Ethical Decision-Making in IT

Why this matters

- Technology creates **new dilemmas** every day (AI, privacy, cybersecurity, workplace surveillance).
- Laws and regulations often **lag behind technology**.
- The challenge is the same: many issues are **shades of grey**, not simply right or wrong .
- **Unstructured decisions** = bias, inconsistency, reputational damage.
- A structured approach ensures decisions are:
  - **Principled** – rooted in ethics, not just convenience.
  - **Defensible** – can be explained and justified.
  - **Consistent** – applicable across cases.

Why Structured Ethical Decision-Making?

Unstructured decisions can lead to:

- **Emotional bias –** ignoring facts or acting on impulse
- **Inconsistency –** similar cases handled differently
- **Harm to people –** loss of trust, privacy violations, unfair treatment
- **Organizational damage –** low morale, loss of customers, lawsuits, reputational crises
- **Missed accountability –** no clear reasoning to defend the choice

Why Structured Ethical Decision-Making?

Structured decision making helps by:

- Ensuring careful examination of **facts**
- Applying **principles** consistently
- Balancing interests of **multiple stakeholders**
- Building **defensible**, transparent outcomes

Value Judgement in Ethical Decisions

- Every ethical dilemma requires a **judgment about values**:
  - Whose interests matter most?
  - Which rights or duties take precedence?
  - What is “good” or “just” in this situation?
- Without judgment, decisions risk being random, legalistic, or emotional
- Value judgment = balancing **personal values** with those of others
- Goal: a **principled, defensible choice**

Factors Influencing Our Behavior

- **Biological needs** – drives for food, shelter, safety, love
- **Social influences** – rules, expectations, culture, religion, family, government
- **Moral/ethical understanding** – what we believe is good, right, and just

- Behavior = outcome of all these layers interacting
- Ethical dilemmas often arise when these influences **conflict**

Maslow's hierarchy of needs

A classic psychological framework from Abraham Maslow.

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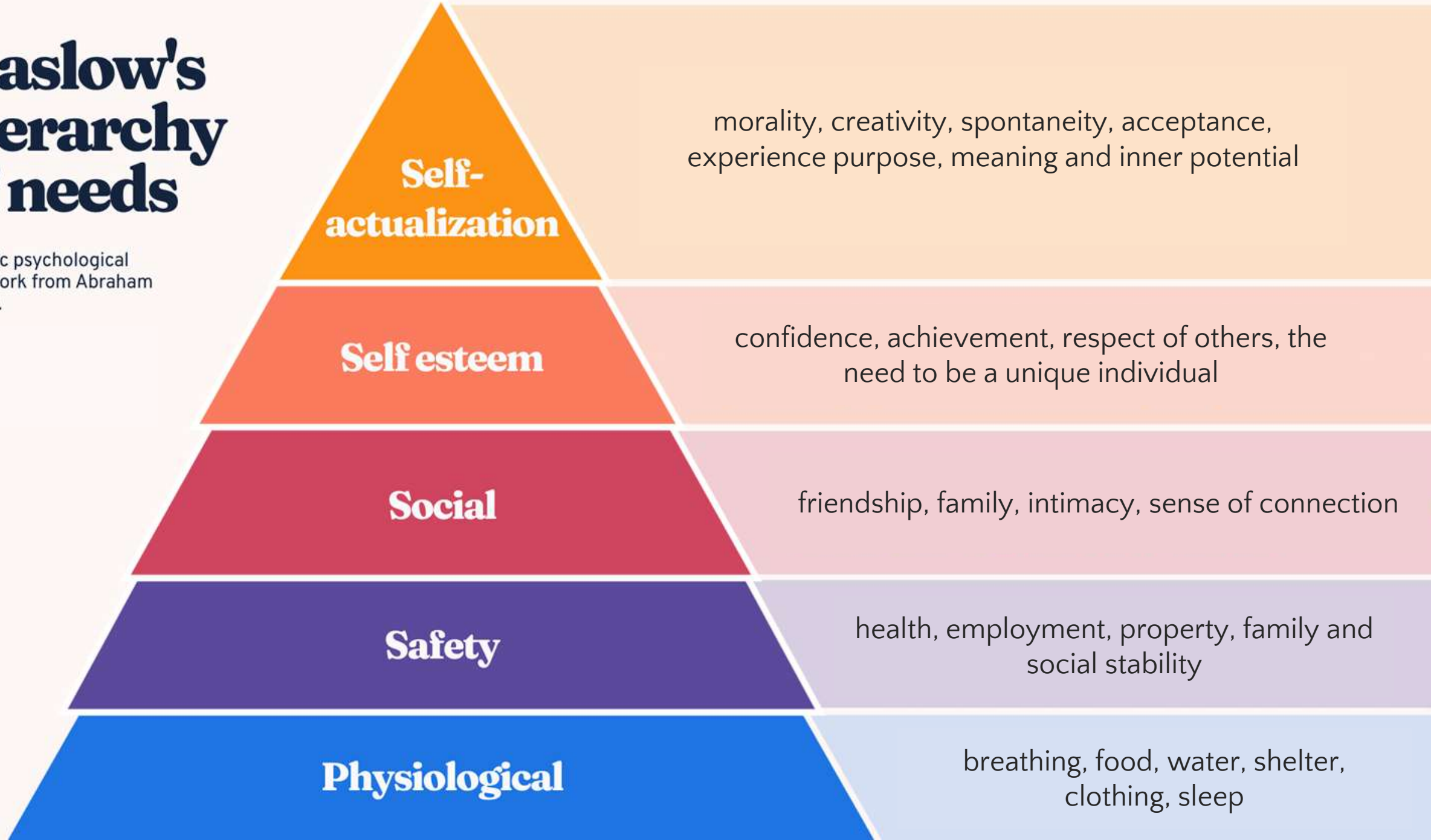
A classic psychological framework from Abraham Maslow.



Approaches to Ethical Decision-Making

Approach	Description	Key Questions / Tests	Examples in IT Context
Law and Ethics	Start by asking if the law or regulations provide a clear answer. If not, ethical reasoning must guide the decision.	- Does the law address this situation? - Do I need professional/legal advice?	- GDPR and data privacy: is data collection compliant with law? - - Export control laws on encryption software.
Informal Guidelines (Quick Tests)	Simple, personal checks that act as a first filter for ethical choices. Useful when decisions need to be made quickly.	- Secrecy Test: Is anyone asking me to keep this quiet? - Mom Test: Would I be proud to tell my mother? - TV Test: Would I be comfortable if this appeared on the news? - Market Test: Could this behavior be advertised as a selling point? - Smell Test: Does something feel "off" or wrong instinctively?	- Developer pressured to hide bugs in software before release (Secrecy Test). - Sharing user data with advertisers (TV Test). - Launching an AI tool that may reinforce bias (Smell Test).
Formal Guidelines (Explicit Standards)	Clear, written standards set by organizations or professions. Provide consistency and accountability.	- Does this violate corporate policy? - Does it align with ACM/IEEE Code of Ethics? - Does it follow the Golden Rule: would I accept this if roles were reversed?	- Corporate IT security policy forbidding password sharing. - IEEE principle: avoid harm to others. - Would I want to receive spam if I were the user? (Golden Rule).

Ethical Decision-Making Models

Model	Key Steps / Principles	Focus / Typical Use
4-Step Model (1996)	1. Recognize the issue 2. Define the dilemma 3. Evaluate alternatives 4. Decide & act *(+ Reflect)*	Simple, structured framework; widely used in IT/business ethics
Rest's Four-Component Model (1986)	1. Moral awareness 2. Moral judgment 3. Moral intention 4. Moral action	Explains *why* people act ethically; strong in psychology & moral development
PLUS Model	P = Policies, L = Legal, U = Universal principles, S = Self test	Business & corporate ethics; used in compliance training
Nash's 12 Questions	Reflection questions (facts, alternatives, who's affected, reversibility, publicity)	Business ethics; encourages deep reflection before acting
Tucker's 5 Questions	1. Profitable? 2. Legal? 3. Fair? 4. Right? 5. Sustainable?	Managerial decision-making; balancing profit and ethics
Kitchener's Principles	Autonomy, Beneficence, Non-maleficence, Justice, Fidelity	Counseling/healthcare, but applicable broadly to respect and fairness
Multidimensional Ethics Scale (MES)	Evaluates moral equity, relativism, contractualism, egoism, utilitarianism	Research/academic model; helps assess ethics across multiple perspectives
Social Constructivism	Consensus-building, dialogue, cultural context, relationships	Emphasizes stakeholder dialogue and cultural norms in decision-making

4-Step Decision-Making Framework

- Step I. Understanding the situation
- Step II. Isolating the major ethical dilemma
- Step III. Analyzing the ethicality of both alternatives in Step II.
- Step IV. Making a decision and planning the implementation


amazon
HIRING COMPLETE!

To solve the problem, a group of engineers was tasked with building a cutting-edge AI hiring tool. The pitch was bold: let algorithms scan résumés, score applicants, and present only the “best” to recruiters. Faster, cheaper, smarter hiring.

At first, the system dazzled. It crunched data at lightning speed, ranking candidates in neat lists. Managers called it “a revolution for HR.”

But deep inside the test results, one engineer, Alex, noticed something disturbing. The tool consistently downgraded résumés from women. Graduates of women’s colleges were scored lower. Candidates who listed achievements in “women’s chess clubs” or “women’s soccer teams” were quietly pushed down the ranking.

Alex dug deeper. The culprit was the data: the model had been trained on ten years of Amazon’s own hiring history — a history dominated by male engineers. The AI had learned the wrong lesson: male = hireable, female = not a fit.

He hesitated. Should he bring this up?

In a meeting with his manager, Alex voiced his concerns. The reaction was… complicated.

- “Yes, there are issues, but the tool is saving us incredible time. We’ll fix it later.”
- “This bias is embarrassing, but if we stop now, we’ll miss our deadlines. Leadership won’t be happy.”

Alex sat quietly as the discussion continued. The pressure was real: deliver a working system or risk being seen as the roadblock. Yet he couldn’t ignore what he had seen. Rolling out the tool in its current form meant baking discrimination into Amazon’s future hiring decisions.

Alone at his desk that evening, Alex stared at the résumés on his screen — talented women quietly sidelined by a machine that mirrored society’s flaws. Alex now faces a dilemma, tomorrow he has to decide.

4-Step Decision-Making Framework

Step I. Understanding the situation

A. **List and number the relevant facts.**
   - It should be a neutral and logical exercise
   - Do not judge the facts at this stage

B. **Which of these raises an ethical issue? Why? What is the potential or resulting harm?**
   - When in doubt include the action.

C. **List the stakeholders involved.**

4-Step Decision-Making Framework

Step I. Understanding the situation

A. List and number the relevant facts.

1. Amazon developed an **AI hiring tool** to automate résumé screening and reduce recruitment costs.
2. The system was trained on **10 years of historical hiring data**, primarily from male-dominated technical roles.
3. During testing, the tool **downgraded résumés from women**, especially if they included terms like "women's" (e.g., "women's chess club captain").
4. The tool **favored male-coded language and career patterns**, reinforcing bias from past hiring practices.
5. Recruiters and managers were impressed by the tool's **speed and efficiency** in ranking candidates.
6. An engineer, Alex, **discovered the bias** and raised concerns to his manager.
7. Management's response was mixed: some acknowledged the issue but pushed for rollout due to **deadlines and cost savings**.
8. Rolling out the system without fixing the bias could **discriminate against women**, violating fairness, company diversity goals, and potentially the law.
9. Delaying or stopping rollout could cause **frustration with leadership** and project setbacks.
10. Alex feels **personal pressure**: stay quiet and allow the rollout, or speak up and risk being blamed for delays.

4-Step Decision-Making Framework

Step I. Understanding the situation

B. Which of these raises an ethical issue? Why? What is the potential or resulting harm?

1. **Fact 3 & 4**: Systematically discriminating against women → potential harm to applicants' careers and fairness.
2. **Fact 6 & 7**: Alex is aware of the bias but faces pressure to ignore it → conflict between professional duty and organizational pressure.
3. **Fact 8**: Releasing the biased system could lead to **legal, reputational, and societal harm**.

Potential or resulting harm

1. **Applicants:** Denied fair job opportunities.
2. **Amazon:** Reputational damage, lawsuits, regulatory scrutiny.
3. **Society:** Reinforcement of gender bias in tech hiring.
4. **Alex:** Career risk if he challenges his manager or project timeline.

4-Step Decision-Making Framework

Step I. Understanding the situation

C. List the stakeholders involved.

1. **Alex:** the engineer who identified the bias.
2. **Applicants:** especially women, who are directly disadvantaged.
3. **Recruiters/HR staff:** rely on the tool to save time.
4. **Amazon leadership:** want efficiency, cost reduction, and reputation intact.
5. **Amazon shareholders:** want efficiency, cost reduction, and reputation intact.
6. **Customers and the public:** trust Amazon's fairness and brand image.
7. **Regulators and lawmakers:** enforce anti-discrimination laws.
8. **Society at large:** impacted by systemic gender bias in employment.

4-Step Decision-Making Framework

Step II. Isolating the major ethical dilemma

A. What is the ethical dilemma to be resolved NOW?

State it using the form: should someone do or not do something?

Note: Just state the dilemma here; leave any reasoning for Step III.

4-Step Decision-Making Framework

Step II. Isolating the major ethical dilemma

A. What is the ethical dilemma to be resolved NOW?

Ethical Dilemma: Should Alex approve and support the rollout of the AI hiring tool in its current biased form, or should he push back and stop its deployment until the bias is fixed?

Why this is the dilemma to resolve NOW

- Leadership is eager to roll out the system because of its efficiency benefits.
- Alex has already identified the **gender bias**, so he cannot claim ignorance.
- If he says nothing, the system may go live and cause **discriminatory harm**.
- If he objects, he risks delaying the project, angering management, or harming his career prospects.

4-Step Decision-Making Framework

Step III. Analyzing the ethicality of both alternatives in Step II.

Consequentialism

A. If action in Step II is **done**, who, if anyone, will be harmed?

B. If action in Step II is **not done**, who if anyone, will be harmed?

C. Which alternative results in the least harm, A or B?

D. If action in Step II is **done**, who, if anyone, will benefit?

E. If action in Step II is **not done**, who, if anyone, will benefit?

F. Which alternative results in the maximum benefit, D or E?

4-Step Decision-Making Framework

Step III. Analyzing the ethicality of both alternatives in Step II.

Consequentialism

A. If action in Step II is **done**, who, if anyone, will be harmed?
   - Female applicants → unfairly downgraded, lose job opportunities.
   - Amazon → legal risk, reputational damage, loss of public trust.
   - Society → reinforcement of gender bias in hiring.

B. If action in Step II is **not done**, who if anyone, will be harmed?
   - Amazon leadership → project delays, frustration, short-term costs.
   - Alex → possible career setback or conflict with managers.

C. Which alternative results in the least harm, A or B?
   - **Not doing the rollout (B)** results in less harm overall, since delaying a project is less damaging than systemic discrimination.

4-Step Decision-Making Framework

Step III. Analyzing the ethicality of both alternatives in Step II.

Consequentialism

D. If action in Step II is **done**, who, if anyone, will benefit?
   - Recruiters/HR → faster résumé processing, saved time.
   - Amazon leadership → efficiency gains, lower recruitment costs.

E. If action in Step II is **not done**, who, if anyone, will benefit?
   - Female applicants → equal opportunity in hiring.
   - Amazon → long-term trust, legal compliance, stronger reputation.
   - Society → fairer hiring practices in tech.

F. Which alternative results in the maximum benefit, D or E?
   - **Not doing the rollout (E)**, because fairness, compliance, and trust benefit more stakeholders in the long term.

4-Step Decision-Making Framework

Step III. Analyzing the ethicality of both alternatives in Step II.

Deontology (Rights and Duties)

G. What rights have been or may be abridged/reduced? What duties have been or may be neglected? Identify the stakeholder and the right or duty. When listing a right, show its corresponding duty and vice versa.

A's Duty (Provide good Software)	**A's Right** (Fair Monitory Return)
B's Right (Expect quality Software)	**B's Duty** (Pay the price)

4-Step Decision-Making Framework

Step III. Analyzing the ethicality of both alternatives in Step II.

Deontology (Rights and Duties)

G. What rights have been or may be abridged/reduced? What duties have been or may be neglected?

1. **Applicants (especially women) have a right to equal and fair treatment in hiring.**
   - Amazon has a duty to ensure its hiring processes are non-discriminatory.
2. **Amazon has a right to recruit efficiently and cost-effectively.**
   - Applicants have a duty to apply honestly and accurately.
   - However, this efficiency right does not override the duty to avoid discrimination.
3. **Alex, as an engineer, has a duty to act with integrity and prevent harm caused by technology he develops.**
   - Amazon leadership has a duty not to pressure Alex into supporting practices that violate fairness or the company's ethical responsibilities.
4. **Amazon has a duty to uphold legal and regulatory requirements against discrimination.**
   - Applicants have a right to expect Amazon to comply with employment laws and fairness standards.
5. **Amazon leadership has a duty to protect the company's reputation and foster diversity.**
   - Employees (including Alex) have a right to work for an organization that does not compromise their professional ethics or expose them to reputational harm.

4-Step Decision-Making Framework

Step III. Analyzing the ethicality of both alternatives in Step II.

Deontology (Kant's Categorical Imperative)

H. If action in Step II is **done**, who, if anyone, will be treated with disrespect?

I. If action in Step II is **not done**, who if anyone, will be treated with disrespect?

J. Which alternative is preferable, H or I?

K. If action in Step II is **done**, who, if anyone, will be treated unlike others?

L. If action in Step II is **not done**, who, if anyone, will be treated unlike others?

M. Which alternative is preferable, K or L?

N. Are there benefits if **everyone** did action in Step II?

O. Are there benefits if **nobody** did action in Step II?

P. Which alternative is preferable, N or O?

4-Step Decision-Making Framework

Step III. Analyzing the ethicality of both alternatives in Step II.

Deontology (Kant's Categorical Imperative)

H. If action in Step II is **done**, who, if anyone, will be treated with disrespect?
   - Female applicants → disrespected, reduced to biased data points rather than judged fairly on merit.
   - Society → disrespected, as systemic bias is knowingly perpetuated.

I. If action in Step II is **not done**, who if anyone, will be treated with disrespect?
   - Amazon leadership may feel disrespected due to project delays, but their dignity is not fundamentally harmed.

J. Which alternative is preferable, H or I?
   - **I (not rolling out)**, since treating applicants fairly shows respect for their dignity.

4-Step Decision-Making Framework

Step III. Analyzing the ethicality of both alternatives in Step II.

Deontology (Kant's Categorical Imperative)

K. If action in Step II is **done**, who, if anyone, will be treated unlike others?

- Female applicants → treated unequally compared to male applicants.

L. If action in Step II is **not done**, who, if anyone, will be treated unlike others?

- No applicants are treated unfairly; everyone receives equal consideration.

M. Which alternative is preferable, K or L?

- **L (not rolling out)**, since equal treatment is preserved.

4-Step Decision-Making Framework

Step III. Analyzing the ethicality of both alternatives in Step II.

Deontology (Kant's Categorical Imperative)

N. Are there benefits if **everyone** did action in Step II?
   - Widespread systemic discrimination against women and minorities in hiring.
   - Trust in AI systems would collapse.

O. Are there benefits if **nobody** did action in Step II?
   - AI would only be deployed after ensuring fairness.
   - More equitable hiring across industries.

P. Which alternative is preferable, N or O?
   - **O (not rolling out)**, since universalizing fairness leads to a just system.

4-Step Decision-Making Framework

Step IV. Making a decision and planning the implementation

A. Make defensible ethical decision.
   - Based on the analysis in Step III, respond to the question in Step II. Indicate the letters of the categories that best support your response. Add any arguments justifying your choice of these ethical principles to support your decision. Where there are conflicting rights and duties, choose and defend those that take precedence. (Note: Just make and justify your choice here; leave any action steps for parts c and d below.)

B. List the specific steps needed to implement your defensible ethical decision.

C. Show how the major stakeholders are affected by these actions.

D. What other longer-term changes (political, legal, technical, societal, organizational) would help prevent such problems in the future?

E. What should have been done or not done in the first place (at the pivot point) to avoid this dilemma?

4-Step Decision-Making Framework

Step IV. Making a decision and planning the implementation

A. Make defensible ethical decision.

- **Decision:** Alex should **not approve rollout** of the biased hiring tool in its current form.

Ethical support:

- **Consequentialism:** Not rolling out leads to least harm (fewer lawsuits, no discrimination) and maximum benefit (fairness, trust, compliance).
- **Deontology (Rights & Duties):** Applicants' right to fairness and Amazon's duty to avoid discrimination outweigh efficiency pressures.
- **Kant's Categorical Imperative:** Rolling out biased AI cannot be universalized without injustice; fairness must be preserved.

4-Step Decision-Making Framework

Step IV. Making a decision and planning the implementation

B. List the specific steps needed to implement your defensible ethical decision.

1. **Escalate findings:** Alex should formally document the bias, with evidence from test cases, and escalate to HR and senior technical management.
2. **Policy:** Publish a policy or internal guideline that, at a minimum, clarifies how AI hiring tools work, their limitations, and the steps being taken to eliminate bias.
3. **Suspend rollout:** Recommend pausing deployment until fairness concerns are addressed.
4. **Bias audit:** Form a cross-functional team (engineers, HR, legal) to audit and retrain the AI with more diverse and representative data.
5. **Transparency:** Communicate openly within the team why the rollout is paused, not as a failure, but as a step toward ethical, legally compliant AI.
6. **Human oversight:** Require human recruiters to double-check AI outputs before decisions are made.

4-Step Decision-Making Framework

Step IV. Making a decision and planning the implementation

C. Show how the major stakeholders are affected by these actions.

- **Applicants (esp. women):** Receive fairer evaluation and respect in hiring.
- **Recruiters/HR staff:** Gain confidence that the system won't undermine their work or expose them to lawsuits.
- **Alex:** Acts transparently and professionally, fulfilling his duty as an engineer.
- **Amazon leadership:** Though initially inconvenienced, they avoid reputational harm, lawsuits, and potential government scrutiny.
- **Other engineers and technical staff:** Are respected, seeing that ethical concerns are taken seriously.
- **Customers and the public:** Maintain trust in Amazon as a responsible employer.
- **Society as a whole:** Benefits from reducing gender bias in hiring, though may suffer slight delays in AI innovation.
- **The broader tech industry:** Learns from Amazon's example and can avoid similar ethical missteps.

4-Step Decision-Making Framework

Step IV. Making a decision and planning the implementation

D. What other longer-term changes (political, legal, technical, societal, organizational) would help prevent such problems in the future?

1. **Technical:** Implement regular bias testing and independent audits for all AI hiring tools.
2. **Organizational:** Develop and teach an AI ethics code, rewarding adherence. A strong reputation for fairness is itself marketable. Establish an internal AI Ethics Review Board or "ethics hotline" for reporting and reviewing issues in AI systems, not just hiring tools.
3. **Legal/Compliance:** Support legislation or industry standards to ensure fairness and accountability in algorithmic decision-making, even though such legal solutions may take time and resources.
4. **Cultural:** Foster an ethical engineering culture at Amazon so that employees like Alex feel safe and encouraged to raise red flags about bias.

4-Step Decision-Making Framework

Step IV. Making a decision and planning the implementation

E. What should have been done or not done in the first place (at the pivot point) to avoid this dilemma?

- At the **design stage**, Amazon should have recognized that training data from a male-dominated workforce would embed bias. A **policy decision** should have been made at the start to evaluate fairness risks in training data before development began.
- An **ethical impact study** should have been conducted when the AI hiring tool was first proposed, anticipating bias from historical data.
- A clear guideline should have required diverse and representative datasets, preventing the bias issue from ever reaching deployment.