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9 Ways AI Can Boost Operational Efficiency

Every business can save money with optimization. Let's get started.

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More AI, More Savings: A Practical Guide to Operational Efficiency Now

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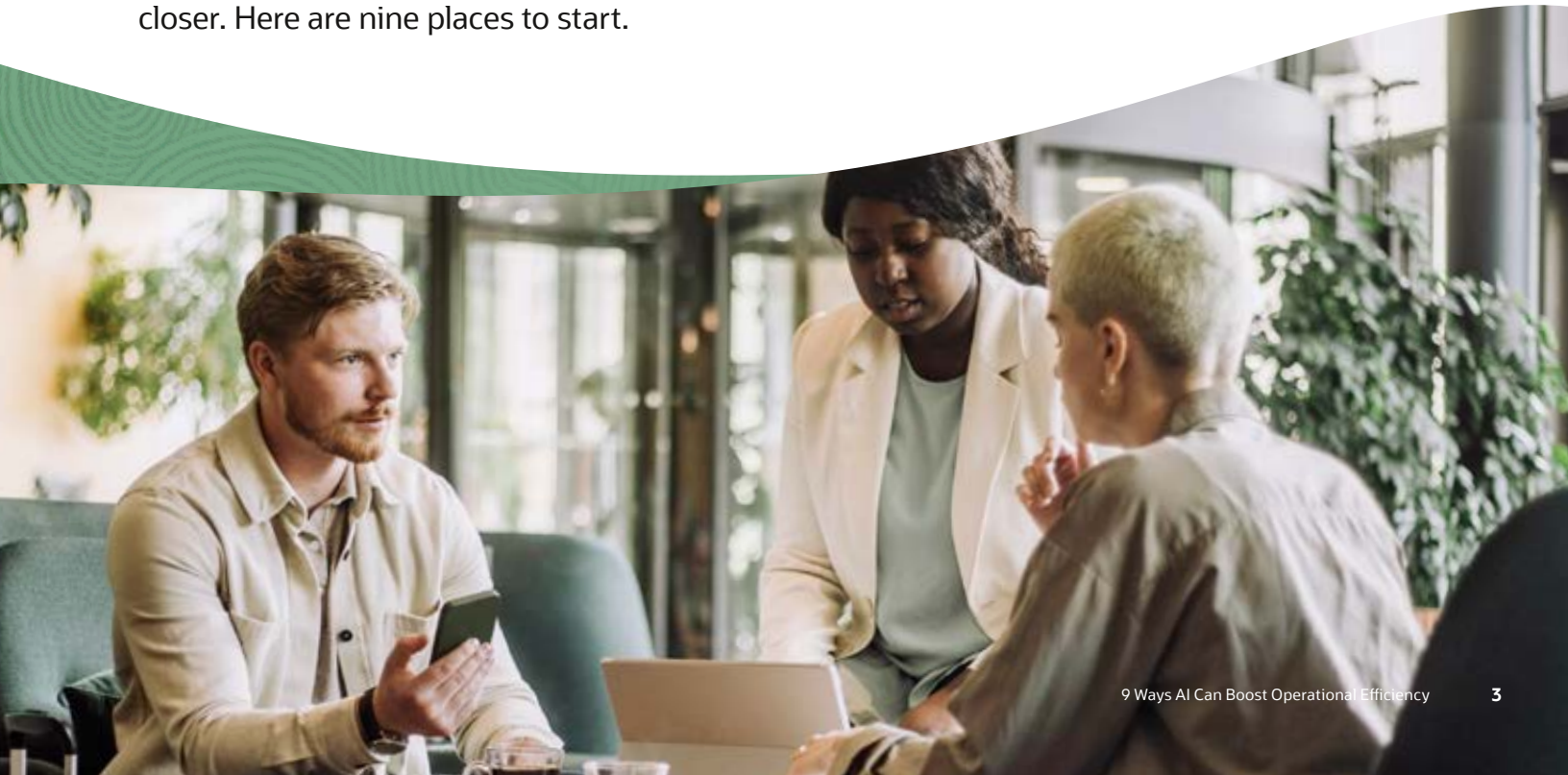
Increasing efficiency is a perennial and unending mission—no matter your sector or industry, there's always money to be saved by working smarter, reducing waste, and better understanding costs. Artificial intelligence is behind the latest game changers in the continuing battle against waste, fraud, and repetitive manual processes. Various AI tools are finding innovative applications across healthcare, manufacturing, finance, construction, and everyday front- and back-office functions. Think trend forecasting, predictive analytics, computer vision, and natural language processing for fielding queries and returning clear responses.

Moreover, AI agents powered by cutting-edge large language models, or LLMs, are proving capable of sophisticated decision-making to automate workflows and provide actionable intelligence for executives looking to outperform the competition.

Can we finally achieve peak efficiency? That's a moving target. But with AI, you can get closer. Here are nine places to start.

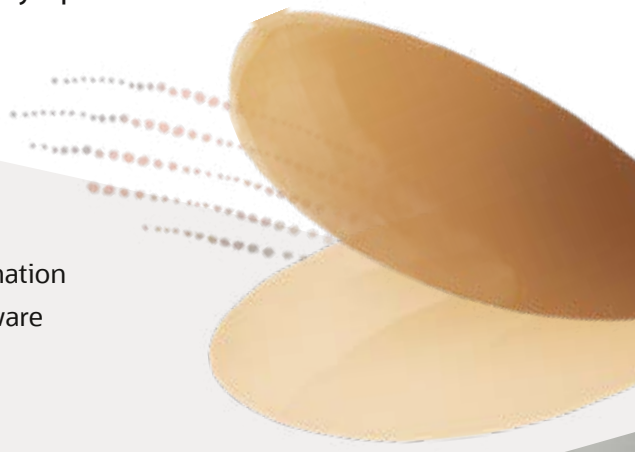


Knowledge retrieval

As enterprise data and data repositories expand across distributed storage systems, a challenge emerges: The more digital documents you have, the more knowledge you can draw from, but the harder it gets to find any specific piece of information. Like a photo on your smartphone or an article you saw on social media a few years back, you know it's there, somewhere. But retrieval requires a major expedition.

Fortunately, AI is very good at finding needles in haystacks.

Early information retrieval systems relied primarily on indexing and ranking unstructured files, which users could discover through keyword searches. Machine learning dramatically improved that process by training models to understand searches in their proper context and surface more relevant material. That made it easier and quicker to check whether a product is in stock, verify a contract has been signed, or confirm a policy update.



What are AI agents?

Building on the power of knowledge retrieval, AI agents enhance automation by finding the right information and acting on it. These agentic AI software systems are designed to perform tasks autonomously, examining their environments, making informed decisions, and adjusting based on their experiences.

Organizations assign objectives to AI agents according to their roles and business needs. Once given a goal, the agent uses its training, the application context, and the surrounding environment to work toward it. Much like human assistants, AI agents may be given specialized roles. Initially, they may operate under close human supervision, but as they prove their reliability, they may be entrusted with greater independence.

Advanced AI agents can go beyond single tasks, handling complex, multistep processes that require judgment. These agents can communicate in ways that mimic human interactions, connect with data sources, and collaborate with other agents to achieve broader objectives. The level of autonomy granted to an AI agent is determined by humans. Just like training a new employee, an agent's responsibilities can expand as it shows competence and accuracy in its tasks.

But the latest generative AI tools can do more than just dig up a document or unearth a spreadsheet. GenAI can give you an answer, not just a link or file.

Knowledge retrieval systems powered by LLMs cull information from documents and databases and present it in a clear, contextual, and personalized way, much as a domain expert would. And these tools field searches posed in plain language, rather than requiring precise keywords. GenAI assesses the gist of a query and decides what information is being sought based on past searches and who's making the request—is it a lawyer or a customer support agent? It will also search for answers based on the user's level of access: Is the information published online or stored in a highly restricted database?

These systems do call for a heightened level of data organization, ideally structured data, with a vector database or knowledge graph linking relevant relationships. And they increasingly rely on helper technologies like Model Context Protocol (MCP), a standardized way for LLM-powered agents to connect with external data sources and applications, and retrieval-augmented generation (RAG), which provides the AI with relevant context from external sources.

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Knowledge retrieval systems

Customer support

Customer support is often a high-volume, high-cost function, so it presents a prime opportunity for chatbots, virtual assistants, and agentic AI to help increase productivity and deliver better experiences at scale by handling common queries almost instantly, without human intervention.

And these tools now go beyond keyword-based responses. Powered by LLMs, they can interpret natural language queries, recall past interactions, and quickly guide customers to resolutions. AI agents impart those chatbots with sophisticated functionality, such as the ability to consider the customer's previous support calls and how similar tickets were resolved. When human support is still needed, AI can continue to add value behind the scenes by working side by side with your tech support staff to automatically triage tickets, suggest likely solutions, summarize documentation, and provide relevant context, reducing time humans spend toggling between systems or searching for information. And AI agents learn from those interactions to get better at their jobs, with the goal of more calls being resolved without human help.

AI can also improve your post-ticket workflows. It can draft resolution summaries for customers, identify patterns in support cases, and tease out operational insights, such as peak issue types or knowledge gaps. That helps your teams optimize processes over time.

By automating what can be automated and improving what still requires a human touch, AI can help transform customer support from a cost center into a driver of operational efficiency.

Defect detection

Flaws in design, production, or construction can be operationally costly and in the worst-case scenarios pose safety hazards to employees and customers. That's why businesses are increasingly turning to AI to identify and classify defects and monitor machines, facilities, materials, and production lines. Machine vision systems trained to spot flaws can automatically inspect products, while anomaly detection models can analyze sensor data in real time to flag irregularities. Together, these technologies help improve quality assurance, reduce manual inspections, and minimize costly recalls or rework.

These services often run on edge computing infrastructure situated near production and construction sites to limit latency and speed response times as they automate inspection of products, processes, or facilities.

Because efficiency-sapping defects aren't limited to production systems, GenAI can work across the organization for use cases as diverse as identifying damaged packages before they ship or spotting errors or misleading claims before marketing campaigns launch. AI agents can rapidly alter or halt processes and communicate flaws or suggest better manufacturing, quality assurance, and safety protocols. The possibilities for operational improvement are vast here.

Oracle solutions

- Identify and classify defects
- Identifying damaged packages

Intelligent analytics

New data technologies can help reveal just how efficient your operations are. With advanced analytics platforms and access to massive data sets, businesses can now dissect the inner workings of complex supply chains, production schedules, sales funnels, and service delivery models. These insights can help spot bottlenecks and redundancies and optimize the allocation of labor, equipment, and capital.

But while traditional analytics tell you what's happening, AI can suggest what to do next—elevating analytics from observation to optimization.

AI-driven systems can use historical patterns and real-time data to recommend the most efficient logistics routes, production sequences, or resource allocations, adapting to current conditions on the fly. Where standard dashboards might highlight trends or inefficiencies, AI can forecast disruptions, suggest preventative actions, or simulate alternative scenarios to support decision-making. Where analytics can hint at operational deficiencies, AI can predict failure.

GenAI is also reshaping the way people interact with data. Business analysts no longer need to write complex queries or build dashboards from scratch. Instead, GenAI tools offer conversational interfaces that turn plain-language questions into powerful analytics queries and dynamic visualizations, across roles and with guardrails based on function and data access permissions.

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Document management

Vast quantities of paperwork are a staple of the modern office. Forms, receipts, invoices, policies, requisition lists, memos, contracts—they flow up and down broad rivers and break off into streams that cut across sales, accounting, marketing, and every other division. It's a ceaseless deluge—employees at large companies might process millions of documents a week.

AI excels in smoothing and speeding up corporate workflows. First, the AI figures out what kind of paperwork it's dealing with using document classification models trained to look for specific types of textual content, such as keywords or phrases, formatting patterns, or identifiable objects and locations in images.

The next step is document understanding. What information does the doc contain, and what's its priority and status? GenAI can extract this data from most file formats. It can tell you if a report has been signed by all required approvers, a form is fully filled out, or a record has been properly archived. AI agents have also become highly adept at routing documents to their appropriate destinations—a signed contract to sales, a purchase order to fulfillment, an updated workplace policy to HR.

Consider the nearly universal use case of purchasing and billing. Document classification and understanding tools can evaluate procurement requests from the field and internal sales orders. Then AI agents step in to quickly process incoming invoices, matching them to existing records and routing them to the right teams.

Enterprises are using these tools, often embedded in their cloud-based business applications, to direct real-time feeds from ERP systems into data lakes for analytics; automate invoicing by extracting text, tables, and other essential data from documents, including those embedded in emails; and loading those critical business documents into systems of record. AI-powered chatbots are also helping procurement and accounts payable teams, along with suppliers, better understand the status of purchase orders and invoices.

Oracle solutions

- Document understanding
- Evaluate procurement requests
- Automate invoicing
- Processing invoices in email

Enhanced automation

Robotic process automation, or RPA, has proven incredibly useful in improving efficiency by automating repetitive, rule-based business processes. But the core technology—software bots mimicking the way humans do rote tasks by following straightforward rules—is limited. Augmenting RPA with AI, a process called intelligent automation, frees the system from following rigidly defined workflows.

As an example, RPA can monitor social media and customer support tickets for keywords related to product defects, like "arrived damaged" or "poor quality," and gather that data into a central queue. Intelligent automation goes a step further by using NLP-powered sentiment analysis to figure out if an item arrived broken because of the shipper, or if it left the assembly line with defects. It also cross-references details like order number and customer with the shipping carrier and your internal CRM or ERP systems. Going a step further, an agent could be tasked with minimizing customer churn due to quality complaints at the lowest possible cost. Is this a high-value customer, and was the defect your fault? The agent could calculate the cost of shipping a new item overnight and send a customized apology with the resolution.

This addition of AI has reinvigorated RPA as an essential enterprise technology, freeing employees from excessive time spent on mundane tasks while reducing the errors associated with manually shuttling forms and entering data.

Want to see what peers are doing with AI now?

We gathered 11 AI Use Cases to Launch Today across a range of industries.

Fraud prevention

Complex, high-value transactions are executed in milliseconds, so financial institutions must authorize purchases that happen at the speed of a credit card chip scan. Ecommerce companies have a responsibility to vet unknown vendors who advertise, buy, and sell products on their platforms. Insurance companies need to scrutinize claims that come in by the thousands after natural disasters.

Add to the mix the increasing volume of assets—stocks, cryptocurrencies, and more—traded across global markets, sometimes by autonomous bots, and it becomes clear that humans attempting to detect fraud without sophisticated digital tools are doomed to failure. The speed and scale of digital commerce make fraud detection technology shortfalls not just a risk but a major operational burden.

AI has become an essential tool for combating fraud thanks to its ability to analyze vast data sets and identify patterns that could suggest criminal actions. Trained by machine learning on historical customer data, intelligent fraud detection systems either scrutinize real-time transactions, as needed for credit card purchases and stock trades, or batch processes, for confirming the validity of checks, for example. AI agents can also suggest or initiate nearly instantaneous measures to help mitigate the damage inflicted by bad actors.

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Smarter travel

For businesses with employees on the go, jetting off to sales presentations, conferences, and field visits, the travel office can become a dependable source of operational inefficiency. Last-minute changes, booking errors, policy violations, and expense overruns create headaches for employees and finance teams alike.

It no longer must be that way. AI can act as a virtual travel agent that optimizes itineraries, even when they're constantly in flux; finds, books, and rebooks the best deals on flights and accommodations; and provides compliance with corporate travel policies. Beyond bookings, AI tools might review the traveler's meeting schedules and preferences to suggest optimized travel plans that minimize downtime and maximize productivity.

After the trip, AI can speed up the expense process by automatically categorizing receipts, detecting out-of-policy spending, and generating expense reports—freeing employees from tedious paperwork and giving finance teams cleaner data.

Autonomous databases

As enterprise data grows in volume and complexity, managing databases efficiently has become a major operational challenge. Many organizations run a mix of structured and unstructured data systems across cloud and on-premises environments that require constant tuning, patching, scaling, and monitoring.

It's no surprise then that database administrators have seen their responsibilities multiply—a single DBA might be responsible for keeping dozens of mission-critical databases humming. It's a time-consuming and labor-intensive job that's prone to human error. A critical database going down or experiencing a security incident can be a major operational setback that affects every aspect of the business.

Autonomous databases, powered by AI, can reduce that burden by automating core administrative tasks including performance tuning, backup scheduling, security patching, and resource scaling. These systems learn from historical performance to help detect anomalies in real time and optimize workloads with minimal human input.

The result: fewer outages, faster response times, and lower operational overhead. By freeing up DBA capacity and improving system resilience, autonomous databases help organizations keep their data infrastructure running smoothly and efficiently at scale.

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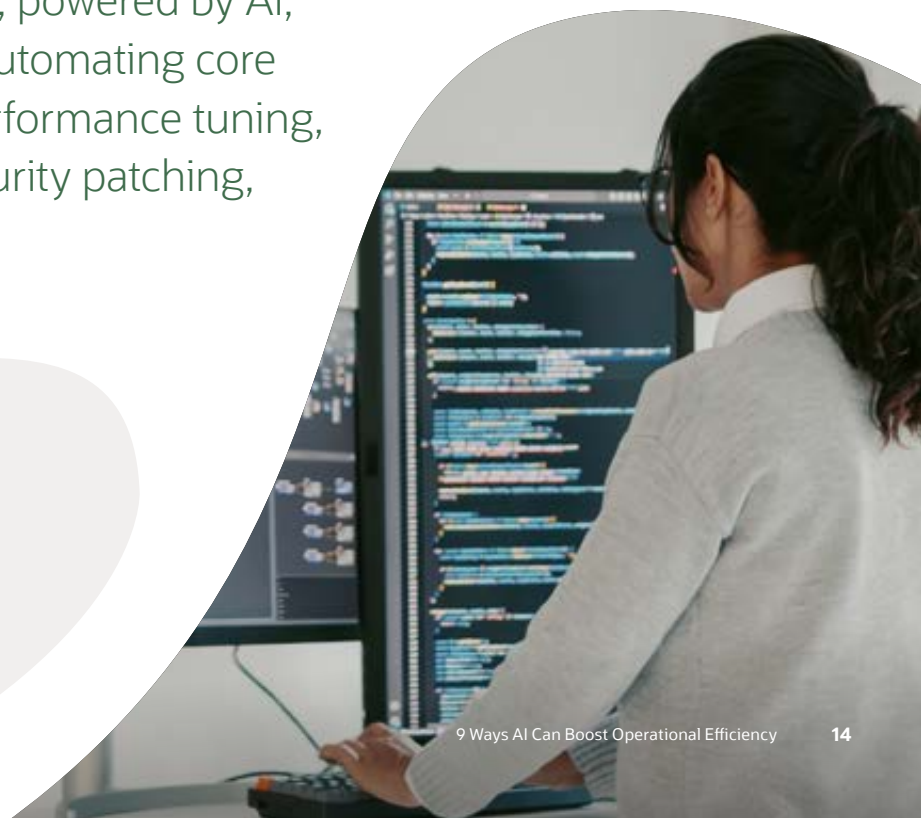

Oracle solutions

Autonomous Database

Turning efficiency into advantage with AI

Across every corner of the enterprise—from customer support and fraud prevention to document processing, travel, database management, and more—AI is helping organizations do more with less. What used to take days can now take minutes. What once required teams of people can now be orchestrated with intelligent systems that learn, adapt, and optimize at scale.

By automating routine work, accelerating decision-making, and reducing risk, AI can unlock new levels of operational efficiency—freeing your teams to focus on strategic initiatives that drive growth, innovation, and customer value.

Oracle solutions

Powering AI operational improvements are Oracle's generative AI offerings, embedded natively into the applications and infrastructure that businesses already rely on.

Whether it's surfacing insights in ERP and HCM, automating workflows across supply chains, or enhancing developer productivity with natural language prompts, Oracle's GenAI is built to deliver secure, enterprise-grade intelligence at scale.

Oracle GenAI

Integrated across Oracle Cloud Applications and Oracle Cloud Infrastructure (OCI), Oracle GenAI empowers organizations to:

- Maximize agility by embedding GenAI into everyday workflows
- Minimize inefficiencies through intelligent automation
- Maintain trust with built-in governance, data privacy, and security
- Make smarter, faster decisions with contextual AI assistance

AI isn't just about innovation; it's about operational excellence.

And with Oracle's GenAI capabilities, you don't have to piece together disconnected tools. You get a unified, enterprise-ready AI foundation that turns yesterday's time-sink into today's strategic advantage.

How Oracle can help

Ready to start your AI efficiency journey?

Explore how OCI Generative AI can streamline your operations—in finance, customer service, data management, and more.

Explore AI in action

Talk to an Oracle expert

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