PEX
PROCESS EXCELLENCE
NETWORK

GENERATIVE AI &
THE TRANSFORMATION
OF OPERATIONAL
EXCELLENCE

INSIDE:

- How generative AI is ushering in a new age of operational excellence
- Case studies and guidance from Walmart, Electronic Arts and Lenovo
- Key generative AI success factors and challenges

In association with

edgeverve
An Infosys company

Introduction

The potential of generative artificial intelligence (AI) for enhancing operational excellence (OPEX) is vast. Since the explosive emergence of the technology in 2022, businesses of all sizes and across diverse industries have begun exploring how generative AI can streamline operations, improve efficiency and reduce costs. While the full extent to which generative AI will revolutionize operational performance remains uncertain, one thing is clear; the generative AI genie is well and truly out of the bottle. The need for modern businesses to prioritize the impact of this advancing technology is high.

The *PEX Report 2024/25, PEX Network*'s flagship industry research report, revealed that AI will be the biggest investment area for enhancing OPEX and business transformation initiatives in the next 12 months. More than half (58 percent) of surveyed professionals said their organization has discussed potential AI projects, with operations leading the pack.

"Generative AI is finding exciting applications across various settings that contribute to OPEX including customer service, manufacturing, product development, supply chain, finance, human resources and IT support,"

says Debashis Sarkar, managing partner of Proliferator advisory & consulting.

Generative AI is poised to revolutionize business operations with transformative benefits. According to recent data from McKinsey, 63 percent of executives characterize the implementation of generative AI as a "high" or "very high" priority. Furthermore, research from Microsoft and research/analyst firm IDC found that generative AI usage jumped from 55 percent in 2023 to 75 percent in 2024 among surveyed organizations.

Generative AI adoption in organizations has certainly been witnessing explosive growth. However, as per McKinsey, the percentage of organizations who have adopted the technology at scale is just 11 percent. **For generative AI to expand beyond pilots/proofs of concepts and truly transform organizations' OPEX, it's crucial for organizations to adopt a platform-based approach. This approach unifies all four pillars of OPEX, enables scalability and ensures robust security guardrails and governance. It's also important that such a platform is flexible and future ready – incorporating modular components, multi clouds, AI agents and supporting a poly AI architecture.**

"Modern OPEX relies on advanced technology, teamwork, sustainability and customer satisfaction."

Abhishek Soni, IT strategy advisor

edgeverve
An Infosys company

PEX
PROCESS EXCELLENCE
NETWORK

The evolution of OPEX

OPEX is a cornerstone of business success that drives efficiency, quality and profitability. Approaches to OPEX have evolved from the early days of Lean Six Sigma to the introduction of robotic process automation (RPA) and the advent of the current era of generative AI-powered copilots. "Modern OPEX relies on advanced technology, teamwork, sustainability and customer satisfaction," says Abhishek Soni, an IT strategy advisor to a leading oil and gas company.

Multiple factors have combined to facilitate the evolution of OPEX, spanning needs and requirements, drivers and capabilities, Soni adds. Businesses have increasingly needed to quickly adapt to changes in the market and technology, ensuring high customer satisfaction with quality products and services, incorporating new digital technologies in daily operations and adopting eco-friendly practices to meet regulations.

Likewise, drivers such as technology innovation to improve processes and decision-making, staying ahead of competitors in global markets, keeping up with changing laws (especially in regulated industries) and hiring and keeping talented people to maintain high standards have all played significant roles in advancing what OPEX means in the modern context.

On top of this are shifting capabilities that have seen organizations assume agile methods to respond to change, analyzing data to gain insights and optimize operations, automating repetitive tasks to increase efficiency and encouraging collaboration and continuous improvement among employees, Soni says.

"There is a huge amount of pressure on operations to be more and more efficient," adds Priyank Mangal, senior director, sales and solutions, EMEA at EdgeVerve. "Theyhave to be more cost effective. They have to show efficiencyto the business, that they are operating at the most efficientlevel as possible." This also equates to increasing pressure on chief information officers (CIOs) to show innovation in emerging technologies such as AI, he says.

The four pillars of OPEX

OPEX essentially consists of four pillars – people, technology, data and processes. All of these are being significantly altered by shifting developments, says N Shashidhar, vice-president and global platform head at EdgeVerve. "Unless you're able to transform each of these elements today, your OPEX is not complete, because whatever you don't transform becomes the weakest link and that will determine how well your operating model performs."

The evolution of OPEX

The first pillar is the people dimension, N Shashidhar says. "Traditionally, when companies wanted to bring technology to transform, they were seriously constrained by significant amounts of long chain/long tail use cases. That led to a lot of shadow IT and business users trying to do their own scripting or build their own shadow systems." This creates an "architectural inertia" because, when shadow IT is so extensive, it prevents businesses from being rapidly agile, prohibiting them from changing operational models in line with business model shifts. Modern OPEX requires enabling people through technology – democratizing it for people and allowing them to contribute to its use, N Shashidhar adds.

The second pillar is technology itself. Technology is evolving rapidly, triggering fundamental changes in the landscape. "As technology becomes more capable and more abundant, you have the ability to address use cases that were typically never leveraged because it did not make sense from a return on investment (ROI) perspective," says N Shashidhar.

Third is the data component, he adds. "In the post big data era, we have a scenario where enterprises are incredibly data rich. What was previously sparse was the ability to access, search and reason over it because much of it was unstructured." With emerging technologies, organizations can now interact, consume and interact with data in a much simpler and more effective way, N Shashidhar says.

The final pillar is process. "No amount of technological advances can truly benefit the business unless process debt is addressed. If you want to automate but don't change the ways you are working, you are only accelerating the inner inefficiencies." This requires a fundamental rethink of how to reimagine processes, N Shashidhar says.

How generative AI transforms OPEX

Enter generative AI, ushering in a wave of new possibilities for achieving and sustaining OPEX. "Generative AI is shifting from being just an exciting technology breakthrough to becoming a real powerhouse – what I call the 'engine' of dynamic OPEX," says Santhosh Vijayabaskar, director of intelligent automation and process re-engineering at an American multinational financial services corporation.

This shift is about so much more than simply making things faster or cheaper; it's about making operations agile, intelligent and responsive, where processes can learn, adapt and improve continuously, almost like they have a built-in sense of foresight, he adds. "Generative AI technology enables 'predictive process design' where AI identifies potential bottlenecks or inefficiencies and proactively suggests improvements."

Another key transformation is data-driven compliance, where generative AI models can automatically adapt to regulatory changes, flagging areas that need immediate attention, Vijayabaskar says. "When a regulatory update comes into effect, generative AI can update the workflows in real-time instead of manually adjusting processes, keeping operations compliant and reducing risk exposure."

In customer-facing roles, hyper-personalized engagement, powered by generative AI, allows institutions to predict individual customer needs and design unique experiences for each interaction, he adds. This goes beyond traditional customer service, anticipating needs and building trust by showing customers that their service provider knows them at a personal level. "Generative AI in OPEX doesn't just make processes faster – it elevates the entire business to become more agile, customer-centric and future-ready."

Process optimization, advanced decision support, key knowledge management, customized training and simulation scenarios and innovation and solution design are just a few other areas where generative AI has the potential to greatly change OPEX, says Apoorva Dawalbhakta, associate director (research) and strategic consultant at QKS Group. "These capabilities collectively drive a newer

benchmark standard for OPEX, empowering organizations to be more resourceful and innovative."

The key reason why generative AI is gaining so much popularity is because it enables people to become the "creators," says Mangal. "It makes technology adoption so easy that everybody can actually do it. Generative AI adoption has spiked in enterprises because now a lot of use cases which were previously kept aside have come to the fore."

"It's crucial that OPEX and business leaders define the purpose and benefits intended from generative AI before leveraging the capability."

Nao Antony, Commonwealth Bank

edgeverve
An Infosys company

PEX
PROCESS EXCELLENCE
NETWORK

Generative AI in action

While generative AI is a relatively young technology that is still emerging, there are already notable examples of it being used to enhance operations at not only some of the biggest brands in the world but also across sectors more widely.

Revolutionizing financial services

Generative AI is of particular significance in the financial services industry, says Nao Antony, senior manager of OPEX at Commonwealth Bank. While OPEX objectives can vary based on the needs of an organization, there are obvious areas where generative AI has the potential to offer notable benefits, he adds. "It may be cost reduction through automating the manual effort of transferring physical data digitally or a rapid customer resolution, significantly reducing time-to-outcome."

Processes which are highly repetitive and based on rules, accustomed to obtaining data from predictable (not necessarily the exact same) sources and provide outputs based on simple and evolving rules are also areas where generative AI can deliver new opportunities. Antony cites the example of a repeatable process which depends on

a set of input data themes to make a decision. "Basic sanctions screening and rule-based decision-making are some practical applications of generative AI," he adds.

A powerful example of generative AI in financial services is its use in real-time fraud detection, an area traditionally dominated by static, rule-based systems that tend to be reactive and lead to high false-positive rates, according to Vijayabaskar. He cites a financial institution that turned to generative AI to tackle this challenge, aiming to improve fraud detection accuracy while minimizing disruptions for genuine transactions – a tricky balance in the industry.

"The bank implemented a generative AI model that took fraud detection to a new level by training on a combination of structured transaction histories and unstructured data, like news trends and social media signals." This "fraud insight engine" didn't just scrutinize individual transactions – it analyzed patterns across millions of data points, picking up on subtle anomalies that might otherwise go unnoticed, he adds.

"With this setup, the bank's false-positive rate dropped by 35 percent, freeing up resources to focus on truly suspicious cases. Even better, customers saw fewer unnecessary transaction blocks, strengthening their trust in the bank's security measures." By weaving generative AI into its fraud detection, the institution moved from a reactive to a highly proactive approach, enabling a system that is adaptive, efficient and far more customer-friendly, Vijayabaskar says.

Enhancing healthcare

Generative AI is also enhancing healthcare and health services. Richard Dasselaar, digital transformation and strategy leader at Modern Dental Group and chair/advisor of the AI in Cardiology Working Group, has seen this firsthand. "The integration of generative AI in the medical field has the potential to significantly enhance healthcare," he says. Generative AI can analyze vast amounts of medical data to assist healthcare professionals in diagnosing conditions, recommending treatments and predicting patient outcomes, leading to more accurate and timely care.

Generative AI in action

"For example, we have used generative AI for operational efficiency, streamlining administrative tasks such as scheduling, billing and patient triage, reducing overhead and allowing staff to focus on patient care." It has also helped to augment and improve training and education. "Generative AI can create realistic simulations and training materials for medical professionals, enhancing their skills and knowledge without the need for extensive resources," he adds.

Generative AI-driven chatbots and virtual assistants can provide patients with 24/7 access to information and support, improving communication and compliance with treatment plans. By analyzing historical data, generative AI can help identify trends and predict patient needs, enabling proactive care and resource allocation. "Incorporating generative AI into healthcare not only enhances OPEX but also aims to improve profitability, business and patient outcomes as well as overall healthcare quality that can elevate outcomes for people."

Walmart "100-times" more productive

Generative AI has played a significant role in the automation ambitions of multinational retail giant Walmart. In a recent earnings call, Walmart bosses reflected on generative AI's impact in enhancing a new transformation project, claiming that the firm is "100-times more productive" with the use of the technology.

"We're finding tangible ways to leverage generative AI to improve the customer, member and associate experience," says Doug McMillon, president and CEO of Walmart. "We're leveraging data and LLMs from others and building our own. One example is that we've used generative AI to improve our product catalog."

The quality of the data in its catalog is critical to nearly everything Walmart does, affecting everything from helping customers find and buy what they're looking for to how it stores inventory and delivers orders, according to McMillon. "We've used multiple LLMs to accurately create or improve over 850 million pieces of data in the catalog. Without the

use of generative AI, this work would have required nearly 100-times the current head count to complete in the same amount of time."

More than a "buzzword" at Electronic Arts

Generative AI is more than just a buzzword for video gaming company Electric Arts (EA) – it is at the "very core" of its business. That's according to EA CEO Andrew Wilson, speaking at the firm's recent Investor Day presentation. "Right now, we have over 100 active novel AI projects across three strategic categories: efficiency, expansion and transformation."

Efficiency is not just about cost saving, Wilson says. "Efficiency is doing what we do today faster, cheaper and at a higher quality." That means driving more iteration, more testing and higher quality content for EA's community, removing obstacles for game developers and culturizing of content across geographies so they can focus on finding more fun for more players around the world.

edgeverve An Infosys company | PEX PROCESS EXCELLENCE NETWORK
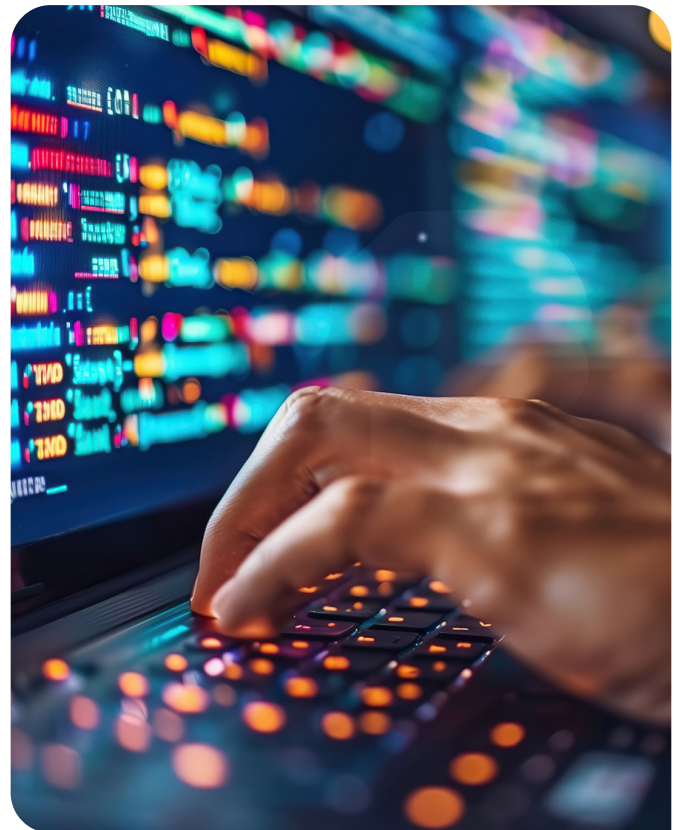
Generative AI in action

"Generative AI is shifting from being just an exciting technology breakthrough to becoming a real powerhouse – what I call the 'engine' of dynamic OPEX."

Santhosh Vijayabaskar, director of intelligent automation and process re-engineering

Expansion is about giving EA's teams an "exponentially bigger canvas" upon which to create, Wilson says. "EA predicts that, with generative AI, it will truly be able to fulfil this promise for billions of people for billions and billions of hours, Wison adds.

Transformation is about looking "much farther" into the future and finding new ways to play, watch, create and connect that aren't imagined today, according to Wilson. "We believe AI will greatly expand and transform the entertainment experience for user-generated content."

Lenovo streamlines software engineering and customer support

PC and electronics manufacturer Lenovo leverages generative AI in software engineering and customer support, boosting code production speed and quality and managing customer interactions by speeding up call handling and reducing costs. "These advancements help us deliver more personalized and efficient service, enhancing

customer satisfaction and business growth – a huge win-win for our customers and our business," according to Arthur Hu, solutions and services group chief technology officer (CTO) at Lenovo. In software engineering, generative AI drives improvements of 10-15 percent, while bots manage 70-80 percent of customer interactions, Hu says.

"We've found that as our software engineers learn how to work with generative AI agents, they go from basically just chatting with them for code snippets to developing much broader thinking and focus." Engineers are starting to think about changing the software workflow, such as working with generative AI on ideation and other parts of the value chain. "We're applying LLM enhanced bots to address customer issues across the entire customer journey and are seeing some great improvements already."

Lenovo is seeing incredible gains in other places too, says Linda Yao, chief operating officer (COO) and head of strategy. "We're finding that marketing teams, for example, are cutting the time it takes to create a great pitch book by 90 percent and also saving on agency fees."

Generative AI in OPEX: Key success factors

Enabling OPEX with generative AI depends on several critical success factors, each with intricacies that must be considered and understood.

💡 Clear and strategic objectives

"It's crucial that OPEX and business leaders define the purpose and benefits intended from generative AI before leveraging the capability," says Antony. Identifying specific, high-impact problems and use cases where generative AI can add value is essential, agrees Vijayabaskar. "Whether streamlining compliance checks or enhancing customer experience, clear objectives ensure resources aren't wasted and the solution aligns with larger business goals," he adds. This enhances productivity in areas such as automation, decision-making and real-time customer support.

At *All Access: OPEX 2024*, hosted by *PEX Network* in November, attendees voted "strong alignment with business goals" as the most critical factor in successfully implementing AI to enhance OPEX, followed closely by leadership support and buy-in. However, almost half of attendees (43 percent) stated that uncertainty about where to apply AI is their biggest impediment.

📈 Robust data quality and management

Data is the fuel for AI, powering its effectiveness in a business setting. To truly take advantage of generative AI, organizations need the ability to access, manage and activate both structured and unstructured data across various systems, all while upholding responsible data use principles. "Generative AI's value is directly tied to data quality. A resilient, comprehensive data pipeline is non-negotiable," says Vijayabaskar. This means establishing real-time data flows and prioritizing data governance, so insights remain timely and accurate. "Institutions that succeed here have often adopted 'data-as-a-service' frameworks, ensuring data is accessible and usable across teams and applications."

It's also important to train data and models in line with generative AI specifics, says Lee Bogner, global AI and generative AI chief enterprise architect at Mars Inc. Bogner

is also a professor at Hofstra University and a generative AI educator at Massachusetts Institute of Technology (MIT). "Closed data/pre-trained data models tend to be less valuable to specific business problems. Movement to fine-tuning existing or domain level data and device focus foundations models is being valued today."

⚙️ Process and operational realignment

Implementing generative AI means more than simply adopting the technology. It requires careful reevaluation and reorchestration of wider business processes and operations, says Mangal. "Rather than looking at how to adopt generative AI, you need to look at how you can transform entire process and value chains, with AI as an enabler." This is how you drive true business value, and it cannot be done with AI alone, he adds.

edgeverve
An Infosys company

PEX
PROCESS EXCELLENCE
NETWORK
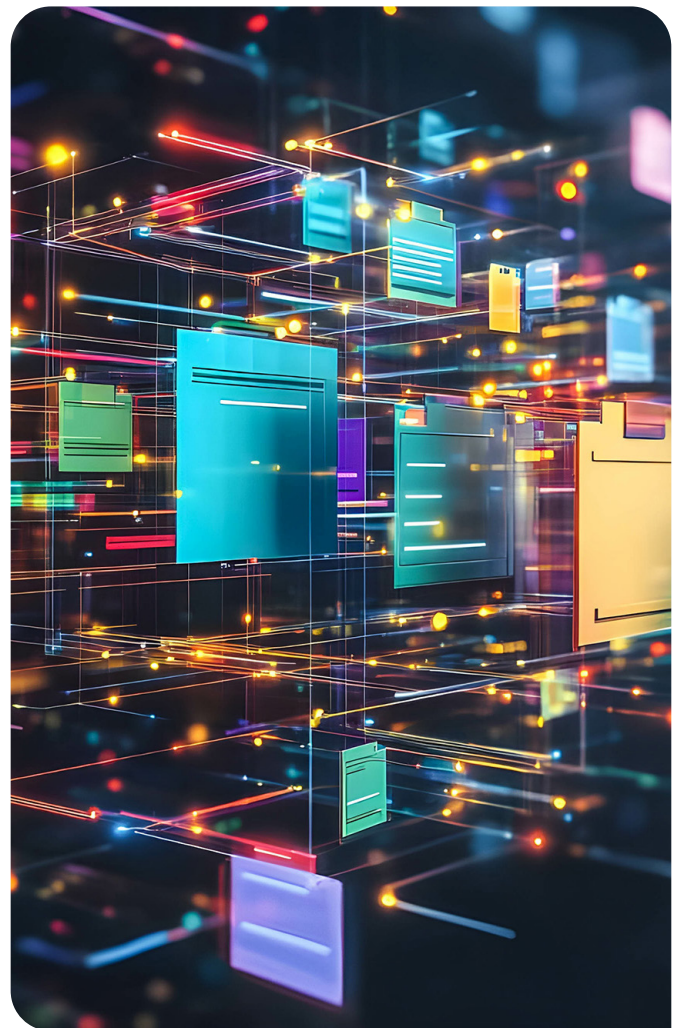
Generative AI in OPEX: Key success factors

"Generative AI gets a lot of hype. Most companies are experimenting with the technology by developing point solutions, which have limited benefits and high costs." This often means enterprises are unable to see real ROI for their investments and programs die. To achieve true value, enterprises need to look beyond point solutions and focus on the end-to-end journey, transforming and automating with AI as an enabler. "This will unlock real value from AI and create business cases for investment," says Mangal.

To stay ahead of the competition, enterprises must consider a platform-based approach that seamlessly integrates with other transformative technologies – such as RPA, low-code development, workflow orchestration and document AI – enabling them to scale AI initiatives across their operations, Mangal adds. "This approach not only accelerates time to market but also optimizes costs (with a smaller infrastructure footprint), ensures central governance and establishes organizational guardrails."

Training and upskilling

There's an essential need for training and upskilling people in relation to generative AI. Adapting to the impact of generative AI on jobs requires organizations to invest in reskilling their current workforce. Training workers to participate in the potential offered by advanced technology is a vital step in ensuring generative AI fulfils its potential, and while technical skills are important, organizations shouldn't overlook the need for soft skills such as communication and problem-finding to ensure that workers can thrive alongside generative AI technology.

"Empowering and enabling key organizational teams with hands on training on relevant AI tools and change management programs goes a long way in building trust and confidence within the AI-driven processes, thereby fostering a widespread adoption mindset," says Dawalbhakta.

Human-AI collaboration

Human expertise is crucial to maximizing generative AI's impact. "A 'human-in-the-loop' approach allows experts to validate and refine AI outputs, adding contextual knowledge that pure algorithms lack," says Vijayabaskar. This collaborative approach is precious in high-stakes areas like compliance, where generative AI's recommendations must be accurate and trustworthy.

"Involve employees in the generative AI rollout," echoes Sarkar. "Failure to do so can lead to organizations leaving their workforce ill-equipped to understand impact, participate in strategic decision-making and address ethical concerns."

Scalable and flexible infrastructure

Generative AI is evolving fast, and a scalable, cloud-based infrastructure is essential for keeping pace. Many leading firms are embracing "AI-first architecture" by migrating their data and systems to platforms that support API-based access to generative AI models. "This shift ensures that, as generative AI technologies advance, organizations can adopt and scale them seamlessly," says Vijayabaskar.

edgeverve
An Infosys company

PEX
PROCESS EXCELLENCE
NETWORK

Generative AI in OPEX: Biggest challenges

While the potential for generative AI is extensive, the challenges are both multiple and complex.

ROI uncertainty, testing and piloting

Uncertainties about ROI can make businesses hesitant to invest heavily in generative AI without concrete examples of successful implementation and a clear understanding of the financial benefits, says Sarkar. Cost and budget limitations were cited as the biggest OPEX and transformation challenge facing businesses in *The PEX Report 2024/25*, mentioned by 28 percent of survey respondents. Hesitation over the ROI of generative AI investments only adds to pressures in this area.

Meanwhile, effective testing and piloting of generative AI is also a challenge, adds Antony. On one hand, organizations may test generative AI with a very basic sample which is not a true representation of the population for inputs or processes. "Time and time again business leaders complain the AI models are not able to predict or interpret the input data. The key is knowing the variation at an input and process level," Antony says. On the other, diving headfirst into the technology can be detrimental to the budget as it can blow up the cost without any initial benefits, he adds.

Compliance and regulation

Regulatory requirements surrounding generative AI can be notably troublesome, says Sarkar. "The rapidly evolving legal and regulatory environment for generative AI creates challenges for businesses, as they must constantly adapt to avoid legal issues and ensure compliance." Law and regulation makers are increasingly concerned with how and why ever more sophisticated AI is used by businesses, introducing stricter standards with harsher punitive action for non-compliance.

This is a particular issue in highly regulated sectors like financial services, adds Vijayabaskar. "One of the biggest challenges with generative AI in financial services is managing regulatory compliance with strict data privacy standards like the EU General Data Protection Regulation (GDPR) and California Consumer Privacy Act (CCPA)." Financial institutions have data-rich environments, which generative AI needs to learn and improve, but there are tight restrictions on how this data can be used. "Balancing compliance and data quality while still harnessing generative AI's potential is a tricky act that keeps many teams on their toes."

Hallucinations and bias

One of the biggest concerns surrounding generative AI is its tendency to hallucinate outputs, says Mangal. AI hallucinations are incorrect or misleading results that AI models generate. "Sometimes it gives you an answer which may be completely hallucinated. Of course, there are checks and balances available now with technology getting more mature to handle this, but still, there is no foolproof guarantee that the answers you're getting are not hallucinated or that it's really the answer you wanted."

Bias and fairness implications come into play here too, adds Vijayabaskar. "Even the smartest models can unintentionally pick up biases hidden in the data, which is especially risky in finance. Take credit scoring: if past lending data has biases, a generative AI model trained on it could end up reinforcing those biases, disadvantaging certain groups." Many institutions are working to address this by investing in "explainable AI" – tools that help us see and correct these biases – but achieving full transparency is still a challenge, and it's an ongoing struggle to build the kind of trust generative AI needs to thrive, he says.

Generative AI in OPEX: Biggest challenges

Security and leakage risks

There are considerable security and leakage risks associated with generative AI use and implementation, says Bogner. "Vulnerabilities to data leakage and cyber-attacks may come from direct prompt injections, indirect prompt injections, adversarial attacks, exploits and so-called jailbreaks. As a result, these models are inherently leaky and require industriousness to align with organizational values and user goals." Defense methods for protecting corporate data and leakage prevention include using specialized, private (not open) applications that only use data from dedicated, secure servers, he adds.
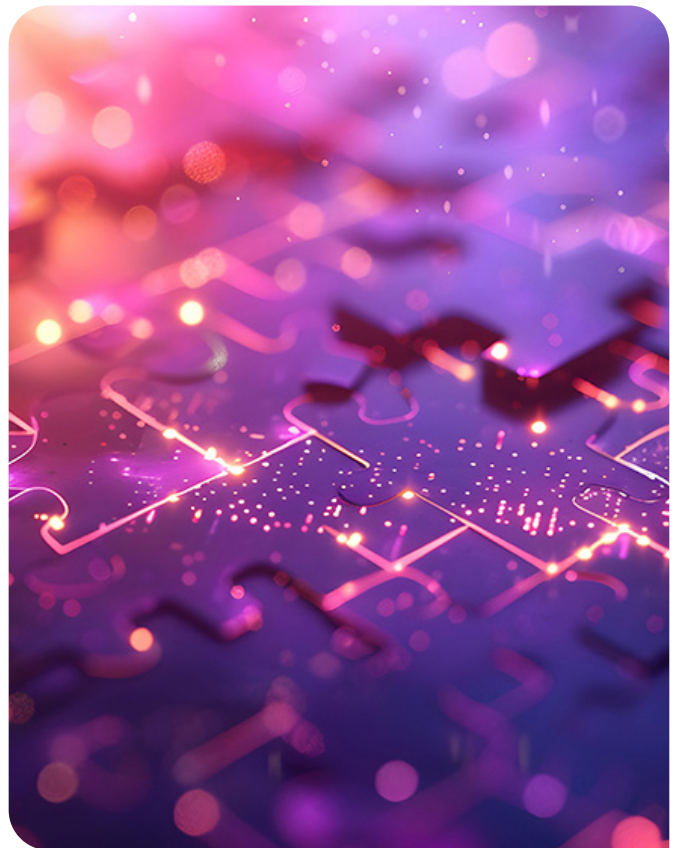
Sustainability and power consumption

Generative AI's capability to drive growth and innovation comes with substantial sustainability challenges including increased carbon footprint, high energy demands and accelerated depletion of natural resources. Generative AI requires significantly more computing power than traditional machine learning because models must be trained on huge data sets. Greater processing power is needed to produce human-like responses. This creates challenges around meeting sustainability and eco-friendly requirements and business aims, warns Dawalbhakta.

Meanwhile, energy demand is set to grow at an even faster pace due to the proliferation of data centers that are indispensable for generative AI services. Data centers are already a vital component of the infrastructure required to support the transition to a digital economy, with many hosting thousands of servers that process and store information. Growth in the number and size of these facilities will also drive a rapid increase in power consumption. Unless generative AI initiatives are scaled with a focus on environmental sustainability, rapid expansion could undermine the long-term benefits for both businesses and the planet.

Legacy and existing system integration

Seamless system integration of generative AI with existing systems enables streamlined workflows, process flows and data flows – key for real-time operational improvements. However, given that many organizations have built up large, complex systems over decades, retrofitting them to support generative AI is no small feat.

"Cloud migration and API-driven architecture are part of the solution, but honestly, getting a generative AI system to integrate fully can be an expensive, drawn-out process," says Vijayabaskar. Many organizations are finding that while generative AI offers incredible promise, the journey to integrate it deeply into existing systems isn't always fast or easy.

Cost and skills issues

The initial and ongoing costs of implementing generative AI can be substantial, requiring careful budgeting and justifying expenses against expected returns. Meanwhile, a shortfall of network operation experts skilled in AI technologies can create resource and integration problems. "The lack of skilled professionals in both AI and operational fields can slow down implementation and limit the effective use of generative AI technologies," says Mangal.

edgeverve
An Infosys company

PEX
PROCESS EXCELLENCE
NETWORK

Generative AI in OPEX:
Complementary technologies

This leads us to another important element of generative AI in OPEX, which is complementary technologies. While generative AI grabs many of the headlines right now, there are multiple OPEX-related technologies that are, and will, remain key contributors to its success. "You will need surrounding technologies like automation, workflow, orchestration, low-code platforms for user interfaces and so forth," says Mangal.

Several complementary technologies can enhance generative AI's potential in decision-making, automation capabilities and real-time adaptability, thereby driving OPEX possibilities, agrees Dawalbhakta.
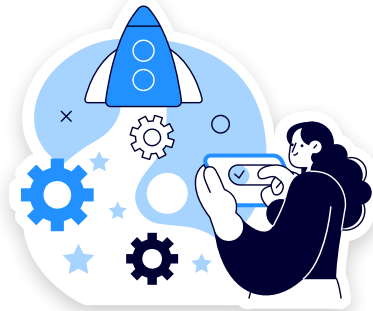
RPA

When RPA is combined with generative AI, it can handle complex workflows, thereby promoting AI to generate key insights or decision logic, further executed by RPA seamlessly.

Internet of things (IoT)

IoT devices provide real-time data collected from different physical assets, which can be further fed into generative AI models for analysis. "Through this, prediction of specific maintenance needs, decisions around optimization of resource use and overall operational efficiency improvements can be achieved," says Dawalbhakta.

Data analytics and business intelligence

By structuring and visualizing key data points produced by dedicated analytics and business intelligence, generative AI can enter meaningful insights and patterns. "Ultimately, this leads to the creation of predictive modelling, promoting enhanced decision support," adds Dawalbhakta.

Natural language processing (NLP)

NLP has helped enable the era of generative AI, from the communication skills of LLMs to the ability of image generation models to understand requests. Unstructured and disparate data such as customer feedback or support tickets can be further processed by making use of generative AI, thus optimizing it for creating responses or operational recommendations.

Cloud computing

Large cloud infrastructures offer robust scalability and computational processing power, providing a much-needed boost to generative AI models in handling extensive data efficiently across global operations.

The future of AI in OPEX

Generative AI will be a pivotal force in OPEX over the next few years, enhancing productivity and expanding employee capabilities, says Sarkar. "By leveraging vast amounts of organizational data, it will deliver valuable insights to decision-makers and enable personalized products and experiences to customers." This transformative technology will positively impact various aspects of the value chain, driving improved business performance across industries, he adds. "Within the next two years, many Fortune 1000 companies are expected to develop comprehensive generative AI adoption strategies for OPEX."

Generative AI will be at the heart of what Vijayabaskar calls "cognitive OPEX," which combines human-like decision-making capabilities with machine-level speed and accuracy.

The integration of AI enhances this capability through advanced analytics, enabling real-time insights and predictive analytics, allowing leaders to make informed decisions that drive operational efficiency and innovation. "This goes beyond automation to a state where generative AI becomes an active, adaptive force within the organization's operational fabric," Vijayabaskar says.

He predicts three specific directions in which generative AI will drive OPEX of the future. The first are real-time decisions hubs where generative AI serves as a central decision-making entity, dynamically generating and refining strategies based on real-time data. "The focus will be on making operations 'aware' and responsive to real-time external events and customer needs." For example, in the manufacturing sector, AI-driven predictive maintenance is becoming indispensable. By analyzing sensor data from IoT devices, AI can forecast equipment failures before they occur, minimizing downtime and reducing maintenance costs. This proactive approach ensures smoother operations and better resource allocation.

Next is process autonomy where generative AI will evolve into a "self-healing" force within operations, allowing processes to continuously monitor themselves, detect inefficiencies and self-correct. "Imagine generative AI detecting a slowdown in transaction processing and automatically reallocating resources to maintain

performance levels. This ability to autonomously adapt will be a game-changer for operational resilience."

Third are personalized customer journeys at scale. "Generative AI is set to transform customer interactions, tailoring each experience in real-time – from onboarding right through to ongoing service." It will adapt to each customer's unique needs and context, making every step feel genuinely personal, Vijayabaskar says.

The emergence of agentic AI & AI agents

Beyond the increasing power and potential promised by generative AI, many experts in the field cite the rise of agentic AI (plus AI agents) as another seismic shift in the AI revolution. Agentic AI surpasses the reactive capabilities of generative AI by acting autonomously, planning ahead and adapting to users' needs. The concept of an agentic AI system is one that acts as a true agent for its users and, unlike generative AI (which primarily responds to user prompts), agentic AI systems are designed to be proactive partners in problem-solving and decision-making, capable of driving significant business outcomes.

"AI agents bring context to decision-making," adds Sathish EV, director at EdgeVerve. "Unlike isolated question-and-answer systems, human decision-making is always informed by context. Similarly, AI agents not only provide answers but also offer context and memory, allowing them to build on previous interactions. This memory enables AI to associate current decisions with past ones, making its responses more relevant and connected."

Moreover, AI agents come equipped with tools to solve problems, he says. "Just as human agents rely on various tools – such as browsers, calculators, ERP systems or finance tools – AI agents are designed with the necessary tools to access and analyze relevant information. This capability allows them to perform tasks efficiently and effectively."

Another key advantage of AI agents is their ability to scale operations up or down based on demand without requiring additional human agents. "This flexibility allows organizations to handle fluctuating workloads efficiently, without the need for constant human intervention," says Sathish.

The future of AI in OPEX

N Shashidhar expects a significant amount of business work to be accomplished through a combination of AI agents and digital workers, combining to enrich the "fundamentally probabilistic" nature of AI with "deterministic" qualities. "Five years down the line, people will work less and less in the run time, and they will start contributing more and more in the design time," he says. AI agents do not operate in isolation, and human agents still play a crucial role in setting parameters, observing the AI's actions and ensuring it stays within established guidelines, adds Sathish. "The AI agent's role is to assist in completing complex tasks, bringing context, memory and the required toolsets to carry out a process, whether it's problem-solving or decision-making."

This is good news, because that's where the real creativity and human potential can be unleashed to the maximum. "It will be a waste of human potential if I ask an individual to enter data from a document into a system," N Shashidhar says. That person's creativity, judgment and potential is far better utilized if they are able to convert a customer need into a solution. Hence more, different job roles will emerge with this new technology.

"Looking ahead, we envision AI-first experiences, where AI drives entire processes," says Sathish. "This could involve AI interacting directly with customers or internal stakeholders, acting as a gatekeeper between them and the systems or people that can solve their problems. In these scenarios, AI plays a central, proactive role, facilitating interactions across the organization. Both of these advancements – AI as a collaborator and AI-first experiences – are achievable only with AI agents."

Generally, AI systems, have shown improvements ranging from 20 to 40 percent in various areas, says Sathish. "If you aren't seeing these kinds of numbers, it's likely that the AI model or solution isn't being applied effectively. Typically, organizations start with small, incremental gains, such as 10 or 15 percent, and as AI is more deeply integrated, the benefits increase, often surpassing the 20 percent mark." What agentic AI will do is take that improvement to even higher levels because a significant portion of tasks can be automated to enhance the efficiency of human agents.

Clearly, AI will redefine OPEX by not only initiating faster and smarter processes but also transforming operations into intelligent ecosystems that adapt in real-time to changes, ensuring consistent and sustained excellence across business functions. In the future, enterprise AI platforms or platform-based approaches are likely to play a pivotal role in driving GenAI-powered OPEX transformations and shaping the next generation of AI-first enterprises.

"I think we're at a pivotal moment where the true potential of AI is at an inflection point," concludes Sathish. "Instead of looking at AI as something in the distant future, we are now witnessing it reaching the level we've been anticipating for years. When AI was first introduced, the idea was that it would eventually take over all work, which wasn't quite the case at that time. Now, however, we are at a point where AI is ready to truly transform operations with agents and AI systems."

> **"Rather than looking at how to adopt generative AI, you need to look at how you can transform entire process and value chains, with AI as an enabler."**
>
> **Priyank Mangal, EdgeVerve**

Contributors

Priyank Mangal
Senior director, sales and solutions, EMEA
EdgeVerve

N Shashidhar
Vice-president and global platform head
EdgeVerve

Sathish EV
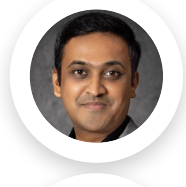Director, product management
EdgeVerve

Debashis Sarkar
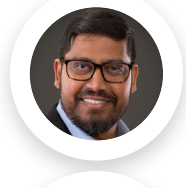Managing partner
Proliferator advisory & consulting
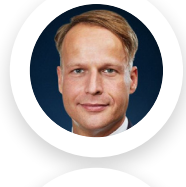
Abhishek Soni
IT strategy advisor

Santhosh Vijayabaskar
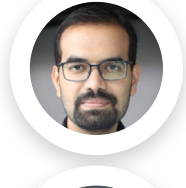Director of intelligent automation
and process re-engineering

Nao Antony
Senior manager of OPEX
Commonwealth Bank

Richard Dasselaar
Digital transformation and strategy leader
Modern Dental Group

Apoorva Dawalbhakta
Associate director (research) and strategic consultant
QKS Group

Lee Bogner
Global AI and generative AI chief
enterprise architect
Mars Inc.

Editorial calendar at a glance

JAN
MARKET REPORTS
Digital Twin of an Organization

FEB
ALL ACCESS
Future of BPM
MARKET REPORTS
Business Intelligence & Data Analytics

MAR
ALL ACCESS
Process Mining & Process Intelligence
MARKET REPORTS
BPM Business Process Management

APR
ALL ACCESS
- Low Code
- BPM APAC
MARKET REPORTS
Business Orchestration

MAY
ALL ACCESS
- OPEX Digital Transformation in HR
- AI in PEX
MARKET REPORTS
Sustainability in OPEX

JUN
ALL ACCESS
Intelligent Automation
MARKET REPORTS
Digital Adoption

JUL
ALL ACCESS
Change Management For Business Transformation
MARKET REPORTS
Process Intelligence & Process Mining

AUG
MARKET REPORTS
AI & Generative AI

SEP
ALL ACCESS
BPM Business Process Management
MARKET REPORTS
PEX State of the Industry

OCT
ALL ACCESS
- Digital Adoption
- Revolution in Process Intelligence APAC
MARKET REPORTS
Low Code

NOV
ALL ACCESS
OPEX Operational Excellence
MARKET REPORTS
Change Management

DEC
MARKET REPORTS
Top OPEX Trends 2025

Learn more about PEX Network's unique content offering and build your sales pipeline while demonstrating real thought leadership
Ed Wells

Contact Ed Now

Download Media Kit