

# From Data To Fair Decisions: Exploring Ethical and Equitable Process Mining



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## 1 Introduction

In the evolving landscape of business and technology, **process mining**—analyzing event logs to optimize and enhance processes—is a key tool for improving efficiency.

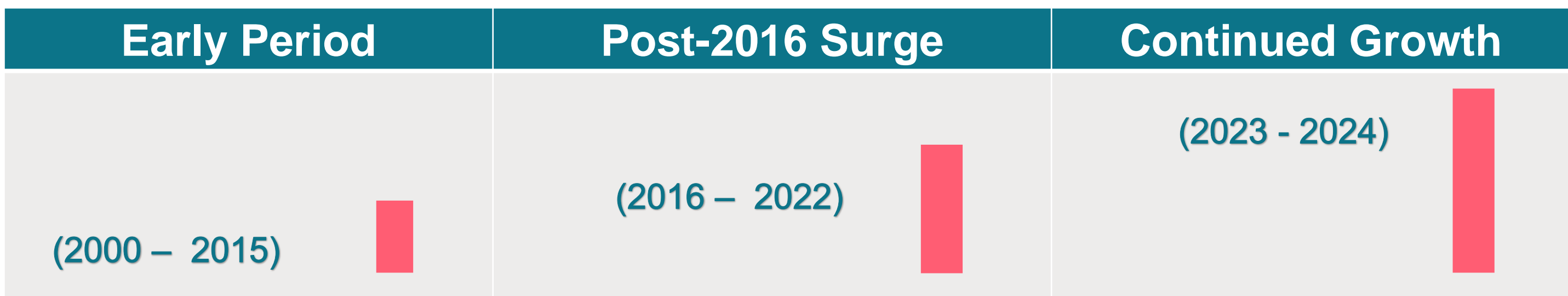
- **Why It Matters:** Process mining has the potential to transform operations in fields like healthcare, where it can impact patient care and decision-making. However, it is essential to address **ethical** considerations such as transparency, fairness, and data protection to ensure that these technologies benefit all stakeholders equitably.



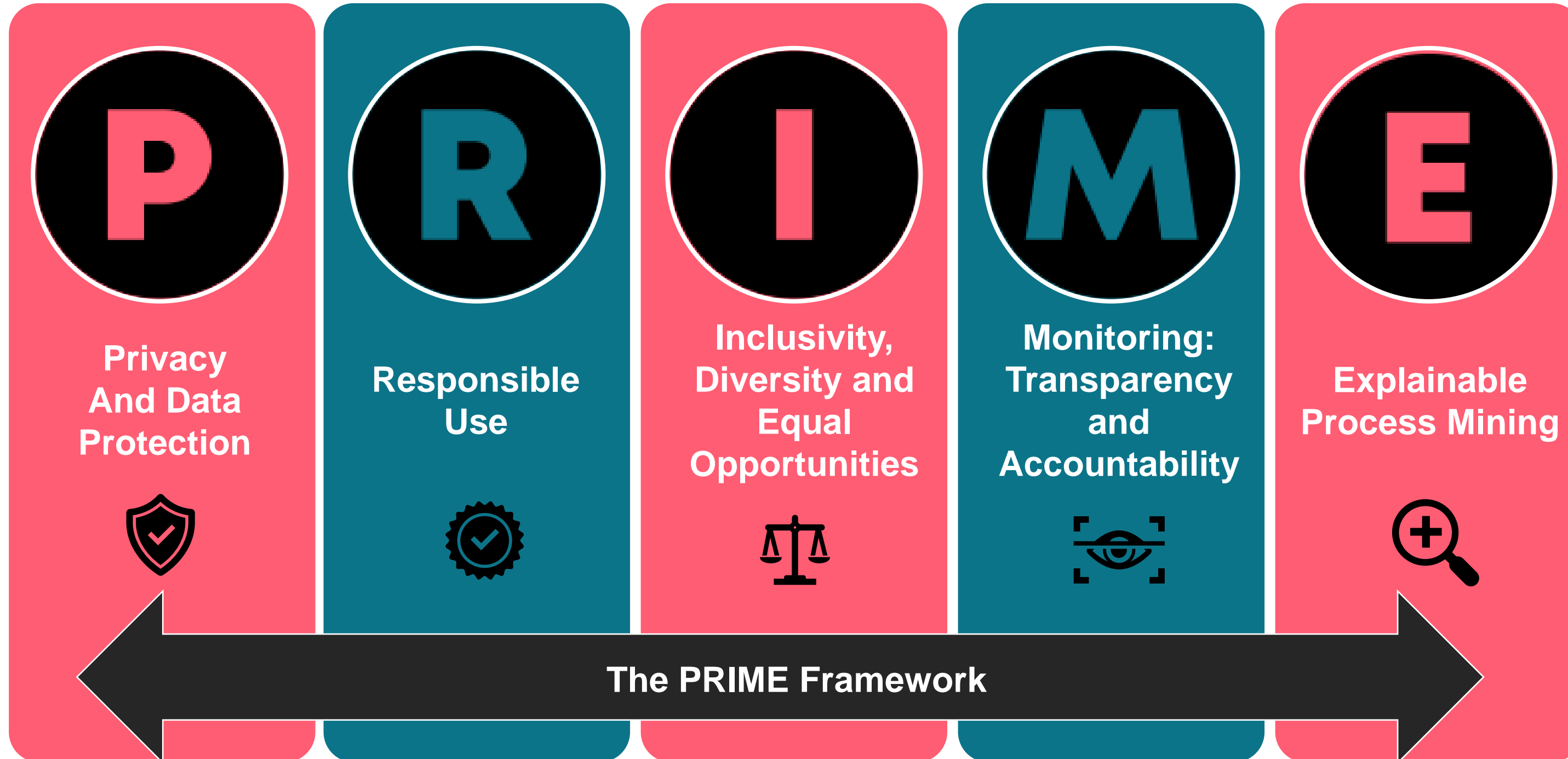
How can we navigate the complex landscape of process mining while ensuring ethical soundness and operational efficiency?

## 3 Results and Reflections

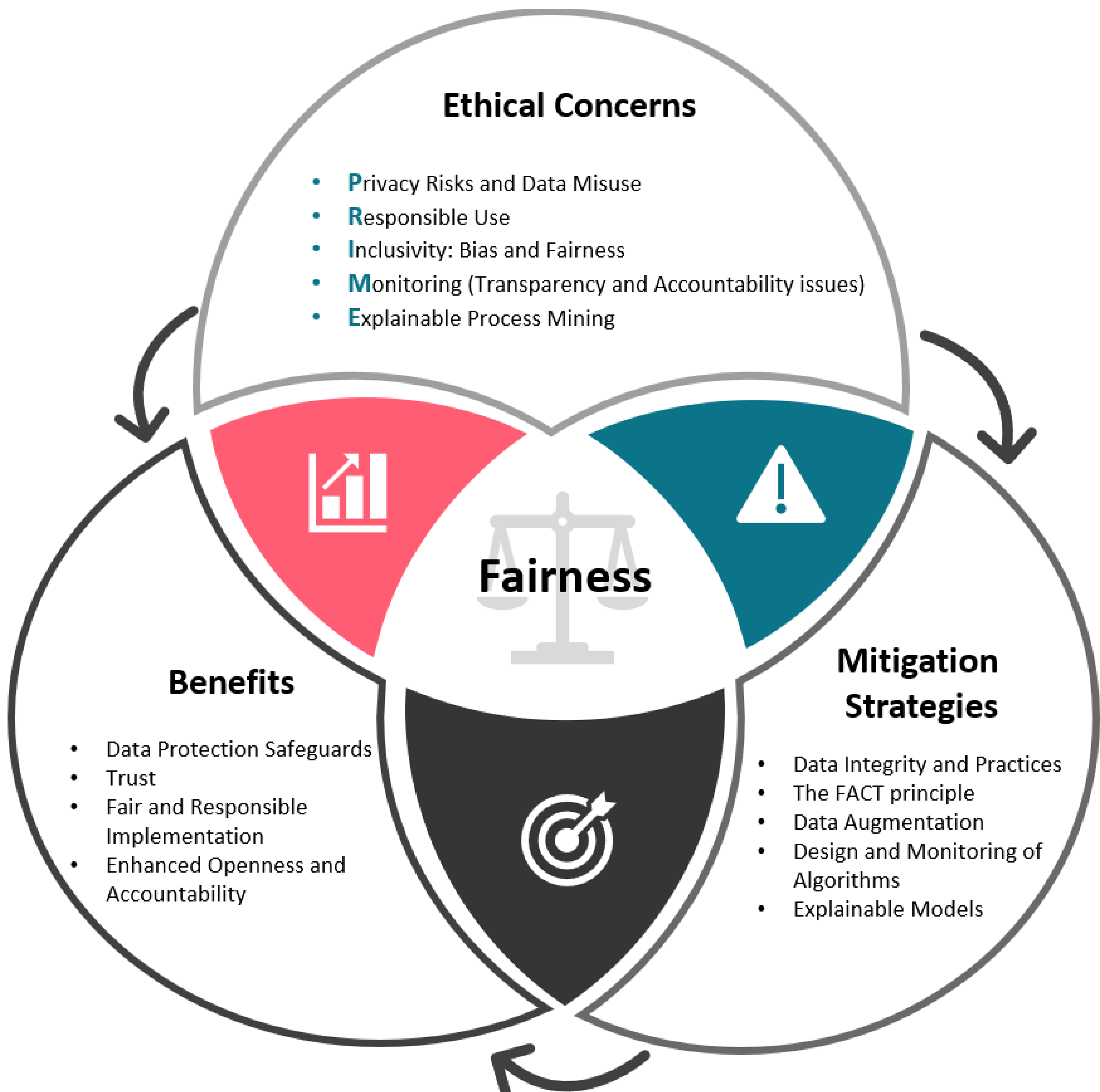
A) Data Trends in Ethical Process Mining (2000 – 2024)



B) Main Factors Influencing Fair Process Mining

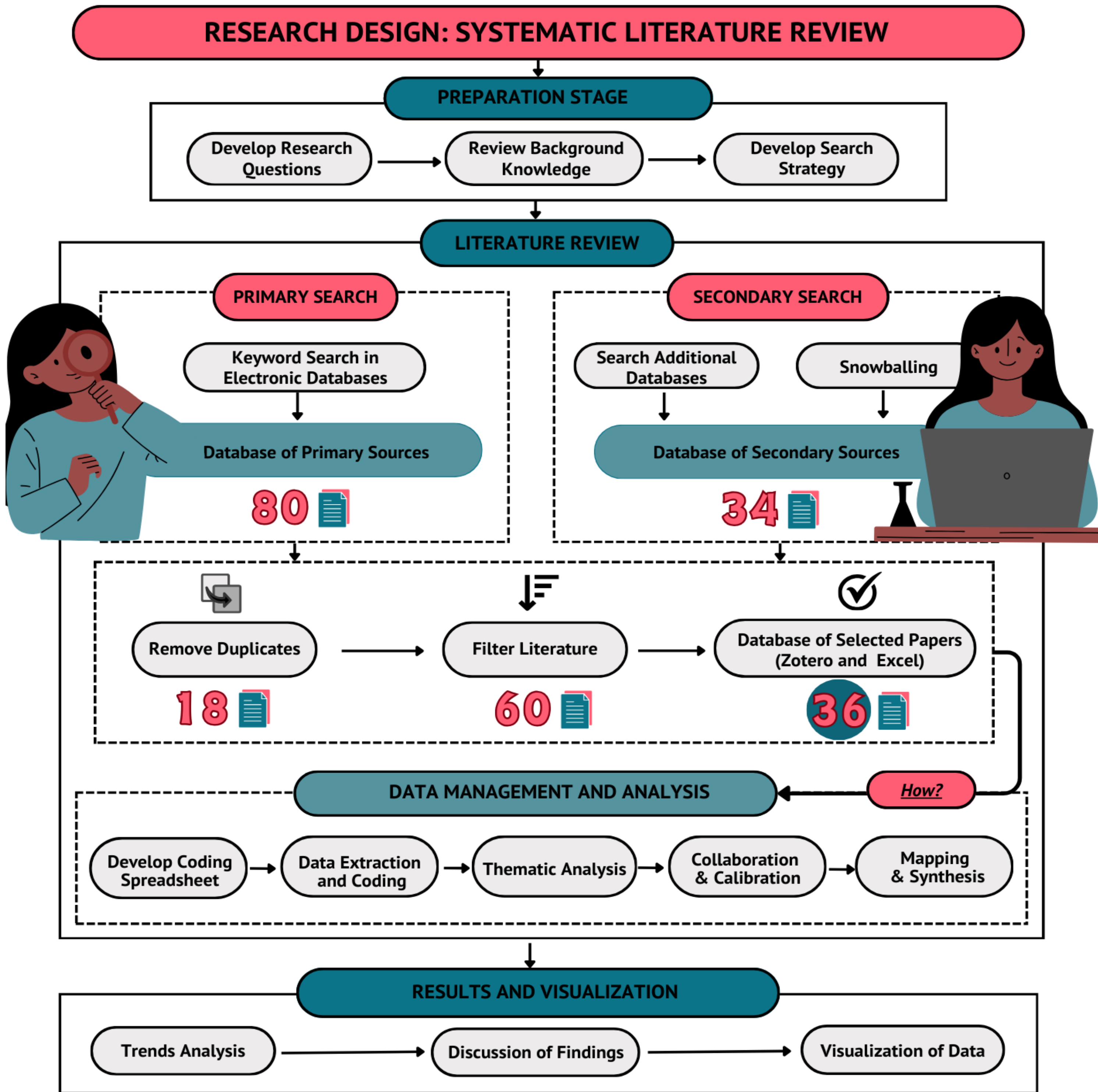


C) The PRIME Framework in Practice



## 2 Mapping the Path: Methodology

A qualitative research design with a **systematic literature review** was employed to explore ethical process mining. Key concepts were identified through targeted database searches, coded, and analyzed to reveal patterns. Results were visualized to highlight emerging trends and insights.



## 4 Conclusion

To fully realize its benefits, process mining must address ethical concerns. This research **proposes a framework** for evaluating and improving the ethical dimensions of process mining practices, ensuring that these technologies drive **efficiency** while upholding **equity and trust** among all stakeholders.

“Optimize processes with process mining, but let ethics lead the way to ensure fairness and trust.”

— [Becky Okeke]

## 5 Future Directions

- **Management's Role:** Explore how management practices affect ethical process mining and develop frameworks integrating these perspectives.
- **Sector-Specific Fairness:** Study fairness in process mining across various industries, focusing on less-explored sectors.
- **AI and ML Integration:** Further investigate how fairness principles in AI and ML can be applied to process mining methodologies.
- **Longitudinal Impact:** Conduct studies to evaluate the long-term effects of fairness interventions on performance and trust.

## 6 References

- [1] Andreswari, R., & Rachmadita, M. (2024). Integrating fairness into process mining algorithms. EMISA 2024. Gesellschaft für Informatik.
- [2] Van der Aalst, W. M. P. (2016). Process mining: Data science in action. Springer Berlin Heidelberg.

