Exploring How GenAI is Disrupting the Life Sciences Industry

Dr. Nimita Limaye

Research Vice President, Life Sciences R&D
Strategy and Technology, Health Insights

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GenAI has Created a Need for Agility in the Life Sciences and Healthcare Industries Like Never Before……

……With GenAI, Flight Plans are Changing Midflight….

Those who innovate, those who automate, and those who adapt – will lead the way!

Reinvent, Reinvent, Reinvent….

Shifting Perspectives…

"We don't have a digital strategy for our business. We have a business strategy for a digital world."

LIDIA FONSECA, CHIEF DIGITAL AND TECHNOLOGY OFFICER, PFIZER

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From being perceived as inward-looking, tech-averse industries, . . .

The HLS industries are now Riding the Wave of GenAI Disruption…..

With a fifth of these industries doing 7-10 internal and external facing production launches in the past year…..

Yet Balance is Everything

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Costs vs ROI?

Security (54%)
Concerns around data security and protecting sensitive patient/clinical information when using GenAI models

Privacy (38%)
Challenges in ensuring privacy and compliance when generating or using AI-created content containing personal health information

Trust (28%)
Concerns around the reliability, accuracy and trustworthiness of GenAI outputs for mission-critical life sciences applications

IP (27%)
Worries about potential IP infringement and loss of proprietary data/insights when utilizing Generative AI tools

Infrastructure performance / availability
35% of LS and a fourth of HC - the primary factor preventing them from achieving higher success on Gen AI initiatives

Data Quality (31%)
Data quality - greatest concern for HLS that drives the need for AI governance
(FERS Wave 2, Feb 24

Difficulty in Developing Own Models (32%)
Lack of in-house AI/ML expertise and resources to build and deploy custom Generative AI models for specific life sciences use cases

➤ **What are your top challenges?**

Costs are High, yet the Industry is Investing

67% of Life Sciences and 50% of Healthcare respondents believe that *GenAI is a major new corporate workload like ERP or ecommerce* and will require an incremental increase in technology spending in the next several years.

(Source: Future Enterprise Resiliency & Spending Survey Wave 4, IDC, April 2024)

Life Sciences is Investing in GenAI

Transforming Patient's Lives – One Day At A Time…..

… Patient Safety and Compliance raise concerns….

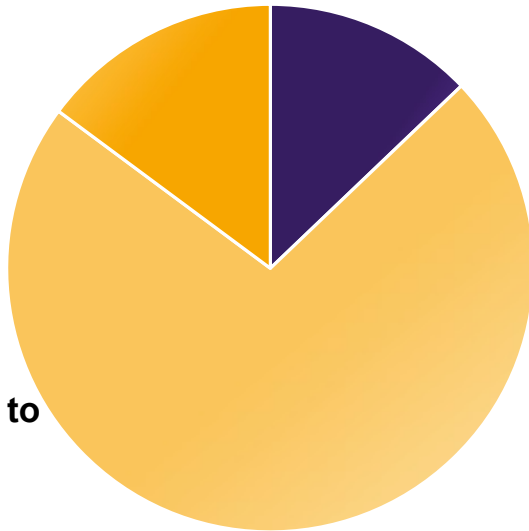Life Sciences Current Approach to Generative AI

In June '23

Investing in Gen. AI

13%

In Nov '23

Investment went up to

46%

Source: Life Sciences Generative AI Survey 2023, IDC, November 2023, N=104

Nothing
15%

Exploring use cases
73%

Source: Future Enterprise Resiliency & Spending Survey Wave 5, IDC, June, 2023

IT is Primarily Funding GenAI Initiatives for HLS

The average HLS spend on GenAI in 2024-205 is between *$1-2 million*, with 5-10% of companies going *up to $10 million*
FERS Survey Wave 4, IDC, April, 2024

■ We made an additional increase in the overall IT budget to ensure timely investments

■ We primarily relied on new funding by individual business units
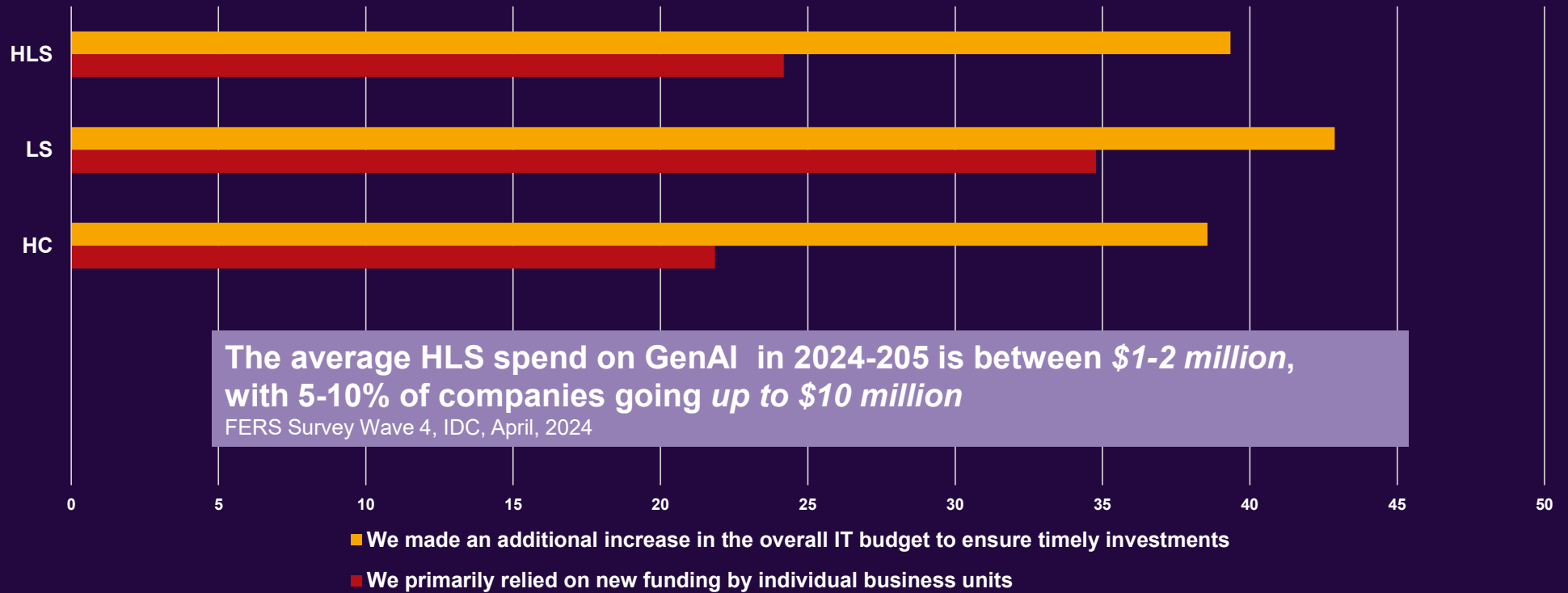
➤ **Who is making investment decisions in your organization?**
➤ **Where is the funding come from?**

Source: Future Enterprise Resiliency & Spending Survey Wave 4, IDC, April, 2024; n = 85

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"Generative AI is transforming the landscape of biopharmaceutical innovation", Robert Bradway, CEO, Amgen

The most <u>Promising</u> GenAI use cases for Life Sciences

The most <u>Impactful</u> GenAI use cases for Life Sciences

Conversational Applications

Chat bots/Voice bots

(49%)

Knowledge Management Applications

Medical Writing, Safety Reports, Marketing Content
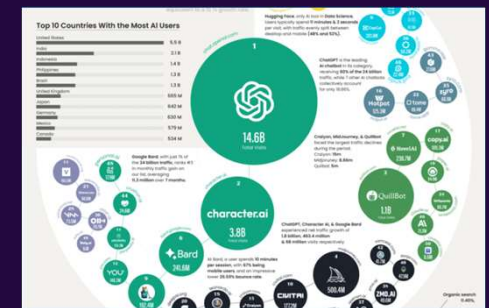
(41%)

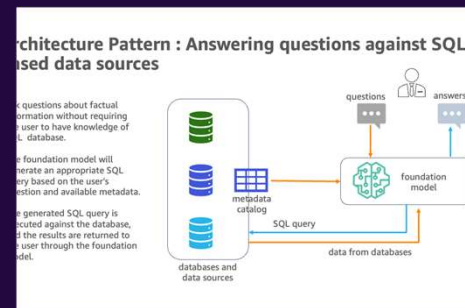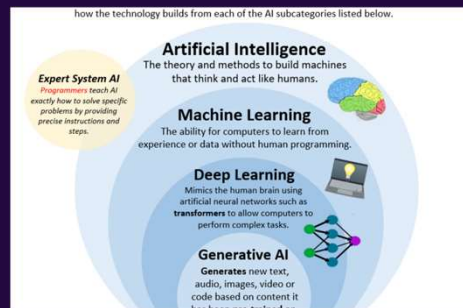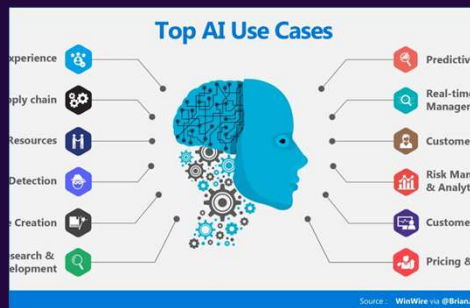Product Development/Design

(46%)

Software Development/Design

46%

Drug Discovery (48%)
Clinical Trial Optimization (48%)

Source: Life Sciences Generative AI Survey 2023, IDC, November 2023, N=104

➢ **Which do you see as your most impactful use cases?**
➢ **And which ones have been most widely implemented?**

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Generative AI Adoption Trends

Evaluating Generative AI Use Cases

50% are evaluating and prioritizing GenAI use cases

Building Organizational Literacy

42% investing in building GenAI literacy within the organization

Optimizing Data Integration Strategies

38% are optimizing their data integration strategies

Hiring Generative AI Experts

37% are hiring resources with GenAI expertise

Two years down the line, data integration strategies became the top priority. And business models and change management that ranked 8th and 9th, moved up to the third and fourth positions respectively

➢ **How are you scaling GenAI adoption in your organizations?**

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Speaking of Partnerships

- ➤ The cloud provider ranked as the most strategic GenAI partner for the HC industry
- ➤ For life sciences, it was the SI partner, closely followed by Cloud provider

- ➤ Of all external partnerships, the HLS industries believe that AI will result in:
  - ➤ a max *decrease in spend on Business Consulting Services* **(48%)** and
  - ➤ a max *increase in spend will be on* IT Support and Training Services **(63%),** and on *IT Consulting and Implementation Services* **(46%)**
- ➤ Top 3 model partners for LS were *Meta, Open AI, Google, closely followed by NVDIA*
- ➤ Two years down the line, Google moved to the 4th position and *NVIDIA moved up* to the 3rd position

- ➤ **Who is your primary Strategic Gen AI partner?**

Source: Future Enterprise Resiliency & Spending Survey Wave 4, IDC, April 2024

AI Platforms are Leading the Way

- **43%** of the life sciences industry **(22%** of HC) chose AI Platforms as the best way to select and consume AI-enabled services from external services providers, as compared to *Assistants, Personas, and Workflows*. HC prioritized Workflows and are just beginning to evaluate AI platforms

- Considering the highly regulated nature of the HLS industry, *auditing for compliance and PII detection* were considered to be the most important criteria for evaluating an AI platform, followed by the ability to automate data preparation and training

- Source: Future Enterprise Resiliency & Spending Survey Wave 4, IDC, April, 2024

- **Do you have an AI platform – where are you in that journey today?**

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Generative AI Disrupting the Life Sciences Industry

Percentage of life sciences workforce expected to be replaced by generative AI over time

40%
Next 12 months
(1-10%)

16%
Next 12 months
(11-20%)

40%
Next 24 months
(11-20%)

17%
Next 24 months
(21- 30%)

Yet 40% of the life sciences industry will increase its hiring plans for people with GenAI skill sets

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Roadmap Life Sciences GenAI - Horizons

1 Horizon 1
Incremental Innovation

Incremental

Efficiency, Automation, Code Generation

Use Cases:
- Patient Experience (Px)
- Knowledge Management, PV/MA
- Salesforce Transformation

1-

Generative AI is Driving Patient-Centricity…

2 Horizon 2
Disruptive Innovation

Holistic

Generation, Design-as-a-Service

Use Cases:
- Drug Discovery
- Intelligent Trial Design /
- Predicting Trial Outcomes

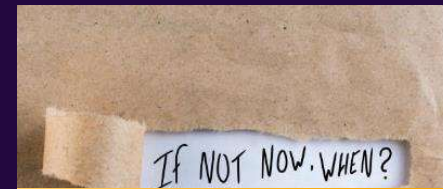**3-4 yrs**

Generative AI is Fueling Innovation…

3 Horizon 3
New Business Models

Revolutionary

High Value Transformational

Use Cases:
- BCI
- Simulated animal testing
- Digital Signatures of Patients - Precision Medicine

5-7 yrs

IF NOT NOW. WHEN?

Generative AI….

Use cases

➢ **Does this align with your future roadmap?**

Roadmap Healthcare GenAI - Horizons
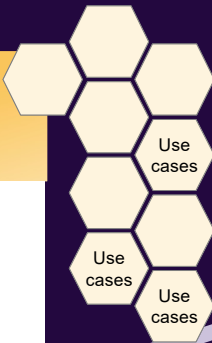
1 Horizon 1
Incremental Innovation

Incremental

Efficiency, Automation, Code Generation

Use Cases:
- EHR Optimization
- Medical Imaging Convergence
- Digital Front Door

1-

Generative AI is Driving Patient-Centricity…
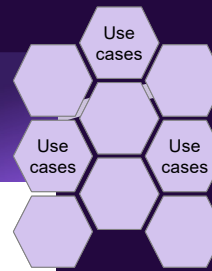
2 Horizon 2
Disruptive Innovation

Use cases

Holistic

Generation, Design-as-a-Service

Use Cases:
- Next-Generation EHR
- Next-Generation RCM
- Intelligent Prior Authorization

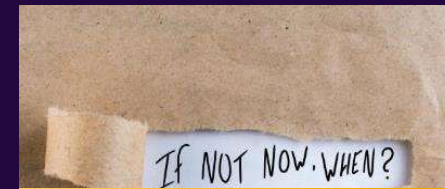**3-4 yrs**

Generative AI is Fueling Innovation…
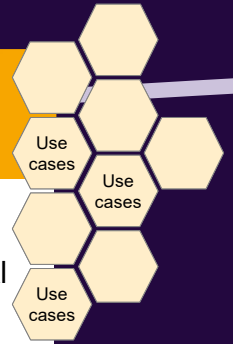
3 Horizon 3
New Business Models

Use cases

Revolutionary

High Value Transformational

Use Cases:
- Immersive Visualization
- Medical Imaging AI
- AI-Powered Clinical Summarization

5-7 yrs

IF NOT NOW, WHEN?

Generative AI….

Will this be the future of AI driven healthcare?

Are We Really Listening to the Voice of the Patient?

Guidance for the Life Sciences and Healthcare Industries

1. Establish GenAI Centers of Excellence (CoE). Focus on upskilling and hire to build GenAI skills

2. Build GenAI Use Case Evaluation Frameworks and Opportunity Cards, to prioritize use cases, considering Technical Feasibility, Business Impact, Scalability, and ROI

3. Move beyond the GenAI scramble and leverage the AI pivot

4. Look at the bigger picture, weave a 'string-of-pearls' strategy, integrate AI across the pharma value chain, to optimize ROI on GenAI initiatives

5. Incorporate GenAI evaluation criteria in all SaaS RFPs. Establish a dedicated vendor/partner strategy across infra, s/w, data, cloud, and services (*70% of HLS professionals - essential to support* GenAI *as a strategic workload*).

Guidance for the Life Sciences and Healthcare Industries

6. Implement data sharing and operations best practices to <u>ensure data integrity</u> (*43% of life sciences and 23% of healthcare consider this to be a top priority*)

7. Establish an Ethics Council. Include digital ethicists, legal, regulatory experts, <u>and patients</u>, <u>DEI</u> has become a priority, with big pharma leading the way. Monitor an evolving regulatory landscape.

8. Build Responsible AI frameworks <u>to build trust across patients and providers</u>. Drive change management initiatives to get buy in across internal and external stakeholders

9. Embed Sustainable AI strategies in the design of all AI systems <u>to address compute intensive workloads like drug discovery or bioimaging analytics</u>

10. Implement <u>"Demand shifting"</u> approaches, including spatial and temporal shifting to drive Sustainable AI strategies. Leverage AI for <u>the ecodesign of drugs and clinical trials</u>

To Conclude….

It will be essential for an ethical compass to drive AI strategy in the life sciences industry, keeping the human-in-the-loop at all times. Inclusiveness and representativeness will be foundational to driving adoption of these AI strategies.

Dr. Nimita Limaye, Research VP, Life Sciences R&D Strategy and Technology, IDC

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Thank you!

Dr. Nimita Limaye

Research VP, Life Sciences R&D Strategy and Technology, IDC

nlimaye@idc.com

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