FIRE: THE FIRST-YEAR INNOVATION & RESEARCH EXPERIENCE
COMPUTING & SOCIETY

The Role and Perceptions of Artificial Intelligence in Business Analytics

Sanya Gupta and Mann Parekh

How are professionals in the business world perceiving the use of AI in business analytics to help enhance analysis and predictions of market trends?

INTRODUCTION

Recent advancements in AI are revolutionizing business analytics by:

- Enabling faster, data-driven decisions.
- Uncovering hidden patterns in data.
- Improving accuracy in predictions and analysis.
- Optimizing business operations.

In this study, we aim to look into key questions about AI, including:

- Explore professional perspectives on AI in analytics.
- Assess AI's practical benefits for market forecasting.
- Identify strategies for effectively integrating AI into business workflows.

BACKGROUND

AI models improve accuracy, automate error detection, and enable real-time processing, though larger datasets incur higher computational costs.

AI improves risk management, boosts customer insights, and shifts job demand by reducing traditional roles and increasing data science skills.

Human supervision ensures AI decisions align with ethics, while high data quality and regular monitoring are key for accuracy and reliability.

AI poses risks to data privacy and bias. Responsible use requires transparency, regular audits, and accountability frameworks.

METHODOLOGY

Setting and Participants

Recruitment: Purposive and snowball sampling via email and social media
Participants: UMD professors and students
Eligibility: 18+ years old and UMD students/professors/business professionals

Instruments and Measures

Survey Tools: Qualtrics and Google Forms
Survey Questions: 13 items covering AI in business analytics and participant experiences and perceptions
Data Collection Period: September to October 2024

Data Collection and Procedures

Methods: Survey distribution through email and online platforms
Data Storage: Excel spreadsheet and Word Documents

- 8 professors (15 + years of experience
- 1 student (1-5 years of experience)

Data Analysis

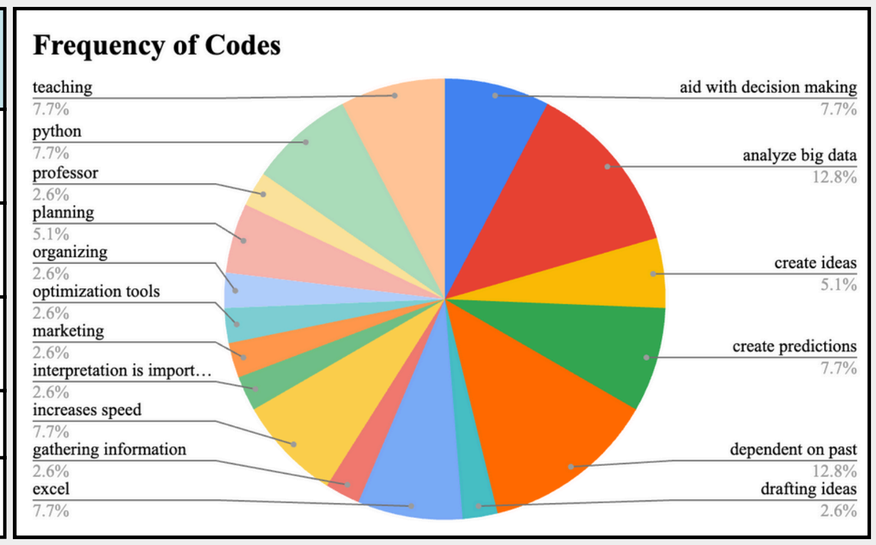
Analysis Tool: NVIVO Software
Coding Techniques: Open and pattern coding, looking for common themes

- 17 codes over 3 themes
- examined and highlighted specific quotes

RESULTS

Theme	Percentage of Mentions	Key Insights
Efficiency	83%	Faster decision-making, reduced errors
Big Data Processing	83%	AI excels at handling and analyzing big data
Market Forecasting	66%	Key tool for predicting market trends
Data Quality Challenges	50%	Poor data affects AI performance
Ethical Concerns	33%	Need for transparency and accountability

Key themes identified in the data



Codes used to analyze the data

- **Key Findings:**
  - 83% highlighted faster decision-making and fewer errors.
  - 66% noted AI's role in data processing and market forecasting.
- **Challenges**:
  - 50% noted data quality and algorithmic bias issues.
  - 33% raised ethical concerns.

DISCUSSION AND CONCLUSION

Key Insights

Efficiency: Speeds decision-making and processing datasets.
Big Data and Forecasting: Excels in analyzing trends and predicting market behaviors, enhancing risk management.
Challenges: Poor data quality and biases limit performance; ethical concerns call for oversight.
Human Oversight: Ensures ethical use and accurate AI interpretation

Limitations and Future Directions

Sample Size Constraints: Small sample pool limited insights, showing need for broader studies
Data-Driven Bias: Diverse datasets and improved natural language processing are key to reducing AI bias.
Evolving Skillsets: AI-driven changes demand new skills for job market adaptation.

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