Ethics and the Military Industrial Complex: The Role of the Engineer
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Outline
• A personal story to give context to the subject at hand
• Technology and war – the insurmountable link
• The Manhattan Project
• Open discussion
• Daniels Fund Ethics Initiative Principles and how they apply
• When $700B comes into play

A Personal Story: Context
• I went to the United States Air Force Academy in the summer of 2006
• "On Loan" from the Air Force Research Laboratory at Edwards AFB, CA
• Sometime in 2008, I received the following...

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Technological Advances → War

Wartime Advances → Society

Manhattan Project
• US Government research project
  – 1942-1945
  – Produced first atomic bomb from fission process for military purposes
• In 1939, Albert Einstein (among others) warned the US Government that it needed to be the first to make an atomic bomb
  – Nazis were known to be researching the idea

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Nuclear Weapons and Oppenheimer

- Thought that "the bomb" would save lives by speedily ending WWII
- Aware of the fascist atrocities that could be stopped by an American atomic bomb
- Must do something to save Western civilization
- Hoped frightful power would deter future wars and force cooperation

Personal Conflict

- J. Robert Oppenheimer
  - "I am become death, the destroyer of worlds"
  - He later told a reporter that he dreaded failure, but he also dreaded success
  - He told a colleague, "Lord, these affairs are hard on the heart"
- After Hiroshima
  - "Devil's work"
  - "Known sin"
  - Had blood on his hands

Before discussion...

- A quick note on morals and ethics:
  - Morals: A person's standards of behavior or beliefs concerning what is and is not acceptable for them to do
  - Ethics: Moral principles that govern a person's (or group's) behavior
    - The basic concepts and fundamental principles of decent human conduct; it includes a study of universal values such as equality, etc.
  - Legality is another issue that will not be addressed here.

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Before discussion...

- Respect for everyone's opinion
- This exercise is participatory in nature, but you are free to say nothing
- Non-attribution
- Stick to the subject at hand
- This town and many of its citizens are in a special position regarding this very issue
- Never discuss politics or religion, except they may be integral to one's morals...So, see the first bullet
- Without meaning to be offensive...
  - The discussion may offend some – but it is not intentional
  - We will be tolerant of other's views and live the first bullet

Ethical Questions

- Can any engineer work on technology that won't be "transitioned" at some point?
- Does an engineer know ALL of the applications in which their technology could be put to use?
- Is it the responsibility of the engineer to worry about these things?
- Don't these advancements make everyday life better too?

Ethical Questions

- What is the role of the engineer in making or improving weapons to be used in theaters of war?
- Do we trust our elected officials to use these weapons in the proper (ethical) way?
- It is all for a good cause, right? Democracy and all...
- Mission or defined these days? Do we always know who we are fighting?
- Is improving accuracy an ethical dilemma or a morale obligation?
- Why does the engineer have to worry about any of this?
Slide 16

Student Discussion Around the Daniels Fund Ethics Initiative Principles

• **Integrity**
  - Act with honesty in all situations:
    - Be honest with yourself
    - Understand the consequences of the work you do
    - Don't do work that you don't agree with (morals)
  - But, someone else will:
    - Does this “force” us to do things we don't agree with?

• **Trust**
  - Build trust in all stakeholder relationships:
    - Trust elected and appointed officials to “do the right thing”
    - Trust in military commanders in the use of developed tech
    - Trust in the “system” – avoid an overly military approach to this
    - US military personnel are trusting engineers to help protect them in times of war – e.g. IED technology delivered in theater
    - Is this still true?

• **Accountability**
  - Accept responsibility for all decisions:
    - The engineer must know potential outcomes – very firm on this
    - Should never be in an environment to prevent you from being in control

• **Transparency**
  - Maintain open and truthful communications:
    - With company, organization, etc. Yes.
    - With the public or even family, etc. Probably not.
    - Does the public have a right to know?

• **Fairness**
  - Engage in fair competition and create equitable and just relationships:
    - Some concern about not doing your technical best on a project you don’t believe in – put other’s lives at risk

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Ethical Questions

- Defense vs. Offense
- Development of defensive weapons can lead to war...what about that?
- The Defense industry:
  - 20% GDP in 2011
  - About $711 Billion
- Freedom is not free
- A lot of $$ at stake

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