Artificial Intelligence Use Cases in Professional Services

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Digital Manufacturing











Digital Manufacturing Current Era: Industrial Agentic Augmentation





Evidence for changing era

Indicators of a transition from individual impact to industrial impact eras

Individual augmentation

- Chatbots rule
- Disruption happens at single worker activities
- Enterprise applications are fitting Al technologies into existing user journeys
- Access is controlled
- Lack of adoption in AI tools

Industrial agentic augmentation

- Action based Al-driven products replace chatbots (chatbot to action-bot)
- **Applications are refactored** for Al-driven user journeys and not hierarchical structures
- Static solutions are obsolete (dashboards)
- Trust in Al tools by late adopters
- Outsourced and offshore human capital demand stalls and reverses
- Unassisted connectivity from system to system

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Who is using AI

How often are you leveraging AI tools?

- Every day
- Once a week
- Once a month
- A little experimentation here and there
- Never

Artificial Intelligence Landscape





Artificial Intelligence

Artificial intelligence is the development of systems to mimic human problem-solving behavior by computing a prediction and decision and then executing an action



Machine Learning

Machine learning is a component of artificial intelligence focusing on the use of data and algorithms to imitate the way humans learn.

The machine learns on its own by drawing inferences from patterns in the data, gradually adapting and becoming more accurate.



Deep Learning

Deep learning is a type of machine learning that attempts to simulate the human brain by creating artificial neural networks that utilize and extract more information from the data.

Generative AI

Generative AI is a broad term that refers to any AI model or system that can generate output across different modalities like text, images, or video.

Large language models Large language models are deep learning algorithms trained on vast datasets to understand, predict, and generate text in a human-like way.



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Fill in the blank

I'm going to the store for a gallon of _

- 60% of people say "milk"
- 15% say "water" / "juice" / "gas"

I'm going to the hardware store for a gallon of _____

• 100% of people now say "paint"





Agents for pain points

"I wish someone would ______ all day every single day."

- Triage email
- Summarizing and pull out most relevant information
- Review content for brand guidelines
- QA documents I create for style and clarity
- Confirm I followed procedures for a process
- Monitor my heartrate in meetings, and alert me when rate increases
- Manage all alerts across my devices, apps, messages



Agents "tasks AI performs"

An AI system that works by following instructions. These instructions, called prompts, tell AI exactly what to do and how to do it. The more precise the prompt, the better the AI plays its role.

QA Agent	PR Agent	Orchestrator Agent	Ideation Agent	Support Agent	Programming Agent
Agents that are responsible for evaluating the functionality, usability, and performance of a product to identify bugs or defects. They ensure that the product meets the requirements and standards	Agents that evaluate the metadata, context boundary, and grounding content of another agent and create a profile so the orchestrator will know how best to leverage an agent.	Agent that routes user requests to the best AI agent for the job, acting as a switchboard for a network of AI helpers.	Agent that is your brainstorming partner, helping identify target markets, develop new product concepts, and improve existing products or marketing strategies.	Agent is designed to assist users with tasks or answer questions related to a specific product, service, or area of expertise. Think of it as a virtual help desk trained to handle a particular domain.	Agent is designed and built to generate, review, or optimize code/development steps.
Deployed as Autonomous agents in process	Slaved to the orchestrator to create context of ecosystem	Deployed as desktop app	On demand app, likely deployed in ideation tool or workflow	Deployed as desktop app; embedded in system.	Built into coding tools and technologies.



Productization of AI

Model as a service

Open AI: GPT's Anthropic: Claude Meta: Llama Google: Gemini Amazon: Titan MS: Phi (SLM) Apple: MM1, ReALM X: Groq Inflection: Inflection x.x (2.5 current)





Value Realization





Supporting value realization

Al and more broadly digital strategy and transformation enablement requires intentionality and focus.

An example of organizing those intentions:









AI Governance

Infrastructure policies (the what)

> Behavioral policies (the how)

Business policies (the when/where)

Al product observability (the monitoring)

- How and where the business will leverage AI
- Vendor, partnership, and technology selections
- Data privacy & security boundaries
- How you may leverage AI tools (Copilot)
- Information sharing
- Trust, interactions, and anthropomorphism
- Roadmap driven policies
- Capitol allocation
- Guardrails
- Metrics
- Human review



AI Product Observability

Business Considerations

- Cost
- Converting digital optimists into digital skeptics
- Anthropomorphism (perceived as human)
- The "actors" (agents) will lead to human-less transactions

Technical Considerations

- Al Models are grounded on dynamic information
- Data quality governance variance
- Probability vs. conditional logic based
- Non-deterministic outcomes

Regulatory Considerations

- Responsible AI ethical & safety implications
- Varied jurisdictional regulatory compliance



Al Product Observability

Guardrails

Rules governing what topics a prompt can and cannot cover.

Metrics

• Token use

- Precision
- Topic counts
- Unique visitors

Feedback

Generating deliverables as part of a process / workflow of digesting client materials





Leading, Leveraging, Creating

	Areas of Focus					
	Al Awareness and Utilization	Leading and Enhancing Work	Governance and Safety	AI Development		
Community	 AI Community Functional area cohorts 	 AI Leaders Community 	 AI Governance Committee(s) 	Al Developers Community		
Self-Study	Al fundamentalsM365 Copilot videos	Al newsletter	• AI ethics 101	 Azure Al fundamentals 		
Live Events	Office hoursEnablement sessions	 Digital leader workshops 	 Monthly governance updates 	Dev workshops		
Practical Application	 Prompt scavenger hunt Submit a prompt 	 Al opportunities workshop 	• n/a	PracticumHack-a-thon		



Constructing a prompt

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Role Accountant Auditor Analyst Marketing specialist Lawyer HR professional **Project Manager** Project coordinator Recruiter Manager Owner Partner Supervisor

Task Summary Analysis Report Compare Video script Presentation Email sequence Headline Extracting information Expense review Financial analysis Audit procedures Audit findings

(+)

Context

Compliance checks Project management Strategy formulation **Risk assessment Summarization** Classification Translation Text generation Question/answering Coaching Image generation



List

Table HTML CSV Bullet points





Prompting: Questions to ask

Questions to ask

- Who is the **audience**?
- What is the domain (academic, business, general, email, casual, creative, technical)?
- What tone do you want to use (conversational, lighthearted, persuasive, spartan, formal, firm, descriptive, encouraging, friendly, motivational, inspirational)?
- What is your intent (inform, describe, convince, tell a story)?





Writing Effective Prompts

When developing mompts

Give clear instructions

- Add details
- Personify the tool by telling it how to act
- Specify steps the tool should take
- Provide examples
- Specify the desired length of the output

Provide reference text

- Instruct the tool to answer using a reference text
- Instruct the tool to answer using citations from reference text

Tell the tool what to use and what not to use

 Example: "Turn this bulleted list into a paragraph but do not summarize."



Considerations and safeguards to gen AI adoption

Businesses should consider risks specific to gen AI. Managing these risks requires approaches beyond traditional model validation, like monitoring for emergent behaviors, restricted access, and strong governance before release.

 Al Policy: Document clear guidelines and policies for acceptable use by employees Access Controls: Implement access controls and permissions to limit who can use GenAl services Licenses: Centralize the license of GenAl, use license of versions, and opt for features such as data privacy and security if available Monitor usage by implementing mechanisms to track and analyze usage Monitor usage by implementing mechanisms to track and analyze usage Data Governance & Privacy: Practices to ensure that GenAl is used in compliance with regulations and policies. This includes data torage, collection, usage, and the evaluation of GenAl provider's data handling practices. User Preferences: Update the user settings in your GenAl service to prevent storage of data or its use in training the model Monitor usage by implementing mechanisms to track and analyze usage Data Management Protocol: 	Organizational Controls	Individual Controls	Risk Management	Communication	Training & Education
 Establish clear procedures for managing and protecting data when interacting with GenAl services Output Validation: Protocols to guide users in assessing the trustworthiness of GenAl responses 	 Al Policy: Document clear guidelines and policies for acceptable use by employees Access Controls: Implement access controls and permissions to limit who can use GenAl services Licenses: Centralize the licensing of GenAl, use licensed versions, and opt for features such as data privacy and security if available Monitor usage by implementing mechanisms to track and analyze usage Data Management Protocol: Establish clear procedures for managing and protecting data when interacting with GenAl services 	 Data Governance & Privacy: Practices to ensure that GenAI is used in compliance with regulations and policies. This includes data storage, collection, usage, and the evaluation of GenAI provider's data handling practices. User Preferences: Update the user settings in your GenAI service to prevent storage of data or its use in training the model User Credentials: Use functional (anonymous) accounts when subscribing and interacting with GenAI services Output Validation: Protocols to guide users in assessing the trustworthiness of GenAI responses 	 Risk Appetite: Define your risk appetite from top down Initiate a Risk Assessment to identify potential risks and vulnerabilities related to GenAI usage. This should include assessment of your GenAI provider's privacy and security measures. Evaluate impact and develop action plans to mitigate. Engage Legal and Compliance in the development of policies, guidelines, training, monitoring and communication. They should also be involved in the evaluation of GenAI provider's privacy and security measures. 	 Employee Communication: Engage in ongoing communication with employees, informing them of potential use cases and strategic projects to enrich their day-to-day activities and what they should avoid Look to develop a culture of responsibility and accountability for the output being generated Establish channels for employees to provide feedback and report concerns or issues 	• Employee Education: Education employees on Gen Al 'Table Stakes' training required to bring all employees to the same level of knowledge and understanding. Topics include How GenAl works, Risks, Ethical Considerations, Best Practices, Responsible Use







*Point in time analysis conducted by RSM during ongoing experimentation with Microsoft Copilot – June 2024



Solution Comparison





Product Strategy: Chatbots





Product Strategy: Chatbot



Professional Services

AI Possibilities



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Practice Management Opportunities





Service Delivery: AI Composable Architecture





Service Delivery Models



Use Cases

Ad Hoc Document Search

Perform chat-like analysis on any document or set of documents real time without the risk of data retention.

Lease Abstraction

Leverage a document upload and generative search method to find specific terms or language within a Lease or contract.

Summarized Findings

Summarize findings documentation and materials as part of review and sign off process.

Website or URL Summarizer

Review/Compare website/pages via submission of a URL. Either for research or competitive intel.

New Hire Chatbot

Leverage chatbot experience for on boarding new hires. Includes leveraging chat to quiz the new hire on training materials real time.

Assessment/Interview Assistant

Leverage AI to review notes from client project interviews real time and recommend follow up questions and points of clarification.

Disclosure Checklists

Compare financial statements with findings to confirm financial statements contain all required disclosures.

Help File replacement

Replace static help files with dynamic chat tools. Also leverage AI to develop the help and training materials for custom applications.

Talent Profile Assistant

Auto-generate skills, bio, profile, etc. for Talent network.

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Additional Services Use Cases

Equipment Performance & Reliability

Applications of AI addressing equipment or plant performance through anomaly detection and prediction, failure prediction, and performance optimization.

Industrial Equipment Longevity

Using information from programmable logic controller (PLC) inputs, environmental and usage variables, manufacturers utilize GenAl for improvements.

Synthetic Data for AVs

Utilizing LLM, GenAI can produce the volume and types of synthetic data for robust simulation.

Leak Detection

Analysis of transients or other signals in pipeline operating parameters, such as pressures, temperatures and flow rates, to predict or identify leaks in advance.

Mechanical Design Optimization

Manufacturers use GenAI to quickly arrive at an optimized component design in terms of weight, cost or mechanical properties.

Expert Advisory Systems

Organizes specialist corporate information assets, and delivers rapid answers to complex technical questions, typically in geoscience and engineering functions.

Machine Vision Analytics

Identification of specific events or conditions in still and video imagery from existing or specialist static,aerial or underwater cameras.

Predictive Maintenance

Prediction of equipment failure risk state and maintenance requirements based on continuous monitoring and assessment of current condition.

Virtual Customer Assistants

Chatbot interfaces and natural language processing to guide fuel and lubricants customers through product selection.



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AI Service Agents

Mid term

 Information ecosystems (data, content, access) – help design and build AI ready Info ecosystems for clients.

- Optimization employ bots and automations to limit the remaining human steps in processes.
 - Agents/language model development

Agentic back office (IT, ops, compliance, dev, finance, marketing) – back office and ops managed agents.

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- Writing –Leverage Gen AI to optimize "writing" content for and increase margin/lower fees.
- Al Governance consult on Al governance and new risk management offerings.
- Al evaluations and strategy (assess, goals, planning, readiness) Al assessments and evals.
- Copilots: custom and general

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Holistic Client AI Transformation











Discussion



Thank you





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Develop and execute the AI strategy, goals, and roadmap, aligning it with organizational strategy, priorities, and business value.

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