

Critical Thinking Module 4:

Answer-First Analytics (DBEM) as an Ethical Failure in Software Engineering and AI

Alexander Ricciardi

Colorado State University Global

CSC502: Ethical Leadership in Software Development

Professor: Dr. Steven Evans

February 8, 2026

Critical Thinking Module 4:

Answer-First Analytics (DBEM) as an Ethical Failure in Software Engineering and AI

Organizations increasingly use tools such as data analysis and AI to make decisions, demonstrate compliance with regulations or laws, and justify the pursuit of a strategy. When used ethically, these tools should be grounded in practices that prioritize accuracy, transparency, and accountability. However, in practice, organizations' leaders often adopt an answer-first practice that steers these tools toward generating predetermined outcomes, undermining accuracy, transparency, and accountability. This approach, also known as Decision-Based Evidence Making (DBEM), has a significant ethical impact; when an organization's leadership decides, explicitly or implicitly, that analytics must always produce a desired answer, it is an inversion of truth-seeking that can result in biases that strengthen misleading assumptions, ignore evidence, and justify unfair or unsafe decisions, ultimately harming the public. This paper argues that DBEM becomes unethical when it is used to pursue a predetermined "desired answer" rather than to seek the truth. Moreover, it violates professionals' ethical obligations to uphold honesty and transparency, increases the risk of harm by normalizing bias and error in organizational processes, and weakens accountability mechanisms, such as traceability, auditability, independent validation, and redress, that enable human oversight and correction when software and AI systems fail.

What is DBEM

Evidence can help organizations make informed decisions, or it can help them support or explain a decision to stakeholders after the fact. Tingling and Brydon (2010) describe DBEM (Decision-Based Evidence Making) as a practice in which the decision comes first, and evidence is then shaped and selectively assembled to justify it.

When used to communicate the rationale behind a complex decision to external audiences, this post hoc explanation is not, per se, ethically wrong. However, it becomes an ethical issue when it stops being an explanation and becomes a manufactured justification. That is, when evidence is selectively assembled, tradeoffs are ignored, uncertainty is concealed, and countervailing data is dismissed so that the analysis appears to align with an organization's predetermined conclusion. In other words, DBEM becomes ethically problematic when it is used to justify a pre-made decision, because it turns the analytic process into a persuasion tool used to reinforce an organization's preferred outcome rather than a truth-seeking process. It is fundamentally an inversion of the Evidence-Informed Decision-Making (EIDM) process of gathering and evaluating the best available evidence to make informed and ethical decisions (World Health Organization, 2021).

DBEM in AI and Software Engineering: An Ethical Failure

This distinction between EIDM and DBEM particularly matters in software engineering and AI, as these domains are ambiguous by nature; that is, they are influenced by multiple competing metrics (e.g., accuracy vs. interpretability vs. privacy), the underlying data itself can be biased, and after deployment, these systems operate under unpredictable and shifting environments. This reinforces the need for an ethical data analytics process, as trustworthy AI software systems require balancing governance variables such as validity, safety, security, accountability, transparency, privacy, and fairness (NIST, 2023).

In this context, DBEM is especially dangerous because it exploits ambiguity to reduce internal friction, accelerate approvals, and align analytical outcomes with leadership expectations, a dynamic that generates bias, conceals ethical violations, and ultimately harms the customers or patients, employees, and the public as a whole. Therefore, using DBEM as an analytical method to selectively assemble evidence to justify a predetermined “desired answer” is an ethical failure.

Ethical Issues of DBEM in AI and Software Engineering

By hiding behind technical complexities to appear objective and neutral, answer-first analytics commits an act of deception and violates the software engineers' ethical responsibility principle, which mandates honesty and trustworthiness, to avoid harm, and to be transparent about system limitations and impacts (ACM, 2018). This relates to the American Statistical Association ethical principle dictating that practitioners should oppose efforts to predetermine or influence results and resist pressure to selectively interpret data (ASA, 2022). Additionally, DBEM is not neutral as it prioritizes the wants of the decision-maker over the safety of those directly affected by a decision. In software engineering and AI, this bias can be manifested by:

- Selecting datasets that support assumptions and ignore counterexamples.
- Defining risk, success, or quality using labels that promote known inequities.
- Optimizing, in AI systems, for a Key Performance Indicator (KPI) such as profit, arrest count, churn reduction, while omitting variables such as false positives, exclusion, and surveillance pressure.

These unethical practices ultimately result in moral injury inflicted on real people who are denied fair opportunity while being told the system is objective and neutral.

Additionally, AI software systems are increasingly integrated into healthcare, finance, transportation, employment, and public administration fields.

This integration in key domains of society calls for ethical oversight due to the major societal negative consequences from unaddressed ethical issues. In the context of software and AI, adopting an analytical DBEM approach to analytics within these key domains is ethically reckless because it replaces risk discovery with risk concealment. For example, DBEM, instead of asking “Where does the system fail?” it asks, “How do we present the system as if it doesn’t fail?” shifting how engineers prioritize testing, monitoring for risks, and incident reporting. In other words, this approach corrupts the engineer's actions and decisions because actions and decisions are justified by engineering rationales rather than by ethical responsibility principles, often resulting in ethical debt not being addressed, that is, until crises, lawsuits, injuries, or scandals manifest.

Another ethical issue of adopting an analytic answer-first approach within the software and AI field is the willingness to distort privacy protection principles to justify intrusive data collection, processing, and manipulation to justify an end. That is, it is tempting to expand data collection, broaden reuse, or link datasets until the desired conclusion manifests. This not only implies a change in software development methodologies; it is also a shift in moral stance from applying ethical principles to ignoring them to rationalize and facilitate data exploitation. This violates the ethical principle that data should be collected for specified purposes and not reused for different purposes, and that the disclosure or use beyond the initial purposes requires consent or legal authority (OECD, 1980).

Although DBEM is often accompanied by convincing documentation, performance reports, risk evaluations, and compliance checklists, in reality, these artifacts are just surface-level justifications for hiding inconvenient truths to validate a predetermined conclusion.

In other words, DBEM, when used to justify a pre-made decision, is merely an act; it is how organizations perform “governance theater,” composed of rituals that simulate accountability without ethical oversight. In the context of software and AI, this translates as creating audit trails and compliance artifacts designed to deflect liability rather than detect harm, effectively making safety protocols cosmetic rather than functional. Additionally, this approach is often accompanied by leadership signaling that only favorable analytics will be rewarded; effectively conditioning engineers that ethical responsibility is a professional liability rather than a fundamental professional standard.

Furthermore, DBEM is ethically wrong under any software development ethical frameworks. Kantian ethics, which is often the base of ethical frameworks, mandates that ethics must treat people as ends, not just as means (O’Keefe & Brien, 2023). DBEM violates this principle by using people as instruments for a narrative. For example, by using customers as data points to justify a pricing decision, employees as inputs to validate a layoff, and communities as statistics used to legitimize a policy. From a consequentialist perspective, DBEM also fails because it inevitably increases harm as it ignores the negative human consequences to prioritize a predetermined “desired answer.” In practice, DBEM is incompatible with any software development ethical frameworks, as harms such as biases, discrimination, unsafe use, and privacy violations are treated as acceptable so long as the analysis supports leadership’s preferred conclusion.

DBEM and Volkswagen Emissions Deception

In the context of software engineering and regulation compliance, DBEM is not only about compliance, but it also corrupts internal decision-making.

For example, in the Volkswagen emissions scandal, software designed to cheat federal emissions tests (a “defeat device”) was embedded in diesel engines (EPA, 2025). The software was designed to control emissions and to detect when the engine was undergoing emission testing, allowing it to activate full emissions controls only under test conditions while reducing or disabling those controls during normal driving. This case is a perfect example of how DBEM can be used to deceive. The “desired answer” was embedded directly into the software, which was designed to generate a compliant output only under certain conditions, effectively simulating compliance. In DBEM terms, the objective of the analysis was not “Are we meaningfully reducing harm?” but “How do we appear compliant?” However, this was an ethically misguided approach as the goal should have been “to be compliant,” not “to appear compliant.” In other words, the engines needed to be emission-compliant not only under testing conditions but also during real-world driving conditions. As a result, Volkswagen was required to spend up to \$10 Billion to buyback, terminate leases, or modify the affected vehicles and compensate consumers. The car maker also had to spend \$4.7 billion to fund pollution-mitigation efforts and invest in zero-emission vehicle technology (Office of Public Affairs, 2016). However, the most severe consequences were not financial; rather, they were the loss of trust from regulatory agencies and the public, and the subsequent reputational damage. In that sense, the scandal illustrates well DBEM’s ethical failure and its consequences. That is, when an organization treats analysis as an evidence-making process used to justify a pre-made decision, it invites catastrophic outcomes for the organization and harm for the public.

Conclusion

When used as an analytical method to selectively assemble evidence in order to justify a predetermined “desired answer,” DBEM is ethically wrong. In the context of software engineering and AI, DBEM, instead of using evidence to test assumptions, discover risk, and help to make safe ethical decisions, it uses evidence to defend a conclusion that an organization's leadership has already chosen, effectively converting analytics into a persuasion tool rather than a truth-seeking process. This inversion of Evidence-Informed Decision-Making is not a minor procedural error; it is an ethical failure that corrupts software engineers' ethical responsibilities. Furthermore, if used as an organization's default analytic culture and a central performance expectation, DBEM can, over time, reshape engineers' professional norms as they learn that favorable outputs matter more than accurate measurement, signaling that ethical obligation is a liability to be managed rather than a standard to be upheld. Moreover, this approach dehumanizes individuals by reducing them to inputs and outputs, as measurements to be manipulated, rather than people deserving to be treated with fairness, dignity, and protected from harm. Ultimately, when DBEM is used to justify an organization's preferred narrative, theoretical risk becomes real-world failure, accountability collapses into “governance theater,” and the public pays the price.

References

- ASA. (2022, February 1). *Ethical guidelines for statistical practice*. American Statistical Association. <https://www.amstat.org/your-career/ethical-guidelines-for-statistical-practice>
- ACM. (2018). *ACM Code of Ethics and Professional Conduct*. Association for Computing Machinery. <https://www.acm.org/code-of-ethics>
- EPA. (2025, March 19). *Learn about Volkswagen violations*. U.S. Environmental Protection Agency. <https://www.epa.gov/vw/learn-about-volkswagen-violations>
- NIST. (2023, January). *Artificial Intelligence Risk Management Framework (AI RMF 1.0)* (NIST AI 100-1) [PDF]. U.S. Department of Commerce. <https://nvlpubs.nist.gov/nistpubs/ai/nist.ai.100-1.pdf>
- OECD. (1980). *OECD guidelines on the protection of privacy and transborder flows of personal data* [PDF]. Organisation for Economic Co-operation and Development. https://bj.a.ojp.gov/sites/g/files/xyckuh186/files/media/document/oecd_fips.pdf
- Office of Public Affairs. (2016, June 28). *Volkswagen to spend up to \$14.7 billion to settle allegations of cheating emissions tests and deceiving customers on 2.0 liter diesel vehicles*. U.S. Department of Justice. <https://www.justice.gov/archives/opa/pr/volkswagen-spend-147-billion-settle-allegations-cheating-emissions-tests-and-deceiving>
- O’Keefe, K., & Brien, D. O. (2023). Chapter 2: Introduction to ethical concepts and frameworks. *Data ethics: Practical strategies for implementing ethical information management and governance*. Kogan Page.
- Tingling, P. M., & Brydon, M. J. (2010). Is decision-based evidence making necessarily bad? *MIT Sloan Management Review*, 51(4), 71–76.

World Health Organization. (2021, December 28). *Evidence, policy, impact: WHO guide for evidence-informed decision-making*. Knowledge Action Portal on NCDs.

<https://www.knowledge-action-portal.com/en/content/evidence-policy-impact-who-guide-evidence-informed-decision-making>