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Analytics and AI in Management

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ABSTRACT

The modern business world is changing rapidly with the increasing use of artificial intelligence (AI) and predictive analytics. Earlier, businesses depended mainly on past data to understand what had already happened. Today, AI and analytics help organizations predict future situations and make better decisions based on available data. This change has given rise to the idea of “augmented intelligence”, in which AI works together with people to support their decisions instead of replacing them. This paper studies how the use of AI and predictive analytics is affecting businesses and the way managers make decisions. It focuses on the use of AI in daily work, the automation of routine tasks, access to analytical tools and the changing role of human judgment in decision-making. A survey of 35 management professionals (N = 35) was conducted to understand their practical experience of AI and analytics in the workplace. The results show that AI is already being used in many professional roles: about 88.6% of respondents said that their work involves both AI and analytics, and 82.9% said that AI has significantly reduced their workload.

Keywords: artificial intelligence, analytics, management

I. INTRODUCTION

The modern business environment is undergoing a profound change driven by the combination of rapid data analysis and advanced artificial intelligence (AI). Management has traditionally relied on descriptive analytics, assessing past performance through historical financial statements as if looking into a “rear-view mirror”. In 2026, however, generative models, autonomous agents and predictive ecosystems are changing the game completely. Information has become the surest route to success, and AI is moving from a niche tool to an integral part of executive decision-making. An emerging model in today’s business world may be called “augmented intelligence”, according to which the highest managerial efficiency is achieved not by replacing human capital but by creating a collaborative loop between people and machines. Although data analytics gives managers a great opportunity to process large amounts of information within seconds, humans will always be needed for decision-making and ethical judgment.

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Integrating these trends brings numerous benefits and helps a company to perform more efficiently overall. For instance, conversational analytics tools allow managers to put questions to their data in plain language and obtain prompt answers without any technical knowledge, while “explainable AI” (XAI) helps them see how those answers were reached. Predictive and prescriptive analytics also move the manager’s role from problem-solving to proactivity, since managers can anticipate changes in customer behavior and test different strategies virtually before committing to them. In addition, these technologies allow inefficiencies to be fixed immediately and improve people management by helping to select candidates on merit.

At the same time, applying these approaches to managerial activity carries risks and drawbacks. One of the main issues is the opacity of complex systems, which makes constant work on transparency necessary. There is also a possibility that managers become too dependent on data and lose their intuition in making decisions.

This paper explores the growing synergy between human leaders and artificial intelligence in order to identify how technology is transforming analytics processes in management. In particular, it examines the shift from descriptive to prescriptive analysis and its effects on the role of leaders, on human resource management and on the workflow as a whole. By reviewing current developments and future expectations, including the use of real-time engines and edge computing, it seeks to offer an overview of how human–AI collaboration is becoming the main driver of competitive advantage in international business over the coming decade. It concludes that the future of management requires not a choice between human judgment and computer analytics but the right balance between the two.

II. LITERATURE REVIEW

According to Sharma et al., the arrival of AI and HR analytics in the information technology sector revolutionizes an organization’s ability to make decisions, but only when HR specialists move beyond their traditional roles and acquire technical skills such as data analysis, coding and design thinking.¹

The work of Adewale et al. demonstrates that the adoption of Big Data analytics in financial analysis has brought about a shift from the conventional reporting approach to a more predictive

¹ Pooja Sharma, Sonali Bhattacharya & Sanjay Bhattacharya, *HR Analytics and AI Adoption in IT Sector: Reflections from Practitioners*, 18 J. WORK-APPLIED MGMT. 193 (2026), <https://doi.org/10.1108/JWAM-12-2024-0179>.

and strategic one. Firms therefore need to build a culture of data-driven innovation that enables them to optimize resource allocation and manage risk.²

S. Ransbotham and D. Kiron (2025), writing for MIT Sloan Management Review, introduce the idea of the “agentic enterprise”, which marks a change from traditional, passive AI systems to agentic AI able to plan and act on its own decisions. Their key message is that managers will have to move from supervising activities to orchestrating strategy: humans remain responsible for setting the “guardrails” and goals, while the fluid, day-to-day work can be left to AI agents. In their empirical study of generative AI at work, Erik Brynjolfsson, Danielle Li and Lindsey Raymond find that the largest productivity gains accrue to novice and lower-skilled workers. Studying customer-support agents, they show that the AI assistant acts as an equalizer, giving newer workers access to the tacit knowledge of their most able colleagues.³

Marco Iansiti and Karim R. Lakhani argue that becoming an “AI-first” organization requires a fundamental overhaul of management systems: as algorithms replace or enhance an increasing share of traditional processes, AI moves to the core of the firm’s operating model, and the managers around it must become designers of those processes and specialists in the use of data.⁴

According to Sandeep Mahajan, agentic AI models in logistics, such as those that generate alerts on trucks’ arrival times and help to reduce overtime costs, work best when they follow the “human-in-the-loop” concept, which enables managers to respond to geopolitical challenges that algorithms cannot yet solve.⁵

According to a 2026 Atos analysis of the financial services and insurance industry, AI-driven conversational analytics turns routine customer conversations into a strategic data asset: by tracing each customer journey across voice and text channels, it allows managers to identify the processes that cause rework and delays and to track Net Promoter Scores (NPS).⁶

Minling Chen, Yue Zhang and Jing Xue distinguish between “partner-type” and “steward-type” human–AI interaction in research and development teams, finding that partner-type interaction,

² Titilope Tosin Adewale, Titilayo Deborah Olorunyomi & Theodore Narku Odonkor, *Big Data-Driven Financial Analysis: A New Paradigm for Strategic Insights and Decision-Making*, 4 INT’L J. FRONTIERS SCI. & TECH. RSCH. 33 (2023), <https://doi.org/10.53294/ijfstr.2023.4.2.0060>.

³ Erik Brynjolfsson, Danielle Li & Lindsey Raymond, *Generative AI at Work*, 140 Q.J. ECON. 889 (2025), <https://doi.org/10.1093/qje/qjae044>. An earlier version appeared as NAT’L BUREAU OF ECON. RSCH., Working Paper No. 31161 (2023), <https://www.nber.org/papers/w31161>.

⁴ Dina Gerdeman, *Rethinking Business Strategy in the Age of AI*, HARV. BUS. SCH. WORKING KNOWLEDGE (Jan. 9, 2020), <https://www.library.hbs.edu/working-knowledge/rethinking-business-strategy-in-the-age-of-ai> (interviewing Marco Iansiti and Karim R. Lakhani).

⁵ Sandeep Mahajan, *Human-AI Collaboration Models in Operations and Supply Chain Management*, 16 IITM J. MGMT. & IT 35 (2025), <https://doi.org/10.65301/iitm.2025.17.2.925>.

⁶ José Palacios, *Unlocking Value with AI-Driven Conversational Analytics in the Financial Services and Insurance Industry*, ATOS (2026), <https://atos.net/en/blog/unlocking-value-with-ai-driven-conversational-analytics>.

in which AI works as a peer that shares knowledge with the human team, is positively related to innovation performance, whereas steward-type interaction is negatively related to it.⁷

According to Samuel Omokhafa Yusuf, Iselobhor Vincent Ikhine, Richmond Nyamekeh, Olaitan Ebenezer Oluwadare, Bernard Afoakwah and Nathan Yusuf, AI-enabled supply chain management outperforms conventional approaches, delivering 20–30% improvements in demand-forecasting accuracy, and the end-to-end transparency made possible by technologies such as machine learning and blockchain underpins a new kind of resilience.⁸

Hoffmann et al. (2025) conclude that the greatest productivity gains occur among lower-skilled workers; AI collaboration acts as a “leveler” by providing junior staff with the analytical scaffolding usually reserved for experts.

McKinsey & Company (2025) finds that 88% of organizations now use AI in at least one business function, noting that “high performers” set growth and innovation, not just efficiency, as their primary AI objectives.

The MIT Center for Collective Intelligence (2025) found that while human–AI teams outperform humans alone, they do not always outperform AI alone in decision-making tasks, because humans find it difficult to know when to trust the algorithm.

Capgemini Research (2026) concludes that 65% of leaders now view AI as a “co-thinker” in strategic planning, and projects a shift in managers’ roles from generalists to specialists within three years.

Chen and Chan (2026) demonstrate that adopting generative AI rewired patterns of human interaction, with AI acting as a “translator” and “knowledge catalyst” that increases an individual’s centrality within a social network.

III. FUTURE SCOPE

A. Augmented intelligence as standard practice

Management will increasingly adopt collaborative models in which AI handles data-heavy tasks while humans provide judgment, ethics and strategic vision.

⁷ Minling Chen, Yue Zhang & Jing Xue, *Human-Artificial Intelligence Interaction, Knowledge Sharing and R&D Team Innovation Performance*, J. KNOWLEDGE MGMT. (Jan. 9, 2026) (advance online publication), <https://doi.org/10.1108/JKM-02-2025-0226>.

⁸ Samuel Omokhafa Yusuf et al., *The Impact of AI on Supply Chain Operations: A Comparative Analysis of Traditional vs AI-Enabled Processes*, 27 WORLD J. ADVANCED RSCH. & REVS. 1688 (2025), <https://doi.org/10.30574/wjarr.2025.27.2.3027>.

B. Expansion of predictive and prescriptive analytics

Tools will evolve from describing past performance to forecasting future trends and prescribing optimal strategies, enabling proactive decision-making.

C. Explainable AI (XAI) for transparency

Future systems will prioritize interpretability, allowing managers to understand and trust AI outputs and reducing the risks of blind dependence.

D. Agentic AI and autonomous decision-making

Enterprises will integrate agentic AI capable of independent planning, shifting managers' roles from supervision to the orchestration of strategy.

E. Democratization of analytics

AI will act as an equalizer, giving junior managers and lower-skilled staff access to advanced insights, flattening hierarchies and boosting inclusivity.

F. Integration with real-time engines and edge computing

Instant data processing will allow organizations to respond dynamically to customer behavior, supply chain disruptions and market shifts.

G. AI in HR and workforce management

Predictive hiring, performance tracking and employee-engagement analytics will transform HR into a more data-driven, fair and efficient function.

H. Cross-functional collaboration

AI will evolve into a "co-thinker" across R&D, logistics and customer service, fostering innovation ecosystems in which humans and AI act as peers.

I. Ethical oversight and risk management

Future frameworks will ensure that managers retain intuition and ethical responsibility, with blockchain and machine learning enhancing transparency in supply chains.

IV. RESEARCH FINDINGS

The survey on AI and analytics integration in management covered a total professional sample of 35 respondents (N = 35).⁹

⁹ The survey was administered by the authors through an online questionnaire, *Analytics and AI in Management Research Survey Form* (Google Forms), <https://docs.google.com/forms/d/e/1FAIpQLScesOTLppeG5RYjbVzEve7izEPPdDSMeFxn39EHZljhcWLYcA/viewform>. Questions 4 to 12 of the questionnaire are reported here as Q1 to Q9; questions 1 to 3 recorded the

Q1. Does your job include the role of both analytics and AI?

- 15 respondents answered “Yes”;
- 16 answered “Partially”;
- 4 answered “No”.

Finding: 88.6% (31/35) of respondents’ roles involve both AI and analytics, wholly or partly. This suggests that the era of isolated management is ending and that hybrid technical-managerial roles are becoming the new standard.

Q2. How has AI affected your job role?

- 27 respondents answered “Positively”;
- 8 answered “Neutral”;
- 0 answered “Negatively”.

Finding: 77.1% (27/35) of respondents view AI as a net positive. The absence of negative responses suggests that professionals currently see AI as a supportive tool rather than a replacement.

Q3. Do you feel that AI has reduced a significant amount of workload?

- 29 respondents answered “Yes”;
- 6 answered “No”.

Finding: 82.9% (29/35) report that AI has significantly reduced their workload, consistent with the automation of routine tasks. This represents a major shift in how modern managers allocate their time.

Q4. Do you feel confident relying on AI for handling and processing vast data?

- 13 respondents are “Fully” confident;
- 22 are “Partially” confident.

Finding: 62.9% (22/35) are only partially confident and so maintain a degree of skepticism. While usage is high, a majority of professionals still feel the need for human verification of AI-processed data.

Q5. How often do you use AI analytical tools or software in your professional life?

- 9 respondents use them “Significantly”;
- 19 “Moderately”;

respondent’s name, email address and job title.

- 7 “Slightly”.

Finding: 80% (28/35) of respondents use AI analytical tools significantly or moderately in their professional lives, making them a core workplace utility.

Q6. Which AI analytical tools or software do you use?

- 35 individual lists of software were analyzed.

Finding: ChatGPT is the dominant tool (cited by 15 or more professionals), followed by Google Gemini, Claude and Microsoft Copilot. Specialized tools such as Blackbox AI and Canva AI are emerging in niche management tasks.

Q7. How often do you feel you must sideline your “gut feeling” or intuition to follow what AI suggests?

- 7 respondents “Always” sideline their intuition;
- 12 do so “Often”;
- 16 do so “Rarely”.

Finding: 54.3% (19/35) of respondents always or often set aside their “gut feeling” in favor of algorithmic logic. This points to a significant psychological shift toward data dependency in leadership.

Q8. Do you believe that the integration of AI is the primary catalyst for your company’s competitive advantage in the next decade?

- 10 respondents answered “Strongly agree”;
- 15 answered “Agree”;
- 10 answered “Neutral”.

Finding: 71.4% (25/35) agree or strongly agree that AI is the primary driver of their company’s future success. Among these respondents the view is clear: AI fluency is a strategic necessity for the next decade.

Q9. Does the “black box” nature of complex AI algorithms decrease your confidence in machine-led recommendations?

- 5 respondents answered “Yes”;
- 20 answered “Partially”;
- 7 answered “Not sure”;
- 3 answered “Not at all”.

Finding: 71.4% (25/35) report that the lack of transparency in how AI reaches its outputs (its “black box” nature) decreases their confidence, fully or partially.

A. Executive conclusion

The data reveal a “utility paradox” in this sample of 35 professionals. While 82.9% benefit from a reduced workload and 71.4% see AI as a competitive necessity, an equal proportion, 71.4%, find their confidence reduced by not knowing how the technology reaches its results. Moreover, 54.3% of respondents already set aside their own gut feeling in favor of AI logic always or often. The next generation of managers therefore needs to focus on explainable AI: they need to learn not only how to use these tools but also how to check them and understand the logic behind them, in order to keep strategic control.

V. LIMITATIONS

A. The “black box” issue (lack of transparency)

A central problem in the use of artificial intelligence is comprehensibility.

The problem. AI algorithms are often “black boxes”: they give answers without explaining the rationale behind them.

Impact on management. Executives are accountable for their decisions and must be able to defend their choices. It would be hard to justify a major decision or spending cut to shareholders or to the company’s board on the basis of an unexplainable algorithm.

B. Insensitivity to context and “soft intelligence”

AI technology excels at working with numerical data, but it lacks emotional sensitivity and fails to grasp context.

The problem. AI tools may show what is happening, but not why.

Impact on management. Analytics software might detect that a team is not delivering enough results and suggest that its performance is at fault; such a system cannot tell, however, whether the team is demotivated, lacks resources or simply communicates poorly.

C. Data silos and low data quality

AI works only as well as the data on which it operates.

The problem. Many companies suffer from siloed data, which remains inaccessible across departments (human resources, accounting, marketing).

Impact on management. Without high-quality data, the output generated by AI may be inaccurate, a problem popularly known as “garbage in, garbage out”.

D. Algorithmic bias and ethical dangers

Artificial intelligence learns from historical data, which include biases.

The problem. If past hiring or promotion data reflect a bias against a particular group, the algorithm will inadvertently be trained to replicate it.

Impact on management. Excessive dependence on AI in recruitment and evaluation may result in unfair treatment of employees and in lawsuits against the company.

E. Over-dependence and “automation bias”

Over-reliance on computer-generated dashboards and recommendations is a growing danger.

The problem. People tend to accept computer recommendations without reservation, a tendency known as automation bias.

Impact on management. Automation bias can erode a person’s ability to think critically. In a crisis without any “historical data”, a manager who has forgotten how to decide intuitively may be unable to cope.

F. The “broken links” of unstructured data

While analytics handles “structured” data (spreadsheets, sales figures) well, it struggles with the “unstructured” reality of office life.

The problem. A vast amount of corporate knowledge lies in “watercooler” conversations, in body language during meetings or in the general “vibe” of a department.

Impact on management. An AI system might see a project as “on track” because every box in the software has been checked, while a human manager can sense tension in the room suggesting that a key stakeholder is losing confidence. Analytics often misses the subtext.

G. Strategic creativity and the “zero-to-one” gap

AI is inherently backward-looking: it predicts the future from the patterns of the past.

The problem. Innovation often requires a “leap of faith” or a counter-intuitive move that defies historical data.

Impact on management. Had Netflix relied solely on data about what people were renting in 2005, it might simply have optimized DVD shipping; it took human vision to pivot to streaming. AI can optimize an existing path, but humans are still required to invent a new one.

H. Responsibility and the “moral crumple zone”

When things go wrong, an algorithm cannot be held accountable.

The problem. AI has no “skin in the game”: it does not feel the weight of a layoff or the pride of a successful product launch.

Impact on management. In a crisis, employees look not to a dashboard for reassurance but to a leader. If a decision leads to a public-relations disaster or a financial loss, a manager must take ownership. This accountability gap means that humans must remain the final decision-makers if organizational integrity is to be maintained.

I. High sensitivity to “black swan” events

Analytics models are built on the assumption of relative stability or “normal” volatility.

The problem. Major geopolitical shifts, sudden pandemics or disruptive technological breakthroughs, such as the present one, create “outlier” data that breaks standard models.

Impact on management. During a black swan event, AI models often become useless because there is no historical precedent. Managers must then rely on first-principles thinking and instinct to navigate uncharted territory for which no data yet exist.

VI. OBJECTIVES OF THE STUDY

A. Rapid transformation of business environments

Organizations are shifting from descriptive analytics (rear-view analysis) to predictive and prescriptive models. A study is needed to understand how this transition affects managerial roles and decision-making.

B. Bridging human–AI collaboration

While AI offers speed and scale in data processing, human judgment remains essential for ethics and strategic vision. Research is required to explore how to balance these complementary strengths.

C. Transparency and trust issues

Complex AI systems often lack clarity, raising concerns about over-dependence and blind trust. Studying explainable AI (XAI) is crucial to ensure that managers can interpret and rely on outputs responsibly.

D. Equalizing managerial capabilities

Evidence shows that AI empowers novice and less-experienced workers by giving them access to knowledge otherwise held by their most able colleagues.¹⁰ This calls for research into how AI can democratize decision-making and reduce hierarchical barriers.

E. Competitive advantage in global markets

With real-time engines and edge computing becoming mainstream, organizations must study how AI-driven agility can be harnessed as a long-term competitive advantage.

F. Ethical and strategic oversight

As agentic AI systems gain autonomy, there is a pressing need to investigate governance frameworks that keep humans in control of values, ethics and strategic guardrails.

¹⁰ Brynjolfsson, Li & Raymond, *supra* note 3.