How do we prevent the malicious use of technology? Can we?

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The problem(s) of the malicious use of technology

Three views:

1. A problem of control
2. A problem of competition
3. A problem of corruption
1. A problem of control

- There are good people and bad people
- The good people need to prevent the bad from using technology against them
- Requires extensive coordination and control, of both people and technology
- **Example:** government control of exports
2. A problem of competition

- You have to ‘stay ahead’ of those who would wish to use technology maliciously (or who would stop you from using technology maliciously)

- Focus on advancing technology or using it in innovative ways

- Examples: military/industrial complex; GCHQ after the Cold War
3. A problem of corruption

- Humans cannot be trusted with weapons
- Failing the elimination of all weapons, strive to eliminate the most dangerous:
  - nuclear, chemical, biological
  - land mines, cluster bombs...
This is a wicked problem

- have multiple definitions, and each definition contains its own preferred solution;
- are persistent and insoluble;
- are often symptoms of another problem;
- have little room for trial and error;
- contain contradictory certitudes;
- tend to have redistributive implications for entrenched interests.

Other wicked problems

- climate change
- definition of a polyhedra
- natural disasters
- disease propagation
- raising a family
- town planning
- river management
- raising a family
Ways to address wicked problems

- Use one definition of the problem ➡️ Bound to fail
- Allow each definition to flourish
Ways discourses interact

- isolated co-existence
- collaborate
- dominate
- “muddle through”
What happens in the interaction

- irrelevant knowledge
- discourses talk past one another
- “uncomfortable knowledge”
- discourses undermine each other
It’s not all talk!

- There is a world that interacts with us
  - Surprises
- But what do we make of it?
  - Evidence, like statistics, is a slippery thing
So it’s all about knowledge, right?

- It depends on how we construct our knowledge...
- ... but also how we construct our ignorance!
Unknown Knowns

- **known knowns**: the things we **known** we know
- **known unknowns**: the things we know we don’t know
- **unknown unknowns**: the things we don’t know we don’t know
- **unknown knowns**: the things we don’t realise we know

Who is the ’we’?
Time for an example:

• The problem: military technology distribution around the world leads to destabilised countries and regions

• The solution: control the flow of technology to regions of concern
The Wassenaar Arrangement (et al)
Irrelevant knowledge

- market share
- impact on environment
- effect of technology on poverty, health, economy*

* except when engaged in economic warfare
Uncomfortable knowledge

- Knowledge that the technology cannot be controlled:
  - computers
  - encryption
  - fertilisers
  - even explosives (e.g. road workers)
Computers
Encryption

PGP
Pretty Good Privacy

Encryption for Everyone

Simon GARFINKEL
O'Reilly & Associates, Inc.
So what do we do?

- Swing with the times:
  - more technology developed in private sector than military now
  - global trade breaks down borders
  - don’t know all technology that may be used maliciously
Didn’t use to be that way

- CoCom:
  - clearly defined enemy
  - simple lists of technology to control
  - most advances in technology in government labs
Other example: the economy

- Can be seen as an oscillation between markets and hierarchies over the last 100 years.
- (but I’m no expert on this topic!)
Questions?

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