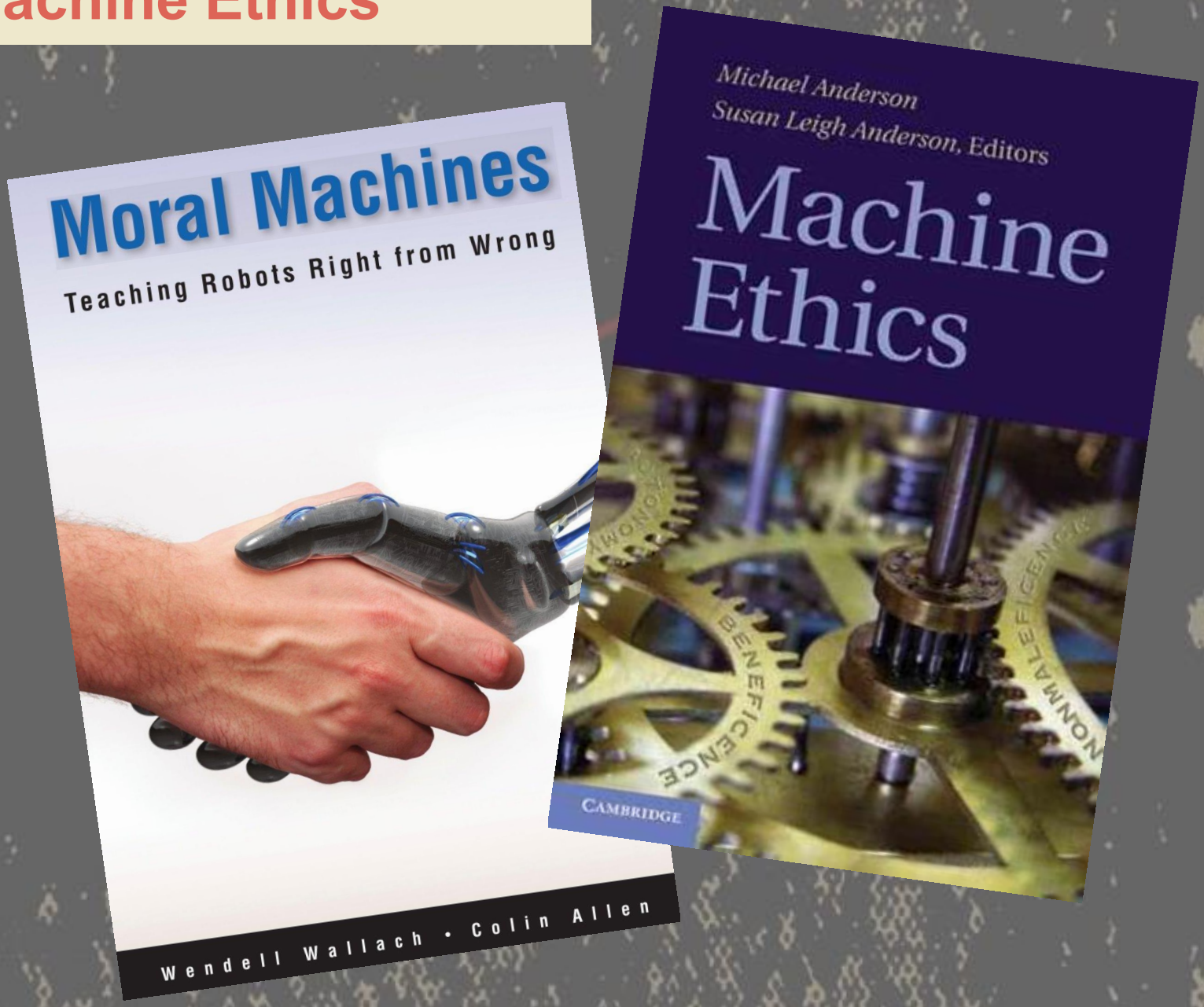
3. Machine Ethics



Rationale for Machine Ethics

"Within the next few years we predict there will be a catastrophic incident brought about by a computer system making a decision independent of human oversight"
- Wallach and Allen 2009

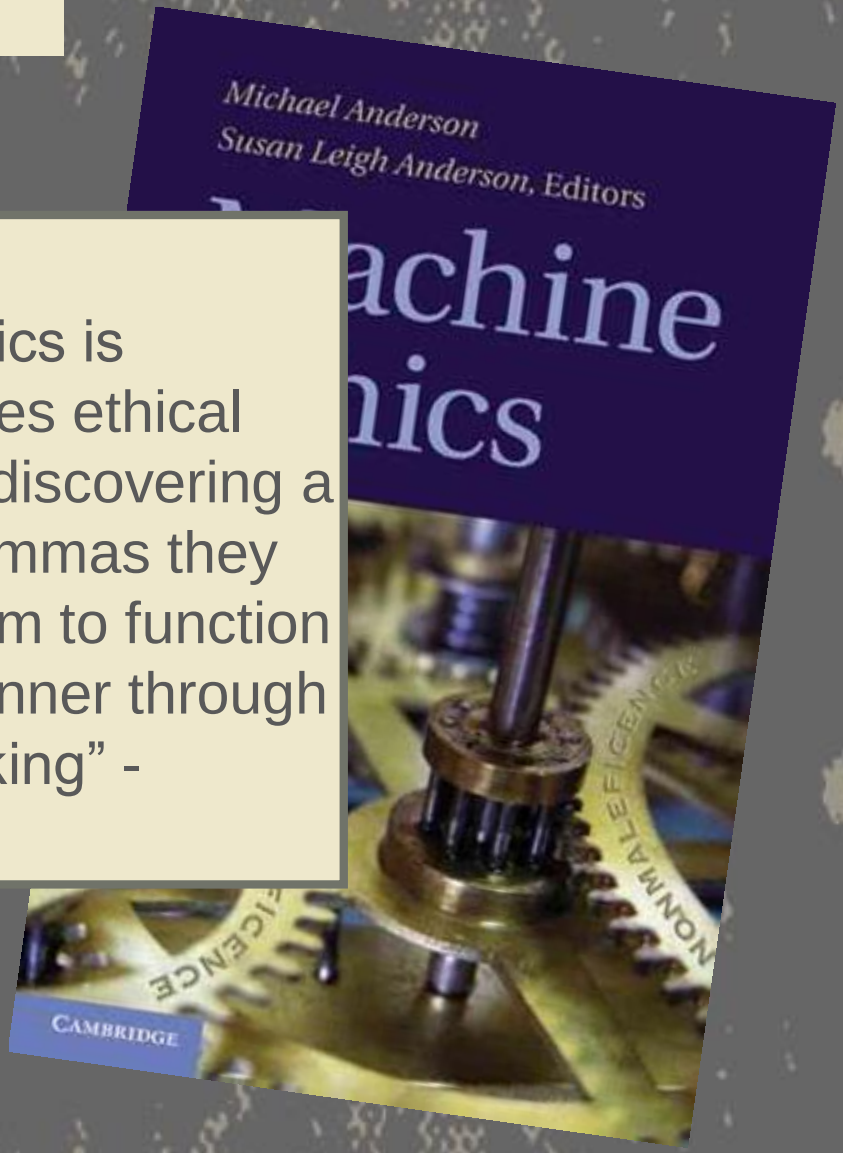
3. Machine Ethics



3. Machine Ethics

Machine Ethics

"The new field of machine ethics is concerned with giving machines ethical principles, or a procedure for discovering a way to resolve the ethical dilemmas they might encounter, enabling them to function in an ethically responsible manner through their own ethical decision making" - Anderson & Anderson 2011



3. Machine Ethics

Better Moral Agents

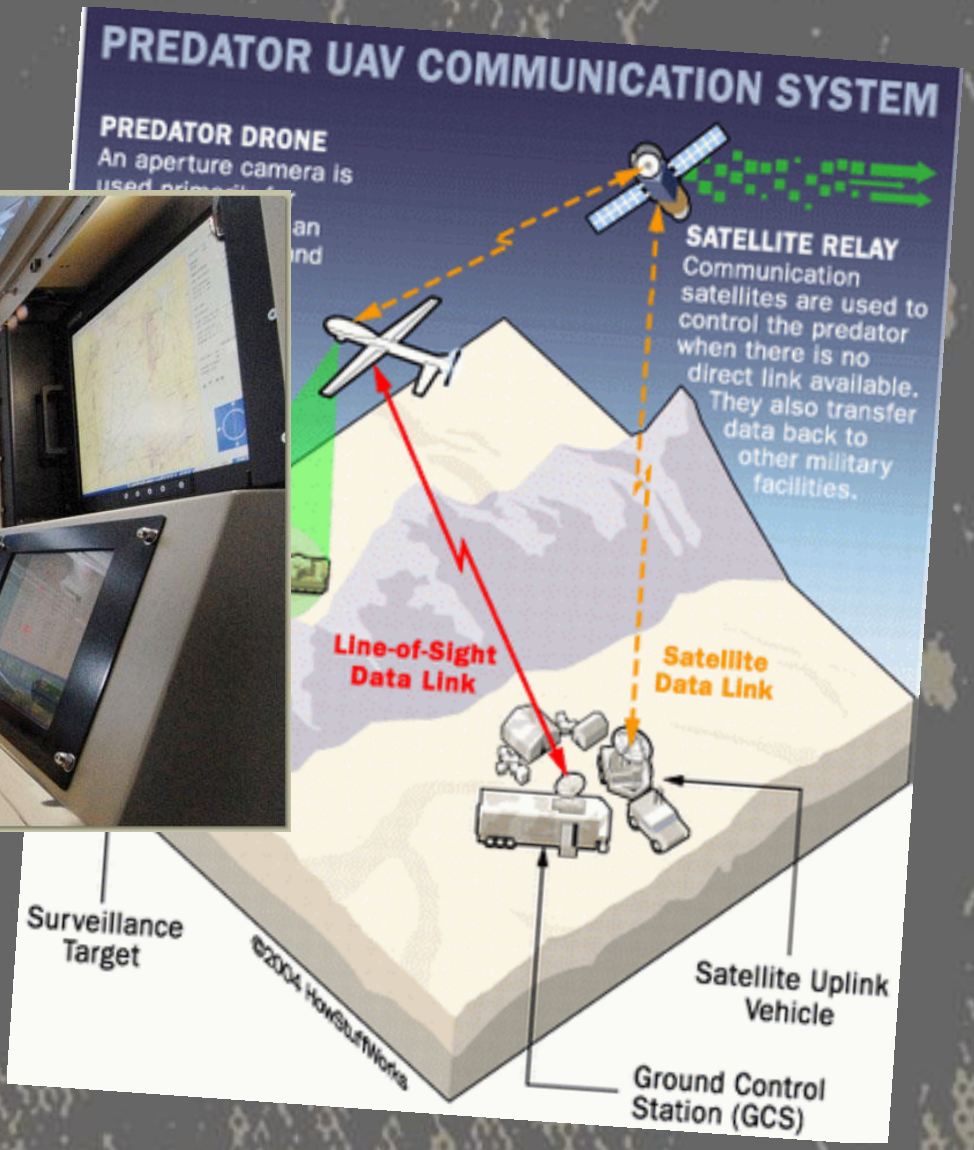
Computers might be better at following an ethical theory than most humans," because humans "tend to be inconsistent in their reasoning" and "have difficulty juggling the complexities of ethical decision-making" owing to the sheer volume of data that need to be taken into account and processed - Anderson & Anderson, 2007

3. Machine Ethics

Wired Magazine **(November 2012)**

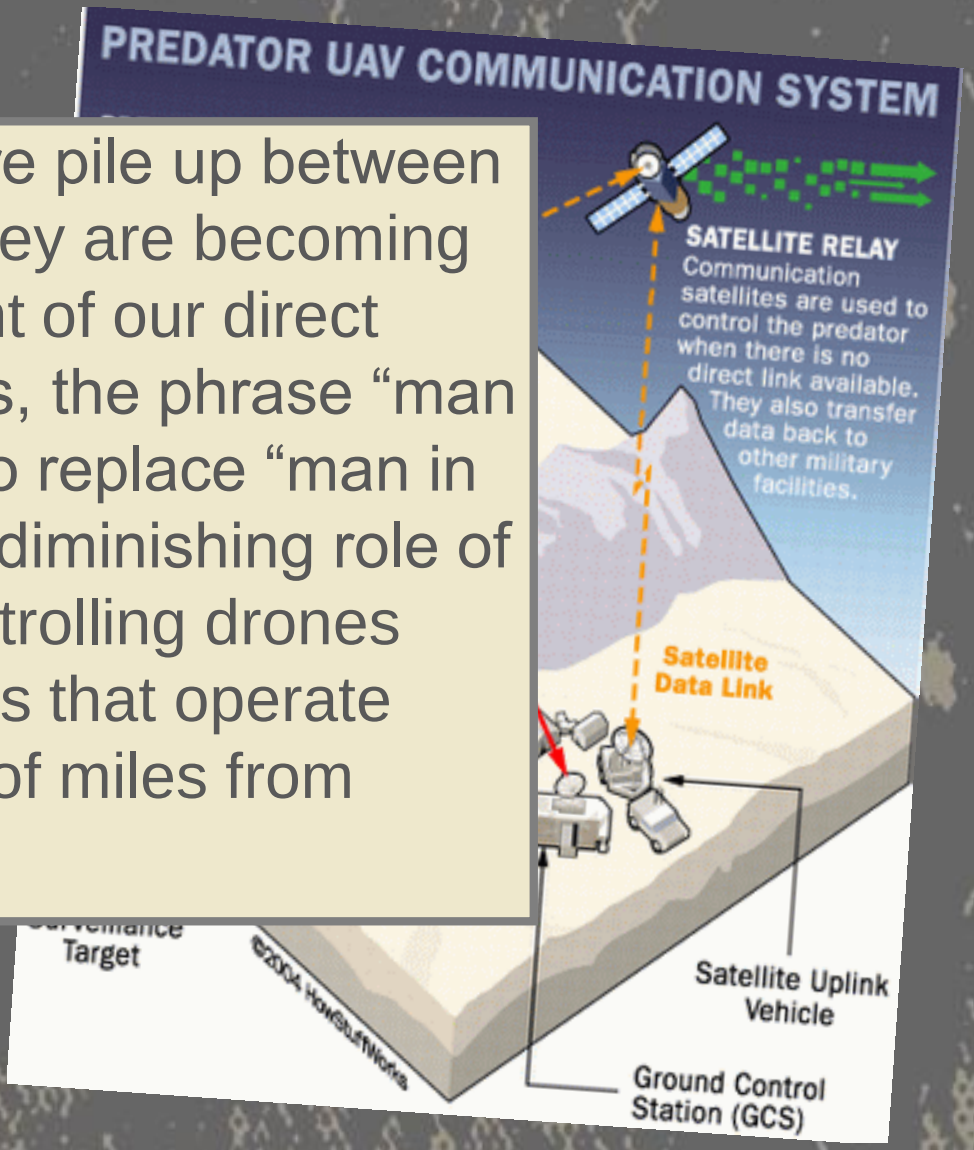
Pentagon: A Human Will Always Decide When A Robot Kills You

3. Machine Ethics



3. Machine Ethics

"As the layers of software pile up between us and our machines, they are becoming increasingly independent of our direct control. In military circles, the phrase "man on the loop" has come to replace "man in the loop," indicating the diminishing role of human overseers in controlling drones and ground-based robots that operate hundreds or thousands of miles from base" - Allen 2013



3. Machine Ethics

"As we increasingly rely upon machine intelligence with reduced human supervision, we will need to be able to count on a certain level of ethical behavior from them." – Anderson & Anderson 2004

3. Machine Ethics

+ Artificial Autonomous Agent: A kind of functional morality for machines. Responsible machines.

– Reconfigure Ethics: Challenge standard assumptions about who or what can be considered a legitimate moral subject.

Questions