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AI Agents to Improve Mobility

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Abstract

Mobility innovators are leveraging artificial intelligence (AI) agents to help public agencies and transportation authorities make better data-driven decisions. These agents automate processes, improve decision-making speed and accuracy, and optimize resource allocation by collecting and distilling data from various mobility systems. AI agents enable planners to query data to solve transportation problems rather than just understand them, ultimately making workers more efficient through process automation.

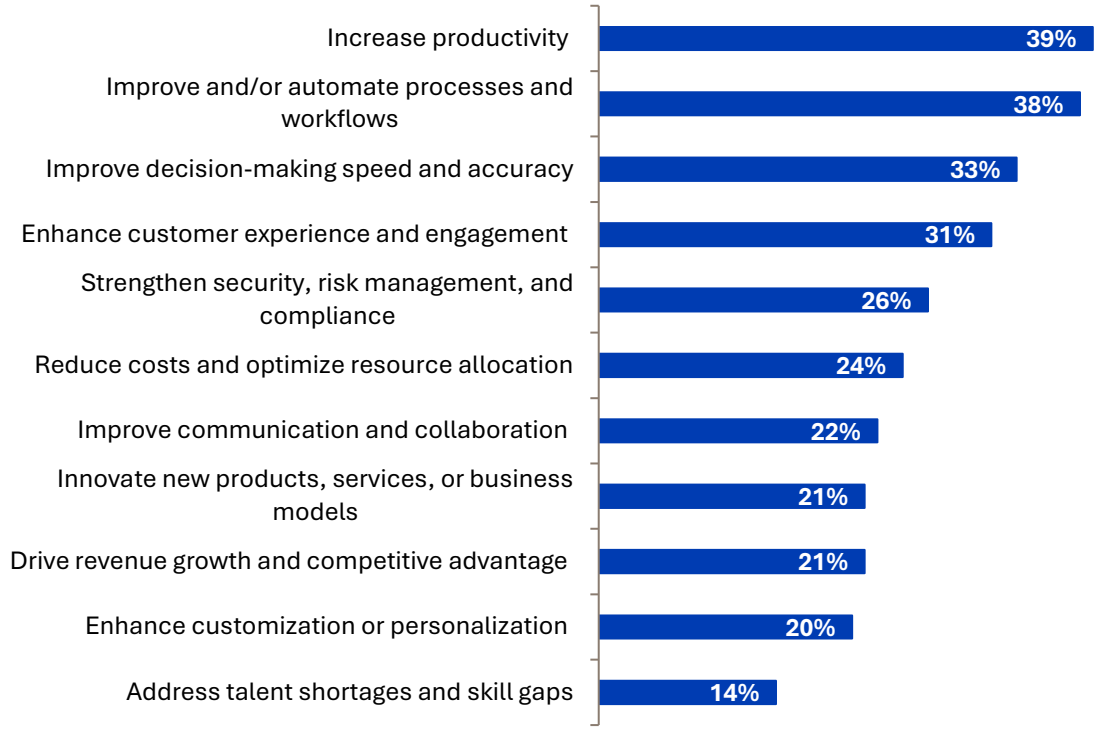
Market Trends

During the past several years, organizations have viewed AI as a transformational force. Generative AI ratcheted up expectations, and AI agents have recently taken things even further. Organizations aim to achieve process automation efficiencies the world has never seen. AI agents have the potential to improve and automate processes and workflows, improve decision-making speed and accuracy, and optimize resource allocation. Recent research from Enterprise Strategy Group (now Omdia) reveals that the key drivers for AI agents are pragmatic: increasing productivity and automating workflows.[1]

[1] Source: Enterprise Strategy Group (now Omdia) Research Report, *AI Agents: The Game-changing Generative AI Use Case*, August 2025. All Enterprise Strategy Group research references and charts in this white paper are from this report.

Figure 1: AI Agent Drivers

Which of the following are your organization's most important business drivers for the use of AI agents? (Percent of respondents, n=350, three responses accepted)



Source: Omdia

In the public sector, transportation authorities are thinking about how to leverage AI agents to address their priorities in mobility planning. Highway Safety Improvement Programs can leverage AI for predictive analytics and real-time monitoring, enabling proactive measures to reduce crashes. Safe Streets and Roads for All programs can use AI with sensor data to design safer intersections, optimize traffic flow, and protect pedestrians and cyclists. Finally, data-backed justifications offer evidence-based insights for funding and policy decisions, ensuring transparency and a measurable impact. Together, these drivers enable smarter, safer, and more sustainable transportation systems for communities. In a broader sense, AI agents have the potential to affect the work of transportation authorities by increasing productivity for limited staffs, improving and automating processes and workflows, improving decision-making speed and accuracy, and optimizing resource allocation.

Challenges

The drivers for AI agents are compelling, but there are a range of challenges to operationalizing them, including systems integration, bridging systems and data sources, and even basics such as knowing where to start. Research from Enterprise Strategy Group (now Omdia) confirms this:

- **Systems integration.** 68% agreed that they face significant challenges integrating AI agents into existing systems and processes.
- **Bridging disparate systems and data sources.** 66% agreed that bridging disparate systems and data sources to enable AI agents is a significant challenge.
- **Knowing where to start.** 37% agreed that they don't know where to start with AI agents.

Transportation authorities are facing the following challenges:

- **Limited staff and resources.** These resources include not only all the planning and analysis needed but also the necessary AI expertise and experience.
- **Long procurement cycles.** Public sector procurement processes are often complex and time-consuming, which can delay technology deployment and reduce the ability to respond quickly to emerging needs or innovations.
- **Need for transparency across departments.** AI solutions often involve data sharing and cross-functional collaboration. Ensuring transparency and compliance with regulations adds complexity, as agencies must justify decisions and maintain public trust.

The AI Agent Opportunity for Mobility

AI agents present a timely opportunity for transportation agencies for a few reasons. First, data quality and accessibility have significantly improved. Authorities are now producing reliable, actionable data. Second, generative AI has democratized the use of this data, enabling staff to query it to solve problems rather than merely understand them. AI agents amplify this capability by automating routine processes, reducing manual workloads, and improving efficiency. They can aggregate and distill information from multiple systems—such as traffic sensors, transit schedules, and incident reports—into clear insights, empowering teams to make faster, data-driven planning decisions. By turning raw data into actionable strategies, AI agents help agencies address mobility challenges proactively and optimize resources in ways previously unattainable.

The strategic path for AI-driven mobility starts with reducing administrative burdens for back-office and field service workers. AI agents can automate routine tasks, freeing staff to focus on higher value activities. The next step is reinventing citizen engagement through self-service agents that enhance traveler services, providing real-time information and personalized support. This evolution improves operational efficiency while delivering better public experiences.

As AI agent complexity progresses, agencies move from simple task automation to orchestrating advanced processes. Early agents handle data collection and reporting, while more sophisticated agents reshape workflows such as network-wide signal retiming, corridor performance reviews, and multi-agency coordination during major events. Ultimately, human-led, agent-orchestrated platforms will enable governments to unlock agility, speed, and scale, bending the curve on innovation. This progression transforms mobility planning into a dynamic, adaptive ecosystem powered by AI.

The Right Approach

The right approach to operationalizing AI agents for transportation authorities is to focus on use cases that can deliver on efficiency, safety, and resilience:

- **Efficiency:** Streamline planning workflows using real-time and historical traffic data and AI agents (e.g., signal retiming, congestion analytics, before/after analysis, and funding justification through data-driven insights).
- **Safety:** Identify high risk corridors using predictive analytics, enabling proactive interventions before crashes occur (e.g., speed monitoring, near-miss detection, hazard identification, etc.).
- **Resilience:** Manage planned (sporting events) and unplanned events (emergencies) using AI-powered support tools (e.g., flood or wildfire detours, bottlenecks, corridor monitoring, emergency response coordination, etc.) with traffic overlays.

Use Cases

Empowering Urban Planning With Real-time Traffic Intelligence

Urban planners often face the challenge of working with outdated or incomplete traffic studies when evaluating infrastructure priorities. AI-powered analytics shifts this dynamic by delivering continuous visibility into vehicle flow, congestion, and intersection performance. With always-current mobility insights, planning teams can make smarter, data-backed decisions, whether retiming signals at congestion hotspots or prioritizing upgrades in areas with frequent safety risks.

Boosting Team Capacity With AI-driven Support

Traffic operations teams are frequently small but responsible for managing complex, citywide systems. AI agents can support and amplify their efforts by handling tasks like incident detection, signal timing insights, and routine data analysis, freeing staff to focus on strategic, high value work. For many agencies, the capabilities of the AI agents translate into broader operational coverage and improved efficiency without the need for additional hiring or overtime.

Proactive Road Safety

Planners are using AI to identify high risk corridors—road segments with a strong likelihood of crashes before they happen. AI analyzes traffic patterns, speed behavior, and near-miss indicators to detect hazardous corridors and predict risk trends. This analysis enables transportation agencies and mobility platforms to take targeted actions—such as speed monitoring, signage, or rerouting—thus reducing accidents, saving lives, and optimizing safety investments.

Best Practices

Transportation authorities can maximize the value of AI agent tools by focusing on three key best practices:

- **Ensure data quality and accessibility**, as clean, well-organized data is the foundation for effective AI insights.
- **Establish centers of excellence** to build internal expertise, promote collaboration, and create governance frameworks that guide responsible AI adoption.
- **Take an incremental approach**, starting with narrow, well-defined use cases where agents analyze specific datasets, then expanding their roles as confidence and experience grow.

These practices work together to reduce risk, accelerate learning, and enable sustainable success with AI-driven mobility solutions.

Why TomTom and Microsoft

TomTom and Microsoft partner to deliver a powerful combination of **location intelligence and cloud-based AI capabilities** for mobility planners. Such capabilities enable planners to build and manage agents that automate processes, improve decision-making speed and accuracy, and optimize resource allocation by collecting and distilling data from various mobility systems. These agents enable planners to query data to solve transportation problems rather than just understand them, ultimately making workers more efficient through process automation. The TomTom-Microsoft partnership offers:

- **High-quality location data from TomTom.** TomTom provides historic and real-time traffic, road network details, routing, and geospatial insights that serve as the foundation for mobility planning and optimization.
- **Microsoft Azure AI and Copilot capabilities.** Microsoft's scalable cloud infrastructure, generative AI, and AI agent frameworks enable planners to query data, automate workflows, and generate actionable insights.
- **Integrated AI agents for mobility.** These agents can combine TomTom's rich geospatial data with Microsoft's AI tools to automate tasks such as traffic analysis, route optimization, and predictive maintenance planning.
- **Enhanced decision-making.** The partnership empowers agencies to transition from static data analysis to dynamic, AI-driven planning, improving safety, efficiency, and citizen engagement.

Conclusion

AI agents represent a pivotal opportunity for transportation authorities to overcome long-standing challenges and deliver safer, more efficient mobility solutions. By automating processes, improving decision-making speed and accuracy, and optimizing resource allocation, they transform data into actionable insights rather than static reports. While agencies face hurdles such as limited resources, lengthy procurement cycles, and the need for transparency, focusing on high-impact use cases around efficiency, safety, and resilience can unlock significant value. TomTom and Microsoft provide the foundation, combining rich location intelligence with scalable cloud-based AI capabilities, to help planners operationalize AI agents effectively. As expectations for innovation rise, AI agents stand ready to drive unprecedented process automation and agility, positioning transportation authorities to meet the demands of modern mobility.

Appendix

Methodology

A combination of Enterprise Strategy Group (now Omdia) research, vendor-provided material, and public and industry knowledge was used to develop this paper and come to its conclusions. The research included in this paper consisted of a comprehensive online survey of IT leaders and decision-makers.

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