# A GenAI Taxonomy: New and Redefined Market Categories

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## The Taxonomy of Generative AI

Generative AI is primed to transform the business world, as software, infrastructure, and services vendors move quickly to firm up plans and make investments at a pace rarely seen in the technology industry.

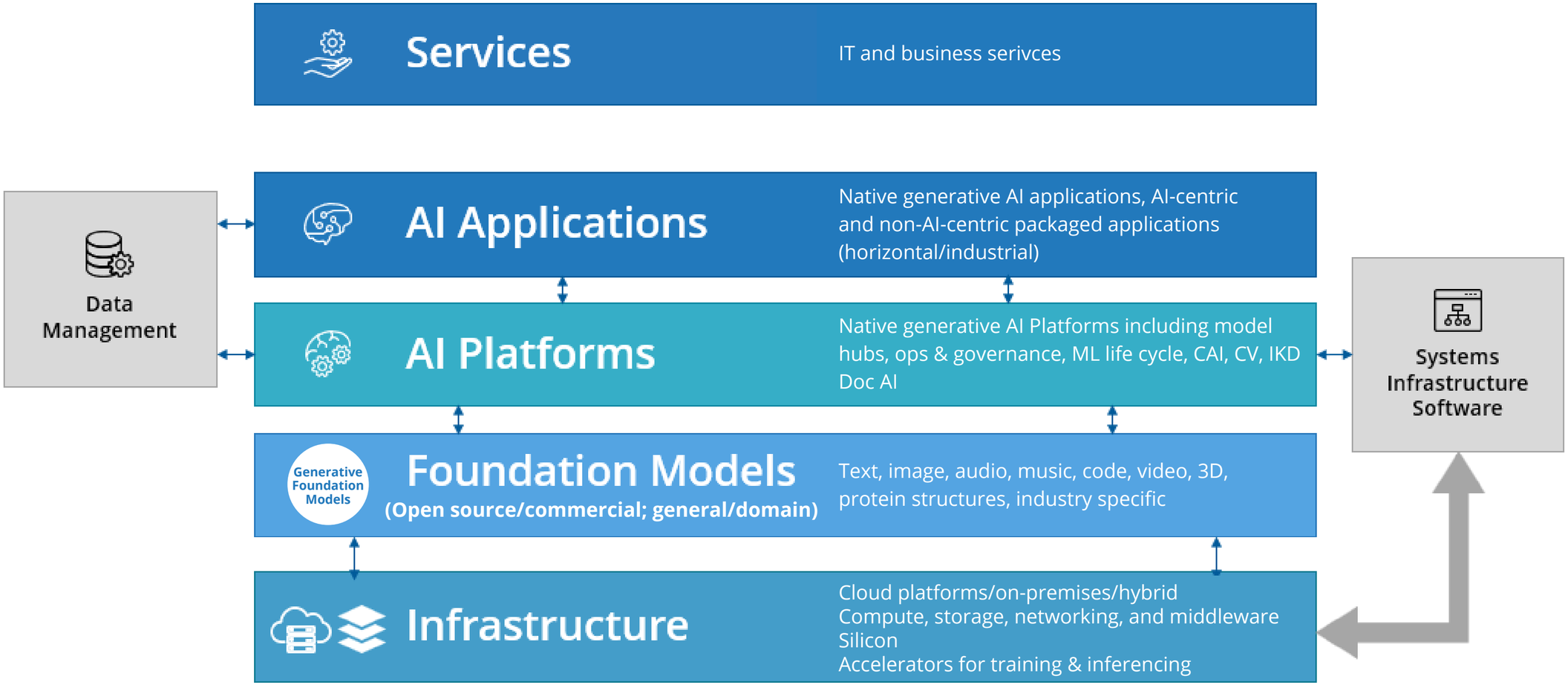
Vendors are updating their portfolios with GenAI-related products and services and investors are funding new GenAI start-ups looking to expand quickly to gain market share. A GenAI-fueled transition will reshape the technology industry built on platforms and communities  commonly adopted by enterprises during the past decade.

IDC expects the AI-centric market will grow quickly to accommodate the investments in services, AI applications, AI platforms, and the infrastructure elements that comprise the GenAI market taxonomy. This will usher in the **AI Everywhere** era.

# Today, IDC sizes the market for AI-centric services in 2022 to be $29 billion, with services spending forecast to grow 21.1% though 2027.

Source: IDC's Semiannual Artificial Intelligence Tracker

Platforms and communities now have sufficient scale among users to enable an **AI Everywhere** era that will further automate processes, improve employee productivity, enrich customer engagement, and drive organizational efficiency. IDC is monitoring this change and predicting how GenAI will reshape existing technology markets and create new ones over the next decade.



## GenAI Taxonomy: Services

The market for services related to GenAI is rapidly unfolding due to the adoption of GenAI, strong executive support in end-user organizations, and tangible business outcomes envisioned by GenAI initiatives.

The adoption of GenAI and the need for specialized knowledge will lead many organizations to leverage consultants, systems integrators, and the services arms of software and hardware vendors to complement and augment internal staffing capabilities.

GenAI services activities will follow the same assess, plan, design, implement, operate, support, and train life cycle that IDC sees in general AI and intelligent automation services.

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| **Assess and plan** | Engage your organization in creating an intelligence architecture to manage, govern, and secure data and foundation models. Utilize change management consultants and business skills trainers to reskill and train employees and facilitate the adoption of GenAI technologies in industry-specific, business-function, and productivity use cases. |
| **Design and implement** | Utilize services firms during the design and implementation phase of GenAI deployments for assistance to ingest and train foundation models as well as to tune and run algorithms using different technologies deployed on multiple infrastructure and cloud platforms. |
| **Development** | Use service providers that will likely be on the leading edge of using GenAI for modern custom application development. Vendors are also likely to offer training services to clients that want to expand their in-house skills using GenAI development accelerators. |
| **Operate** | Engage with providers in specialized delivery hubs to co-create and co-manage GenAI applications. |
| **Support and training** | Turn to GenAI technology providers for enhanced support services as you deploy models and consume GenAI services. The path to impact in GenAI applications will be iterative as organizations tune their foundation models. |

## GenAI Taxonomy: AI Applications

The greatest business impact will come from the practical application of embedded GenAI to business processes or easily accessible GenAI standalone tools that augment the employee workspace environment.

The use of GenAI will manifest through a combination of software and services that leverage foundational model platforms to extend their own functionality and capabilities to  end users. There are three routes to incorporating GenAI into the organization:

- **Embedded within commercial applications**. Enterprise software will connect to an existing foundational model using public data, generate their own large language model (LLM) using private data, or a combination to augment a capability within the system.
- **New standalone apps to access.** Using existing foundation model APIs, new tools will take input and produce content, code, images, video, or other outputs. Users will need to install and learn new tools to access the GenAI-based capabilities.
- **Custom services.** Some custom applications are services heavy because the use cases they address are very narrow, heavily regulated, or data privacy controlled. They may involve adding proprietary data or the need to tune the system in a way that significantly alters the way the foundational model behaves. While this is a costly path to pursue, custom services offer the highest level of flexibility and security to the business.

**The market for GenAI applications is expected to become a larger part of the AI-centric applications market, which accounts for only 4.8% of the market in 2022 but will increase to 31% of the market by 2026.**

Source: Generative AI: The Path to Impact, IDC Market Perspective, Doc #EUR151153223

## GenAI Taxonomy: Platforms

Value generation for most organizations will happen through AI platforms and AI applications and the development of custom intelligent applications for specific enterprise needs using GenAI-enabled application development tools.

Fine-tuning provides the tools and services to adapt off-the-shelf foundation models to the needs of enterprises. Model assurance provides the necessary steps to ensure enterprise applications are trustworthy, ethical, and meet internal risk and regulatory requirements. Tools for deploying and monitoring models help compose and run applications more efficiently and, given the cost-intensive nature of these applications, will be in high demand.

AI platforms are high-growth areas within the market.

## GenAI Taxonomy: Foundation Models

Since the first foundation models were released in 2018, a common belief was that more extensive training data and models with more parameters would be more performant and move the AI market toward "artificial general intelligence."

In late 2022, the open-source community began releasing a myriad of foundation models, which have been proliferating into 2023. The current foundation model market is a mix of proprietary and open-source models covering a range of model types, including language, image, audio, music, code, video, 3D, biomolecular structures, and industry-specific models.

While commercial and open-source foundation models will coexist, IDC believes the market will shift from large commercial models to smaller specialized models, bootstrapped using the context of the larger models. The organization's internal data will be the means to fine-tune these specialized models for very specific tasks. Many businesses will turn to open-source foundational models as a starting point.


*As GenAI technologies continue to advance rapidly, having a scalable, flexible, and adaptable infrastructure is critical to harnessing the full potential of these models in various applications.*

## GenAI Taxonomy: Infrastructure

GenAI implementations — which involve models capable of generating new data such as images, music, and text — have unique infrastructure requirements due to their complexity and resource-intensive nature. These also demand robust infrastructure capable of handling large-scale computations, high-performance hardware, and optimized software stack.

Here are some key infrastructure requirements for GenAI implementations:

- ☑ High-performance hardware
- ☑ Memory and storage
- ☑ Scalability
- ☑ Parallel Processing
- ☑ High-speed interconnect
- ☑ Optimized Software Stack
- ☑ Data management and preprocessing
- ☑ Reimagine patient interactions and data flows
- ☑ Monitoring and logging
- ☑ Security
- ☑ Compliance and ethical considerations
- ☑ Resource allocation and management

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## Ushering in the Age of AI Everywhere

The technology industry stands at a seminal moment with the introduction of GenAI. In the time span of less than a year, GenAI has simultaneously captured the attention, imagination, and concern of most technology and business leaders across the world.

GenAI core technology revolves around foundation models, but successful organization will invest in underlying technology platforms and infrastructure, integrating models with existing data and processes, capabilities to deliver trust and oversight and more.

GenAI will reshape existing technology markets and create new ones over the next decade across IT and business services, application, platforms and infrastructure.


To learn more about creating the taxonomy of GenAI, read the IDC report, *Generative AI: The Path to Impact*.

To read more from IDC's analysts on GenAI, visit our AI Everywhere site.