

Generative AI Use Case Taxonomy, 2024: The Life Sciences Industry

This IDC Excerpt Features: NetraMark

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About this Excerpt

The content for this presentation was taken directly from “**Generative AI Use Case Taxonomy, 2024: The Life Sciences Industry**” (June 2024 - Tech Buyer Presentation - Doc #US52320024). This presentation excerpt will only feature the case study from NetraMark.

Abstract

This IDC Tech Buyer Presentation highlights generative AI (GenAI) use case examples for the life sciences industry. It focuses on 6 key pillars, including patient safety, patient and HCP experience, garnering intelligence and accelerating time to market (TTM), accelerating drug and device approvals, discovery and design, and industry 4.0 and supply chain 4.0, along with 22 specific examples. This provides IT and business leaders across the life sciences industry with a GenAI use case playbook to drive an outcomes-based approach for GenAI use case execution.

AI Everywhere

AI Journey

From narrow to widening AI

Intelligence Architecture

A data-centric platform underpinning the enterprise

Digital Operations at Scale

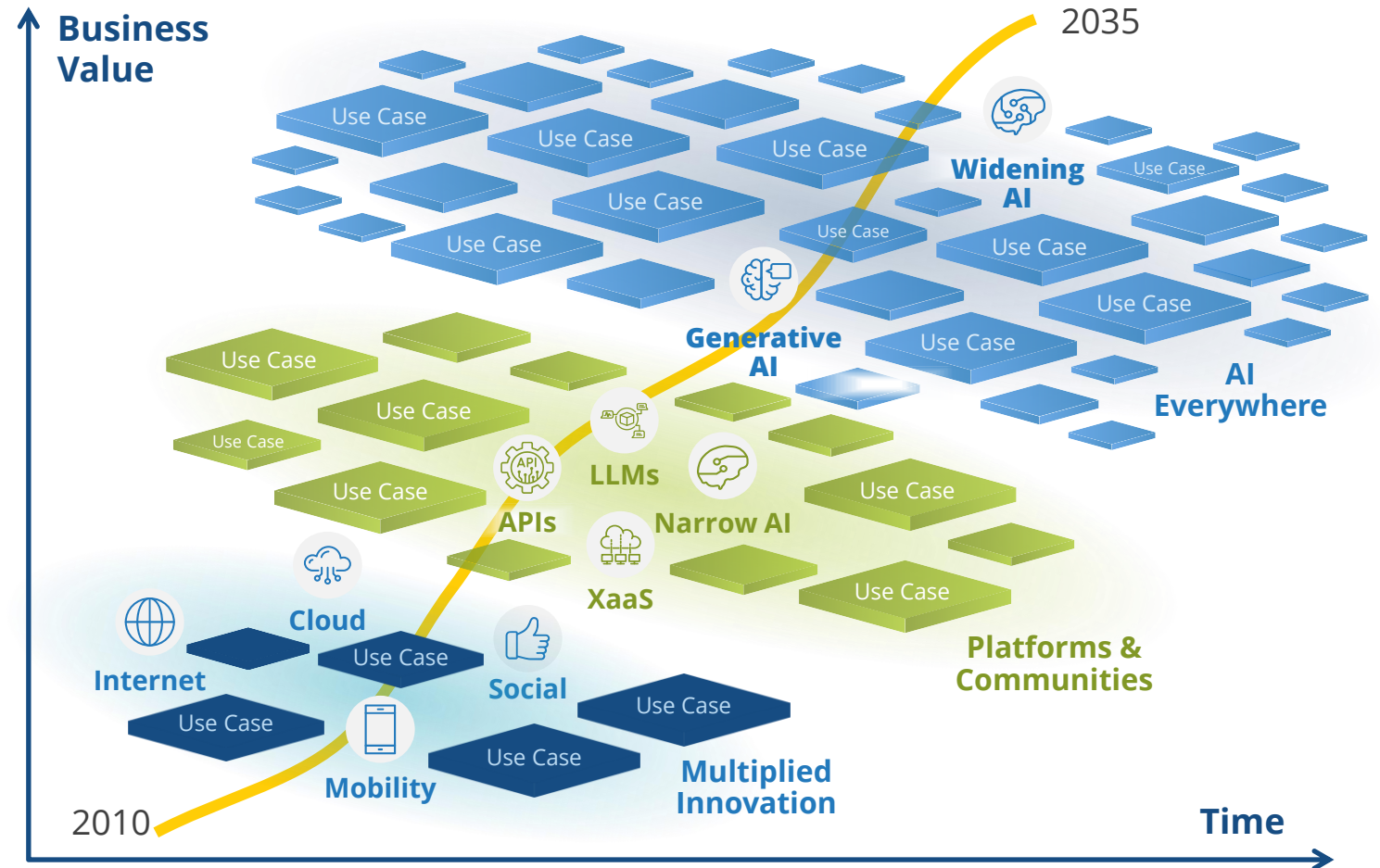
Cost-effective digital infrastructure for AI workloads

Skills

Attracting and reskilling talent for transformed work models

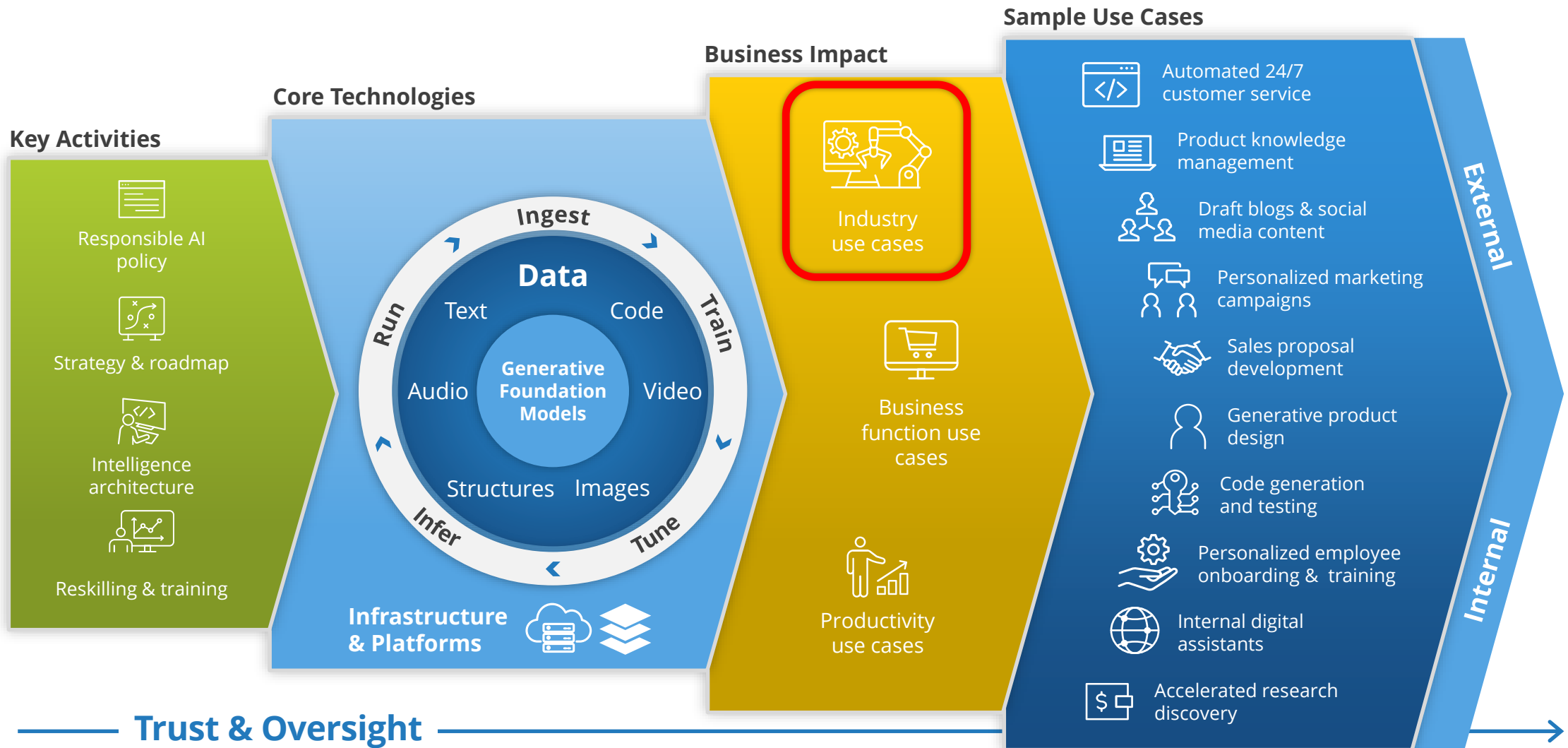
Trust

An up-front focus on trust



IDC believes that the transition to AI Everywhere will see the emergence of a range of new Generative AI-driven use cases at an individual level (productivity-basis), at a business function level, as well as in an industry-specific context.

Generative AI: The Path to Impact



AI Everywhere and the Emergence of New Generative AI Use Cases

IDC defines a use case as a business-funded initiative enabled by technology that delivers a measurable outcome. There are three broad types of generative AI use cases as highlighted below:

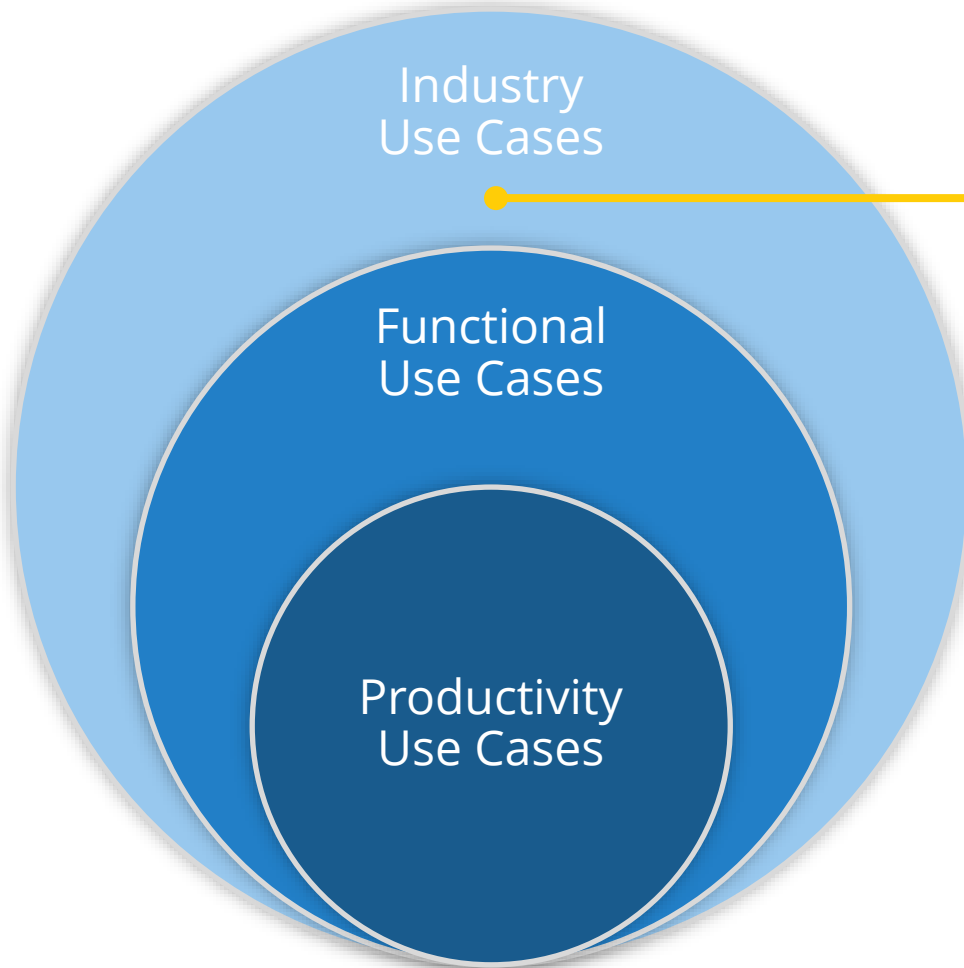
Productivity use cases are aligned to work tasks such as summarizing a report, generating a job description, or generating code in Java. GenAI functionality for productivity improvement is being infused into existing applications (e.g., Microsoft 360 Copilot or Duet AI for Google). For many of these use cases, business value can be delivered purely through the content and data that the underlying foundation models have been pretrained on. Foundation model providers themselves (e.g., OpenAI with ChatGPT and DALL-E, Stability.ai with Stable Diffusion, Anthropic with Claude, and Microsoft with GitHub's Copilot) have already seen success with this approach.

Business function use cases tend to integrate a model (or multiple models) with corporate data for use by a specific department or function (marketing, sales, procurement, etc.). Many organizations are testing these types of use cases but are concerned about intellectual property leakage and data governance. These business function use cases require the integration to established enterprise applications and platforms from vendors such as Salesforce, Oracle, SAP, ServiceNow, Sage, Workday, Informatica, Appian, Pegasystems, and UiPath. Their capabilities will need to reference or be constrained by their clients' business data (customer data, product data, knowledge bases, etc.).

Industry use cases will generally require more custom work (and, in some cases, may even require building your own generative AI model). Examples include generative drug discovery in life sciences and generative material design for manufacturing. These are likely to be a source of real business value creation for larger enterprises that are able to put together a sufficiently large set of training data or work with other parties in their ecosystem to share data for training the model. These specialized use cases tend to be built around very specific choices of models and model providers, with custom integration architectures designed for individual clients and significant custom implementation work required.

There are a mix of internal and externally facing use cases, each with its own level of potential risk and business impact that needs to be incorporated into a use-case prioritization framework for any organization kickstarting their Generative AI journey.

Industry Use Case Taxonomies for GenAI



IDC is publishing Industry GenAI Use Case taxonomies for the 18 industries highlighted below. The focus of this report is **Life Sciences**.

Industry

- Asset Oriented Value Chains
- Banking
- Brand Oriented Value Chains
- Capital Markets
- Engineering Oriented Value Chains
- Healthcare
- **Life Sciences**
- Hospitality, Dining, and Travel
- Insurance
- Higher Education
- Life Sciences
- Media and Entertainment
- National Civilian Government
- Retail
- Smart Cities
- Technology Oriented Value Chains
- Transportation and Logistics
- Utilities
- Wholesale

Generative AI Use Case in Life Sciences by Sub-Segment

Patient Safety



- Drug Safety Platforms
- Medical device safety
- Patient Digital Twins

Accelerating Drug and Device Approvals



- RWD/SD to speed regulatory approvals
- Content Generation to Accelerate TTM
- Improving Quality and Efficiency in CDM
- Accelerated Cancer Diagnosis

Patient and HCP Experience



- Patient Engagement
- Targeted messaging for HCPs and answering HCP queries

Discovery and Design



- Drug discovery
- SiMD Performance
- Medical device design
- Advanced Therapies / CGT Optimization

Garnering Intelligence, Accelerating TTM



- Identify Inclusion and Exclusion Criteria to Increase PNRTTR
- Search/Analytics to Accelerate TTM
- Clinical Trial Design Optimization
- Document Extraction for Competitive Intelligence (Design Intelligence)

Industry 4.0 and Supply Chain 4.0



- Batch release
- Digital tech transfer
- Quality by Design
- Service supply exception management
- Production workflow augmentation

The left side of the slide features five horizontal blue bars of varying lengths and shades of blue, arranged vertically. The top bar is light blue and tapers to the right. The second bar is a medium blue and is rectangular. The third bar is a darker blue and is rectangular. The fourth bar is the darkest blue and is rectangular. The bottom bar is the darkest blue and tapers to the right.

Section 3: Garnering Intelligence, Accelerating TTM

Generative AI Use Cases for Garnering Intelligence/Accelerating TTM in Life Sciences

Use Case	Description
<u>Identify inclusion and exclusion criteria to Increase PNRT</u>	GenAI is being used to deliver insights regarding clinical trial efficacy and placebo response. It helps inform protocol design and identify factors that influence treatment.

GenAI Use Case:

Identify inclusion and exclusion criteria to Increase PNRTR

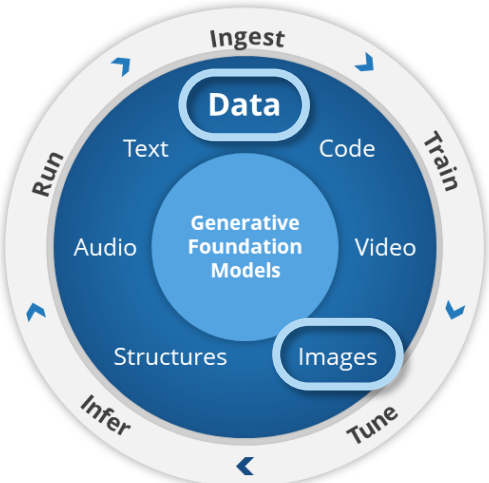
Description

GenAI is being used to deliver insights regarding clinical trial efficacy and placebo response
It helps inform protocol design and identify factors that influence treatment.

Example

NetraMark (NetraAI) helps provide unique insights into disease biology and identify well-defined patient subpopulations to improve the likelihood of clinical trial success and support the development of personalized therapies tailored for defined patient populations.

Data Modality



Business Impact

- Higher recruitment of placebo non-responders/treatment responders (PNRTR), and lower recruitment of placebo responders/treatment non-responders (PRTNR)
- Improved likelihood of trial success
- Smaller patient population required, lower costs

Metrics

- Number of PNRTR subjects recruited
- Probability of trial success

Risk Level	Complexity
High	High
Medium	Medium
Low	Low

Recommendations

1. **Strategic Roadmap:** Create a strategic roadmap detailing initiatives, timelines, and resource allocation. Prioritize use cases based on their impact on scientific outcomes and business performance, considering long-term feasibility and scalability. Implement an agile approach. Establish a robust financial governance framework for GenAI adoption. Stay updated on evolving regulations, best practices, advancements in GenAI, and integrate relevant innovations into the strategy.
2. **Data Governance and Risk Management :** Establish robust data governance policies to ensure data quality, privacy, and compliance with regulatory requirements, that will allow to scale GenAI across the organization. Deploy data management tools for efficient data asset utilization. Identify and mitigate risks like data bias and algorithmic errors through robust risk management processes.
3. **Ensure control over patient data:** In the context of a continuous data sharing architecture, prioritize patient data privacy by bringing in robust security measures, embedded in the GenAI solution.
4. **Technology Assessment:** Assess current technology infrastructure, covering hardware, software, and data architecture, identify gaps. Consider integration with other AI, analytics, and data management systems to support strategic initiatives. Evaluate scalability, interoperability, and security to align with advancements in GenAI.
5. **Measure Results:** Define clear scientific and business objectives, such as speeding up drug discovery or enhancing operational efficiency. Establish key metrics to measure progress.
6. **Organization models and talent development:** Rethink operating models and organizational structures to accommodate GenAI's impact. Optimize workflows, and drive workflow to improve outcomes. Redefine roles to fit into the new GenAI operating model. Invest in talent development for AI, data science, and related fields, upskill employees in GenAI. Ensure that they understand its limitations, strengths, risks, and prompt structuring. Identify early-adopter champions to guide GenAI deployment and demonstrate its value.
7. **Collaboration and Partnerships:** Promote collaboration with external partners, such as academia, industry consortia, and technology vendors. Seek opportunities for co-innovation and knowledge sharing to expedite progress towards strategic objectives.

Related Research

Apr 2024

IDC #US50759923

Mar 2024

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