Dual Use Dilemmas in Emerging Technology Assessment

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Dual Use in the Age of Unrestricted Warfare

- ". . . [t]he new principles of war are no longer 'using armed force to compel the enemy to submit to one's will,' but rather are 'using all means, including armed force or non-armed force, military and non-military, and lethal and non-lethal means to compel the enemy to accept one's interests."

Qian Liang and Wang Xiangsui, *Unrestricted Warfare* (PLA Literature and Arts Publishing House, Beijing, 1999, trans. by CIA Foreign Broadcast Information Service), p. 4.

Dual Use: Unrestricted Warfare

- [t]his kind of war means that all means will be in readiness, that information will be omnipresent, and the battlefield will be everywhere. It means that all weapons and technology can be superimposed at will, it means that all the boundaries lying between the two worlds of war and non-war, of military and non-military, will be totally destroyed . . .

Qian Liang and Wang Xiangsui, *Unrestricted Warfare* (PLA Literature and Arts Publishing House, Beijing, 1999, trans. by CIA Foreign Broadcast Information Service), p. 7

Dual Use: Civilian vs. Mil/Sec

- When does the categorization of a technology as “civilian” or “mil/sec” still make sense, given:
  - Strategies of “unrestricted warfare”
  - Technological undermining of traditional laws of war using “civilian” technologies (when is planting logic bombs in your opponents’ Net an act of war justifying response?)

Dual Use: Civilian vs. Mil/Sec

- Rise of “security states” given challenges of terrorism
- Shift of military technology from dedicated products designed and made in “military industrial complex,” to militaries as takers of advanced commercial technologies (cf export controls).
- Technology category – mil/sec or civilian – determined less by inherent characteristics of technology (e.g., tank) and more by how it’s used (e.g., cyberhacks).

Dual Use: Civilian vs. Mil/Sec

- Complexity of modern conflict also undermines the framing of “mil/sec” versus “civilian” technologies.
  - Institutional confusion: a particular technology, such as an unmanned aerial vehicle, can be operated by military, security, espionage, private firm, NGO, or terrorist – each operating under a separate set of ethics, norms, and laws. When is it a military technology?

Dual Use: Civilian vs. Mil/Sec

- Active Denial System is useful as a policing device; crowd control in combat is achieved via machine gun
- Robotic and cyborg birds and insects are platforms: they can be used by militaries, or by divorce lawyers and Fox News

Why Does Dual Use Matter?

- Powerful technologies have impacts on three levels: immediate effectiveness, network implications, and unpredictable systemic implications.
- Technologies usually shaped and adopted based on Level I effects.
- All three levels are “real,” but levels II and III tend to be inchoate and emerge from wicked systems only in real time.

Technology Policy Matrix: Cyborg Insects

Policy Response / Technology Level	Goals and Effects	Policy Response
Level I: Military effectiveness	Reduce collateral damage and increase operational efficiency in counterinsurgency operations	Goals and technology align; therefore adopt technology
Level II: Application in civil society	Protect civilian populations from terrorists and, through mission creep, criminals; integrated into civil and private surveillance	Implement technology, but technology alone may not lead to achievement of stated goal
Level III: Longer-term social and cultural effects	Ensure orderly society; likely to reduce privacy and enable "soft" or "hard" totalitarian state (private, public, or both); shift of power to technologically rich organizations (e.g., private firms).	Optimistic goals undercut in some scenarios as those in power adopt technology to their own ends; Level I and Level III implications potentially in fundamental conflict

Challenges: Civil Society

- Technology deployed for Level I reasons; generally displays Level II or Level III impacts in society
- Mil/sec technology hard to criticize
- Emerging technology in mil/sec space often partially classified
- Shift in prioritization of security versus other values post 9/11
- Complexity of emerging technologies makes them difficult to understand in policy/social discourse (reification of hypotheticals)
- Little understanding of probability of various emerging technology scenarios

CONCLUSION

- Dual use dichotomy breaking down in practice but still evident in:
  - Institutions
  - Go/no go and shaping decisions re technologies
- Adoption driven by mil/sec Level I considerations, but Level II and III impacts are just as real, if inchoate

CONCLUSION

- Need more sophisticated methods of evaluating, monitoring, learning as new technologies are introduced, not just economic feedback of markets.
- Need new institutional frameworks: single domain analysis seldom adequate (e.g., most military and NGOs)