

## Applying AI in Business Domains

Published 26 July 2021 - ID G00745077 - 17 min read

By Analyst(s): Melissa Davis, Bern Elliot

Initiatives: [Artificial Intelligence](#)

AI methods improve a broad range of processes within enterprises – for instance, human capital management, marketing, sales, customer service, security and supply chain management. This research assists in identifying how AI is used through the compilation of crucial related Gartner resources.

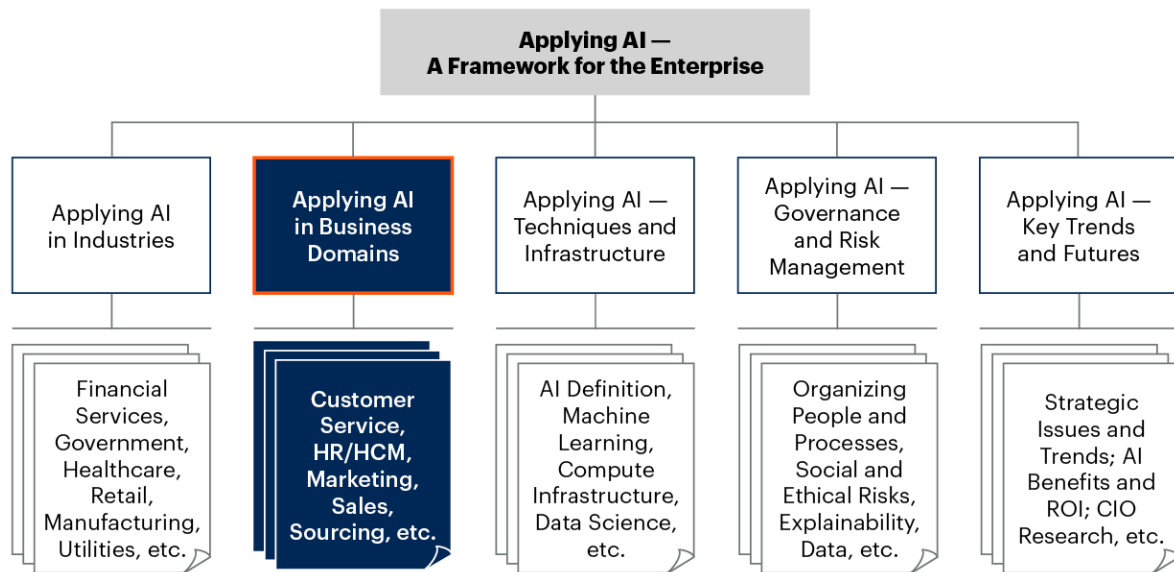
### Analysis

Artificial intelligence (AI) is a part of over 50 separate research areas within Gartner. To make research and resources easier to locate, Gartner divides this broad topic into the research areas below. The top-level document is called [Applying AI – A Framework for the Enterprise](#).

This report focuses on AI in business domains.

Figure 1: Locating AI-Related Research and Resources

## Locating AI-Related Research and Resources



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The links below take you directly to the documents outlined in Figure 1.

- [Applying AI in Industries](#) describes where and how AI is applied in industries such as financial services, healthcare, retail, manufacturing and government.
- [Applying AI in Business Domains](#) (this document) describes where and how AI is applied within business domains and enterprise departments, such as customer service, HR, marketing, and sales.
- [Applying AI — Techniques and Infrastructure](#) includes the fundamental techniques and practices that comprise AI and AI engineering.
- [Applying AI — Governance and Risk Management](#) includes strategies and methods related to transparency, interpretability, ethics, privacy and security issues. It also addresses personnel and skills development, staffing, developing AI centers of excellence, and defining the ROI for AI projects.
- [Applying AI — Key Trends and Futures](#) focuses on the key trends and the future of AI, both in terms of strategic emerging technologies and key skills and governance options. It includes a focus on CIO and CTO executive priorities.

In the following sections, we provide an overview of Gartner’s written and analyst resources as related to the application of AI in business domains:

<a href="#">Application Suites</a>	<a href="#">IT Operations/Service Desk</a>
<a href="#">Corporate Legal Management</a>	<a href="#">Marketing</a>
<a href="#">Customer Service, Support and CRM/CX</a>	<a href="#">Robots and Sensors, RPA</a>
<a href="#">Digital Business Initiatives</a>	<a href="#">Sales and Lead Management</a>
<a href="#">Digital Commerce</a>	<a href="#">Security and Fraud Detection</a>
<a href="#">General Enterprise AI Strategies</a>	<a href="#">Sourcing and Procurement</a>
<a href="#">Human Capital Management/Recruiting</a>	<a href="#">Supply Chain</a>
<a href="#">Internet of Things (IoT)</a>	<a href="#">Workplace and Digital Workplace</a>

## Research Highlights

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### Application Suites

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As the digital revolution moves us further into the information age, the needs and challenges of businesses are becoming clearer. One of the most significant challenges is the growing use of AI in business application suites. AI’s demand for data, coupled with the need for flexibility and agility in processes, architectures and people, presents challenges for the adoption of these new capabilities.

Enterprise applications —, such as those used for enterprise resource planning (ERP), supply chain management (SCM), human capital management (HCM) and customer relationship management (CRM) —are increasingly incorporating AI-enabled enhancements. Many of these will not be recognized as AI by employees because they are “invisibly embedded.” Instead, they will simply be seen as new features of the applications.

*Analyst resources:* [Dixie John](#), [Avivah Litan](#), [Kaitlynn Sommers](#), Saniye Alabeyi, Ranadip Chandra, Craig Roth, John Kostoulas, Julian Poulter, Helen Poitevin

*Research resources:*

- [Predicts 2021: Artificial Intelligence in Enterprise Applications](#)
- [Unlock AI Functions in Business Applications](#)

## Corporate Legal Management

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Legal departments often lag behind other corporate functions in utilizing technology to control costs and improve outcomes. AI-based solutions are seen as a short-cut, compared with conventional solutions without AI. But the relevance and readiness of the approaches in emerging solutions vary greatly. Buyers show increasing interest in the potential of AI-based solutions to automate manual tasks, discover new insights, increase operational efficiency and manage risk.

Opportunities to improve legal practices using AI include:

- **Contracts** — Contract assembly, negotiation, due diligence, risk scoring, life cycle management
- **E-discovery** — Document classification, data extraction, text analysis
- **Legal spend** — Invoice classification
- **Litigation** — Legal research and insights
- **Matters and legal documents** — Classification, search and document analysis
- **Legal self-service** — Improve speed and client satisfaction at a lower cost
- **Intellectual property** — Trademark/patent search and analysis, patent drafting and prosecution
- **Risk and compliance** — Regulatory tracking, internal monitoring and reporting

Analyst resources: [Nikos Drakos](#), [Jim Murphy](#)

*Research resources:*

- [Research Guide to Introducing Artificial Intelligence and Machine Learning in Legal Departments](#)
- [Legal Automation Use Cases](#)
- [Market Guide for Enterprise Legal Management Solutions](#)
- [Artificial Intelligence Maturity Model](#)

- [2021 Legal and Compliance Technology Benchmarking Report](#)

## Customer Service, Support and CRM/CX

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AI-related technologies are used in multiple areas of customer service and support. Examples include: using AI to predict what customers will ask for and to proactively deflect inbound inquiries; virtual customer assistants (VCAs) with speech recognition for self- and assisted service; sentiment analysis; automated/augmented QA; and bot orchestration design tools.

These technologies not only allow organizations to move assisted service requests to self-service in the contact center, they also allow customers to engage 24/7 across channels, delivering the experience that customers expect. AI is used in the channels of interactive voice response (IVR), web chat, email management, chatbots, VCAs, messaging and personalization. Bots work best with a human in the loop to assist or offload the virtual agent when situations demand it. In some cases, a human provides supervised training to allow the bot to better learn its tasks.

*Analyst resources:* [Steve Blood](#), [Nadine LeBlanc](#), [Jim Davies](#), Bern Elliot, Magnus Revang, Anthony Mullen, David Norrie

*Research resources:*

- [Infographic: Artificial Intelligence Use-Case Prism for Customer Service](#)
- [Introduction to AI for Service and Support Leaders](#)
- [Setting and Implementing a Service Virtual Customer Assistant/Chat Strategy](#)
- [6 Key Functions in Modern IVR Systems](#)
- [Use Speech Analytics to Optimize Contact Center Costs With Self-Service, Process Improvement and Deeper Engagement](#)

## Digital Business Initiatives

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AI innovation is one of multiple forces disrupting existing markets and enabling new digital business initiatives. There are many areas where AI technologies and methods are used as part of digital business initiatives. For example: improving all types of business decisions; implementing digital agents and personal assistants; reducing risk; optimizing resource allocation; and automating more aspects of business operations.

In general, AI is leveraged in digital businesses in one of six key ways:

1. Dealing with complexity
2. Making probabilistic predictions
3. Learning
4. Acting autonomously
5. Appearing to understand
6. Reflecting a well-scoped or well-defined purpose

*Analyst resources:* [W. Roy Schulte](#), [Pieter den Hamer](#)

*Research resources:*

- [2 Steps to Improve Business Decisions Using Data and Analytics](#)
- [How to Use Real Time Analytics When Building an Enterprise Nervous System](#)
- [How to Determine the Best AI Organizational Design](#)
- [Market Guide for Event Stream Processing](#)
- [Demystifying XOps: DataOps, MLOps, ModelOps, AIOps and Platform Ops for AI](#)

## Digital Commerce

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Digital commerce deals with a large amount of data such as products, pricing, promotions, inventory, orders, and customer behavior and preferences. This makes digital commerce a fertile domain for AI because there is a short window of time to capture shoppers' attention and convert them into buying customers. AI helps to address these challenges by understanding the underlying relationships among datasets much more efficiently, and by predicting events with more accuracy and granularity. This allows the system to present the most relevant content for shoppers, and suggest best actions for employees assisting shoppers during the purchase journey. Common use cases include product recommendation, search, offer personalization, UI optimization, visual search and customer segmentation.

*Analyst resources:* [Sandy Shen](#), [Mike Lowndes](#), [Penny Gillespie](#)

*Research resources:*

- [Infographic: Artificial Intelligence Use-Case Prism for Digital Commerce](#)
- [Industry Vision: Commerce That Comes to You](#)
- [Optimize Your Approach to Personalization: Crawl, Walk, Run](#)

## General Enterprise AI Strategies

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Organizations should develop a portfolio of AI projects based on strategic goals and where they have the resources — especially labeled data — that they can employ. Such business objectives and measurables must guide AI project choice. AI projects are iterative, but must be guided by the business results that the projects would like to achieve.

Use cases are an excellent way to define and communicate what you wish to achieve. Such a portfolio of use cases allows sponsors and leaders to review the possible approaches to procuring applications that address them. These can involve both “buy” and “build” options. To reduce redundancy and better leverage resources, consider what different applications and use cases have in common. This becomes critical as you consider multiple projects and use cases, and the future directions your initial choices will allow you to pursue. Finally, it is important to review and, in some instances, understand the core technologies that will underpin the solutions.

*Analyst resources:* [Whit Andrews](#), [Bern Elliot](#), [Shubhangi Vashisth](#), Farhan Choudhary, Soyeb Barot, Jitendra Subramanyam, Svetlana Sicular, Pieter den Hamer

*Research resources:*

- [The Current State of AI and Its Strategic Direction](#)
- [AI-Successful Organizations Have These 4 Habits in Common](#)
- [Artificial Intelligence Maturity Model](#)
- [Formulate a Strategy for AI Skills Acquisition and Upskilling](#)

## Human Capital Management/Recruiting

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HCM and recruiting leverage AI technology and solutions in multiple ways. The principal applications are as follows:

- **Recruiting** — A wide variety of applications of AI exist in the recruiting space, often focused on matching talent supply and demand or predicting recruitment success.
- **Skills and job ontologies** — Using more advanced NLP and knowledge graph techniques to establish skill and job ontologies on a global basis (multilingual) is allowing for a new generation of search and matching to emerge.
- **Sentiment analysis and theme detection** — Used in voice of the employee and employee engagement measurement tools.
- **Recommendation engines** — Used for learning content, mentors, career paths and adaptive learning paths.
- **Chatbots** — In HR service management, chatbots are primarily used for Tier 0 or Tier 1 support of employees seeking support, information or basic services. Sometimes they are also used as the primary UI across HR processes and services.

Because these solutions involve personal data about workers, digital ethics principles need to be applied. Responsible employers take this into account, putting the necessary controls into place to ensure the proper build and usage of machine learning (ML) on employee data.



*Analyst resources:* [Helen Poitevin](#), [John Kostoulas](#), [Seyda Berger-Bocker](#)

*Research resources:*

- [Future of Work Trends Will Drive New Technologies to Track, Develop, and Deploy Talent](#)
- [Infographic: AI Use-Case Prism for HCM Technology](#)
- [Innovation Insight for Internal Talent Marketplaces](#)
- [Survey Analysis: AI is on the Rise for HR](#)
- [Quick Answer: How AI Techniques Can Help Manage Employee Skills Data](#)

## Internet of Things (IoT)

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IoT-connected products, equipment and assets generate large amounts of data. AI — used to better understand the current/future state of connected things and to improve situation awareness — needs large amounts of data. This cycle between the IoT and AI will initially have the greatest impact on visual- and audio-related applications, but its use for condition and predictive maintenance is proliferating.

The IoT and AI primarily interact in one of three architectures:

1. **The IoT as input to the AI system:** A data-gathering mechanism for the AI system, especially for training. Examples include video surveillance cameras in smart cities and retail, environmental sensors in smart agriculture, and equipment sensors in manufacturing.
2. **AI as the application on the IoT system:** Examples include smart home devices, robots and self-diagnosing equipment
3. **The IoT and AI as a two-way system:** Both IoT and AI systems interact with each other on a continuous basis. Examples include onboard inferencing engines in autonomous vehicles, and embedded sensors in surgical robots.

*Research resources:* [Benoit Lheureux](#), [Milly Xiang](#), [Eric Goodness](#), [Ted Friedman](#), [Bettina Tratz-Ryan](#), [Bill Finnerty](#)

*Research resources:*

- [Infographic: AI Use-Case Prism for Smart Cities](#)
- [Market Trends: 5 Smart City IoT Deployments to Drive Innovation Opportunities](#)
- [Survey Analysis: AI on the Edge Demonstrates Practical Value in IoT Projects](#)

## IT Operations/Service Desk

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The layering of AIOps features in domain-specific tools and a domain-agnostic AIOps platform is emerging as a practice that maximizes monitoring investments and minimizes the data science expertise required. Integrating automation into the AIOps landscape amplifies the value, but the realistic intersection between automation and AIOps is relatively small and dependent on traditional and static automation assets. AI is also being applied in IT service management (ITSM) in the form of virtual support agents (VSAs). VSAs provide IT support in an ITSM scenario, alongside the IT service desk. AI can also be used for ticket routing, pulling information from knowledge management sources and an ITSM tool to provide answers to common questions. It extends chatbot capabilities by taking action on behalf of the business user to perform tasks such as resetting passwords, deploying software, escalating support requests and carrying out changes to restore IT services.

*Analyst resources:* [Steve White](#), [Pankaj Prasad](#), [Josh Chessman](#), Padraig Byrne, Chris Matchett, Keith Andes

*Research resources:*

- [Infographic: Artificial Use-Case Prism for AIOps](#)
- [Understanding the Application of AIOps Disciplines Within IT Operations](#)
- [Solution Path for Adoption AIOps](#)
- [Transform Network Monitoring and Analytics for the Modern Era](#)
- [Innovation Insight for Virtual Support Agents](#)
- [Use AIOps to a Data-Driven Approach to Improve Insights from IT Operations Monitoring Tools](#)

- [Market Guide for AIOps Platforms](#)

## Marketing

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AI for marketing comprises systems that use analysis of data and training regimens for marketing use cases to derive working models without being explicitly programmed. AI technology often surprises and confuses people by executing tasks formerly thought to require human intelligence, such as carrying on conversations, recognizing facial expressions or writing effective marketing copy. Despite these breakthroughs, AI is most often deployed as an ingredient in broader marketing applications such as personalization engines, multichannel marketing hubs and account-based marketing (ABM) platforms, rather than providing the foundation for truly transformational products. Use cases include improving advertising with better targeting, and improving marketing engagement with tools such as channel preference models and send-time optimization.

*Analyst resources:* [Jason McNellis](#), [Nicole Greene](#), [Andrew Frank](#), Noah Elkin

*Research resources:*

- [Digital Marketing Survey 2021 Part 3: Marketers Test Emerging Technologies to Drive Personalization](#)
- [How to Benefit from Creative AI: Assisted and Generative Content Creation](#)
- [Cool Vendors in AI for Marketing](#)
- [Embrace These Three Trends in Content Marketing](#)

## Robots and Sensors, RPA

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This section focuses on mechanical robots rather than software robots (aka “bots”). The exception is robotic process automation (RPA), which is included here because it uses the term “robot.”

Robotics is a branch of technology that deals with the design, construction, operation and application of robots, as well as with the technology for control, sensory feedback and data processing. The technology deals with machines that can take the place of humans in dangerous environments or manufacturing processes, or that resemble humans in appearance, behavior and/or cognition. Many robots are inspired by nature, such as bio-inspired robotics.

RPA tools are designed to replace/assist in manual tasks, mimicking the “manual” path taken through applications by a human. Generally, there is no AI in RPA. Most RPA provides functional graphical user interfaces (GUIs) on top of scripting tools that gather data (often using screen scraping) from one application and enter it into another application.

Analyst resources: [Cathy Tornbohm](#), [Saikat Ray](#), [Arthur Villa](#), Naved Rashid, Arup Roy, Homan Farahmand, Melanie Alexander, Simon Jacobson

*Research resources:*

- [Tech Providers 2025: Future Scenarios for RPA in the New World of Hyperautomation](#)
- [RPA and Managing Software Robot Identities](#)
- [Emerging Technologies: RPA Software Advancements](#)
- [Magic Quadrant for Robot Process Automation](#)
- [3 Tech CEO Growth Strategies From Leading RPA Vendors](#)

## Sales and Lead Management

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AI and sales technologies can be seen in, for example, capabilities for:

- Identifying new leads and opportunities based on similar existing customers
- Nurturing prospects by establishing relationships through intelligent activity tracking and messaging
- Using guided selling to improve sales execution and increase sales revenue

Technologies such as virtual digital sales assistants (VDSAs) are combining functions of predictive and prescriptive systems with a responsive voice interface that is similar to Amazon's Alexa software. When paired with a mobile phone, for example, VDSAs offer an entirely new, nearly frictionless method for accessing sales activities and updating information.

The impact of AI on sales is high. In Gartner inquiries with clients, some enterprises have reported an increase in sales-ready leads and appointments of up to 30%, and a decrease in call times of 45%. Furthermore, Gartner estimates that a 15% increase in revenue growth can be anticipated if enterprises implement AI technologies into their "lead to revenue" processes.

*Analyst resources:* [Adnan Zijadic](#), [Ilona Hansen](#), [Melissa Hilbert](#), Tad Travis, Julian Poulter

*Research resources:*

- [Optimize Sales Execution With Artificial Intelligence for B2B Guided Selling](#)
- [Use AI to Improve B2B Sales Revenue and Optimize Costs](#)
- [Prepare for the Future of Sales Training and Coaching — Individualized and at Scale](#)
- [Infographic: AI Use Case Prism for B2B Sales](#)
- [Improve Revenue Forecast Accuracy With Emerging Forms of Sales Forecasting Technology](#)

## Security and Fraud Detection

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"AI" is a term that is used in different ways within security and fraud detection. Advanced analytics are transforming security and fraud use cases, markets and vendors, which are in turn evolving. Organizations are adapting to all these changes.

AI technologies are being applied to the four phases of the adaptive security architecture: protect, detect, respond and predict. Gartner research looks at the integration of these techniques into different security and fraud detection domains, and how this is being applied to solve old and new problems.

*Analyst resources:* [Akif Khan](#), [Carlton Sapp](#), [Anna Belak](#), Marco de Boer, Jeremy D'Hoinne, Peter Firstbrook, Sam Olyaei, Jonathan Care

*Research resources:*

- [Artificial Intelligence Under Attack: How to Identify and Mitigate Threats to Machine Learning](#)
- [5 Questions that CISOs Must Answer Before Adopting Artificial Intelligence](#)
- [Market Guide for Online Fraud Detection](#)
- [Security and Risk Management Leaders' Guide to Online Fraud Detection](#)

## Sourcing and Procurement

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The major opportunity of AI in the areas of sourcing, procurement and vendor management (SPVM) is in automating manual tasks. A result of this opportunity is that AI is rapidly becoming the subject of hype as more technology product managers are working to incorporate it into their roadmaps and into existing products and workflows.

Existing AI applications in SPVM are quite few and tend to be narrow in scope. They use basic ML technologies and include spend classification and contract analytics. Additional use cases are emerging in areas such as risk management, candidate matching (within contingent workforce management), sourcing automation, virtual purchasing assistance and voice recognition.

To be effective, AI for procurement will require data. But data will be scarce as long as adoption of underlying procurement applications, such as source to pay (S2P) and external workforce management solutions, remain limited.

*Analyst resources:* [Patrick Connaughton](#), [Kaitlynn Sommers](#), [Micky Keck](#), Geraint John, William McNeill

*Research resources:*

- [Infographic: AI Use-Case Prism for Sourcing and Procurement](#)

- [Lack of Focus on AI Licensing Will Result in Higher Costs, Risks and Long-Term Headaches](#)
- [How to Effectively Determine an AI Project Budget](#)
- [Market Guide for E-Sourcing Applications](#)

## Supply Chain

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AI will play three roles in the supply chain: human decision-making augmentation; compensating for human bias and upskilling people through “cognitive advisors;” and robots and autonomous vehicles. AI can also be used in decision-making automation, being orders of magnitude more consistent and faster than humans in specific tasks, while improving performance over time based on self-learning.

Through the use of NLP and ML, AI solutions in the supply chain can typically provide three capabilities:

- **Language interface** — Through Q&A or verbal dialogue/conversation.
- **Semantic intelligence** — By identifying complex patterns, as well as making inferences and predictions.
- **Executive decision** — By using expert systems to evaluate scenarios and choosing the best action.

AI supports many supply chain use cases, including predictive maintenance, risk management, procurement, order fulfillment, supply chain planning and promotion management.

*Analyst resources:*

- Transportation — [Bart De Muynck](#), [Carly West](#)
- Manufacturing — [Simon Jacobson](#)
- Warehouse — [Dwight Klappich](#)
- Supply chain planning — [Tim Payne](#), [Amber Salley](#), [Pia Orup Lund](#)

- Supply chain analytics — [Noha Tohamy](#)

#### *Research resources:*

- [Infographic: Artificial Intelligence Use-Case Prism for Supply Chain](#)
- [Infographic: AI Use-Case Prism for Transportation](#)
- [How to Take Advantage of Advanced Analytics in Transportation](#)
- [Supply Chain Artificial Intelligence \(AI\) Use Case Collection](#)
- [Why Supply Chains Need a Balanced AI Strategy](#)

## Workplace and Digital Workplace

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The broad embrace of AI in the workplace should be done in the context of boosting workforce digital dexterity — the primary goal of a digital workplace. Digital dexterity is the ability and ambition to use existing and emerging technology for better business outcomes.

In the context of a digital workplace, most employees will be exposed to AI services — which they may or may not recognize as AI — without any IT involvement, because they come packaged as features in SaaS applications. These “everyday AI” features perform tasks such as sorting email into categories, suggesting email replies, recommending content and people, and identifying patterns in structured data. Such an introduction of AI services will expose the workforce to the benefits — and limitations — of AI in the context of everyday work.

Analyst resources: [Lane Severson](#), [Matt Cain](#), [Adam Preset](#), Mike Gotta, Nikos Drakos (knowledge management), Mike Fasciani, Craig Roth, Stephen Emmott

#### *Research resources:*

- [Building Employees Digital Dexterity: A Key Capability for Future Business Success](#)
- [Emerging Technologies: Emotion AI in the Workplace](#)



- [Improve Employee Usage, Engagement and Productivity with Digital Adoption Solutions](#)

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Application Suites

Corporate Legal Management

Customer Service, Support and CRM/CX

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Workplace and Digital Workplace