ETHICS AND THE COST OF MORAL TECH DEBT

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My context, my motivation

Agenda

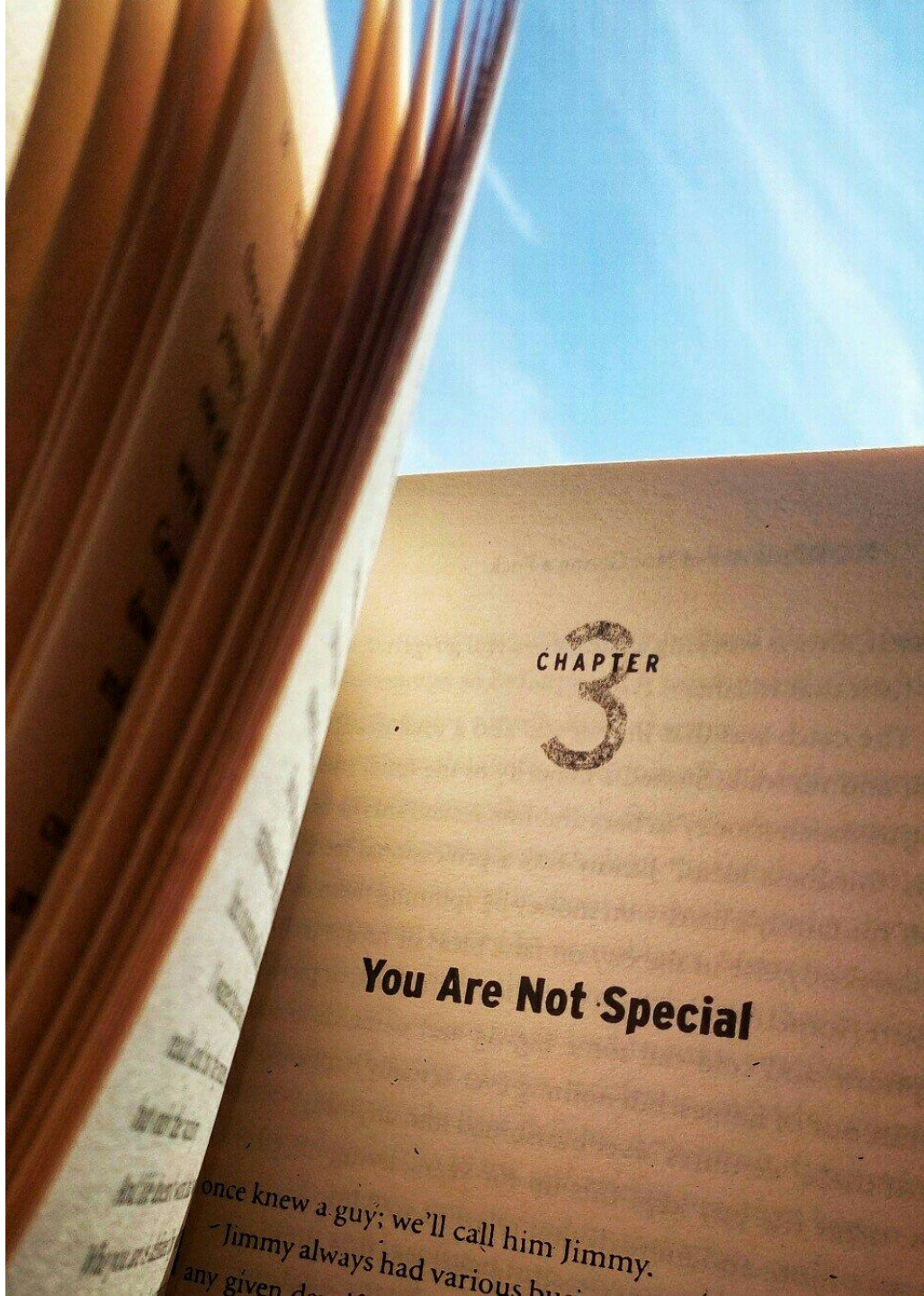
1. Why care about Ethics?
2. What is it?
3. What can we do about it?

Mark Andreessen
founder of Netscape,
renowned Venture Capitalist
Andreessen-Horowitz

Software is eating the world, in all sectors

We are not special!

(we're just lucky)



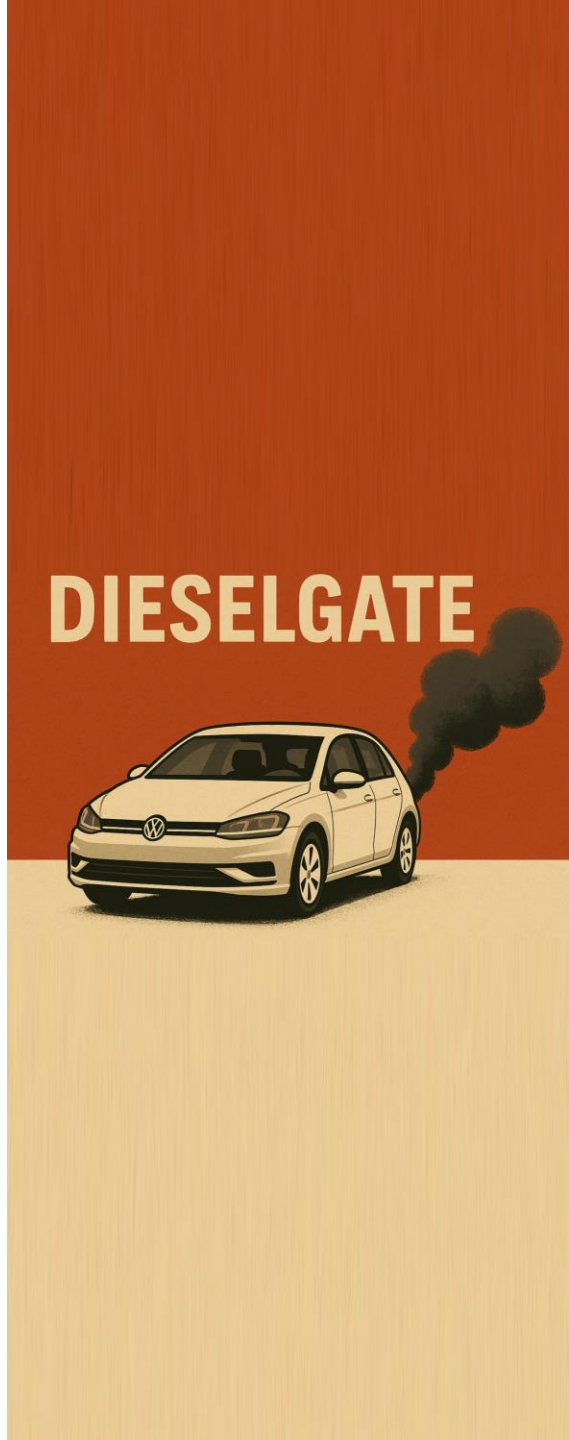
We are very ~~not~~ special!

The Cost of Moral Tech Debt

(examples of ethical misconduct)

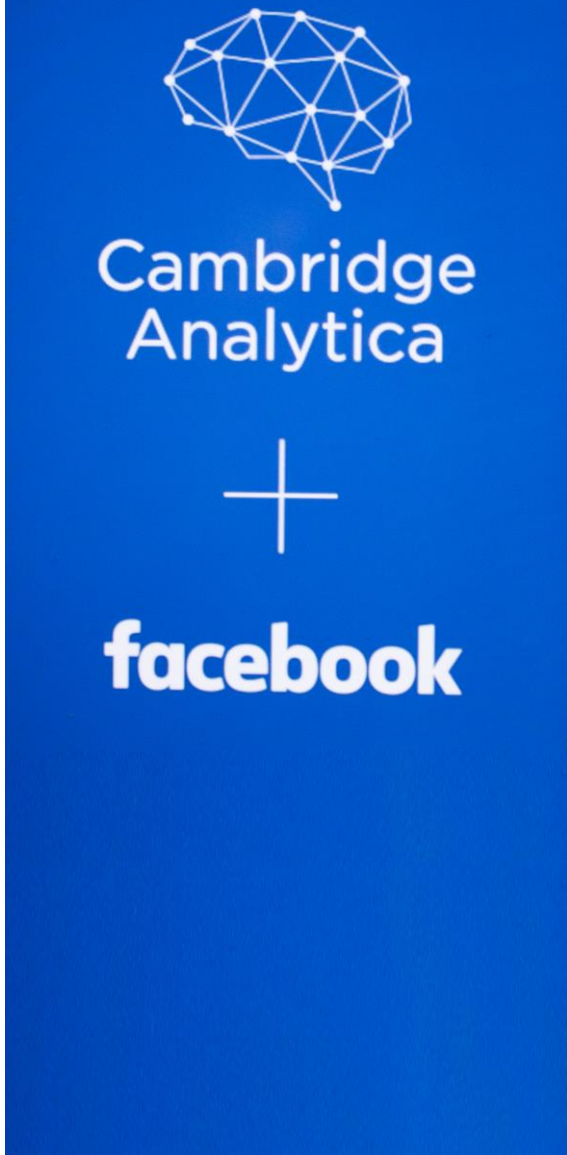
VW Emissions Test Cheating (2015)

- **“Defeat device” software to cheat emissions testing**
  - during lab tests – 40 times less Nitrogen Oxide emissions
  - deliberate scheme misleading regulators and consumers
- **Impact**
  - 11 million vehicles globally, 10 000s tons of excess pollutants
  - 100 – 1000+ estimated premature deaths estimated by MIT teams
- **Outcome**
  - VW pleaded guilty to fraud and deception
  - $4.3 billion in penalties, $14.7 billion committed to buy back or fix



FB & Cambridge Analytica (2018)

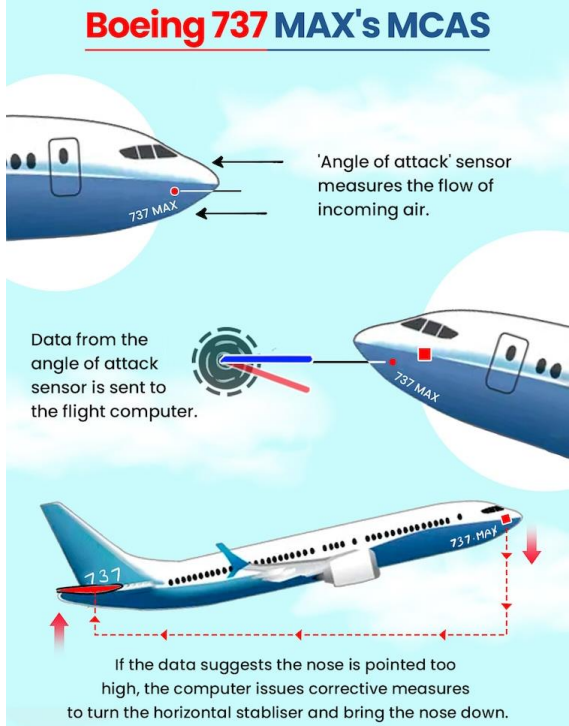
- **Personal data harvested without consent**
  - 3rd-party quiz app collected personal data about its users and their FB friends (~*~)
  - FB misled users and violated prior privacy orders
  - CA exploited the data for for political micro targeting
- **Impact**
  - personal data of 50+ million FB users exposed
  - stolen data could be weaponized for political manipulation
- **Outcome**
  - $5 billion FTC settlement for FB; CA shut down



Boeing 737 MAX Software (2018–19)

- **MCAS - Software & Safety Misconduct**
  - cost and speed over safety – knowingly relied on a single sensor with no redundancy
  - withheld information about MCAS from regulators and airlines
  - omitted MCAS from pilot manuals to avoid expensive simulator training
  - engineers faced pressure not to flag safety concerns
  - organizational culture that silenced criticism
  - downplayed systemic issues, attributing 1st crash to pilot error

- **Impact** – **346 people lost their lives** in two plane crashes



…And Many Others

- Apple — “Batterygate” iPhone throttling (2017)
- Ashley Madison — data breach and deception (2015)
- Uber — “Greyball” law evasion program (2014–2017)
- Zenefits — licensing cheating scandal (2015–2016)
- Facebook — the military crackdown in Myanmar (2017)

So – why care about Ethics?

1) Software quietly runs the world – and does harm
2) Engineers hold power – and responsibility

…so we'd better ship RELIABILITY – in every sense

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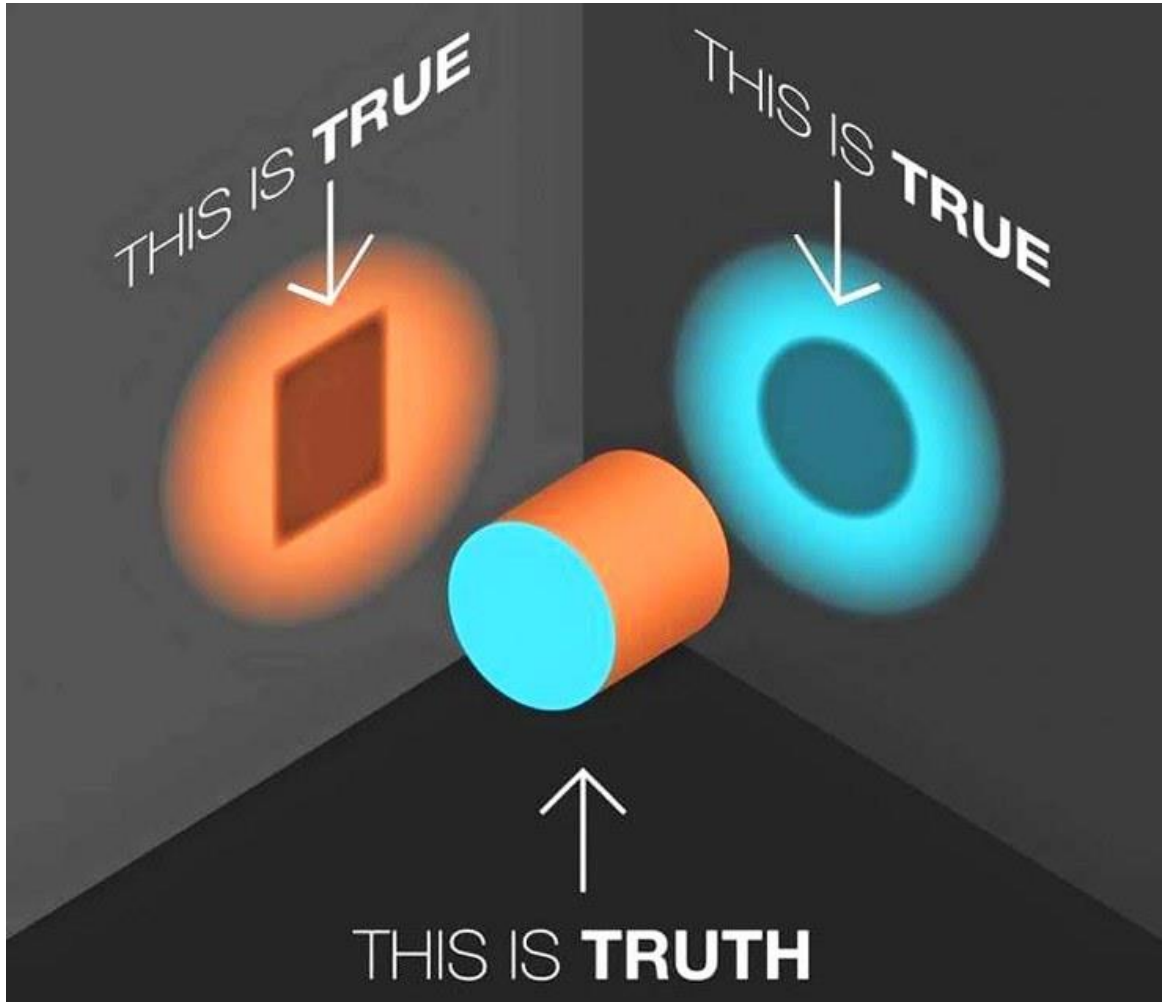
Ethics is knowing the **difference between**

what you have a right to do – and what is right to do.

- Potter Stewart, former Associate Justice of the US Supreme Court

Why is it a hard topic?

1) Because "it depends"…
   Judging depends on the perspective.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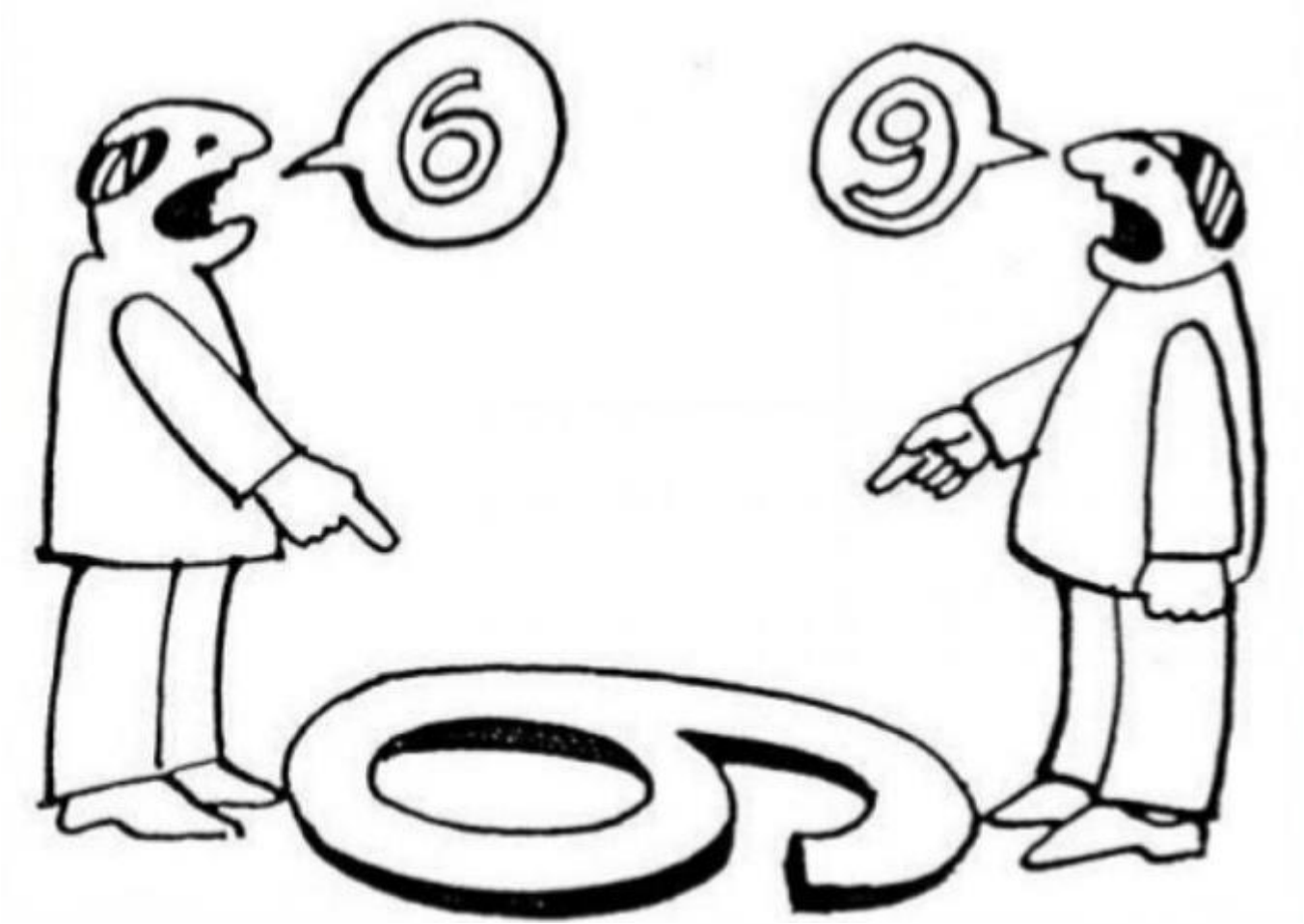
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Why is it a hard topic?

1) Because "it depends"…
   As judging depends on the perspective.

2) And because doing the right thing “hurts”.

Ethical Dilemmas

and

Hard Choices

Dilemmas and Hard Choices

1. **Conflicting Stakeholder Interests**
   - balance **client needs, business goals, and societal impact** – while not mistreating anyone
2. **Addictive Design**
   - **protect users from addiction to a software product** that can lead to health issues, social isolation, impaired well-being, financial consequences, etc.
3. **Manipulative Design**
   - UI that **intentionally tricks users** (e.g., hard-to-cancel subscriptions, misleading consent options)

Dilemmas and Hard Choices

4. **Surveillance and Privacy**
   - privacy rights and potential **abuse of power** with software that enables **surveillance practices**

5. **Algorithmic (and AI) Bias**
   - promote fairness and equality – by **eliminating bias and discrimination** against certain groups

6. **Ethical Use of AI**
   - potential for **misuse** of AI, such as deep fakes
   - **explainability** and transparency

Dilemmas and Hard Choices

7. **Data Privacy**
   - protect **sensitive user data** while still delivering the necessary functionality
8. **Security**
   - **How much protection** is enough?
   - **When to disclose** a vulnerability after finding it?
9. **Product Safety**
   - balance **budgets, target deadlines and safety** – esp. in Healthcare, Autonomous Vehicles, Aviation, etc.

Dilemmas and Hard Choices

10. “Ethical Source” licensing (vs. open source)

- restrict software usage for unethical or harmful purposes
- deliberately violating the “Freedom 0” principle of open source

Structuring Ethics

IEEE-CS/ACM Code of Ethics

- ✓ Focus on health, safety and welfare of the public
- ✓ 8 principles:
  - PUBLIC
  - CLIENT AND EMPLOYER
  - PRODUCT
  - JUDGEMENT
  - MANAGEMENT
  - PROFESSION
  - COLLEAGUES
  - SELF

https://www.computer.org/education/code-of-ethics

Corporate Code of Ethics – Links for Inspiration

✓ **Oracle**	Code of Ethics and Business Conduct	
✓ **Adobe**	Ethics and Integrity	
✓ **Salesforce**	Ethical and Humane Use of Technology	
✓ **Software Mind**	Code of Business Ethics	
✓ **Beyond.pl**	Code of Ethics	
✓ **GitLab**	Code of Business Conduct & Ethics	
✓ **Lucid**	Code of Ethics and Conduct	
✓ **Shopify**	Code of Conduct	

So – what is Ethics about?

1) Care and empathy towards people
2) Recognizing a case or a situation
3) Choosing to do the right thing – even when it hurts

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Every One of Us, Personally

1. Always strive to know and understand the **Big Picture.**
2. **Speak up**, and if needed – **say No**! Especially when no one else does. (~*~)
3. Stand up for and **lend a hand**! To a mistreated colleague, client or partner.
4. **Dig deeper** into the topic of Ethics.
5. Consider the Ethics angle when choosing **your next employer**.
6. Have **courage and integrity**, make the ethically right decisions when it hurts.

At Our Companies

1. Ultimately – **Ethics should come before profits and growth.**
2. **Raise awareness**, promote the topic – do a presentation, “educate” colleagues.
3. Get **Management attention** – suggest establishing a **Code of Ethics** and policies.
4. Get **Management commitment** – regular top management mentions work best.
5. Incorporate Ethics questions in the regular **company assessment survey.**

At Our Companies

6. Consider establishing regular **ethical risk assessments** for projects.

7. Encourage engineers to **raise concerns without fear**, establish confidential reporting channels.

8. **Accountability** - if something unethical slips through, **admit and fix – don't cover up.**

9. User-Centric Design, Privacy and Safety By Design
   "Who benefits and **who could be harmed by this feature?**" – for each feature

Beyond Ourselves & Our Companies

1. **Spread the word** and raise awareness – share, discuss with peers.
2. Do a **meetup or conference session** on the topic, share experiences.
3. Engage with **Ethics-related initiatives** in the IT community.

Wrapping Up
+
Bungee Jumps

When in doubt or tempted to back off – make the first step mechanically, without thinking!!

We are ~~not~~ very special, remember?

…so be strong

and make that bungee step when you have to!

GRAZIE MILLE FOR YOUR ATTENTION ☺!

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