Use-Case Prism: Artificial Intelligence for IT Service Desk

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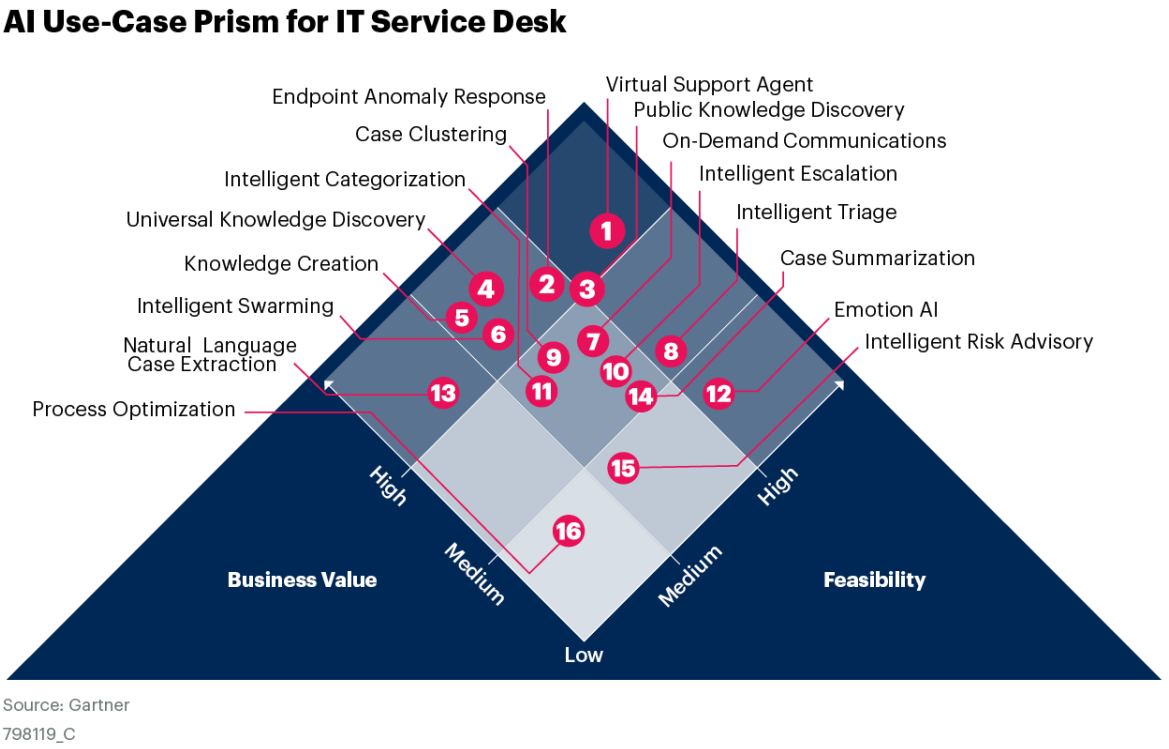
This research identifies 16 AI use cases, some of which leverage generative AI, that are relevant to infrastructure and operations. I&O leaders can use this information to identify the best ITSM use cases for their IT service desk organizations based on use case feasibility and business value.

Overview

Artificial intelligence (AI) is an enabler of specific use cases in IT service management (ITSM). These include generative AI-enabled opportunities that have recently emerged and are of heightened interest to I&O leaders. This research gives an overview of AI use cases in IT service desk. The Use-Case Prism ranks each of the 16 use cases outlined in this report against its business value and feasibility (see Figure 1). The pipeline (see Figure 4) shows how those use cases are distributed across the context, advice and action stages of application of AI in ITSM.

Figure 1: AI Use-Case Prism for IT Service Desk



Source: Gartner
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The AI use cases for IT service desk identified in this research are categorized by broader AI use-case families (as defined in AI Zodiac: Mapping AI Use Cases to Techniques), which are shown in the scoring breakdown (Figure 2) and pipeline (Figure 4). These use-case families can be cross-referenced with other Gartner research about AI. Use-case families not used in this Prism are intelligent automation, decision intelligence and autonomous systems. Generative AI use cases are mainly found within the content generation use-case family, but also knowledge discovery.

This Use-Case Prism plots these use cases against business value and feasibility axes, inviting strategic conversations and driving investment decisions related to specific vendor solutions.

How to Use

Review the AI-enabled use cases plotted on the Prism, comparing them with the maturity and requirements of your own ITSM solutions and future strategy. To assist with this task, we have a presentation summary of this research and a Toolkit.

Download a summary presentation of this research here.

Toolkit

A companion Toolkit allows you to tailor the Use-Case Prism for your organization's needs. Navigate to Toolkit: Discover and Prioritize Your Best AI Use Cases With a Gartner Prism and download the Excel file to customize the use cases, business value and feasibility dimensions, relative weightings, and use-case scores.

Scoring Breakdown

Figure 2 shows how each use case was scored against each business value and feasibility dimension. See Table 1 just below for explanations of each dimension.

Figure 2: AI Use-Case Scorecard for IT Service Desk

AI Use-Case Scorecard for IT Service Desk

○ None ◔ Low ◑ Medium ◕ High ● Very High

		Business Value			Feasibility			
		Cost Reduction	Operational Efficiency	Employee Engagement	Technical Feasibility	Organizational Readiness	Product Availability	Ongoing Overhead
	Conversational UIs							
1	Virtual Support Agent	◕	◕	◕	●	◕	●	◑
	Anomaly Detection/Monitoring							
2	Endpoint Anomaly Response	◕	◕	●	◕	◕	◑	◕
10	Intelligent Escalation	◔	◕	◑	◕	◕	◑	◕
	Knowledge Discovery							
3	Public Knowledge Discovery	◕	◕	●	●	◑	●	◕
4	Universal Knowledge Discovery	◕	●	●	◕	◑	◕	◑
	Content Generation							
5	Knowledge Creation	◕	●	◕	◕	◑	◔	◑
7	On-Demand Communications	◑	◑	◕	◕	◕	◑	◑
13	Natural Language Case Extraction	◑	◕	◕	◑	◑	◔	◑
14	Case Summarization	◑	◕	◑	◔	◑	◔	◑
	Recommendation Systems							
6	Intelligent Swarming	◕	●	◕	◑	◑	◑	◑
	Segmentation/Classification							
8	Intelligent Triage	◑	◕	◔	◕	◕	◕	◕
9	Case Clustering	◑	●	◑	◕	◑	◕	◑
11	Intelligent Categorization	◑	●	◑	◑	◑	◑	◑
	Perception							
12	Emotion AI	◔	◑	◕	◕	◕	◕	◕
	Prediction/Forecasting							
15	Intelligent Risk Advisory	◑	◑	◔	◑	◑	◑	◕
	Optimization and Planning							
16	Process Optimization	◑	◕	◔	◑	◔	◔	◑

Source: Gartner
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Table 1: Use-Case Dimension Explanations

(Enlarged table in Appendix)

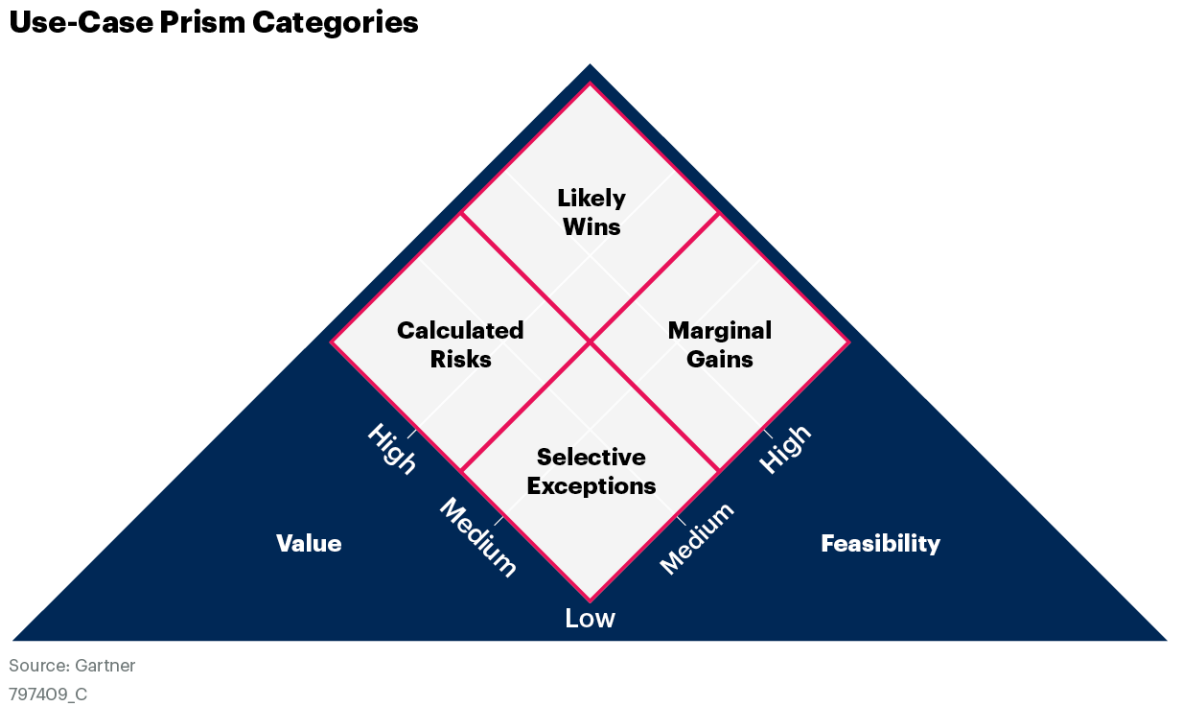
Dimension	Explanation
Cost Reduction	Includes process, user experience and product improvements that enable tangible reduction in costs, such as labor savings, logistical improvements, faster execution and improved accuracy.
Operational Efficiency	Includes process, user experience and product improvements that enable I&O teams to optimize processes through insight and automation.
Employee Engagement	Includes employee-facing user experience and workflow improvements that enhance IT's relationship with the business consumer.
Technical Feasibility	Includes whether necessary underlying technologies are mature enough to be successfully deployed.
Product Availability	Includes whether necessary underlying technologies are available and in the market.
Organizational Readiness	Includes the ability of the organization to make the necessary policy, procedural and change management activities to adopt the solution.
Ongoing Overhead	Includes the effort and finance costs on the organization to continue to use and maintain the solution after implementation.

Source: Gartner (October 2023)

Scoring Breakdown by Category

Figure 3 shows the Prism overlaid with the four categories we've split the use cases into. The sections that follow summarize the rationale for each use-case score.

Figure 3: Use-Case Prism Categories



Use-Case Prism Categories

Each use case is placed into one of four categories based on its position on the Prism. Click on the category name to jump to a section summarizing the rationale for each use-case score in that category:

- Likely Wins: Use cases at the top of the Prism combine high feasibility and high business value, making them wins in most circumstances.
- Calculated Risks: Use cases on the left side of the Prism offer high business value but low feasibility, meaning they represent riskier options.
- Marginal Gains: Use cases on the right side of the Prism are highly feasible but offer low business value, making them low-risk but for marginal gain.
- Selective Exceptions: Use cases at the bottom of the Prism offer low business value and low feasibility, making them lower priority, except in select circumstances.

Likely Wins

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Use cases at the top of the Prism combine high feasibility and high business value, making them wins in most circumstances.

Table 2: Scoring Breakdown: High-Value, High-Feasibility Use Cases

(Enlarged table in Appendix)

Use Case	Business Value	Feasibility
1. Virtual support agent AI use-case family: Conversational UIs. Virtual support agents deliver information, provide answers to common questions and perform transactions to provide IT support to business consumers in an ITSM scenario. They are an IT-support-specific subset of virtual assistants that take actions such as reset passwords, deploy software, escalate support requests and execute scripts to restore IT services.	Cost reduction: 3 Operational efficiency: 3 Employee engagement: 3.5 Virtual support agents are employee facing and are strongly impactful on employee engagement. They are the most common way for employees to experience generative AI. Successful implementations of these can deflect incidents and requests from the IT service desk. Rushed implementations can harm employee experience when forced upon the unwilling.	Technical feasibility: 3.7 Product availability: 3.8 Organizational readiness: 3 Ongoing overhead: 2.5 This use case is supported by widely available products including general-purpose virtual assistants for simple common interactions. More powerful and complex solutions are not plug-and-play, and are reliant on good preparation, implementation and ongoing management.
2. Endpoint anomaly response AI use-case family: Anomaly detection/monitoring. Systems such as digital employee experience (DEX) tools track endpoint diagnostics to identify issues on end-user devices and determine the classification of current or imminent faults and link to known errors and solutions.	Cost reduction: 3 Operational efficiency: 3.2 Employee engagement: 4 Use of AI-enabled DEX tools can lead to fewer IT issues that disrupt and impede employee productivity. The automation is rules based, but the identification of insights and opportunities for automation is AI-powered.	Technical feasibility: 2.6 Product availability: 2.5 Organizational readiness: 3 Ongoing overhead: 2.9 I&O leaders will find many solutions on the market that can support this use case, but some DEX tool capabilities are driven by rule-based automation, rather than AI. DEX transformation often requires significant cultural change to place emphasis and priority on the overall digital employee experience.
3. Public knowledge discovery AI use-case family: Knowledge discovery. Knowledge retrieval of publicly available information from external knowledge sources, including training data within large language models (LLMs.) The information is to be delivered to ITSM platforms, experts and end-user consumers.	Cost reduction: 2.6 Operational efficiency: 2.8 Employee engagement: 3.7 This highly employee-impacting use case is likely to utilize generative AI to format responses. It is a quick way to provide information and answers generated by public sources. Answers will not cover internal enterprise services or knowledge. This limits the differentiation of this use case from searching on a public search engine.	Technical feasibility: 3.6 Product availability: 3.7 Organizational readiness: 2 Ongoing overhead: 2.7 Many solutions offering interactions with LLMs are available, and the market is growing rapidly. Beyond small projects and experimentation, enterprise applications need good planning and careful governance. Grounding is required to ensure the appropriateness of responses and mitigate hallucinations.
7. On-demand communications AI use-case family: Content generation. *Generate text for outgoing communications, such as responses to incoming requests and alerts for changes or major incidents.*	Cost reduction: 1.9 Operational efficiency: 2.5 Employee engagement: 3.2 This offers a more fine-tuned and personalized alternative to static templates, and requires less manual intervention, which can reduce the time and effort to produce communications for employees. Despite being employee-facing, the improvement of communications is not transformative over human-generated communications.	Technical feasibility: 3.4 Product availability: 2.5 Organizational readiness: 2.6 Ongoing overhead: 2.2 Some ITSM platform vendors offer this capability already or will in an imminent release. This is a straightforward use of natural language technologies within generative AI. Grounding and training are required to ensure the appropriateness of responses and mitigate hallucinations.
Use - *cases scores on a 0-4 scale for each dimension, 0 being lowest and 4 being highest.*		

Source: Gartner (October 2023)

Calculated Risks

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Use cases on the left side of the Prism offer high business value but low feasibility, meaning they represent riskier options.

Table 3: Scoring Breakdown: High-Value, Low-Feasibility Use Cases

(Enlarged table in Appendix)

Use Case	Business Value	Feasibility
4. Universal knowledge discovery AI use-case family: Knowledge discovery. Knowledge retrieval of answers about internal IT services combined with public knowledge sources, including training data within LLMs. This involves either sourcing a domain-specific LLM or using retrieval augmented generation (RAG) to incorporate private and proprietary enterprise information into public LLM request sessions.	Cost reduction: 3.5 Operational efficiency: 3.6 Employee engagement: 3.6 This improves the breadth and relevancy of answers provided by the public knowledge discovery use case to include information on internal IT applications and services. This provides greater differentiation from web searches. This can improve virtual support agents and provides greater value when used alongside the knowledge creation use case.	Technical feasibility: 3 Product availability: 1.6 Organizational readiness: 2.6 Ongoing overhead: 2.5 At present, ITSM and ITOM vendors predominantly offer solutions that involve building private domain-specific LLMs. RAG is expected to become more common through 2024 and is a more scalable alternative to building a domain-specific LLM for each environment. I&O leaders will need to develop their teams' knowledge of prompt engineering and grounding to mitigate the risks of hallucinations.
5. Knowledge creation AI use-case family: Content generation. Recognize attempted solutions and successful solutions from sources including organic conversations and historical cases, and create associated knowledge articles in a management system (e.g., ITSM platform).	Cost reduction: 3.3 Operational efficiency: 4 Employee engagement: 3.2 This use case expands the content within a knowledge base, while mitigating the time and cost of authoring knowledge articles manually. This improves the employee-facing capabilities of knowledge discovery AI use cases and powers greater automation through virtual support agents. It also provides more contextual data for enhanced case clustering to allow ITSM platforms to provide better advice more frequently.	Technical feasibility: 2.8 Product availability: 1.3 Organizational readiness: 2.5 Ongoing overhead: 2 Knowledge creation is an obvious use of existing generative AI technology, but product availability is very limited. Solutions are beginning to enter the market. Otherwise, most offerings instead focus on rewording knowledge from documents rather than generating new solutions. Automation of knowledge creation is heavily dependent on natural language case extraction.
6. Intelligent swarming AI use-case family: Recommendation systems. Identify technical and business experts that can help work on cases such as incidents and problems, based on their skill set, prior experience and effectiveness, utilizing both structured data (such as the ITSM platform) and unstructured data (natural language in documents and communications). This use case also provides AI-assisted routing based on availability and location of resources.	Cost reduction: 3 Operational efficiency: 3.8 Employee engagement: 3 This use case speeds up expert identification and drives faster solutions on business consumer issues. It is a key enabler of collaboration support hubs through engagement with non-IT experts that do not monitor resolver group ticketing queues in the ITSM platform. Incident, problem and major incident performance is improved.	Technical feasibility: 2.5 Product availability: 2.5 Organizational readiness: 2 Ongoing overhead: 2 Some ITSM platforms offer intelligent swarming, but this is not commonly implemented. Some products offer swarming that is manually driven or based on rule-based automation rather than powered by AI. In either case, I&O leaders must have the skills maps and knowledge graphs in place before implementation.
9. Case clustering AI use-case family: Classification/segmentation. Use cluster analysis to group related entities together, exposing new insights within the ITSM platform. Advanced implementations may involve knowledge graphs.	Cost reduction: 2 Operational efficiency: 4 Employee engagement: 2.2 Clustering and pattern recognition underpins many of the other AI use cases for IT service desk (such as intelligent categorization and intelligent risk advisory). This can enable a more proactive problem management practice by automatically identifying recurring incidents from both past and current incidents. Other common benefits include enhanced knowledge matching and root cause analysis.	Technical feasibility: 2.8 Product availability: 2.8 Organizational readiness: 1.8 Ongoing overhead: 2 Many ITSM platforms offer some form of cluster analysis, but several only provide heat map analysis of common keywords or categories. External tools can also be used, but the goal is to leverage the insights in the processes and automation, rather than simply through reporting and dashboards. I&O leaders seldom anticipate how much human involvement is required. Clustering within configuration management systems is a capability currently lacking in the market.
11. Intelligent categorization AI use-case family: Segmentation/classification. Determine the classification of an incident based on fixed and organic information, such as likely root cause as determined by similar incidents rather than by configuration item relationships alone.	Cost reduction: 2.3 Operational efficiency: 4 Employee engagement: 1.7 This extends case clustering into the action domain to apply categories, tags and metadata to cases, which enables more insightful reporting and automations. It frees up agent time and promotes better consistency.	Technical feasibility: 2.5 Product availability: 2 Organizational readiness: 2 Ongoing overhead: 2.5 The assistive categorization capabilities in ITSM platforms currently are typically keyword or rule-based. This relies on good quality data of existing records and consistent data entry practices. Case summarization may be needed to mitigate shortcomings in such areas.
13. Natural language case extraction AI use-case family: Content generation. Recognize incidents and requests from organic conversations, and create associated tickets in a management system (e.g., ITSM platform).	Cost reduction: 2.5 Operational efficiency: 3.5 Employee engagement: 3.5 This use case addresses a significant requirement for I&O by pulling in data, knowledge and metrics for support activities that do not go through the ITSM platform (unless manually added). It can be leveraged by knowledge creation to find new solutions. It can also provide advance warning of service issues that employees are talking about. It is an essential capability for a fully managed collaborative support hub.	Technical feasibility: 1.8 Product availability: 0.8 Organizational readiness: 2 Ongoing overhead: 2 This is an obvious use of existing natural language understanding, but product availability of packaged solutions does not yet exist. Several vendors only have this use case in their roadmaps at this point. This leaves I&O leaders having to build these solutions in-house at high cost and complexity, or wait for the market to catch up.
Use cases scores on a 0-4 scale for each dimension, 0 being lowest and 4 being highest.		

Source: Gartner (October 2023)

Marginal Gains

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Use cases on the right side of the Prism are highly feasible but offer low business value, making them low-risk but for marginal gain.

Table 4: Scoring Breakdown: Low-Value, High-Feasibility Use Cases

(Enlarged table in Appendix)

Use Case	Business Value	Feasibility
8. Intelligent triage AI use-case family: Segmentation/classification. Determine the priority of an issue from impact and urgency data, using both fixed and organic information, such as sentiment analysis, business calendar and affected services.	Cost reduction: 2 Operational efficiency: 3 Employee engagement: 1.4 Intelligent triage frees up agent time and promotes better consistency during intake of incidents and requests. It can advise of earlier implementation of the major incident management process and mitigate the impact of service loss. More accurate prioritization of cases can also reduce overreaction to cases that are less severe than the rules template would otherwise indicate.	Technical feasibility: 3 Product availability: 2.9 Organizational readiness: 3.2 Ongoing overhead: 3.4 Using AI techniques like cluster analysis to advise the prioritization of cases isn't technically difficult. Once set up, it doesn't need a lot of hand-holding. Many top-level ITSM platforms can do this to at least a basic level. I&O leaders will need to have a good prioritization policy agreed on with the customer and good-quality metadata in existing records.
10. Intelligent escalation AI use-case family: Anomaly detection/monitoring. Predict cases that may fail an SLA or trigger a complaints escalation, and take preventative action by escalating to senior experts before traditional triggers (such as SLA timers).	Cost reduction: 1.4 Operational efficiency: 3 Employee engagement: 2.5 Enables IT to be more visibly responsive in far more flexible ways than traditionally waiting for an SLA timer to hit amber or red thresholds before taking action. This can preempt complaints. It also can trigger swarming and case assignments involving senior experts sooner.	Technical feasibility: 3.3 Product availability: 1.7 Organizational readiness: 2.9 Ongoing overhead: 3 This is technically straightforward when good-quality historical case records can be clustered and analyzed for trends. Emotion AI also provides insight into employee sentiment. Nevertheless, such out-of-the-box capabilities are not common in the market.
12. Emotion AI AI use-case family: Perception. Emotion artificial intelligence (AI) technologies (also called affective computing) use AI techniques to analyze the emotional state of a user (via computer vision, audio/voice input, sensors and/or software logic). Emotion AI can initiate responses by performing specific, personalized actions to fit the mood of the customer.	Cost reduction: 0.6 Operational efficiency: 1.5 Employee engagement: 3 AI-assisted sentiment analysis can alert the service desk to be aware of poor service experiences and/or low DEX scores when business consumers contact the IT service desk. The agents can show empathy and act in a way that would provide an improved experience. The improvement of non-AI sentiment analysis capabilities is marginal because it does not aid cost-optimization or significantly improve operational efficiency. It is a "nice to have."	Technical feasibility: 3.5 Product availability: 3 Organizational readiness: 3 Ongoing overhead: 3 Many ITSM platforms offer an API into sentiment analysis systems like Azure. Some provide more comprehensive DEX scores that also leverage telemetry and diagnostic data from the endpoint devices and services being used.
14. Case summarization AI use-case family: Content generation. Use natural language technologies to rephrase and summarize an incident or request description, so that it can be better understood by human agents and leveraged in segmentation/classification use cases for classification and tagging. Also applied to postcall work-log summarization.	Cost reduction: 1.5 Operational efficiency: 2.6 Employee engagement: 2 Direct benefits of case summarization are marginal and nice to have. It may slightly speed response to issues, but humans are usually competent at determining meaning from incomplete information. The primary value is realized when combined with use cases that use cluster analysis, which perform better when provided with consistent metadata.	Technical feasibility: 3 Product availability: 3 Organizational readiness: 2 Ongoing overhead: 2.5 Case summarization is a good fit for generally available generative AI services like GPT. Many ITSM platform vendors are imminently releasing such capabilities, and these should be generally available by early 2024. It is fairly trivial for I&O teams that are already experimenting with LLMs to do this directly on a case-by-case basis, but automation would involve customization work that could lead to higher overheads.
Use cases scores on a 0-4 scale for each dimension, 0 being lowest and 4 being highest.		

Source: Gartner (October 2023)

Selective Exceptions

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Use cases at the bottom of the Prism offer low business value and low feasibility, making them lower priority, except in select circumstances.

Table 5: Scoring Breakdown: Low-Value, Low-Feasibility Use Cases

(Enlarged table in Appendix)

Use Case	Business Value	Feasibility
15. Intelligent risk advisory AI use-case family: Prediction/forecasting. Carry out a risk and impact assessment on cases (typically change requests) using predictive analytics of prior releases involving similar services, components and teams.	Cost reduction: 2.5 Operational efficiency: 2.5 Employee engagement: 0.5 Major incidents might be prevented that may not have been otherwise expected using manual risk assessment methods. Increased confidence in release automation should enable I&O leaders to devolve more change control to SRE and product teams. This is placed within selected exceptions because the employee engagement aspect is minimal (unless things go wrong).	Technical feasibility: 2.2 Product availability: 1.8 Organizational readiness: 2 Ongoing overhead: 2.8 Some ITSM platforms offer intelligent risk advisory in their change management modules, but the majority still only offer survey-based risk assessments. Like other use cases that use cluster analysis, good quality metadata is essential. I&O leaders should ensure that the outcomes of successful and unsuccessful changes are well documented.
16. Process optimization AI use-case family: Optimization and planning. Process mining of ITSM processes to identify bottlenecks and waste, and optimize workflows in the ITSM platform.	Cost reduction: 2 Operational efficiency: 3 Employee engagement: 0.3 Most ITSM processes are fairly standard, but this use case can potentially identify possible improvements that improve efficiency. It can also highlight stages of the process and the teams involved that are impacting the ability to meet experience level agreements. The benefits primarily affect the back-end processes rather than employee engagement.	Technical feasibility: 2 Product availability: 1.4 Organizational readiness: 1.3 Ongoing overhead: 2 The use case has limited availability in the ITSM platforms market, and typically requires add-ons or top-tier bundles to be licensed. Although workflows can be updated automatically, most I&O leaders will prefer to review potential changes.
Use - *cases scores on a 0-4 scale for each dimension, 0 being lowest and 4 being highest.*		

Source: Gartner (October 2023)

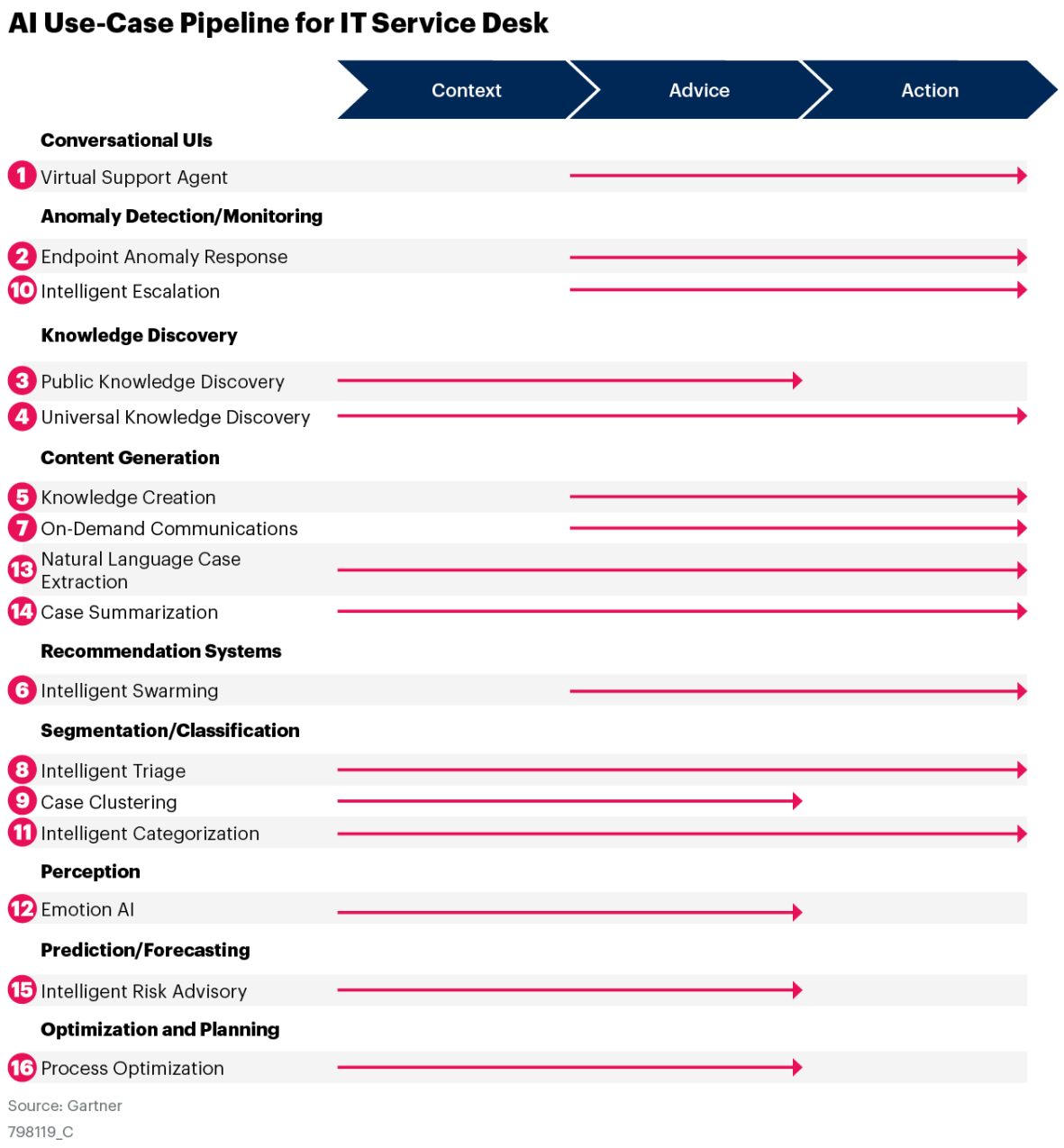
Pipeline

The pipeline shows how these 16 use cases are distributed across three stages of application of AI in ITSM (see Leverage 4 Domains of AITSM to Evolve ITSM Tools and Practices). It allows prioritization, as you can easily see which use cases have a chance of improving context, advice and action, which are described as:

- Context: This refers to structured and unstructured data that can help both humans and “robots” better understand a situation and make informed decisions on how to respond.
- Advice: This includes analysis of the context and further information to provide recommendations that speed up the response of the human operating the process.
- Action: This domain refers to automation of part of the ITSM process in the ITSM platform or virtual support agent. Generative AI use cases will typically include this domain.

Each of these stages supports the next stage and depends on the previous one. Use cases that are predominantly context may be required by other use cases that are mainly advice or action. Actions may be carried out by different systems and platforms, and interfaces to those are common in ITMS platforms. The interface domain from AITSM is not used in this Prism because the focus is the IT service desk as a whole, rather than ITSM platforms specifically.

Figure 4: AI Use-Case Pipeline for IT Service Desk



Acronym Key and Glossary Terms

Cluster analysis	Cluster analysis, also known as clustering, is the process of categorizing a collection of data objects into distinct groups, referred to as clusters. The primary objective is to ensure that objects within the same cluster are more alike to each other than to those in other clusters.
Generative AI (GenAI)	Generative AI techniques learn from representations of data and model artifacts to generate new artifacts.
Grounding	Grounding is the ability of generative applications to map the factual information contained in a generative output or completion. It links generative applications to available factual sources — for example, documents or knowledge bases — as a direct citation, or it searches for new links.
Large language model (LLM)	Large language models (LLMs) are AI foundational models that have been trained on vast amounts of unlabeled textual data. Applications can use LLMs to accomplish a wide range of tasks, including question answering, content generation, content summarization, retrieval-augmented generation (RAG), code generation, language translation and conversational chat.
Pretraining	Pretraining is the first step in training a foundation model, usually done as an unsupervised learning phase. Once foundation models are pretrained, they have a general capability. However, foundation models need to be improved through fine-tuning to gain greater accuracy.
Prompt	A prompt is a phrase or individual keywords used as input for GenAI.
Prompt engineering	Prompt engineering is the discipline of providing inputs, in the form of text or images, to generative AI models to specify and confine the set of responses the model can produce. The inputs prompt a set that produces a desired outcome without updating the actual weights of the model (as done with fine-tuning). Prompt engineering is also referred to as “in-context learning,” where examples are provided to further guide the model.
Swarming support	Swarming support is a triage technique that bypasses the hierarchical, traditional-tiered support structure by using collaboration capabilities to engage directly with individuals from different support teams to diagnose and resolve an incident. A swarm is an ad hoc, agile arrangement formed by those with specific skills and time to collaborate. It is an alternative to assigning tickets to functional support queues.

Tunable	Tunable is an AI model that can be easily configured for specific requirements, for example, by industry such as healthcare, oil and gas, departmental accounting, or human resources.

Evidence

These use cases have been selected, positioned and averaged out based on an assessment by Gartner analysts and customer feedback. Their applicability may vary across organizations and industries. For detailed customization, use Gartner's Prism Toolkit (see Toolkit: Discover and Prioritize Your Best AI Use Cases With a Gartner Prism).

Recommended by the Author

Some documents may not be available as part of your current Gartner subscription.

Glossary of Terms for Generative AI and Large Language Models

Quick Answer: What 3 Actions Should I&O Leaders Take Now On ChatGPT?

Leverage 4 Domains of AITSM to Evolve ITSM Tools and Practices

Quick Answer: How to Use Virtual Support Agents With Peer IT Support

AI Design Patterns for Knowledge Graphs and Generative AI

Quick Answer: How Do I Compare LLMs?

Table 1: Use-Case Dimension Explanations

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3. Public knowledge discovery	Cost reduction: 2.6	Technical feasibility: 3.6

AI use-case family: Knowledge discovery. Knowledge retrieval of publicly available information from external knowledge sources, including training data within large language models (LLMs.) The information is to be delivered to ITSM platforms, experts and end-user consumers.	Operational efficiency: 2.8 Employee engagement: 3.7 This highly employee-impacting use case is likely to utilize generative AI to format responses. It is a quick way to provide information and answers generated by public sources. Answers will not cover internal enterprise services or knowledge. This limits the differentiation of this use case from searching on a public search engine.	Product availability: 3.7 Organizational readiness: 2 Ongoing overhead: 2.7 Many solutions offering interactions with LLMs are available, and the market is growing rapidly. Beyond small projects and experimentation, enterprise applications need good planning and careful governance. Grounding is required to ensure the appropriateness of responses and mitigate hallucinations.
7. On-demand communications AI use-case family: Content generation. *Generate text for outgoing communications, such as responses to incoming requests and alerts for changes or major incidents.*	Cost reduction: 1.9 Operational efficiency: 2.5 Employee engagement: 3.2 This offers a more fine-tuned and personalized alternative to static templates, and requires less manual intervention, which can reduce the time and effort to produce communications for employees. Despite being employee-facing, the improvement of communications is not transformative over human-generated communications.	Technical feasibility: 3.4 Product availability: 2.5 Organizational readiness: 2.6 Ongoing overhead: 2.2 Some ITSM platform vendors offer this capability already or will in an imminent release. This is a straightforward use of natural language technologies within generative AI. Grounding and training are required to ensure the appropriateness of responses and mitigate hallucinations.
Use - *cases scores on a 0-4 scale for each dimension, 0 being lowest and 4 being highest.*		

Source: Gartner (October 2023)

Table 3: Scoring Breakdown: High-Value, Low-Feasibility Use Cases

Use Case	Business Value	Feasibility
4. Universal knowledge discovery AI use-case family: Knowledge discovery. Knowledge retrieval of answers about internal IT services combined with public knowledge sources, including training data within LLMs. This involves either sourcing a domain-specific LLM or using retrieval augmented generation (RAG) to incorporate private and proprietary enterprise information into public LLM request sessions.	Cost reduction: 3.5 Operational efficiency: 3.6 Employee engagement: 3.6 This improves the breadth and relevancy of answers provided by the public knowledge discovery use case to include information on internal IT applications and services. This provides greater differentiation from web searches. This can improve virtual support agents and provides greater value when used alongside the knowledge creation use case.	Technical feasibility: 3 Product availability: 1.6 Organizational readiness: 2.6 Ongoing overhead: 2.5 At present, ITSM and ITOM vendors predominantly offer solutions that involve building private domain-specific LLMs. RAG is expected to become more common through 2024 and is a more scalable alternative to building a domain-specific LLM for each environment. I&O leaders will need to develop their teams' knowledge of prompt engineering and grounding to mitigate the risks of hallucinations.
5. Knowledge creation AI use-case family: Content generation. Recognize attempted solutions and successful solutions from sources including organic conversations and historical cases, and create associated knowledge articles in a management system (e.g., ITSM platform).	Cost reduction: 3.3 Operational efficiency: 4 Employee engagement: 3.2 This use case expands the content within a knowledge base, while mitigating the time and cost of authoring knowledge articles manually. This improves the employee-facing capabilities of knowledge discovery AI use cases and powers greater automation through virtual support agents. It also provides more contextual data for	Technical feasibility: 2.8 Product availability: 1.3 Organizational readiness: 2.5 Ongoing overhead: 2 Knowledge creation is an obvious use of existing generative AI technology, but product availability is very limited. Solutions are beginning to enter the market. Otherwise, most offerings instead focus on rewording knowledge from documents rather than generating new solutions. Automation of

	enhanced case clustering to allow ITSM platforms to provide better advice more frequently.	knowledge creation is heavily dependent on natural language case extraction.
6. Intelligent swarming AI use-case family: Recommendation systems. Identify technical and business experts that can help work on cases such as incidents and problems, based on their skill set, prior experience and effectiveness, utilizing both structured data (such as the ITSM platform) and unstructured data (natural language in documents and communications). This use case also provides AI-assisted routing based on availability and location of resources.	Cost reduction: 3 Operational efficiency: 3.8 Employee engagement: 3 This use case speeds up expert identification and drives faster solutions on business consumer issues. It is a key enabler of collaboration support hubs through engagement with non-IT experts that do not monitor resolver group ticketing queues in the ITSM platform. Incident, problem and major incident performance is improved.	Technical feasibility: 2.5 Product availability: 2.5 Organizational readiness: 2 Ongoing overhead: 2 Some ITSM platforms offer intelligent swarming, but this is not commonly implemented. Some products offer swarming that is manually driven or based on rule-based automation rather than powered by AI. In either case, I&O leaders must have the skills maps and knowledge graphs in place before implementation.
9. Case clustering AI use-case family: Classification/segmentation. Use cluster analysis to group related entities together, exposing new insights within the ITSM platform. Advanced implementations may involve knowledge graphs.	Cost reduction: 2 Operational efficiency: 4 Employee engagement: 2.2 Clustering and pattern recognition underpins many of the other AI use cases for IT service desk (such as intelligent categorization and intelligent risk advisory). This can enable a more proactive problem management practice by automatically identifying recurring incidents from both past and current incidents. Other common benefits include enhanced knowledge matching and root cause analysis.	Technical feasibility: 2.8 Product availability: 2.8 Organizational readiness: 1.8 Ongoing overhead: 2 Many ITSM platforms offer some form of cluster analysis, but several only provide heat map analysis of common keywords or categories. External tools can also be used, but the goal is to leverage the insights in the processes and automation, rather than simply through reporting and dashboards. I&O leaders seldom anticipate how much human involvement is required. Clustering within configuration management

		systems is a capability currently lacking in the market.
11. Intelligent categorization AI use-case family: Segmentation/classification. Determine the classification of an incident based on fixed and organic information, such as likely root cause as determined by similar incidents rather than by configuration item relationships alone.	Cost reduction: 2.3 Operational efficiency: 4 Employee engagement: 1.7 This extends case clustering into the action domain to apply categories, tags and metadata to cases, which enables more insightful reporting and automations. It frees up agent time and promotes better consistency.	Technical feasibility: 2.5 Product availability: 2 Organizational readiness: 2 Ongoing overhead: 2.5 The assistive categorization capabilities in ITSM platforms currently are typically keyword or rule-based. This relies on good quality data of existing records and consistent data entry practices. Case summarization may be needed to mitigate shortcomings in such areas.
13. Natural language case extraction AI use-case family: Content generation. Recognize incidents and requests from organic conversations, and create associated tickets in a management system (e.g., ITSM platform).	Cost reduction: 2.5 Operational efficiency: 3.5 Employee engagement: 3.5 This use case addresses a significant requirement for I&O by pulling in data, knowledge and metrics for support activities that do not go through the ITSM platform (unless manually added). It can be leveraged by knowledge creation to find new solutions. It can also provide advance warning of service issues that employees are talking about. It is an essential capability for a fully managed collaborative support hub.	Technical feasibility: 1.8 Product availability: 0.8 Organizational readiness: 2 Ongoing overhead: 2 This is an obvious use of existing natural language understanding, but product availability of packaged solutions does not yet exist. Several vendors only have this use case in their roadmaps at this point. This leaves I&O leaders having to build these solutions in-house at high cost and complexity, or wait for the market to catch up.
Use -		

cases scores on a 0-4 scale for each dimension, 0 being lowest and 4 being highest.

Source: Gartner (October 2023)

Table 4: Scoring Breakdown: Low-Value, High-Feasibility Use Cases

Use Case	Business Value	Feasibility
8. Intelligent triage AI use-case family: Segmentation/classification. Determine the priority of an issue from impact and urgency data, using both fixed and organic information, such as sentiment analysis, business calendar and affected services.	Cost reduction: 2 Operational efficiency: 3 Employee engagement: 1.4 Intelligent triage frees up agent time and promotes better consistency during intake of incidents and requests. It can advise of earlier implementation of the major incident management process and mitigate the impact of service loss. More accurate prioritization of cases can also reduce overreaction to cases that are less severe than the rules template would otherwise indicate.	Technical feasibility: 3 Product availability: 2.9 Organizational readiness: 3.2 Ongoing overhead: 3.4 Using AI techniques like cluster analysis to advise the prioritization of cases isn't technically difficult. Once set up, it doesn't need a lot of hand-holding. Many top-level ITSM platforms can do this to at least a basic level. I&O leaders will need to have a good prioritization policy agreed on with the customer and good-quality metadata in existing records.
10. Intelligent escalation AI use-case family: Anomaly detection/monitoring. Predict cases that may fail an SLA or trigger a complaints escalation, and take preventative action by escalating to senior experts before traditional triggers (such as SLA timers).	Cost reduction: 1.4 Operational efficiency: 3 Employee engagement: 2.5 Enables IT to be more visibly responsive in far more flexible ways than traditionally waiting for an SLA timer to hit amber or red thresholds before taking action. This can preempt complaints. It also can trigger swarming and case assignments involving senior experts sooner.	Technical feasibility: 3.3 Product availability: 1.7 Organizational readiness: 2.9 Ongoing overhead: 3 This is technically straightforward when good-quality historical case records can be clustered and analyzed for trends. Emotion AI also provides insight into employee sentiment. Nevertheless, such out-of-the-box capabilities are not common in the market.

12. Emotion AI AI use-case family: Perception. Emotion artificial intelligence (AI) technologies (also called affective computing) use AI techniques to analyze the emotional state of a user (via computer vision, audio/voice input, sensors and/or software logic). Emotion AI can initiate responses by performing specific, personalized actions to fit the mood of the customer.	Cost reduction: 0.6 Operational efficiency: 1.5 Employee engagement: 3 AI-assisted sentiment analysis can alert the service desk to be aware of poor service experiences and/or low DEX scores when business consumers contact the IT service desk. The agents can show empathy and act in a way that would provide an improved experience. The improvement of non-AI sentiment analysis capabilities is marginal because it does not aid cost-optimization or significantly improve operational efficiency. It is a “nice to have.”	Technical feasibility: 3.5 Product availability: 3 Organizational readiness: 3 Ongoing overhead: 3 Many ITSM platforms offer an API into sentiment analysis systems like Azure. Some provide more comprehensive DEX scores that also leverage telemetry and diagnostic data from the endpoint devices and services being used.
14. Case summarization AI use-case family: Content generation. Use natural language technologies to rephrase and summarize an incident or request description, so that it can be better understood by human agents and leveraged in segmentation/classification use cases for classification and tagging. Also applied to postcall work-log summarization.	Cost reduction: 1.5 Operational efficiency: 2.6 Employee engagement: 2 Direct benefits of case summarization are marginal and nice to have. It may slightly speed response to issues, but humans are usually competent at determining meaning from incomplete information. The primary value is realized when combined with use cases that use cluster analysis, which perform better when provided with consistent metadata.	Technical feasibility: 3 Product availability: 3 Organizational readiness: 2 Ongoing overhead: 2.5 Case summarization is a good fit for generally available generative AI services like GPT. Many ITSM platform vendors are imminently releasing such capabilities, and these should be generally available by early 2024. It is fairly trivial for I&O teams that are already experimenting with LLMs to do this directly on a case-by-case basis, but automation would involve customization work that could lead to higher overheads.
Use		

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cases scores on a 0-4 scale for each dimension, 0 being lowest and 4 being highest.

Source: Gartner (October 2023)

Table 5: Scoring Breakdown: Low-Value, Low-Feasibility Use Cases

Use Case	Business Value	Feasibility
15. Intelligent risk advisory AI use-case family: Prediction/forecasting. Carry out a risk and impact assessment on cases (typically change requests) using predictive analytics of prior releases involving similar services, components and teams.	Cost reduction: 2.5 Operational efficiency: 2.5 Employee engagement: 0.5 Major incidents might be prevented that may not have been otherwise expected using manual risk assessment methods. Increased confidence in release automation should enable I&O leaders to devolve more change control to SRE and product teams. This is placed within selected exceptions because the employee engagement aspect is minimal (unless things go wrong).	Technical feasibility: 2.2 Product availability: 1.8 Organizational readiness: 2 Ongoing overhead: 2.8 Some ITSM platforms offer intelligent risk advisory in their change management modules, but the majority still only offer survey-based risk assessments. Like other use cases that use cluster analysis, good quality metadata is essential. I&O leaders should ensure that the outcomes of successful and unsuccessful changes are well documented.
16. Process optimization AI use-case family: Optimization and planning. Process mining of ITSM processes to identify bottlenecks and waste, and optimize workflows in the ITSM platform.	Cost reduction: 2 Operational efficiency: 3 Employee engagement: 0.3 Most ITSM processes are fairly standard, but this use case can potentially identify possible improvements that improve efficiency. It can also highlight stages of the process and the teams involved that are impacting the ability to meet experience level agreements. The benefits primarily affect the back-end processes rather than employee engagement.	Technical feasibility: 2 Product availability: 1.4 Organizational readiness: 1.3 Ongoing overhead: 2 The use case has limited availability in the ITSM platforms market, and typically requires add-ons or top-tier bundles to be licensed. Although workflows can be updated automatically, most I&O leaders will prefer to review potential changes.

Use

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cases scores on a 0-4 scale for each dimension, 0 being lowest and 4 being highest.

Source: Gartner (October 2023)