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The Technology, Media & Telecommunications Generative AI Dossier

A selection of high-impact use cases

By Deloitte AI Institute

www.deloitte.com/us/generative-ai-dossier

About the Deloitte AI Institute

The Deloitte AI Institute™ helps organizations connect all the different dimensions of the robust, highly dynamic, and rapidly evolving Artificial Intelligence ecosystem. The AI Institute leads conversations on applied AI innovation across industries, with cutting-edge insights,to promote human-machine collaboration in the “Age of With™.”

The Deloitte AI Institute aims to promote the dialogue and development of AI, stimulate innovation, and examine challenges to AI implementation and ways to address them. The AI Institute collaborates with an ecosystem composed of academic research groups, start-ups, entrepreneurs, innovators, mature AI product leaders, and AI visionaries to explore key areas of artificial intelligence including risks, policies, ethics, the future of work and talent, and applied AI use cases. Combined with Deloitte’s deep knowledge and experience in artificial intelligence applications, the Institute helps make sense of this complex ecosystem, and as a result, delivers impactful perspectives to help organizations succeed by making informed AI decisions.

No matter what stage of the AI journey you are in: whether you are a board member or a C-Suite leader driving strategy for your organization—or a hands-on data scientist bringing an AI strategy to life—the Deloitte AI Institute can help you learn more about how enterprises across the world are leveraging AI for a competitive advantage. Visit us at the Deloitte AI Institute for a full body of our work, subscribe to our podcasts and newsletter, and join us at our meet-ups and live events. Let’s explore the future of AI together.

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Introduction

The advent of Generative AI has delighted and surprised the world, throwing open the door to AI capabilities once thought to be still far off in our future. With a remarkable capacity to consume and generate novel outputs, Generative AI is prompting excitement and stimulating ideas around how this type of AI can be used for organizational benefit. Far more than a sophisticated chatbot, Generative AI has the potential to unleash innovation, permit new ways of working, amplify other AI systems and technologies, and transform enterprises across every industry.

This compendium highlights 60 of the most compelling use cases for Generative AI across six major industries:

- **Consumer** (which includes Consumer Products, Retail, Automotive, Lodging, Restaurants, Travel, and Transportation)
- **Energy, Resources, and Industrial** (ER&I)
- **Financial Services** (FSI)
- **Government & Public Services** (GPS)
- **Life Sciences & Health Care** (LSHC)
- **Technology, Media, and Telecommunications** (TMT)

For each of these industries, we explore Generative AI use cases that can address enterprise challenges in new ways, permit more and greater capabilities across business functions, and deliver advantages in efficiency, speed, scale, and capacity.

As with any type of AI, there are potential risks. We use Deloitte's Trustworthy AI™ framework to elucidate factors that contribute to trust and ethics in Generative AI deployments, as well as some of the steps that can promote governance and risk mitigation. Trustworthy AI in this respect is: fair and impartial, robust and reliable, transparent and explainable, safe and secure, accountable and responsible, and respectful of privacy.

To be sure, this collection of use cases is just a sample among myriad other applications, some of them yet to be conceived. As Generative AI matures as a technology and organizations move forward with using it for business benefit, we will likely see even more impressive and compelling use cases. The applications highlighted here can help spark ideas, reveal value-driving deployments, and set organizations on a road to making the most valuable use of this powerful new technology.

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Six key modalities

One of the primary differences between more traditional AI and Generative AI is that the latter can create novel output that appears to be generated by humans. The coherent writing and hyper-realistic images that have captured public and business interest are examples of Generative AI models outputting data in ways once only possible with human thought, creativity, and effort. Today, Generative AI models can create outputs in six key modalities.

Text

Written language outputs presented in an accessible tone and quality, with details and complexity aligned with the user's needs.

Examples include summarizing documents, writing customer-facing materials, and explaining complex topics in natural language.

Code

Computer code in a variety of programming languages with the capacity to autonomously summarize, document, and annotate the code for human developers.

Examples include generating code from natural language descriptions and autonomously maintaining code across different platforms.

Audio

Much like textual outputs, audio outputted in natural, conversational, and even colloquial styles with the capacity to rapidly shift among languages, tone, and degrees of complexity.

Examples include Generative AI-powered call centers and troubleshooting support for technicians in the field.

Image

Textual or visual prompts lead the model to create images with varying degrees of realism, variability, and "creativity."

Examples include simulating how a product might look in a customer's home and reconstructing an accident scene to assess insurance claims and liability.

Video

Similar to imagery, Generative AI models can take user prompts and output videos, with scenes, people, and objects that are entirely fictitious and created by the model.

Examples include autonomously generating marketing videos to showcase a new product and simulating dangerous scenarios for safety training.

3D/Specialized

From text or two-dimensional inputs (e.g., images), models can extrapolate and generate data representing 3D objects.

Examples include creating virtual renderings in an omniverse environment and AI-assisted prototyping and design in a purely virtual space.

By understanding these modalities, organizations are empowered to think through and better understand the kinds of benefits Generative AI could permit. For each use case described in this dossier, there may be more than one value-driving modality. A chatbot text output could be presented as simulated audio; a generated image could be extended into a video. Ultimately, the Generative AI use case and the value the organization seeks will determine which output modalities can contribute the greatest advantages and outcomes.

Broad categories of value capture from Generative AI

The value that Generative AI use cases can enable can be conceived across six dimensions: cost reduction, process efficiency, growth, innovation, discovery and insights, and government citizen services. To be sure, a single use case can drive more than one value capture, but to help paint the vision for how Generative AI can be used to move the needle on competitive differentiators and operational excellence, the use cases described in this dossier are each associated with a primary value capture.

Cost reduction

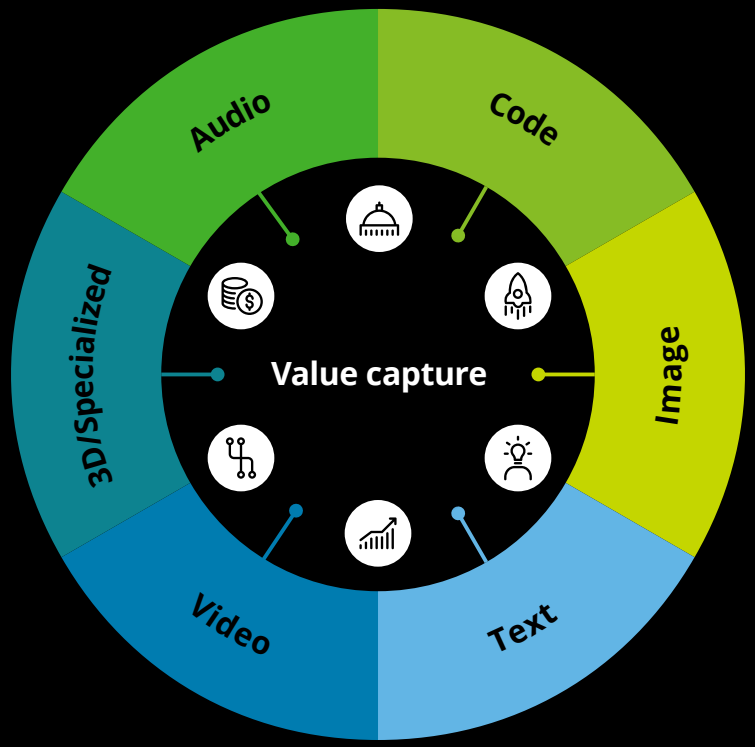
Reduce cost, typically by 30% or greater, primarily through automating job functions and then undertaking job substitutions

Process efficiency

Create process efficiencies through automating standard tasks and reducing manual interventions

Growth

Increase revenue generation through hyper-personalized marketing for target customers



Government citizen services

Increase accuracy of various federal and local programs and create easier access for at-risk populations

New discovery and insights

Uncover new ideas, insights, and questions and generally unleash creativity

Accelerating innovation

Increase the pace of new product or new service development and speedier go-to-market

The data-rich Technology, Media & Telecommunications (TMT) industry faces a range of opportunities for digitization, as well as a challenge in managing and analyzing vast amounts of information. TMT businesses have seen some success in leveraging AI to reduce manual effort and improve efficiency, and while some enterprises are well on their way to AI maturity, others are just getting started. Generative AI can be the enabling technology that allows TMT businesses at all levels of AI maturity to accelerate digital transformation and unleash entirely new capabilities and business outcomes.

With Generative AI, some of the greatest potential value is found in accelerating efficiencies through digitization. It can help shift the organization from being product-focused to customer-centered. Using Generative AI to access insights and correlations in structured and unstructured enterprise data helps align offerings with customer demand, drive operational agility and productivity, and transform how TMT enterprises operate, create products, and engage customers. The Generative AI use cases are already apparent: creating more effective marketing campaigns, accelerating copywriting and research, deriving new product concepts, and supporting software engineering. By integrating Generative AI with the organization's existing AI ecosystem, the business is positioned to create hyper-personalized content for customers, craft and target ads to specific users, and permit translation at scale. This can drive new and more business while also catering to customer expectations for customized products and services.

With Generative AI, some of the greatest potential value is found in accelerating efficiencies through digitization.

Generative AI can also be used as an integral tool for risk management processes. Analyzing real-time network data, models can enable simultaneous, continuous anomaly and pattern detection, catching discrepancies and providing a root cause analysis. By monitoring connectivity between critical hardware, software and data lakes, systems leveraging Generative AI could not only flag network and infrastructure irregularity but then also analyze it and automate response mechanisms.

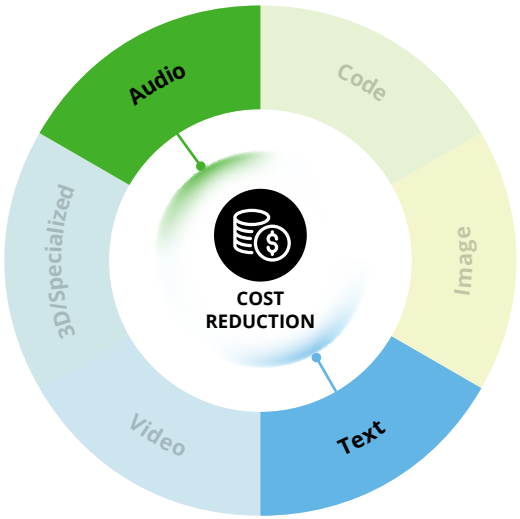
New opportunities often come with new challenges, and the risks and complexity with Generative AI can be significant. What is more, the global regulatory environment around AI is still in flux, challenging TMT enterprises to anticipate government rules and implement the governance and compliance processes that are essential for AI programs, including those using Generative AI. Still, challenges and risks notwithstanding, TMT companies face a transformative opportunity to focus on the customer, streamline and accelerate processes, free up human capital for creative, value-driving tasks, and ultimately, help companies grow, innovate, and succeed.

New opportunities often come with new challenges, and the risks and complexity with Generative AI can be significant.

Conversational chat for customer service

(Virtual Voice Customer Assistants)

With a Generative AI-enabled voice assistant, customer concerns can be remedied faster and in line with company policies and standards while maintaining or even enhancing customer satisfaction.



Issue/opportunity

When it comes to customer support, there are often high operational costs associated with customer care. This owes to customer service agents (CSAs) processing large volumes of cases, even though the resolutions may be simple and could be automated. More traditional chatbots can be limited because they rely on pre-programmed dialogue, which may not contain all of the answers a customer is likely to ask. A Virtual Voice Customer Assistant, powered by an LLM, could overcome the challenges with conversational dialogue, CSA capacity, and even contribute to continuous improvement in knowledge management.

How Generative AI can help

Personalized customer self-service
Combining an LLM with Conversational AI can deliver customer support in a local language, tailored to customer preferences. Virtual troubleshooting can personalize the customer experience, and a virtual assistant could also provide product recommendations and generate offers that increase customer satisfaction.

Interactive Q&A
Automating personalized responses to common customer inquiries during the pre- and post-sales process can reduce customer response times and increase cost savings.

Context summarization
At the end of a customer interaction, it is necessary for an agent to document the context of the interaction. While critical to the business, it is an expensive, time-consuming activity that results in increased agent handle time. With Generative AI, the process takes moments.

Conversational chat for customer service

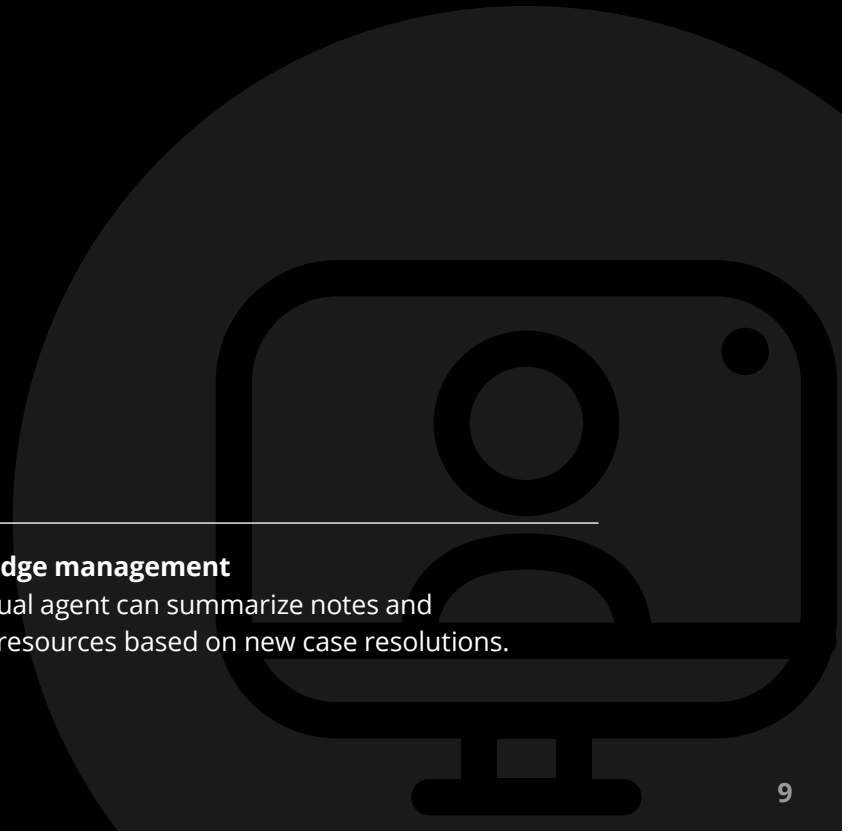
Managing risk and promoting trust

Reliable

While models can be highly accurate, they remain susceptible to outputting false or incomplete information, which could lead to a negative customer experience with the chatbot. This underscores the need for human validation and risk mitigation across the AI lifecycle to limit the potential for hallucinations.

Robust

Automating elements of customer service can increase capacity and speed, but it is important to ensure customer support quality is maintained in the process of deploying and using a Generative AI-enabled chatbot. The deployed virtual customer assistants need to be sufficiently robust to provide equally personalized and empathetic support across all customer regions.



Potential benefits

Cost reduction
A reduced case load for CSAs enables reallocation to complex cases or value-driving tasks.

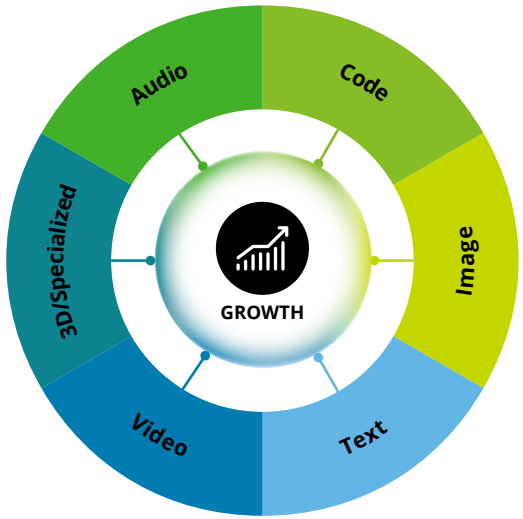
Improved real-time speech AI
Customers can engage in natural language with a chatbot that understands technical and company-specific language, as well as human intent and sentiment.

Knowledge management
The virtual agent can summarize notes and update resources based on new case resolutions.

Generative AI for gamers

(Game Content Development)

Developers can leverage Generative AI to maintain and update their game with new assets and content in line with user community requests and interests.



Issue/opportunity

Game development requires a massive up-front investment in time, resources, and capital. AAA games can cost tens of millions of dollars to develop and take years to complete. These costs will only rise as players increasingly demand more complex games, more post-release support, and more frequent content updates. Generative AI provides the gaming industry with an opportunity to bend the cost curve through enhanced development efficiency, while also simultaneously meeting player demands.

How Generative AI can help

Ongoing content development
Post-release, developers can rapidly generate and deploy new gaming assets as expansions or microtransactions, such as seasonal or downloadable content (e.g., new characters, weapons, and skins). Developers can use text prompts to generate new content in line with the current game and even community desires and upload those assets to the existing game.

Generative AI for gamers

Managing risk and promoting trust

Accountable
Generated content resulting from a model trained with proprietary third-party data may lead to copyright claims if it is deemed to be too similar without substantial variation.

Security
The player's personally identifiable information could be fed into the models as they interact within the game, which raises risks around cybersecurity and regulatory compliance. The collection of PPI, even inadvertently, places an obligation on the organization to secure the data as it is accessed, transferred, and stored.

Fair and impartial
Generated assets may over-index on player segments providing feedback or residing in specific regions. This uneven sampling of the input data could lead to bias in what assets are generated, and it may lead to missed opportunity and revenue, as some of the customers are ignored.

Potential benefits

Greater efficiency for greater creativity
By automating the process of creating game content, developers have more capacity to work on creative game designs and explore new, innovative ideas.

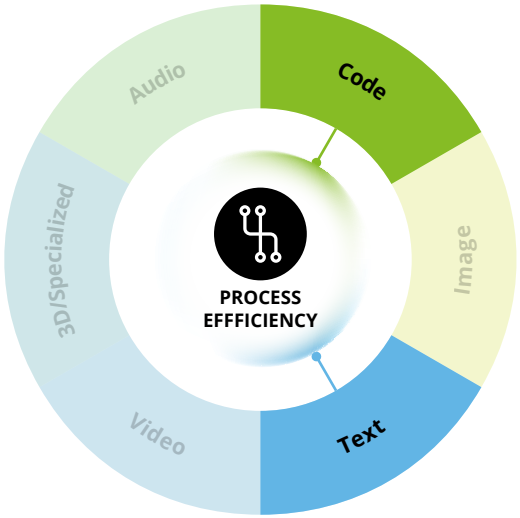
Cater to gamers
More immersive, controllable, responsive, engaging, and unique experiences for gamers (based on community requests and existing popular assets) has a direct impact on the player lifetime value.

Drive new revenue
When add-on content can be generated with minimal human involvement, it creates new revenue streams with minimal investment.

Annotation with automation

(Code Summarization and Documentation)

Automating code summarization and documentation frees up developers to focus on higher-value tasks, while also enabling code explainability for technical and non-technical stakeholders.



Issue/opportunity

Traditionally, a thoroughly commented and structured codebase is difficult to maintain due to resource turnover, time constraints, and siloed knowledge. This step is often deprioritized in code development. The complexity of code and limited comments slows the process of upscaling new resources on an existing codebase. What is more, lack of communication across development teams without clear code commenting or summarization leads to silos of knowledge where each developer only knows certain portions of the code.

How Generative AI can help

Reducing code documentation efforts
Generative AI can be used to review code and create output summaries and application documentation in a concise, human-readable format. It can also automatically pick up important code blocks and add comments for explanation or summarization.

Preparing summaries for multiple audiences
Code summaries can be autonomously generated for non-technical audiences, such as business analysts, product managers, and functional stakeholders.

Generating code from natural language descriptions
Code can be created from the structured descriptions (e.g., behavior-driven development) from non-technical audiences, such as business analysts and product managers, without having to write it manually from scratch, thus reducing time-to-development while increasing efficiency and productivity.

Annotation with automation

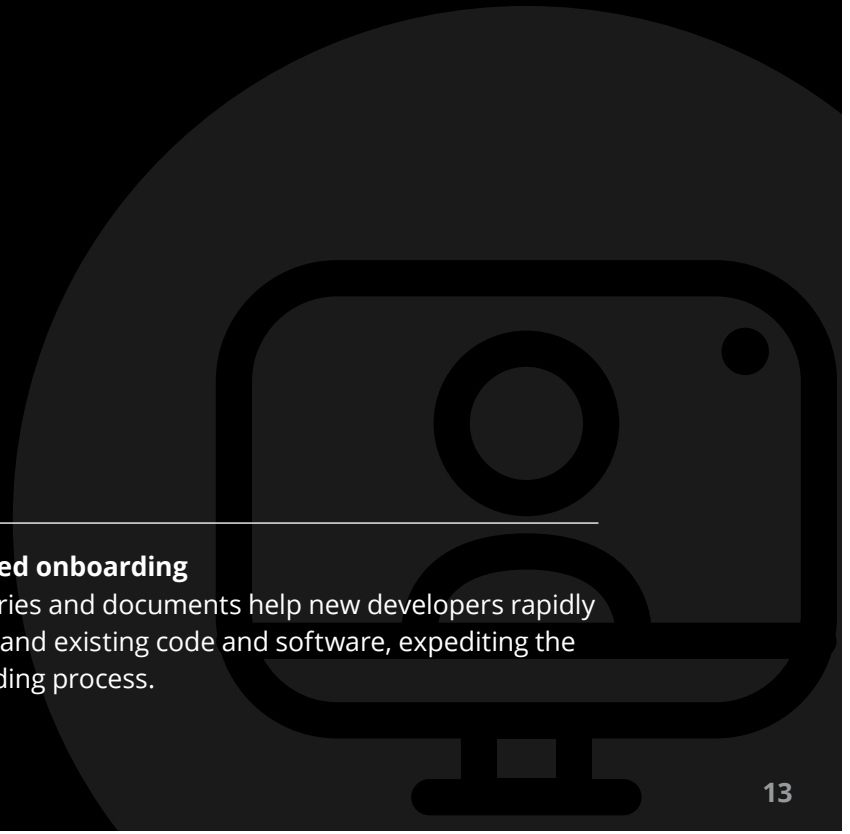
Managing risk and promoting trust

Robust

Generated code documentation may lack business context. Generative AI can support documenting the "what" and "how" of the code, but the "why" may still need to be added by the development team. In addition, code summaries may miss nuances and interdependencies in the codebase. High-level summaries may need to be supplemented with insights or interdependencies from other relevant files.

Transparent and explainable

Domain/developer-specific variables and comments may not be interpretable and could result in inaccurate summarization or documentation. Clearly named variables and aliases used in the code will improve Generative AI's documentation.



Potential benefits

Resource efficiency
Using Generative AI returns significant time savings for developers, allowing them to focus on producing code, rather than adding commentary to existing code.

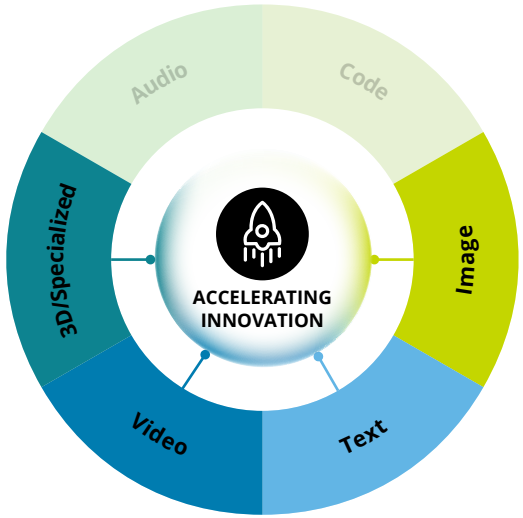
Understandable codebase
Generative AI summaries and documentation are inserted in a consistent writing style that can be understood by any development team member.

Improved onboarding
Summaries and documents help new developers rapidly understand existing code and software, expediting the onboarding process.

Content creation with AI

(Generative AI-Enabled Creative Tools)

Content creation can be facilitated and enhanced with Generative AI tools that minimize the need for manual editing and time-consuming content management.



Issue/opportunity

Content creators and managers are faced with large volumes of data that require considerable time to generate, edit, and oversee. There are significant time and resource investments needed for video and image editing, and the volume of content creates challenges around data management and finding the right content at the right time. Amid this, content creators face tight deadlines that require high levels of efficiency for content management and editing.

How Generative AI can help

Creative assistant tool
Generative AI can be used to create imagery and apply edits using descriptive commands. Conversational editing, text-to-template, text-to-image, and more allow users to expedite the editing phase of the content creation process.

Picture editorial
Producers can automate footage management with video-to-text Generative AI to evaluate and create tags for scenes and content. Text-to-video commands (e.g., “add more rain to this scene”) can be used to enhance and accelerate the editing process.

AI “reshoots”
Content creators can use scripts and 3D scans of actors to generate new content, alter footage to create more realistic special effects, and allow studios to make edits without the need for reshoots.

Content creation with AI

Managing risk and promoting trust

Responsible
Generative AI tools may be trained with large databases of media and content, some of which may be copyright protected. As a result, the model outputs may include aspects of a creator's or studio's work or style that are not attributed to them, which raises legal and civil risks for the organization.

Reliable
Noticeable changes in style and brand quality due to Generative AI content creation and editing may erode consumer trust in the brand and content.

Privacy
If bad actors access the underlying models or applications, it could contribute to the spread of fake content on behalf of the organization, leading to misinformation. Model owners should ensure strong privacy and access controls to mitigate this risk.

Potential benefits

Greater efficiency
Content management stakeholders can gain efficiencies by leveraging creative tools to facilitate work and even create net-new content across the production lifecycle.

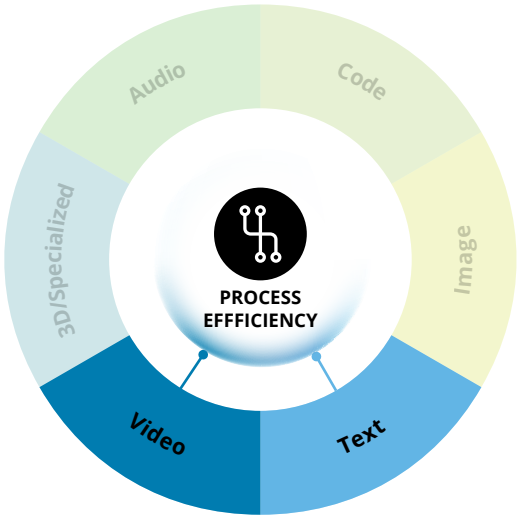
Improved content quality
Generating novel content can supplement the human creative process and potentially lead to a higher quality product.

Content tailored to the audience
With Generative AI, creators can hyper-personalize content with prompts driven by consumer trends and interests.

Translate specs for sales

(Technical Sales Knowledge Management)

Generative AI can help sales staff quickly find and translate technical specifications to customers, as well as document and summarize insights from customer interactions.



Issue/opportunity

When sales staff are promoting technology offerings (e.g., SaaS, hardware, devices, infrastructure, cloud, data, analytics, AI, and IoT), they need a technical understanding of the offering, as well as the ability to quickly find the right technical specifications. Yet, it can be challenging to translate technical specs in a way that is clear and meaningful when responding to a customer's questions.

How Generative AI can help

Technical spec summarization
Generating summaries of technical specifications for customers based on targeted text-based query entries can help the sales staff understand which products meet customer requirements. It may also help staff suggest features and integrations that align with the customer's existing technology stack and vendors.

Knowledge management update
Generative AI can be used to update sales case history to support knowledge management, such that similar technical inquiries in the future can be addressed using previous resolution steps and spec summaries.

Automated technical demos
By training a model on demonstration scripts and sample interactions, staff can generate demonstrations showcasing key features and benefits of the solution, all tailored to specific clients and use cases.

Translate specs for sales

Managing risk and promoting trust

Privacy

Customer data (e.g., sales case history, customer tech stack/vendors) needs to be processed by the model, making it necessary to continuously monitor model outputs and safeguard customer data to mitigate privacy risks.

Reliable

If the information derived from the model is inconsistently accurate or reliable, it will have a direct impact on customer interest, understanding of the offering, and trust in the organization. It's advisable to establish processes for human validation of Generative AI outputs.

Potential benefits

Efficiency with automation
Less manual effort required in responding to technical sales inquiries allows staff to focus on customer needs and opportunities.

Tailored to the customer
Greater personalization in responses and demonstrations improve the customer sales experience and increases chances for conversion.

Enabling other stakeholders
With Generative AI, staff can rapidly create content to inform sales and marketing materials, as well as specific customer or partner questions.

Marketing content multiplier

(On-Brand Publishing)

Using Generative AI, marketing content generation can be cheaper, quicker, and more effective, while still preserving the company's brand identity.

Issue/opportunity

When multiple authors are contributing to a piece of marketing or business content, there are often quality and consistency issues with tone and brand values. Authors are challenged to consistently balance product promotion with thought leadership and insight. As such, on-brand publishing is a significant time and cost investment that requires a long-term commitment to generating content that establishes the organization or its leaders' subject matter authority. Frustratingly, the return on investment for on-brand publishing can be difficult to measure because the impact itself is complex and challenging to quantify.

How Generative AI can help

Cohesive content generation
Generative AI systems can be trained with on-brand content to mimic the style of company marketing materials and generate new, high-quality content rapidly and on demand.

Ideation with generation
Marketing departments can leverage Generative AI to quickly create multiple versions of content in various styles to identify the most compelling and persuasive option.

Tailored, personalized messaging
With Generative AI, organizations can easily create multiple versions of the same on-brand marketing tailored to different customers and audiences.

Elevate content quality
The language quality of marketing materials can be enhanced by using Generative AI to help with phrasing, grammar, company style, and adherence to company values.

Marketing content multiplier

Managing risk and promoting trust

Transparency

Personalized advertisements may be customized based on data collected or purchased from individuals. This may be off-putting to consumers who realize the organization has such broad access to their data, leading to potential harms to brand reputation and consumer trust in the enterprise. One way to mitigate this outcome is to ensure data collection and usage policies are transparent and communicated meaningfully to the consumer.

Responsible

Content produced by Generative AI systems may not be subject to the same protections as human-generated content. Companies need to be wary of infringing on copyrighted material used to train Generative AI systems.

Security

When brand data is used to train Generative AI, there is a risk of data leaks that could result in sensitive information or IP being divulged to competitors. Companies need to ensure that their proprietary information is safely stored, transferred, and used, as well as monitor model outputs to validate that protected information is not being revealed.

Potential benefits

Instant marketing
Companies can create unlimited content better tailored to their brand and customers, iterating through multiple drafts as needed.

Time and cost savings
As Generative AI systems instantly generate content, human staff can shift to an editorial role, and marketing departments may be able to reassign workers to other tasks.

Diversity in marketing
With the ability to easily create content across various formats, styles, and topics, companies enjoy greater flexibility in how they reach their customers. It also allows companies to more rapidly adapt to marketing trends.

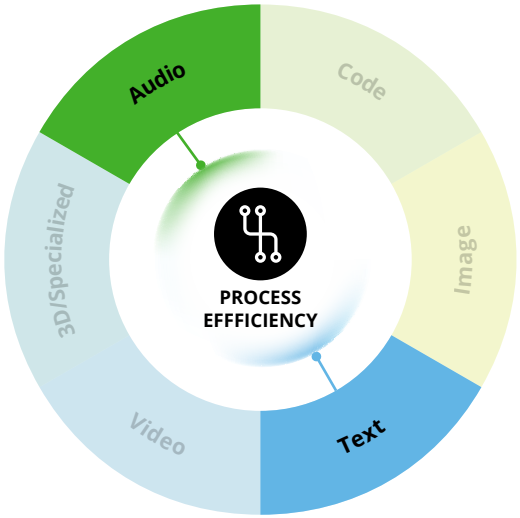
Language translation at scale

(Content Localization)

Generative AI can be used to quickly and easily scale content across regions by translating and converting text and audio into regional languages.

Issue/opportunity

The ability to create and translate content at scale can be a competitive differentiator for multinational enterprises, but it can also command significant time and resources, and rapid, on-demand translation may be difficult to achieve.



How Generative AI can help

Tools for custom localization and quality assurance
Generative AI can be used to help organize and manage complex file types, analyze content before translation to optimize localization, and integrate glossaries, term bases, and language tools into workflow.

Content personalization across industries
AI-powered content personalization can supercharge localization efforts by improving engagement, building brand loyalty, and increasing conversions.

Speech recognition during translation
Generative AI can be leveraged to enable voice user interfaces (VUI), transcribe video and audio content into text, and simultaneously translate spoken content into the target language.

Language translation at scale

Managing risk and promoting trust

Fair and impartial

Bias in the data used for content personalization could lead to unequal and unfair recommendations for certain groups of customers. In addition, AI applications are often trained on datasets from significant languages, which means LLMs may have lower accuracy rates for less common languages and alternative dialects.

Transparent and explainable

Messaging and tone may change with language translation, which may negatively impact the text or audio being generated and the overall quality of the content. Localization should be audited to make sure that the messaging remains consistent with the original intent.

Potential benefits

Enhancing translation
Translation processes using Generative AI can lead to improved speed, accuracy, and scalability.

Improving the customer experience
A wider availability of language resources with the quality and speed enabled by Generative AI promotes a high-quality user experience.

Ensuring quality
Organizations can leverage Generative AI to automate quality assurance for the localization of digital assets by providing more accurate natural language processing.

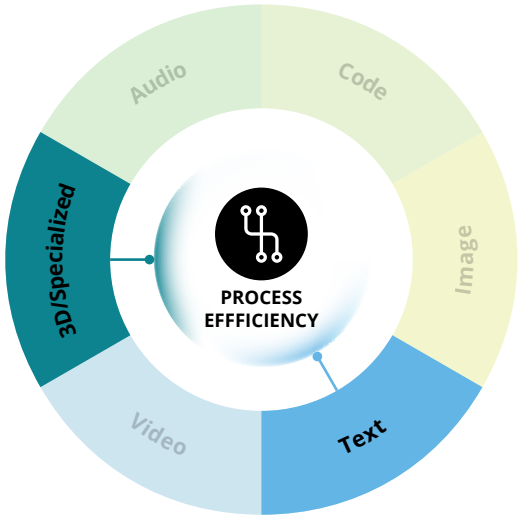
Technician support on the go

(Telco Network Maintenance)

Generative AI-enabled simulations can drive network maintenance speed and effectiveness to help field technicians quickly identify and resolve root causes of network issues.

Issue/opportunity

When working in the field, network technicians must reference thousands of documents and procedures to find guidance on resolving network problems and outages. Without access to these troves of information, remediation efforts may be delayed, hampering operations and customer satisfaction.



How Generative AI can help

Network ops and maintenance
Network technicians can leverage an LLM to power their search for solutions to customer network issues and accelerate troubleshooting. Augmented retrieval generation and summarization from internal databases and customer chat history can generate the recommended resolution steps and explanations for network engineers.

Network optimization
LLMs can help technicians understand network behaviors and create action plans to support network capacity planning and performance. This helps network planning and design, which historically has required high levels of reporting, analysis, and on-site visits.

Technician support on the go

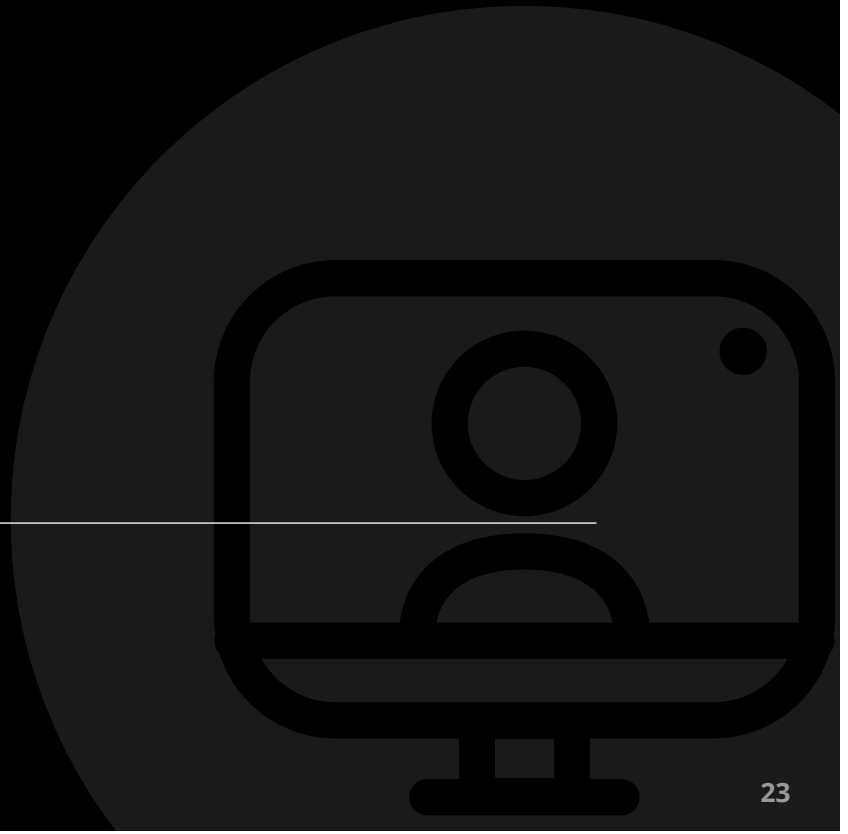
Managing risk and promoting trust

Reliable

With the potential for an LLM to output factually incorrect information, there is a risk that network troubleshooting may be unproductive or even introduce new problems for network operations.

Responsible and accountable

Given the importance of resolving network issues in a timely manner, it is important that humans take ownership of network issues and supplement the Generative AI recommendations and optimization planning with their own judgment and domain understanding.



Potential benefits

Improved effectiveness
Using an LLM can help increase visibility into the reasons for outages and support productivity by streamlining remediation actions, all of which moves toward customer satisfaction.

Personalized support
With rapid access to customer queries, relevant documents, and previous actions, the network technician can better cater to customer needs.

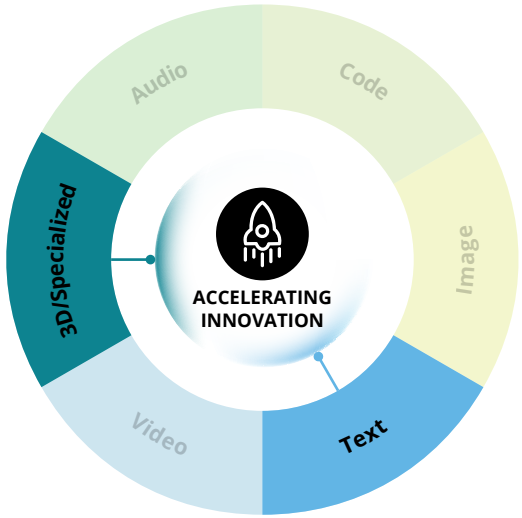
Enhancing chip innovation

(Semiconductor Chip Design & Manufacturing)

Generative AI can be used to iterate chip designs by having designs "compete" across a set of performance dimensions.

Issue/opportunity

With demand for evermore powerful semiconductor chips, design complexity is rising. While semiconductor sizes continue to shrink, density scaling becomes a challenge, since upgraded features are required to fit on perpetually smaller chips.



How Generative AI can help

Iterative chip design
Generative AI can generate and iterate chip designs and improve the outputs by having chip designs "compete" across a set of performance dimensions. At each new iteration, chip parameters are tweaked based on learnings from the best performing designs in past iterations. These models are trained on existing layouts to learn patterns and constraints and generate new layouts that meet specific design requirements.

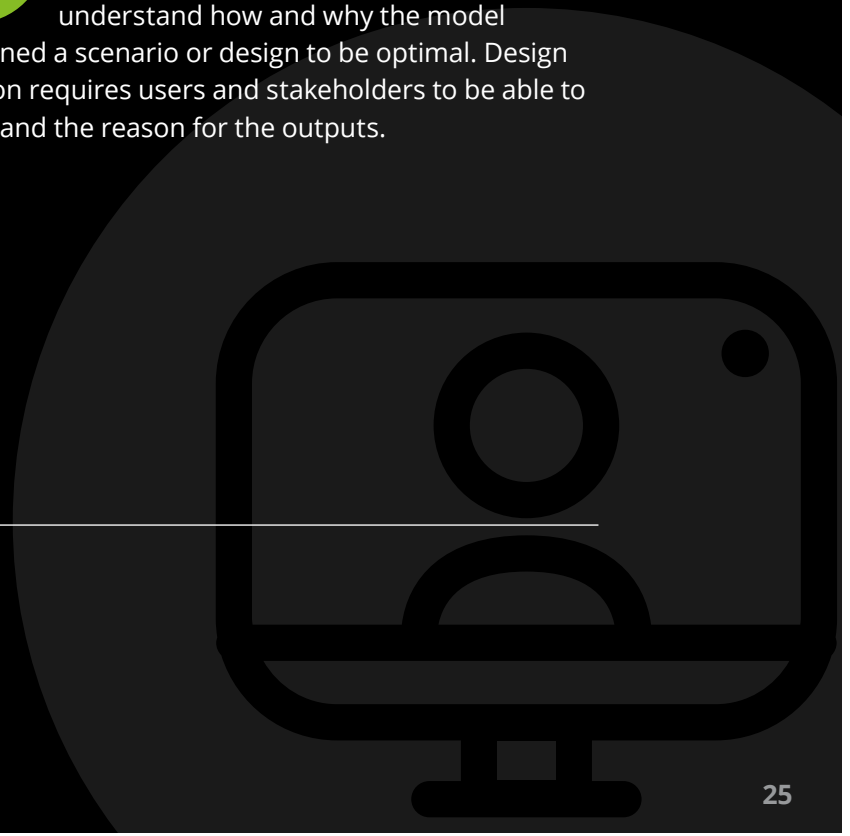
Enhancing chip innovation

Managing risk and promoting trust

Security
With the generation of novel designs, there is a risk of IP leakage and data breaches for proprietary chip designs and technical specifications generated by the LLM that could severely damage the organization's competitive advantage. There should be rigorous security protocols in place to protect against this.

Responsible
When using Generative AI for design, the organization needs to consider how to secure copyrights or patents and protect the IP of chip designs that are moved into production.

Explainable
For complex simulation processes, the organization needs the capacity to understand how and why the model determined a scenario or design to be optimal. Design validation requires users and stakeholders to be able to understand the reason for the outputs.



Potential benefits

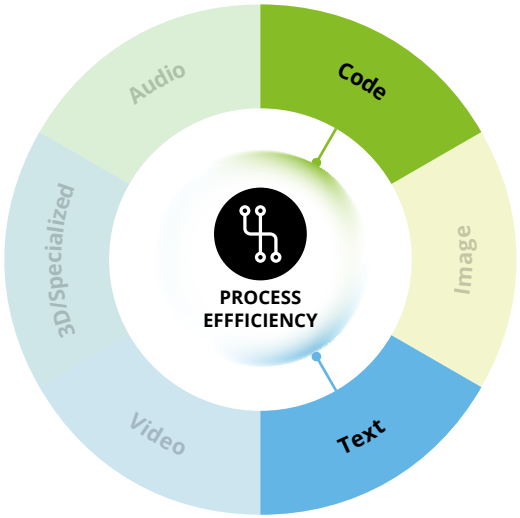
Cost and time
By shortening the development lifecycle, the enterprise can reduce total development costs.

Create new ideas
Generative AI can help improve designs or discover entirely novel designs that optimize performance based on specific criteria, such as power consumption, performance, location, and manufacturability.

Tech specs on demand

(Field Sales Assistant)

Generative AI can help operations and frontline staff quickly find and translate technical specifications to enable faster knowledge retrieval.



Issue/opportunity

Technology offerings require technical depth of understanding and the ability to find the right technical specifications in a timely manner. When it comes to translating technical specs and responding to customer technical questions, operations and frontline staff can be challenged to translate the information and effectively communicate it to the customer. Part of the issue owes to the time-consuming and tedious process of scouring vast amounts of unstructured information and knowledge documents that contain the specifications and answers customers are seeking.

How Generative AI can help

Spec summarization and search
Generative AI can be used to create summaries of technical specifications based on targeted text-based query entries to help understand which products meet customer requirements. It can suggest features and integrations that align with customer's existing technology stack and vendors, as well as provide links to articles or an internal knowledge base for future reference.

Knowledge management update
Sales case histories can be used to update knowledge management so similar technical inquiries in the future can be rapidly addressed with previous resolution steps and summarizations.

Automated technical demos
Generative AI can be used to automate the creation of software demonstrations tailored to specific clients and use cases. This is achieved by training on demo scripts and sample interactions to generate demonstrations showcasing a solution's key features and benefits.

Tech specs on demand

Managing risk and promoting trust

Privacy

Because customer data is used as a component of responding to technical inquiries, the organization needs to take steps to continuously monitor and safeguard customer data and ensure sensitive information does not leak as the Generative AI model is used by a variety of stakeholders.

Reliable

Generative AI models are susceptible to hallucinations or factual inaccuracies, making human validation essential for trust in the outputs and the decisions they inform. What is needed is a verification process to ensure the accuracy and reliability of information derived from the model (e.g., spec summarization, demos), as it can have a direct impact on answering customer questions, and by extension, sales and customer satisfaction.

Potential benefits

Faster answers for customers
When Generative AI can quickly consult and summarize technical specifications, it leads to less manual effort on the part of operations and frontline staff when responding to technical sales inquiries.

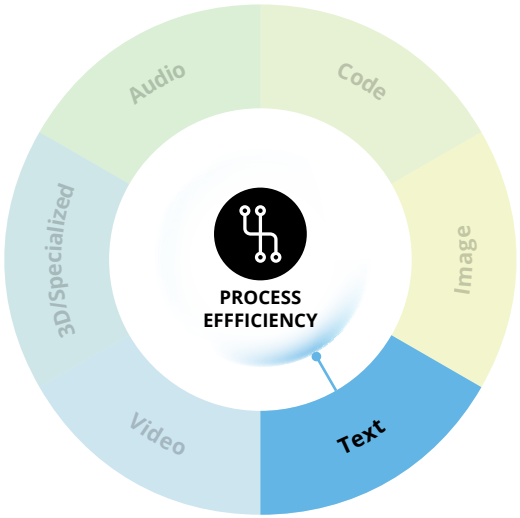
Tailored to the customer
With greater personalization of responses and demos, the enterprise can improve the customer sales experience and increase chances of conversion.

Assisting with sales
Generative AI can be used to create content that supports sales and marketing processes and addresses specific customer or partner questions.

AI-powered technical sales

(Automated RFP responses and conversational access to internal knowledge bases)

Generative AI can produce RFP responses automatically and help sales teams prepare for pitches by providing easy access to internal knowledge resources through smart chatbots.



Issue/opportunity

Sales processes are often constrained by how quickly teams can access institutional knowledge and respond to Requests for Proposals (RFPs). Many sales teams have only days to coordinate across multiple departments and deliver detailed technical and commercial responses. Their ability to respond can be slowed by manual processes, fragmented internal documentation (e.g., playbooks and product briefs), inconsistent proposal quality and knowledge reuse across teams, and limited tools to extract and synthesize key information.

AI-powered tools can accelerate sales professionals' ability to retrieve, understand, and reframe information for client needs—without requiring technical expertise or deep coordination across departments.

How Generative AI can help

Providing easy access to internal knowledge through chatbots
Salespeople can converse with smart chatbots to quickly and easily retrieve sales playbooks, technical specs, competitive positioning, and customer references directly from internal documentation repositories.

Automatically drafting RFPs
Generative AI models can produce high-quality, tailored RFP responses by finding and summarizing relevant content from existing sales documents, aligning answers with internal knowledge bases, and incorporating reusable proposal components.

Providing individualized sales support with little or no coding
Non-technical users, including sales reps and subject matter experts, can generate summaries, extract insights, and draft proposals through a simple user interface—no prompts or coding required.

Enabling customized sales processes and tools
Technical users can integrate AI tools directly into other internal systems, workflows, or dashboards to build more personalized applications.

AI-powered technical sales

Managing risk and promoting trust

Robust and reliable

Rigorous A/B testing has shown AI-assisted workflows can deliver higher quality outputs—in much less time—than traditional approaches. Users can flag incorrect responses or incomplete information; these are logged and reviewed in recurring QA cycles. Also, fallback mechanisms should exist to ensure consistent availability if problems arise with the AI models.

Transparent and explainable

Documentation should be provided for both business users and developers to explain how the system processes inputs and generates outputs. The chatbot interface includes citation tracing, where users can see which source documents were utilized to generate responses. Proposal-generation tools can allow users to edit and review outputs before submission, promoting human-in-the-loop oversight and transparency.

Safe and secure

All data and model interactions should occur within a secured internal environment, with no calls to third-party APIs unless vetted and approved. Systems should support audit logging for all user interactions to ensure traceability and compliance. Role-based access controls can ensure only authorized personnel are able to view or generate sensitive proposal content.

Respectful of privacy

The system should not log personally identifiable information (PII) unless required by specific business rules and protected under internal data governance protocols. Feedback mechanisms should be anonymized where appropriate, helping to ensure user privacy while supporting continuous improvement. RFPs and customer documents processed in the system should be stored temporarily and purged according to data retention policies.

Potential benefits

Faster deal cycles
Sales teams can respond to RFPs and prepare sales pitches/collateral much more quickly than before, greatly accelerating the sales cycle.

Higher win rates
With centralized, AI-assisted knowledge access, sales teams can produce responses that are more consistent and comprehensive—reducing errors and improving win rates (especially for opportunities with time-sensitive budget windows).

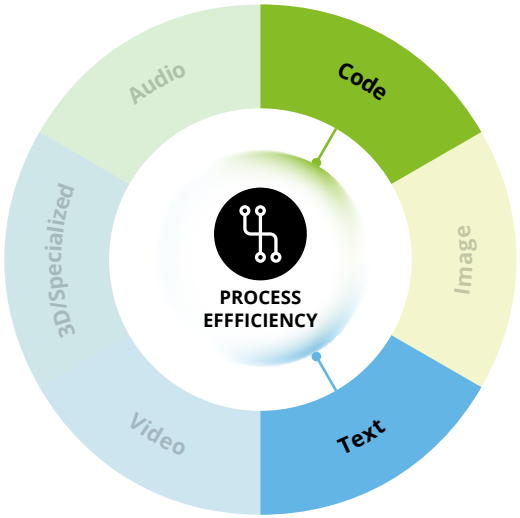
Increased sales rep productivity
Salespeople can search for materials or draft proposals more quickly, freeing them to focus on sales strategy, client relationships, and personal follow-ups. AI tools help onboard new team members more quickly by making institutional knowledge accessible in minutes rather than months.

Path to commercialization
Once validated internally, AI-powered sales tools have the potential to be offered to external customers, turning an internal efficiency driver into a revenue-generating product.

Automated test case generation

(AI-powered test case generation and automation in chip development)

As chip designs become more complex and product cycles accelerate, engineering teams are leveraging AI to automate test case generation and validation.



Issue/opportunity

Chip development demands exhaustive testing and validation due to increasing functional complexity and the high cost of post-release defects. Human testers struggle to keep pace with the volume and sophistication of required test cases, leading to potential quality issues, slower development cycles, and growing verification costs. Yet, security vulnerabilities or missed bugs can result in major product delays, public backlash, and brand damage, prompting chip manufacturers to add even more layers of testing.

How Generative AI can help

Automating test creation
AI tools, including Generative AI and large language models (LLMs), can be used to create new test cases from product requirement documents, bug histories, and structured datasets. These tools can assist engineers by proposing a wider set of test scenarios—including ones not previously considered—and by automating portions of test implementation through code generation.

Identifying test gaps
AI systems can also help identify gaps in testing coverage and can prioritize high-risk areas based on historical failure data, although integration with structured data and internal governance systems remains an ongoing challenge.

Automated test case generation

Managing risk and promoting trust

Robust and reliable

Generated test cases can be validated against known test results and manually vetted to help ensure they hold up under real-world complexity. Also, systems can be stress-tested with increasingly complex product requirement documents to assess scalability and robustness across chip generations.

Transparent and explainable

AI-generated test cases can be accompanied by natural language summaries or rationales explaining why certain logic or edge conditions were selected. Engineers can trace outputs back to source inputs (e.g., PRD sections, bug databases), enabling better understanding and debugging of the AI system itself.

Safe and secure

The development and inference processes can occur in sandboxed environments with strict access controls to prevent accidental leakage of proprietary information. Integration with external AI services should be carefully managed to ensure no sensitive IP or design data is exposed to third-party systems.

Potential benefits

Increased test coverage & enhanced product quality
AI can enable the generation of more comprehensive test cases than previously possible with human effort alone, allowing for earlier defect detection. Also, by identifying edge cases and potential failure modes that humans might overlook, AI can reduce the risk of catastrophic bugs slipping into production.

Faster time-to-market
Automation accelerates the validation process, allowing development teams to keep up with faster chip release timelines and feature rollouts.

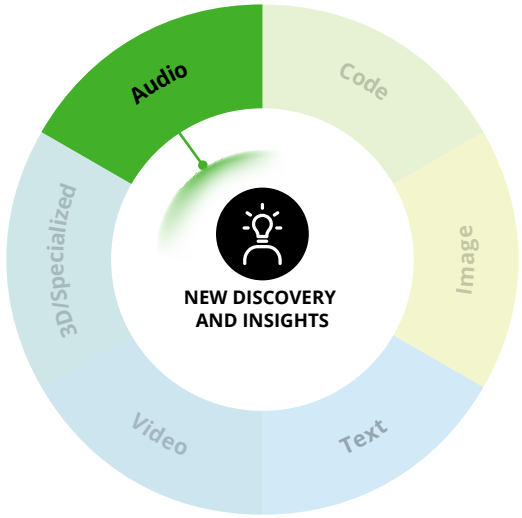
Operational efficiency & cost control
AI helps teams do more with less, reducing reliance on manual testers and mitigating the need to grow headcount to handle increasing workload.

Improved development process
As the test tools mature, there is potential for deeper integration with the design and verification phases, improving end-to-end development flow across decentralized teams.

AI-powered source separation for music remastering

(Separating mixed audio tracks into their component parts using GenAI)

AI can separate vocals or instruments from mixed audio tracks even when the original files are not available, opening up possibilities for licensing, remixing, archival restoration, and monetization.



Issue/opportunity

Many recordings in music labels' back catalogs were produced at a time when multitrack preservation practices were inconsistent, and, in many cases, the original recordings have been lost, damaged, or never existed in isolated formats. This limits the ability to fulfill requests for custom edits—such as instrumentals, a cappella songs, or remixes—thereby stalling lucrative licensing deals, particularly for synchronization (music in film, television, and advertising) and derivative content creation. Manual audio reconstruction is costly, time-consuming, and often technically infeasible at scale. Yet demand for high-quality, tailored audio continues to grow, especially with the global expansion of streaming and sync opportunities.

How Generative AI can help

Separating music into its component parts
Generative AI, particularly deep learning-based source separation models, can analyze a fully mixed audio file and isolate its constituent elements—vocals, guitar, bass, drums, ambient noise, etc.—into discrete audio tracks with high fidelity. These models have matured significantly in recent years and can now perform at a level sufficient for commercial use in many scenarios. Rather than depending on traditional DSP (digital signal processing) or manual studio methods, the AI learns from large datasets of music to "de-mix" the sound using learned patterns of frequency and structure.

Leveraging Software-as-a-Service
Most deployments today use AI-powered SaaS platforms that allow internal teams to process catalog tracks quickly and securely. Internal quality control—along with artist or management approval—is then layered on to ensure that the extracted stems meet the creative and technical expectations of the project.

AI-powered source separation for music remastering

Managing risk and promoting trust

Robust and reliable

All outputs from AI models are subject to expert human review. Because source separation can introduce artifacts, tracks should be assessed case-by-case to determine if the fidelity is suitable for commercial or creative use. Teams should be trained to identify when alternative methods or manual interventions may be more appropriate.

Transparent and explainable

Processes for using AI in audio separation should be clearly defined internally and communicated externally as needed. Stakeholders—including sync partners, artists, and producers—should be informed when AI-generated stems are used, and how those stems were derived from the source material.

Responsible and accountable

All source separation use should be logged, and responsibility for approving commercial use rests with both label and artist-facing teams. If stems are to be reused, remixed, or publicly released, the appropriate clearance workflows—including licensing and revenue-sharing—are followed.

Potential benefits

Commercial monetization of back catalogs
AI-powered source separation can make more recordings available for synchronization deals, remixing projects, or global reissues in alternate formats.

Accelerated time-to-license
The speed and efficiency of AI can minimize delays associated with locating or recreating stems, enabling a faster turnaround for time-sensitive media productions.

Cost-efficient alternative to studio sessions
AI offers a high-quality yet faster and less expensive alternative to manual isolation or re-recording, which are both time consuming and expensive.

Artist-led remix and reimagination projects
Using AI to extract source elements, artists can revisit and reinterpret their own work or collaborate across genres. Even in less creative scenarios, artists and labels can maintain full control over what gets extracted and used, ensuring all usage aligns with legal, creative, and ethical standards.

Operational scalability
AI can systematically process large volumes of tracks, with human review reserved for final QC, increasing throughput without compromising quality.

AI-powered archive access and extraction

(Transforming historical news content into a searchable, monetizable asset)

AI enables news organizations to recover legacy content lost to system or format issues--turning dormant information into a usable, searchable, and monetizable asset.

Issue/opportunity

News archives hold cultural, journalistic, and commercial potential. But over time, many of the most significant stories—especially interactive long-form journalism, investigative pieces, and special coverage—have become inaccessible due to technological evolution, changes in content management systems (CMS), format obsolescence, and a lack of centralized archives.

Reporters and editors often cannot locate stories they know exist, especially from the early digital era (late 1990s to early 2010s). Multimedia components such as photos, graphics, and maps have not always been retained or migrated, rendering even recovered content incomplete.

How Generative AI can help

Document extraction and digitization
AI models can process and extract structured information from legacy formats such as PDFs, microfilm scans, and outdated HTML, even when metadata is missing or inconsistent.

Content reconstruction
GenAI tools can intelligently identify article structure (headlines, subheads, body text, captions, bylines), reconstruct layout context, and reassemble fragmented articles into coherent, readable documents.

Semantic indexing and search
Large Language Models (LLMs) enable content to be semantically tagged and categorized, improving discoverability across themes, time periods, people, and places—even when specific keywords are not used.

Metadata enrichment and linking of multimodal assets
AI can supplement missing or corrupted metadata (e.g., publication date, author, topic) by analyzing linguistic and contextual clues. Also, the technology can cross-reference and re-link associated images, graphics, or videos from various archives where files may have been separated during prior migrations.

Improved access
AI can provide improved interfaces—such as chat-style queries or timeline exploration—to help users engage intuitively with the archive.

AI-powered archive access and extraction

Managing risk and promoting trust

Fair and impartial

Systems are designed to ensure equitable access to historical content across different eras and communities. Bias mitigation strategies are incorporated into model training and metadata tagging to avoid skewed representation of topics, regions, or individuals.

Robust and reliable

Extraction and structuring workflows are tested across various content types and legacy formats to help ensure consistent quality. Human oversight is embedded throughout the process to validate the accuracy and fidelity of reconstructed articles.

Transparent and explainable

A clear audit trail should be maintained for all AI-processed content, including logs of when and how specific items were extracted, tagged, and categorized. Explanatory overlays and metadata annotations help end-users understand the origin and limitations of AI-reconstructed documents.

Potential benefits

Editorial improvements

Journalists can rediscover and repurpose historic reporting, improving storytelling quality and institutional memory. The AI-powered solution speeds up research for retrospective or investigative reporting by eliminating the need to manually dig through archives.

Monetization

AI can enable news organizations to expand their relationships with libraries, educational institutions, and content platforms while providing the foundation for new archive-based products, such as nostalgia-based newsletters and historical collections. What's more, it positions news organizations to negotiate more effectively with AI companies looking for premium training data by presenting them a curated, high-quality proprietary dataset.

Improved operational efficiency

The solution can eliminate ad-hoc archive retrieval and reduces the need for internal technical support to help recover content. Also, it strengthens the organization's institutional capabilities for structured knowledge management.

Conclusion

Getting the most value from Generative AI

These are the early days of Generative AI, but the technology is rapidly maturing. As it does, organizations in every industry will probe how this type of AI can contribute to their business and open doors to transformative opportunities. As such, an important part of understanding and working with Generative AI is shaping the vision for the future, acknowledging both the potential benefits and the risks.

In this Generative AI-enabled era, governance and risk mitigation are business imperatives. The challenges organizations face with traditional AI are amplified in this new arena. A commitment to the trustworthy development and use of Generative AI will only become more important as the capabilities grow and governing bodies shape rules for their application.

Still, there is also a risk in waiting to embrace Generative AI. The use cases described in this dossier are a starting point for exploring how this powerful technology can be used to improve the enterprise today and prepare it to lead in the future.

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