Forecast Analysis: Artificial Intelligence Software, 2023-2027, Worldwide

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Initiatives: Technology Market Essentials

> By 2027, spending on AI software will grow to $297.9 billion with a CAGR of 19.1%. Over the next five years, the market growth will accelerate from 17.8% to reach 20.4% in 2027. Generative AI software spend will rise from 8% of AI software in 2023 to 35% by 2027.

Additional Perspectives

- Invest Implications: Forecast Analysis: Artificial Intelligence Software, 2023-2027, Worldwide
  (09 November 2023)

Overview

Forecast Assumptions

- By 2025, 39% of worldwide organizations will be at the experimentation phase of Gartner's AI adoption curve, while 14% will be at the expansion phase.
- By 2027, 24% of global organizations will be in the planning phase of AI adoption, and they will have started to adopt the 21% of AI use cases that have the highest attractiveness.
- By 2027, 36% of organizations will be in the experimentation phase and will start to adopt use cases with high business value but low time-to-financial impact (TOFI).
- By 2027, the percentage of organizations in the expansion phase and above will be 22%, increasing from 13% in 2023.
- By 2026, more than 70% of independent software vendors (ISVs) will have embedded generative AI capabilities in their enterprise applications, a major increase from fewer than 1% today.

Market Impacts

- Generative AI software spend will reach 35% of AI software spend by the end of the forecast period in 2027.
- For AI technologies, the build versus buy discussion continues. Technology providers embed AI capabilities within applications (such as recommendations) or add them on (such as chatbots), while others provide platforms with which organizations build their own AI models and systems. By the end of the forecast period in 2027, the spending split between applications and platforms for AI software will be 40%-60%.
- Spending on AI software increases with organizational maturity, and organizational maturity is relatively low compared to the hype and market interest in AI technologies. While many businesses have taken a wait-and-see approach with AI, adoption, and consequently spending, will advance quickly.
- The rise of generative AI has increased the focus on everyday AI, which is deployed across organizations and used by employees in their usual daily tasks to improve productivity, deliver higher-quality work and save time.
- Game-changing AI (in contrast to everyday AI) is adopted by the use case; organizations evaluate business value, time to value and the risk of a set of use cases and adopt them in priority order.

Notable Changes

Gartner's first AI software forecast, published in October 2021, predated the generative AI (GenAI) wave and leveraged a sample set of AI use cases. This forecast update in 2023 uses an enhanced set of over 500 AI use cases sourced from Gartner's AI Use Case prisms and other research (see Note 1 for more detail on the methodology). Because many more use cases have been added since the original AI forecast, and the market has changed significantly in 18 months, this forecast is not directly comparable with the previous version.

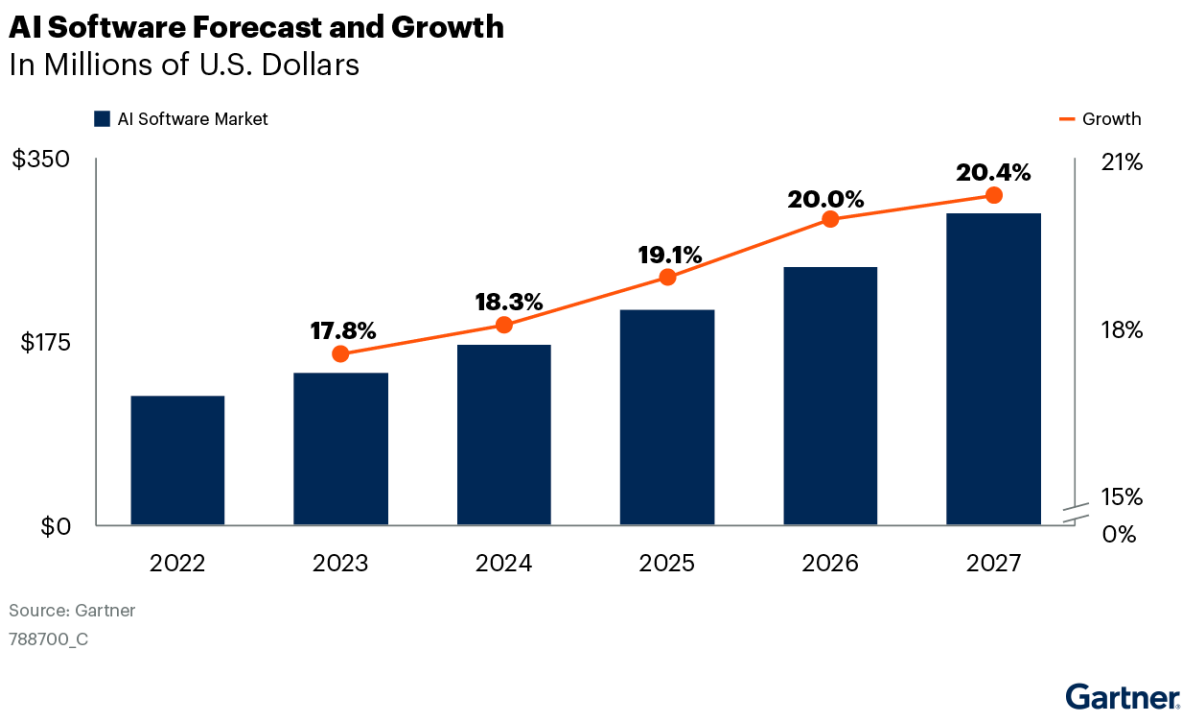
Israel-Hamas War

On Sunday, 8 October 2023, Israel formally declared war on Hamas. These events took place after the forecast was finalized and are, therefore, not included in Gartner's forecast assumptions.

The AI software forecast is a one-off forecast with a different methodology than the standard market forecasts. This methodology is explained below. For more details about Gartner's standard Forecast methodology and the full definitions of the software markets included, see Market Definitions and Methodology: Software.

Forecast Data Summary

Figure 1: AI Software Forecast ($m) and Growth (%)



The AI Software Market Forecast 2023-2027

Gartner estimates that the market for AI software will be $297.9 billion in 2027 with a five-year compound annual growth rate (CAGR) of 19.1% (see Figure 1).

See Note 1 for more detail on how we take the starting point from the all software market share and build the growth model based on use-case adoption and AI maturity.

Growth rates for AI software will increase year over year, rising to 20.4% in 2027; however, the acceleration of growth rates will slow toward the end of the forecast period. This reflects the state of AI as a set of technology markets with a wide range of maturity levels combined with a range of adoption levels. Broadly speaking, it is still relatively early days for AI software, and we are seeing growth rates that reflect the potential for future expansion of AI.

This AI software model forecast starting point is built from two data sources:

- Gartner's Forecast: Enterprise Application Software, Worldwide, 2021-2027, 2Q23 Update.

- The vertical-specific software (VSS) forecast line from Forecast: Enterprise IT Spending by Vertical Industry Market, Worldwide, 2021-2027, 2Q23 Update.

From this initial starting point, a use-case growth model was applied, which describes the demand for AI technologies based on how organizations at varying AI adoption phases adopt use cases. See Note 1 for more details.

We expect to see ongoing demand for more AI enhancements within software applications and more opportunities for providers to deliver software to build AI. However, do not expect these markets to become saturated (where supply outstrips demand) during the forecast period.

AI-related software comprises markets from both the platform and the application categories. Platforms are used to build AI systems and applications. Conversely, applications have AI capabilities embedded within them (for example, recommendations could be built into call center applications), or added to them (for example, chatbots could be added to prebuilt applications).

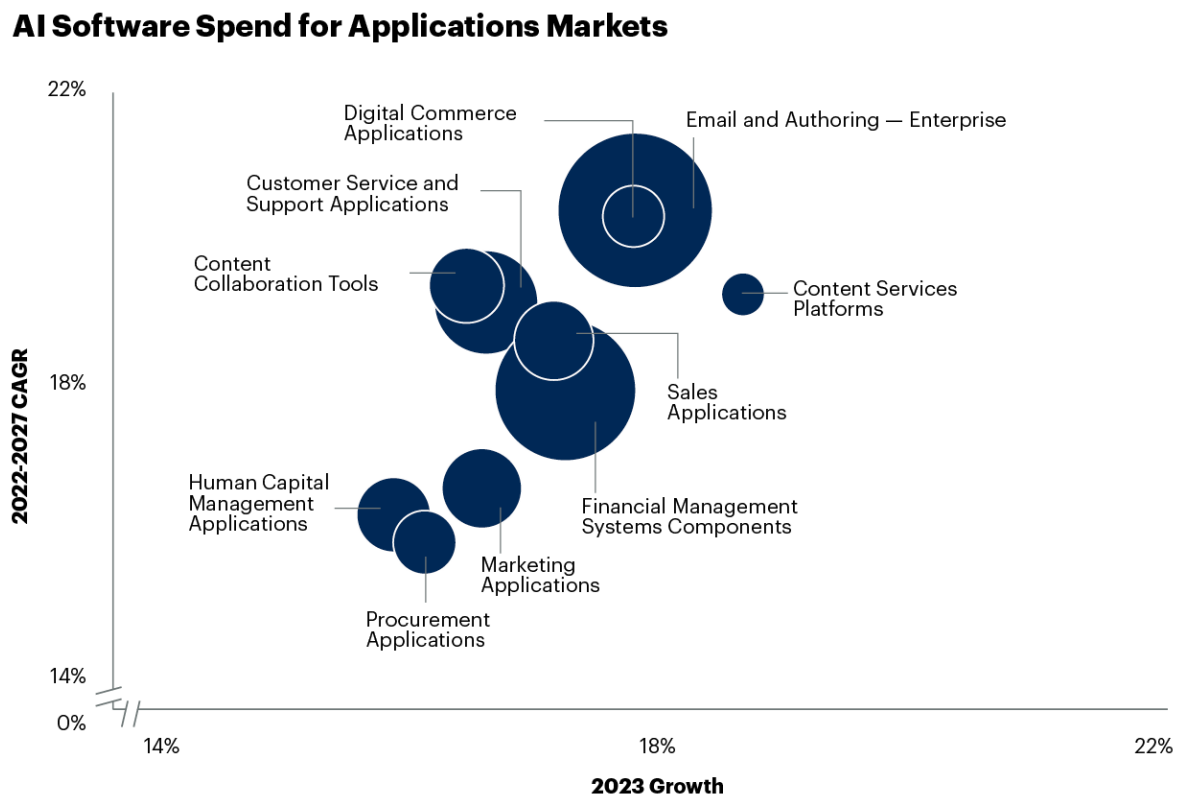
- Applications with embedded AI included here have a range of capabilities, such as search, personalization, optimization, routing, natural language and discovery. These capabilities are embedded in applications that support the office of finance, the human capital management (HCM) team, marketing, procurement and sales. Their focus is to use AI to improve the process support and decision-making capabilities for the underlying application. Direct monetization of embedded AI in the form of additional product lines (e.g., "AI component for sales") is unusual. It is more typical for embedded AI to improve customer loyalty and market share for the technology provider because the AI is closely aligned with the application.
- **Technology providers of AI components** should investigate partnership opportunities to provide AI capabilities to existing applications; for example, they could offer anomaly detection to financial management system components.
- **Application providers** should aim to embed AI wherever it can improve on the core goals of the application, for example, adding contract analytics and natural language processing to procurement applications.

The **largest application market** by AI spend is financial management system (FMS) components, which support the office of finance with capabilities for forecasting, planning, cash application and collections, balance reconciliation, and others. AI usage mainly focuses on improving productivity and optimization, and using built-in AI capabilities in FMS solutions, although uptake of these AI capabilities could be greater (see The Current State of AI Use Within Finance: 2023 Insights).

The **highest growth application market** is digital commerce applications, which support digital commerce operations in areas like optimization, customer segmentation, image categorization and others. AI capabilities in digital commerce include personalization, automated execution and content generation (see Video: Top AI Use Cases for Digital Commerce).

Figure 2 shows the AI software spend for applications markets.

Figure 2: AI Software ($m) and Growth (%) for Applications Markets



Source: Gartner
Note: Bubble sizes represent forecast spend in 2027 ($m).
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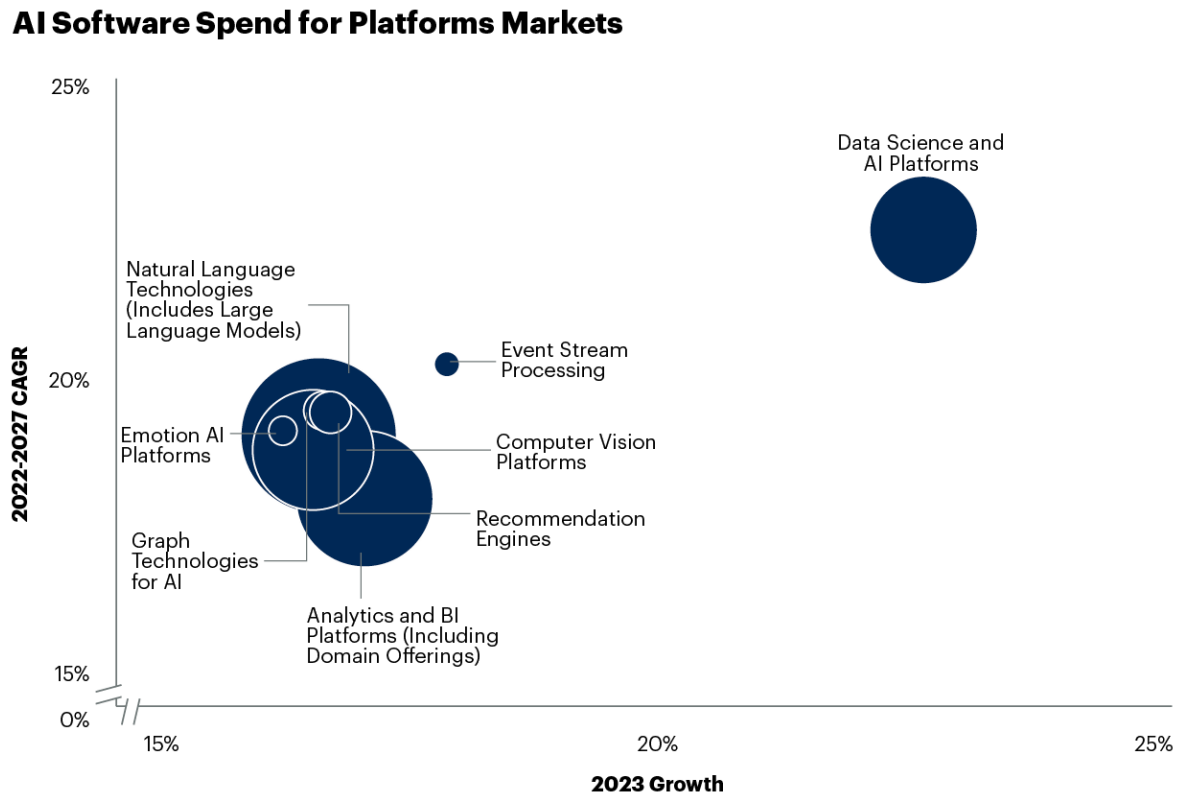
Gartner

Figure 3 shows the AI software spend for platforms markets.

Figure 3: AI Software ($m) and Growth (%) for Platforms Markets



The **fastest-growing software platform** market is data science and AI platforms, which include data science and machine learning (ML) platforms and cloud AI developer services. Used by expert data scientists, citizen data scientists (more business-focused), and software engineers to build, deploy and integrate ML models. This market is limited in size by the widespread use of open-source tools, models and languages for data science. The data science and AI platforms market is accelerated by the growth of AI and the democratization of technology, where capabilities like ease of use, workflow, collaboration and deployment provide support for citizen data scientists.

Tables 1 through 3 show the AI software forecast by technology market, by region and by industry, respectively.

Table 1: AI Software Forecast 2022-2027 by Software Market ($m and %)

(Enlarged table in Appendix)

Software Market	2022	2023	2024	2025	2026	2027	CAGR 2022-2027 (%)
Analytics and BI Platforms (including Domain Offerings)	13,703	16,081	18,909	22,345	26,640	31,759	18.3%
Computer Vision Platforms	10,399	12,152	14,297	17,000	20,488	24,903	19.1%
Content Collaboration Tools	1,416	1,652	1,944	2,317	2,811	3,451	19.5%
Content Services Platforms	469	557	663	792	949	1,137	19.4%
Customer Service and Support Applications	2,743	3,204	3,771	4,491	5,427	6,623	19.3%
Data Science and AI Platforms	7,178	8,804	10,760	13,220	16,265	19,874	22.6%
Digital Commerce Applications	931	1,098	1,304	1,566	1,911	2,354	20.4%
Email and Authoring: Enterprise	5,854	6,905	8,202	9,861	12,041	14,854	20.5%
Emotion AI Platforms	582	678	797	950	1,151	1,412	19.4%
Event Stream Processing	421	498	592	711	868	1,068	20.4%
Financial Management Systems Components	5,345	6,277	7,401	8,753	10,379	12,299	18.1%
Graph Technologies for AI	1,000	1,169	1,378	1,646	2,000	2,458	19.7%
Human Capital Management Applications	1,606	1,865	2,172	2,535	2,961	3,450	16.5%
Marketing Applications	1,826	2,132	2,496	2,923	3,418	3,980	16.9%
Natural Language Technologies (includes Large Language Models)	16,998	19,874	23,401	27,871	33,687	41,105	19.3%
Procurement Applications	1,175	1,368	1,594	1,857	2,156	2,486	16.2%
Recommendation Engines	1,200	1,404	1,656	1,978	2,401	2,947	19.7%
Sales Applications	1,649	1,935	2,282	2,709	3,243	3,899	18.8%
Vertical Specific Software	49,822	58,784	69,581	82,680	98,662	117,856	18.8%
Total AI Software	**124,316**	**146,437**	**173,199**	**206,207**	**247,459**	**297,914**	**19.1%**

Source: Gartner (November 2023)

Table 2: AI Software Forecast by Region and CAGR 2022-2027 ($m, %)

(Enlarged table in Appendix)

Region	2022	2023	2024	2025	2026	2027	CAGR 2022-2027 (%)
Eastern Europe	2,242	2,725	3,329	4,081	5,036	6,224	22.7%
Emerging Asia/Pacific	2,641	3,307	4,148	5,221	6,605	8,368	25.9%
Greater China	5,737	6,986	8,512	10,367	12,675	15,472	21.9%
Japan	5,679	6,663	7,857	9,327	11,162	13,403	18.7%
Latin America	3,615	4,238	4,993	5,931	7,105	8,536	18.8%
Mature Asia/Pacific	5,400	6,398	7,602	9,095	10,976	13,308	19.8%
Middle East and North Africa	2,147	2,662	3,305	4,109	5,125	6,388	24.4%
North America	68,217	79,963	94,102	111,518	133,235	159,695	18.5%
Sub-Saharan Africa	1,080	1,322	1,617	1,983	2,444	3,010	22.8%
Western Europe	27,559	32,173	37,735	44,574	53,096	63,509	18.2%
AI Software Forecast	**124,316**	**146,437**	**173,199**	**206,207**	**247,459**	**297,914**	**19.1%**

Source: Gartner (November 2023)

Table 3: AI Software Forecast 2023-2027 by Industry ($m, %)

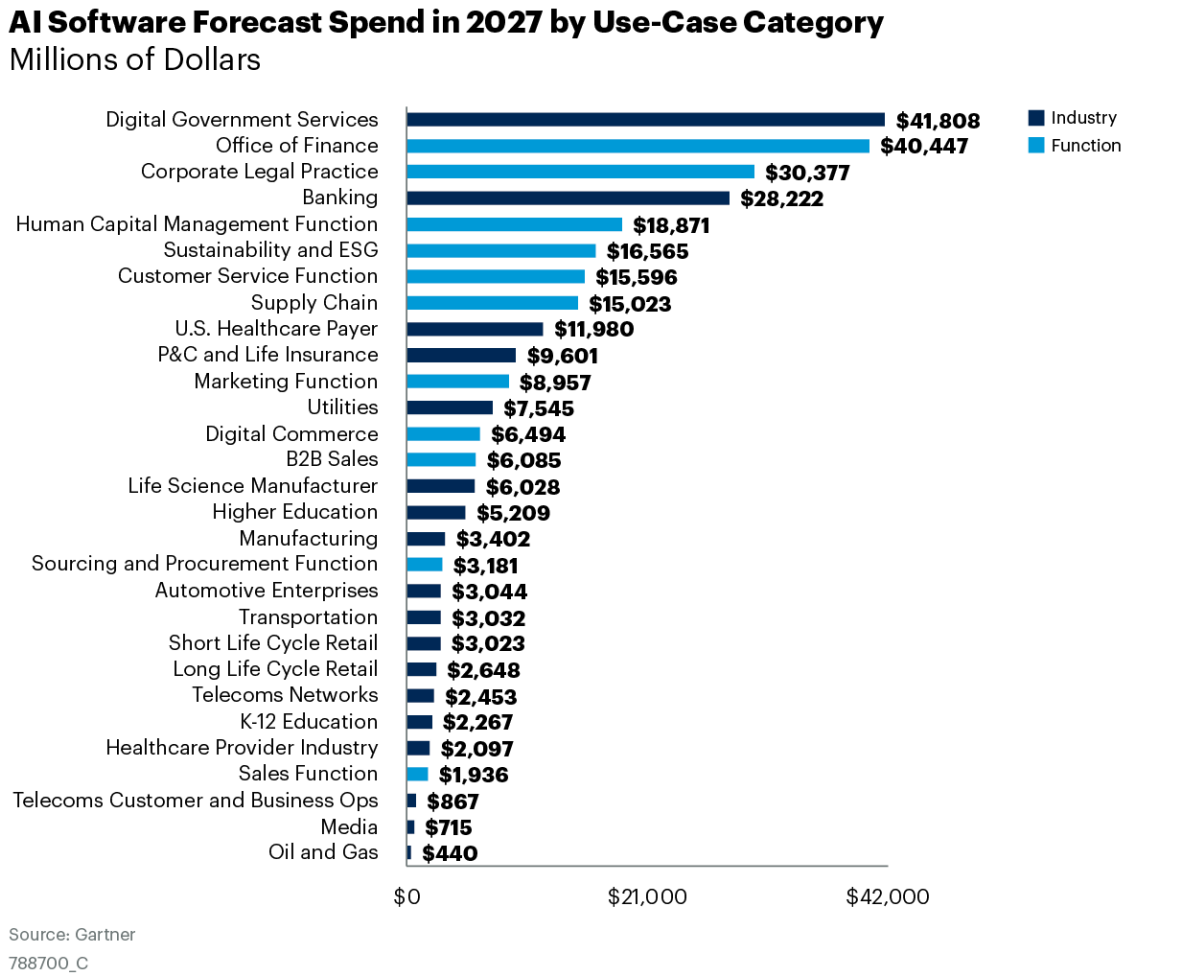
(Enlarged table in Appendix)

Industry	2022	2023	2024	2025	2026	2027	CAGR 2022-2027 (%)
Banking and Investment Services	22,269	26,349	31,311	37,505	45,379	55,161	19.9%
Communications, Media and Services	16,873	19,893	23,514	27,961	33,515	40,310	19.0%
Education	5,678	6,622	7,766	9,197	11,020	13,292	18.5%
Government	29,972	35,225	41,578	49,375	59,016	70,666	18.7%
Healthcare and Life Sciences	8,768	10,187	11,857	13,837	16,182	18,894	16.6%
Insurance	6,929	8,109	9,523	11,251	13,390	15,983	18.2%
Manufacturing	13,857	16,452	19,633	23,571	28,488	34,495	20.0%
Oil and Gas	953	1,177	1,464	1,834	2,315	2,929	25.2%
Power and Utilities	6,836	8,160	9,788	11,834	14,458	17,763	21.0%
Retail	5,818	6,711	7,769	9,046	10,609	12,484	16.5%
Transportation	4,068	4,864	5,836	7,051	8,592	10,509	20.9%
Wholesale Trade	2,296	2,688	3,161	3,747	4,494	5,429	18.8%
Grand Total	**124,316**	**146,437**	**173,199**	**206,207**	**247,459**	**297,914**	**19.1%**

Source: Gartner (November 2023)

The use-case dimension of the AI software forecast model is a critical component of predicting growth. Figure 4 shows the 2027 spend by use-case category. The use-case categories align in most cases with AI use-case prisms.

Figure 4: AI Software Forecast Spend in 2027 by Use-Case Category ($m)



Generative AI (as a Proportion of AI Software)

Everyday AI vs. Game-Changing AI

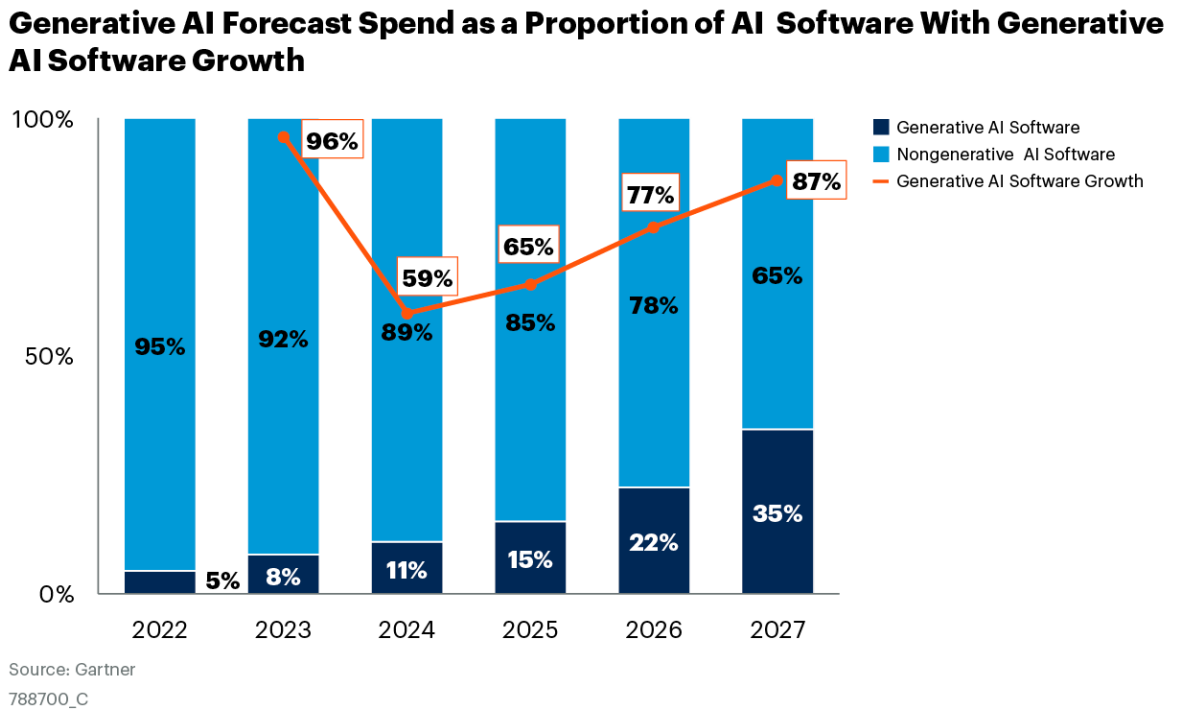
The rise of GenAI has increased the focus on everyday AI, where AI is used as an enhancement to productivity tools and applications. These enhancements improve productivity and quality of work (for example, autocompletion of text, grammar checks and automatic generation of task lists). Everyday AI, enhanced by recent advances in GenAI, can streamline content creation, analysis and collaboration, enabling automation and efficiency. Prior to these developments, everyday AI was a smaller contributor to IT spend.

Game-changing AI, in which organizations focus on specific high-impact use cases, is a contrasting approach to everyday AI. This Forecast Analysis focuses more on game-changing AI, but future updates will look more closely at everyday AI.

Growth in GenAI software spend is spiking during the course of 2023 due to the hype around AI assistant chatbot tools driving increased uptake of already-established generative AI technology in marketing, product design, conversational platforms and personalization. Growth then drops but accelerates again for the rest of the forecast period. Even with the dramatic levels of interest, investigation and piloting that currently exist, revenue takes time to build.

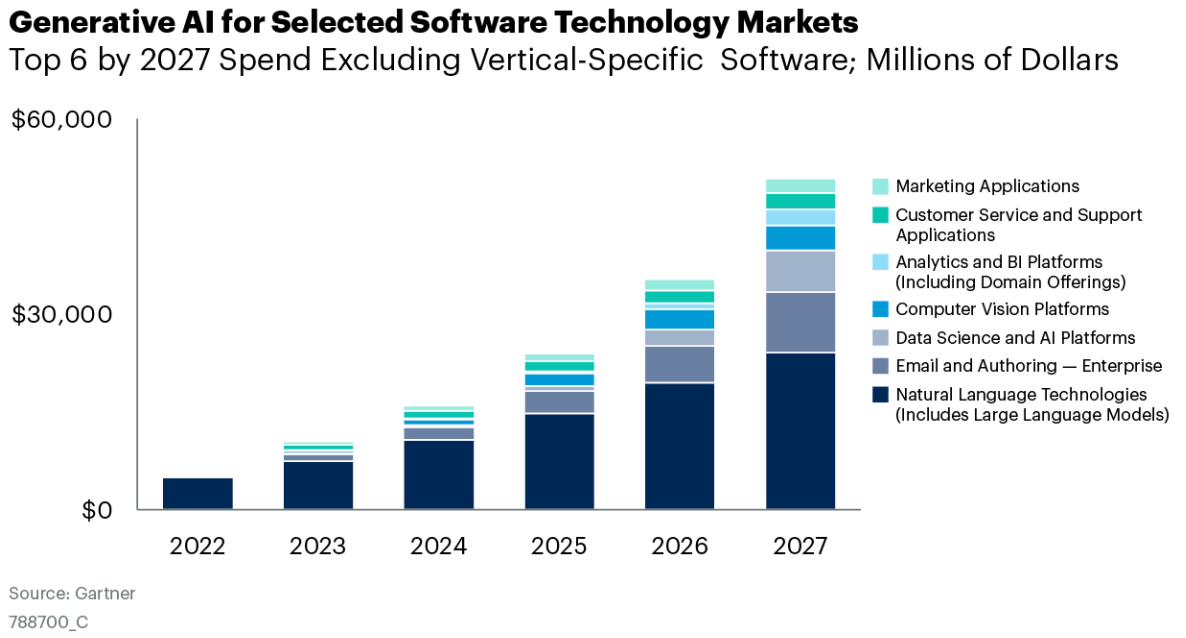
Figure 5 shows generative AI software spend as a proportion of the whole of AI software spend.

Figure 5: Generative AI Forecast Spend as a Proportion of AI Software with Generative AI Software Growth (%)



The top market segments for GenAI spend are shown in Figure 6. The leading platforms are natural language technologies, data science and AI platforms, computer vision platforms, and analytics and BI platforms. The leading applications are email and authoring systems based on the integration of everyday AI copilot tools, customer service and support. This, in turn, is based on the integration of Q&A for agents, support in email creation, and marketing applications that are based on capabilities to personalize messages, and generate text and image content.

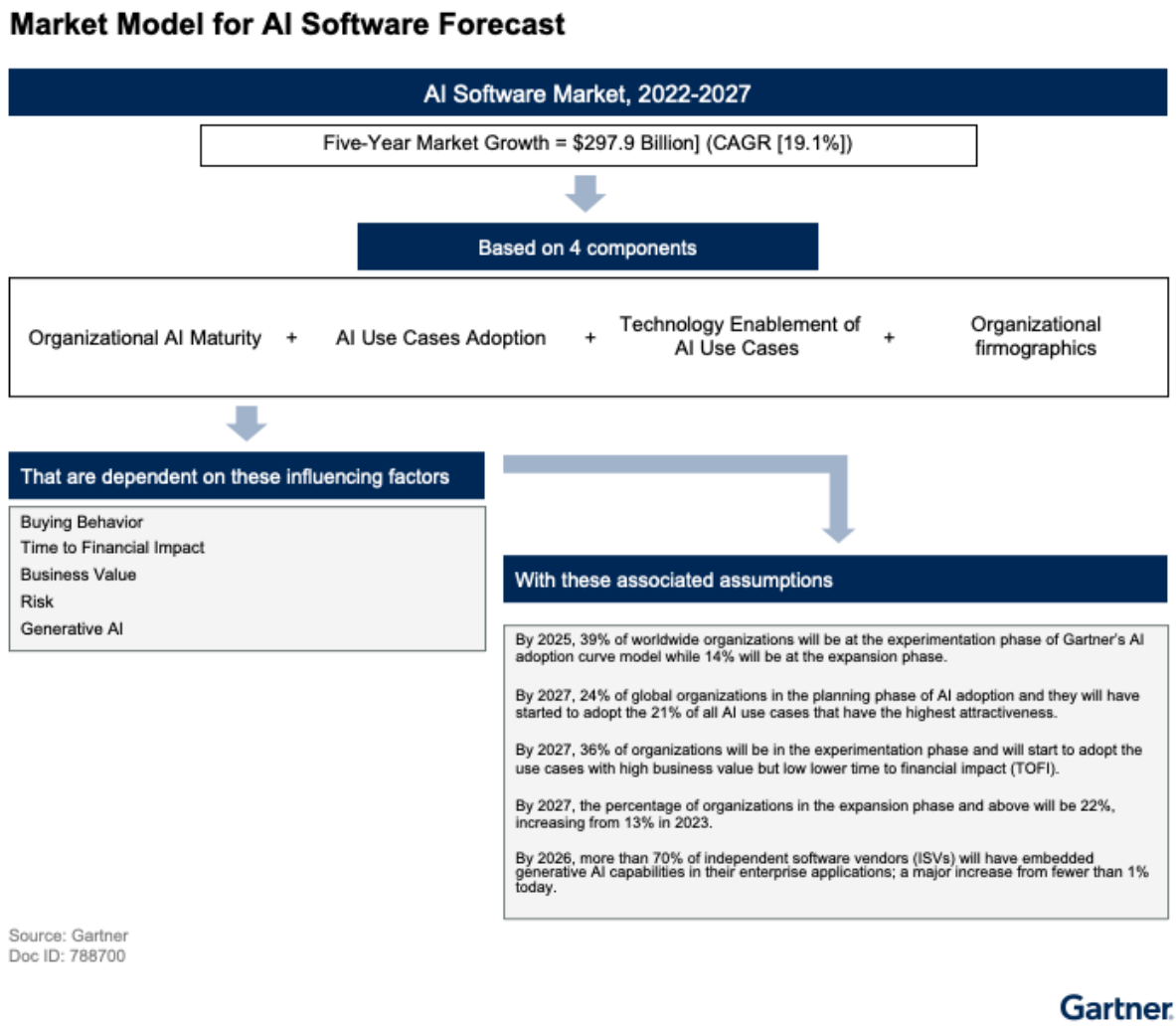
Figure 6: Generative AI for Selected Software Technology Markets (Top 6 by 2027 Spend Excluding Vertical Specific Software) ($m)



Forecast Model Summary

Figure 7 illustrates the major assumptions that shape our forecast data.

Figure 7: Market Model for the AI Software Forecast



Organizations ideally and typically start AI practices by identifying a shortlist of use cases where they expect to find value and then they build pilots. After some successes, some pilots make it into production. These early projects start to deliver business value or fail and are abandoned. Multiple projects go through this process. The next phase of AI maturity is stabilization, where a center of excellence (COE) emerges, making AI experts, best practices and technology available for projects. Scaling projects to deploy to production quickly is the focus here. This follows the path that Gartner calls the AI adoption curve (see Become an AI-First Organization: 5 Critical AI Adoption Phases).

Understanding, selecting, evaluating and prioritizing between a range of business use cases for AI is a complex and daunting task due to the complexity of the work and the different views each stakeholder may have. Gartner supports these activities with AI Use-Case Prisms, a methodology by which the most important, popular and impactful use cases for AI are scored and mapped to business processes.

In the AI software forecast model, we look at over 500 AI use cases sourced from Gartner's AI use-case prisms and make assumptions on how these business use cases are prioritized. These assumptions are based on organizations varying AI maturity levels, business value and ROI:

- **Use-case adoption** — Organizations selecting use cases must balance the level of risk (technical, data and organizational), the timing of financial impact and the business value of each use case. The use cases are aggregated into seven clusters, and then these clusters are mapped to AI maturity levels for the growth calculations.
- **AI maturity** — Organizations prioritize the use cases differently depending on their AI maturity. Lower maturity organizations focus more on time to value, along with lower risk. More mature organizations focus broadly on lower risk and higher business value. The most risky use cases are usually only attempted by the most mature organizations.
- **Technology enablement** — Each use case is mapped to the relevant software markets to calculate software spend by use case.
- **Firmographics** — Gartner's model includes firmographic information, which gives the number of organizations worldwide by region, company size and industry. This helps quantify the amount of overall spending on software.

Influencing Factors and Assumptions

> **Influencing Factor: Buying Behavior**
>
> Buying behavior is highly impacted by the AI maturity of organizations and their progression through the maturity phases. Spending increases exponentially as organizations mature because they implement more use cases and roll them out more broadly. Greater maturity leads to greater success and more spend across the data- and analytics-related technology category in particular. A lag in maturity — caused by reluctance to embrace AI, lack of trust in AI and a lack of skills to implement AI in production — will have the corresponding deceleration effect.

Forecast Assumption: By 2025, 39% of worldwide organizations will be at the experimentation phase of Gartner's AI adoption curve, while 14% will be at the expansion phase.

Updated: Gartner's AI adoption curve has five phases: planning, experimentation, stabilization, expansion and leadership. See Become an AI-First Organization: 5 Critical AI Adoption Phases for descriptions of the phases of AI maturity and how customer organizations typically advance from one phase to the next.

Buying and adoption of AI are driven by business use cases. Typically, organizations start with a long list of these use cases and prioritize select ones. In the forecast model, we make assumptions on how these business use cases are prioritized based on these four factors: the organization's AI maturity level and the business value, risk and time to business value (e.g., ROI) of the use case.

Where AI is used in decision making and for insights and recommendations, buying AI technologies and services is strongly influenced by the organization's AI maturity. How data-driven is the organization? What is the appetite of business buyers for data and information? How are decisions considered beforehand and justified afterward? What data is available through a centralized data architecture so data can be mapped to the questions that business users want to ask?

Lower-maturity organizations focus on higher feasibility and faster ROI, while organizations with more advanced maturity tackle more challenging and long-term use cases. These mature organizations are also better able to deploy use cases at scale because scaling AI takes more experience and is more complex. Organizational maturity varies by industry and region.

> **Influencing Factor: Business Value**
>
> The business value of AI use cases is a critical element to adoption. For the vast majority of game-changing AI use cases, business value is calculated and predicted in advance, and projects are funded based on that prediction. All use cases need to deliver business value; higher business value use cases are prioritized.

Forecast Assumption: By 2027, 24% of global organizations will be in the planning phase of AI adoption and they will have started to adopt the 21% of use cases that have the highest attractiveness.

New: The forecast model clusters AI use cases together based on their scores for business value, risk and time to financial impact. The most attractive use cases for the least mature organizations are those with high business value and short time to value combined. Those are where organizations get started in the earliest phase of AI maturity (planning).

The business value of AI use cases is a critical element to adoption. For the vast majority of game-changing AI use cases, business value is calculated and predicted in advance, and projects are funded based on that prediction. For everyday AI, the situation can be different. Organizations can invest in everyday AI with the assumption that business value will follow, but it is early days for this approach.

AI has the potential to bring significant value to organizations by enhancing productivity, improving decision making, and creating new opportunities for growth and innovation.

Implementing AI cost-effectively and in a timely fashion and realizing value from AI are priorities for IT leaders.

However, obtaining value from AI is challenging. The main barriers to AI implementation are the lack of understanding of the benefits and uses of AI techniques and the difficulty in measuring the value of AI.

Gartner survey research identified a few key best practices that successful organizations are utilizing to realize value from AI (see Survey Analysis: An AI-First Strategy Leads to Increasing Returns):

- **Organizations using both technical and business metrics** to measure success realize higher value from AI initiatives.
- A significantly **higher number of mature AI organizations use customer-success-related business metrics** than other organizations. For example, does introducing a chatbot to a government service mean more customers from specific target groups access these services?
- Mature AI organizations tend to measure AI use cases in an early and consistent manner.
- Organizations doing strategic implementations extract more value from AI and do more training or upskilling for AI core roles.

Success in AI depends on the right use of:

- **Models and frameworks** — Concepts and frameworks that are particularly relevant to AI in creating value. This includes types of value delivered and its measurement; the impact of AI on business models, operating models and business value; and the ability to address both transformational and incremental use cases.
- **Practices and processes** — The successful application of various AI techniques to uncover the most value is still evolving. However, there has been enough progress in the use of AI that we can identify best practices and processes from early successful companies, which include the best way to handle risks.
- **Domains and verticals** — There are numerous applications of AI that are specific to functional domains (for example, marketing, sales and HR) and vertical industries (for example, retail, banking and manufacturing). It is vital for organizations to understand these specific applications to ensure that their use of AI matches or surpasses the competition. This forecast model builds this through the wide range of AI use cases against the maturity and technology that are mapped.

Revenue for software vendors is intrinsically linked to the ability of their customers to generate business value and continue to do so. Supporting customers in achieving success is the right mindset for providers, but the ability to do this can depend on finding the right customer segments with the right needs and the ability to evolve and deliver.

> **Influencing Factor: Timing of Financial Impact**
>
> The faster time to financial impact that an AI use case has, the faster the delivery of business value and the lower the risk of scope creep. For this reason, organizations prioritize use cases with lower TOFI, particularly organizations at lower adoption phases. The rise of GenAI in the form of consumer-facing chat applications that deliver immediate value has emphasized the importance of time to value when evaluating AI use cases. The most attractive cluster of use cases in our forecast model has the fastest time to value of 18 months, one year or less.

Forecast Assumption: By 2027, 36% of organizations will be in the experimentation phase and will start to adopt the use cases with high business value but lower time-to-financial impact (TOFI).

New: Organizations in the second phase of AI adoption (experimentation) start to consider a wider range of use cases, including those with high business value but a longer time to financial impact.

Delivering business value in the shortest possible time has long been a focus and a challenge for information-related projects, which continues to be important for AI. Slower delivery of financial business impact has a greater effect on revenue due to later implementations of systems. Focusing on business value delivered in a short time reduces the likelihood of scope creep, something AI-related projects are highly prone to. Scope creep can often increase the risk of project failure, which correlates to a deceleration in the advance of AI maturity and, thus, would lead to a decrease in the revenue forecast in the long term.

> **Influencing Factor: Risk**
>
> The risk of AI projects does not necessarily prevent organizations from trying them if the business value and time to financial impact are good. Organizations reduce the project scope to lower the risk (for example, applying a demand forecasting model to a specific product category instead of across a range of products), which can reduce the TOFI still further.

Forecast Assumption: By 2027, the percentage of organizations in the expansion phase and above will be 22%, increasing from 13% in 2023.

New: AI projects have several potential risks: project failure, lack of adoption, privacy and security. Additionally, societal, ethical and reputational risks can arise from the misuse of AI. When selecting and scoping use cases to develop into projects, organizations focus on keeping risk as low as possible while also finding ways to deliver significant business value that makes the risk worth taking. Vendors that can help buyers understand, evaluate and mitigate AI risks will be best placed to get customers started on projects and develop trusted relationships.

Successful risk management for AI will involve building an AI inventory of all the AI used in the organization so it can be explained and business users understand it. Data privacy and protection programs also play a key role in understanding, reducing and mitigating AI risk. As organizations scale, they need to integrate AI risk management into ModelOps, allowing effective controls to detect malicious acts, benign mistakes and unanticipated changes.

Regulatory and ethical requirements drive organizations to the responsible use of AI.

Cutting-edge data protection methods, such as synthetic data, self-correcting models and federated learning, support regulatory compliance. Enhanced controls with sufficient depth and granularity help protect privacy, promote fairness and reduce model bias. AI-enabled systems need to be explainable, meaning the use of an AI model for a specific audience and purpose should be justifiable. AI will extend into areas where risk aversion or concerns, such as legislation, have prevented its use.

Explainable AI is not just about understanding the prediction — it's about clarifying a model's functioning for a specific audience and purpose. Business user trust and legislation will limit the application of AI unless the decision-making process can be understood to some extent.

> **Influencing Factor: Generative AI**
>
> This forecast takes a use-case-centric view of GenAI, with the main capabilities for these use cases being virtual assistants, content generation, personalization and generative design. From a technology perspective, the most dramatic growth comes from the natural language technologies, email and authoring, and data science and AI platforms technology markets.

Forecast Assumption: By 2026, more than 70% of independent software vendors (ISVs) will have embedded generative AI capabilities in their enterprise applications, a major increase from fewer than 1% today.

New: The hype around GenAI chatbot tools like OpenAI's ChatGPT has led to an unprecedented level of interest in deep technology from business leaders. This interest extends up to the CEO level, with the vast majority of organizations setting generative AI strategies, broadening existing AI strategies and experimenting with consumer chatbots for Q&A. Pilots are plentiful. However, pilots are not production deployments.

Large language models are complex and resource-intensive, but the hype has obscured this to an extent, with many organizations experimenting with building their own models, fine-tuning with their own data or trying other activities. However, this path is fraught with challenges. The cost of training and maintaining a large, generative AI model can be very high, including training infrastructure costs, data acquisition, infrastructure and labeling costs, human audit of the model quality, and inferencing costs. The pace of innovation in the GenAI ecosystem is fast, and, for most clients, the pace of external innovation from technology vendors will be greater than their own internal innovation. In the future, the build decision may induce regret. We expect that, over time, more organizations will align with the path of extending generative AI models with data retrieval from their own private data sources.

The opportunity for technology providers that generative AI presents is extensive, and pressure from customers to add GenAI capabilities is high. These represent the quickest and easiest way for organizations to consume generative AI at the lowest risk. Technology providers must decide whether to embed GenAI (API services from foundation models) into their applications, develop new offerings, or do both by reviewing the impact of augmenting existing features or adding new functions into their core products (see Generative AI Approaches and Implications for Product Managers).

Note 1 Forecast Methodology

This AI software forecast is a composite forecast, which is an overlay across Gartner's existing software market forecast that incorporates specific AI software elements. These AI elements include both platforms used to build AI systems and applications with AI functions embedded within them.

We also include the vertical-specific software (VSS) forecast line from Forecast: Enterprise IT Spending by Vertical Industry Market, Worldwide, 2021-2027, 2Q23 Update. VSS is defined as software applications that are unique to a vertical industry. These are stand-alone applications that are not modules or extensions of horizontal applications. This category does not include custom-developed applications. Examples of VSS are core banking, Islamic banking and online banking systems in banking, and applications for merchandising management or assortment planning in retail. VSS incorporates both platforms and applications (see Market Definitions and Methodology: Vertical Industries).

From this initial starting point, a use-case growth model is applied, which evaluates how organizations of varying AI maturity levels adopt different use cases.

The model assumption is that the order in which organizations adopt use cases depends on these factors:

- **The AI maturity** of the organization
- **Three scores attached** to each use case: business value, feasibility and time to ROI

Lower-maturity organizations tend to focus on higher feasibility and faster ROI, while organizations with more advanced maturity approach more challenging and long-term ROI use cases. Organizational variations in maturity, industry and region are also considered in the model.

The generative AI software part of the forecast was based on:

- **Spend on use cases** that involve GenAI models/technology.
- **Software analysts' research** for market risk strategy projections to be published soon.
- **Modeling the impact** of AI and generative AI impact on the software markets via a questionnaire to technology market analysts.
- **Modeling the impact** of revenue from a time perspective because the bulk of GenAI revenue is yet to come rather than established, unlike the classic AI use-case revenue.

Table 4 shows the market segments included in this AI software forecast. Some of these have changed since the 2021 update.

Table 4: Market Segments in the AI Software Forecast

(Enlarged table in Appendix)

2023 AI Software Forecast	2021 AI Software Forecast	Category (Applications/Platforms)	Change
Analytics and BI Platforms (including Domain Offerings)	Modern BI Platforms	Platforms	The 2023 market is larger as it includes two segments — Analytics and BI Platforms and Analytic Platform Domain Offerings.
Computer Vision Platforms	Computer Vision	Platforms	Name change for clarity
Content Collaboration Tools	Content Collaboration Platforms	Applications	Name change in line with Gartner Standard Market Data (GSMD)
Content Services Platforms	Content Collaboration Tools	Applications	Name change in line with GSMD
Customer Service and Support Applications	Customer Service Applications	Applications	Name change
Data Science and AI Platforms	AI and Data Science Platforms	Platforms	Name change
Digital Commerce Applications	Digital Commerce Applications	Applications	No change
Email and Authoring — Enterprise	Email and Authoring — Enterprise	Applications	No change
Emotion AI Platforms	Emotion AI	Platforms	Name change for clarity
Event Stream Processing	Event Stream Processing	Platforms	No change
Financial Management Systems Components	None	Applications	Added in 2023
Graph Technologies for AI	Graph Technologies	Platforms	Name change for clarity
Human Capital Management Applications	Human Capital Management Applications	Applications	No change
Marketing Applications	Marketing Applications	Applications	No change
Natural Language Technologies (incl. Large Language Models)	NLP/NLG and Text Analytics	Platforms	Combined under a new name
Procurement Applications	Procurement Applications	Applications	No change
Recommendation Engines	Recommendation Engines	Platforms	No change
Sales Applications	Sales Applications	Applications	No change
Vertical Specific Software	None	N/A	Added in 2023
NLP = natural language processing; NLG = natural language generation			

Source: Gartner (November 2023)

Document Revision History

Forecast Analysis: Artificial Intelligence Software, Worldwide - 20 October 2021

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Research Roundup for Generative AI

Table 1: AI Software Forecast 2022-2027 by Software Market ($m and %)

Software Market	2022	2023	2024	2025	2026	2027	CAGR 2022-2027 (%)
Analytics and BI Platforms (including Domain Offerings)	13,703	16,081	18,909	22,345	26,640	31,759	18.3%
Computer Vision Platforms	10,399	12,152	14,297	17,000	20,488	24,903	19.1%
Content Collaboration Tools	1,416	1,652	1,944	2,317	2,811	3,451	19.5%
Content Services Platforms	469	557	663	792	949	1,137	19.4%
Customer Service and Support Applications	2,743	3,204	3,771	4,491	5,427	6,623	19.3%
Data Science and AI Platforms	7,178	8,804	10,760	13,220	16,265	19,874	22.6%

Software Market	2022	2023	2024	2025	2026	2027	CAGR 2022-2027 (%)
Digital Commerce Applications	931	1,098	1,304	1,566	1,911	2,354	20.4%
Email and Authoring: Enterprise	5,854	6,905	8,202	9,861	12,041	14,854	20.5%
Emotion AI Platforms	582	678	797	950	1,151	1,412	19.4%
Event Stream Processing	421	498	592	711	868	1,068	20.4%
Financial Management Systems Components	5,345	6,277	7,401	8,753	10,379	12,299	18.1%
Graph Technologies for AI	1,000	1,169	1,378	1,646	2,000	2,458	19.7%
Human Capital Management Applications	1,606	1,865	2,172	2,535	2,961	3,450	16.5%

Software Market	2022	2023	2024	2025	2026	2027	CAGR 2022-2027 (%)
Marketing Applications	1,826	2,132	2,496	2,923	3,418	3,980	16.9%
Natural Language Technologies (includes Large Language Models)	16,998	19,874	23,401	27,871	33,687	41,105	19.3%
Procurement Applications	1,175	1,368	1,594	1,857	2,156	2,486	16.2%
Recommendation Engines	1,200	1,404	1,656	1,978	2,401	2,947	19.7%
Sales Applications	1,649	1,935	2,282	2,709	3,243	3,899	18.8%
Vertical Specific Software	49,822	58,784	69,581	82,680	98,662	117,856	18.8%
Total AI Software	**124,316**	**146,437**	**173,199**	**206,207**	**247,459**	**297,914**	**19.1%**

Source: Gartner (November 2023)

Table 2: AI Software Forecast by Region and CAGR 2022-2027 ($m, %)

Region	2022	2023	2024	2025	2026	2027	CAGR 2022-2027 (%)
Eastern Europe	2,242	2,725	3,329	4,081	5,036	6,224	22.7%
Emerging Asia/Pacific	2,641	3,307	4,148	5,221	6,605	8,368	25.9%
Greater China	5,737	6,986	8,512	10,367	12,675	15,472	21.9%
Japan	5,679	6,663	7,857	9,327	11,162	13,403	18.7%
Latin America	3,615	4,238	4,993	5,931	7,105	8,536	18.8%
Mature Asia/Pacific	5,400	6,398	7,602	9,095	10,976	13,308	19.8%
Middle East and North Africa	2,147	2,662	3,305	4,109	5,125	6,388	24.4%
North America	68,217	79,963	94,102	111,518	133,235	159,695	18.5%
Sub-Saharan Africa	1,080	1,322	1,617	1,983	2,444	3,010	22.8%
Western Europe	27,559	32,173	37,735	44,574	53,096	63,509	18.2%
AI Software Forecast	**124,316**	**146,437**	**173,199**	**206,207**	**247,459**	**297,914**	**19.1%**

Region	2022	2023	2024	2025	2026	2027	CAGR 2022-2027 (%)

Source: Gartner (November 2023)

Table 3: AI Software Forecast 2023-2027 by Industry ($m, %)

Industry	2022	2023	2024	2025	2026	2027	CAGR 2022-2027 (%)
Banking and Investment Services	22,269	26,349	31,311	37,505	45,379	55,161	19.9%
Communications, Media and Services	16,873	19,893	23,514	27,961	33,515	40,310	19.0%
Education	5,678	6,622	7,766	9,197	11,020	13,292	18.5%
Government	29,972	35,225	41,578	49,375	59,016	70,666	18.7%
Healthcare and Life Sciences	8,768	10,187	11,857	13,837	16,182	18,894	16.6%
Insurance	6,929	8,109	9,523	11,251	13,390	15,983	18.2%
Manufacturing	13,857	16,452	19,633	23,571	28,488	34,495	20.0%
Oil and Gas	953	1,177	1,464	1,834	2,315	2,929	25.2%
Power and Utilities	6,836	8,160	9,788	11,834	14,458	17,763	21.0%
Retail	5,818	6,711	7,769	9,046	10,609	12,484	16.5%

Industry	2022	2023	2024	2025	2026	2027	CAGR 2022-2027 (%)
Transportation	4,068	4,864	5,836	7,051	8,592	10,509	20.9%
Wholesale Trade	2,296	2,688	3,161	3,747	4,494	5,429	18.8%
Grand Total	**124,316**	**146,437**	**173,199**	**206,207**	**247,459**	**297,914**	**19.1%**

Source: Gartner (November 2023)

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