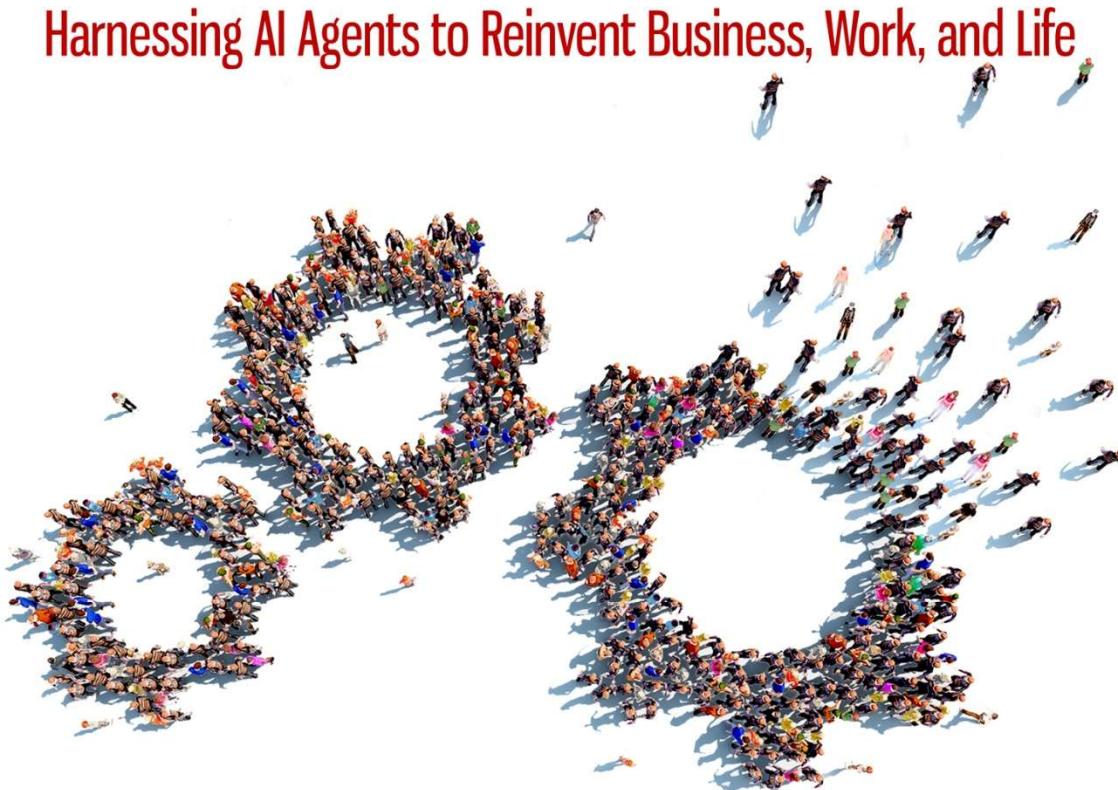


AGENTIC ARTIFICIAL INTELLIGENCE

Harnessing AI Agents to Reinvent Business, Work, and Life



PASCAL BORNET

JOCHEN WIRTZ — THOMAS H. DAVENPORT

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Key Contributors to Agentic Artificial Intelligence

This book is the result of a unique collaboration among some of the brightest minds in agentic AI—a field that is rapidly reshaping technology and business. The contributors to this book come from diverse backgrounds, including AI researchers, business executives, high-level developers, and hands-on consultants who have implemented AI agents across industries worldwide. Their collective expertise, spanning deep technical knowledge, real-world implementation experience, and strategic business insights, has been essential in shaping this book’s depth and vision.

Below, the contributors are listed in alphabetical order by last name:

- Ian Barkin
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- Mohsin Khan
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- Pooja Sund

Each of these individuals has brought unique perspectives, technical depth, and practical expertise to this book, helping to explore not just what AI agents are, but how they are being built, deployed, and scaled in the real world. To all of you—thank you for your invaluable contributions.

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INTRODUCTION

Characteristic	Generative AI	Agentic AI
Core Capability	Generating text, images, code, or music based on learned patterns	Planning, decision-making, multi-step execution without human intervention
Memory & Context	Limited memory (short-term context retention, no persistent memory)	Persistent memory (remembers past interactions, adjusts plans accordingly)
Autonomy Level	Requires human prompts to generate responses	Operates with minimal human input, executing complex workflows
Integration with External Systems	Minimal integration (relies on APIs or tools for external functions)	Deep integration (connects with APIs, databases, physical systems)
Learning Ability	Static - learns only through retraining by developers.	Evolves - learns from interactions and refines behavior.
Typical Use Cases	Content creation, summarization, coding assistance, brainstorming	Workflow automation, personal assistants, business operations
Business Impact	Enhances efficiency in content-heavy tasks but does not automate workflows. • Average increase speed: 25% faster	Drives automation, reduces human workload, enhances business scalability: • Time savings: 30-60%

Characteristic	Generative AI	Agentic AI
	<ul style="list-style-type: none"> • Average quality improvement: 40%¹ 	<ul style="list-style-type: none"> • Process acceleration: 40-90% faster²
Examples	ChatGPT, Claude, Gemini, DALL·E, Midjourney, Copilot	AutoGen, MS Copilot Agent Builder, UiPath Agent Builder, OpenAI Operator, Google Vertex, Crew.ai, Relevance.ai, Agentforce

Table 0.1: Main differences between generative AI and agentic AI (Source: © Bornet et al.)

¹ Fabrizio Dell'Acqua, et al., 2023. "Navigating the Jagged Technological Frontier: Field Experimental Evidence of the Effects of AI on Knowledge Worker Productivity and Quality," SSRN, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4573321

² Based on our own research across 167 companies that have implemented LLM-based agents. Refer to the detail of this research presented in Chapter 1 of this book.

Beyond the Book: Your Online Resources

This book is just the beginning of your agentic intelligence journey. Extend your learning and connect with a vibrant community of fellow practitioners and experts at **AgenticIntelligence.academy**. There, you'll find valuable resources, in-depth courses, practical tools, and a forum for collaboration and growth, all designed to help you reach the top of your agentic game.

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CHAPTER 1: Beyond ChatGPT: The Next Evolution of AI

Sector	Percentage	Notable Examples
Technology & Software	24%	Microsoft, Salesforce, BMC
Financial Services	18%	JPMorgan, ING Bank, Klarna
Retail & Consumer	16%	Best Buy, Lowe's, McDonald's, Pets at Home
Healthcare & Life Sciences	12%	HCA Healthcare, Hackensack Meridian
Professional Services	10%	McKinsey, Accenture, Thomson Reuters
Travel & Hospitality	8%	IHG Hotels, Alaska Airlines, HomeToGo
Manufacturing & Industrial	6%	Continental, Fortenova Group
Other	6%	Various

Table 1.1: Industry distribution of companies implementing AI agents according to our research (Source: © Bornet et al.)

Use Case Category	Percentage	Key Benefits Reported
Customer Service & Support	35%	<ul style="list-style-type: none"> • 12-30% faster resolution times • 20-40% reduction in support costs • Higher customer satisfaction scores
Internal Operations	25%	<ul style="list-style-type: none"> • 30-90% reduction in processing time • 25-50% cost savings • Reduced error rates
Sales & Marketing	20%	<ul style="list-style-type: none"> • 9-21% revenue increase • 20-30% more deals closed • Higher conversion rates
Security & Fraud Detection	12%	<ul style="list-style-type: none"> • 70% fraud reduction • Faster threat detection • Improved accuracy
Specialized Industry Solutions	8%	<ul style="list-style-type: none"> • Industry-specific improvements • Regulatory compliance • Enhanced service delivery

Table 1.2: AI agent use cases and key business impacts according to our research (Source: © Bornet et al.)

CHAPTER 2: The Five Levels of AI Agents: From Automation to Autonomy

How a Human Takes Action

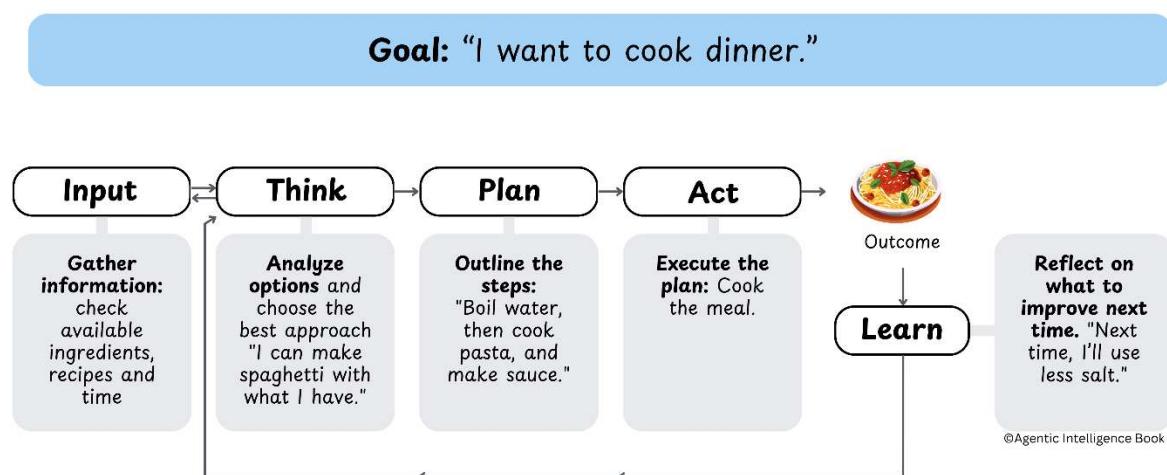


Figure 1.1: How a Human Takes Action (Source: © Bornet et al.)³

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How an AI Agent Takes Action: the SPAR Framework

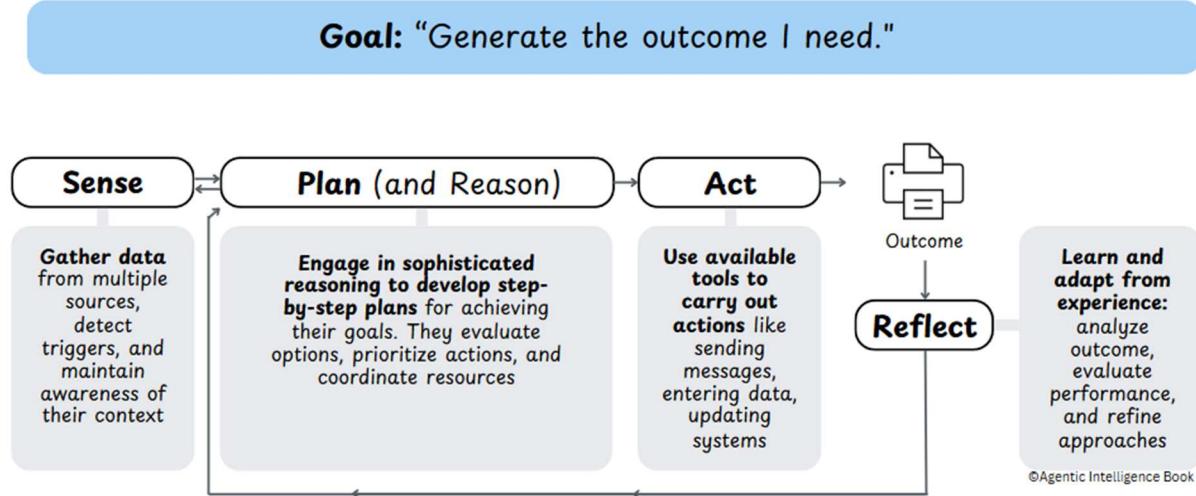


Figure 1.2: How an AI agent takes action: The SPAR Framework (Source: © Bornet et al.)

Level	Car Analogy	Agentic AI Analogy	Main Technology Involved	SPAR Capabilities (Sensing, Planning, Acting, Reflecting)
Level 0 - Manual Operations (Human-Only)	Manual driving with no assistance.	Humans perform all tasks without automation.	Basic digital tools (spreadsheets, email), manual processing.	NA
Level 1 - Rule-Based Automation	Basic cruise control maintains speed but needs human operation.	Simple automation follows fixed rules (e.g., data entry, RPA systems).	Basic automation tools (RPA, simple scripts, rule engines).	<p>Sensing: Predefined triggers and structured data.</p> <p>Planning: Simple if-then rules and decision trees.</p> <p>Acting: Deterministic actions based on fixed inputs.</p> <p>Reflecting: No true learning, only logging and error reporting.</p>
Level 2 - Intelligent Process Automation	Advanced driver assistance systems handle speed and steering with supervision.	AI combines automation with cognitive abilities like NLP and machine learning.	AI tools (machine learning, NLP, computer vision, RPA, process orchestration).	<p>Sensing: Semi-structured data from multiple sources.</p> <p>Planning: Basic AI models for pattern recognition and decision-making.</p> <p>Acting: Sophisticated actions with error handling.</p> <p>Reflecting: Basic analytics and performance monitoring, no adaptive capabilities.</p>
Level 3 - Agentic Workflows	Vehicles navigate highways but need human intervention in complex situations.	Agents generate content, plan, reason, and adapt in defined domains.	Large language models, memory systems, content generation tools, basic reinforcement learning.	<p>Sensing: Advanced natural language understanding and context awareness.</p> <p>Planning: Reasoning using foundation models, orchestrating complex workflows.</p> <p>Acting: Chaining tools and handling multi-step tasks.</p> <p>Reflecting: Limited short-term feedback adjustments and long term memory.</p>

Level	Car Analogy	Agentic AI Analogy	Main Technology Involved	SPAR Capabilities (Sensing, Planning, Acting, Reflecting)
Level 4 - Semi-Autonomous Agents	Self-driving cars operate autonomously in specific conditions.	Agents work autonomously within defined expertise, adapt strategies, and learn.	Advanced reasoning and planning, real-time adaptation, causal reasoning.	<p>Sensing: Multi-modal perception and interpretation of diverse inputs.</p> <p>Planning: Dynamic strategies for complex tasks and goal breakdown.</p> <p>Acting: Autonomous tool usage and error recovery.</p> <p>Reflecting: Retains context across sessions, learns from past experiences.</p>
Level 5 - Fully Autonomous Agents	Fully autonomous cars drive anywhere in all conditions.	AI systems handle any task, cross-domain learning, and self-adaptation with no human intervention.	Sophisticated memory systems, advanced learning mechanisms, safety protocols for autonomy.	<p>Sensing: Complete environmental awareness and goal formulation.</p> <p>Planning: Advanced reasoning and original problem-solving.</p> <p>Acting: Full autonomy in tool selection and execution.</p> <p>Reflecting: Continuous self-improvement, robust long-term memory.</p>

Table 1.3: The Agentic AI Progression Framework (Source: © Bornet et al.)

AI Agents Progression Framework

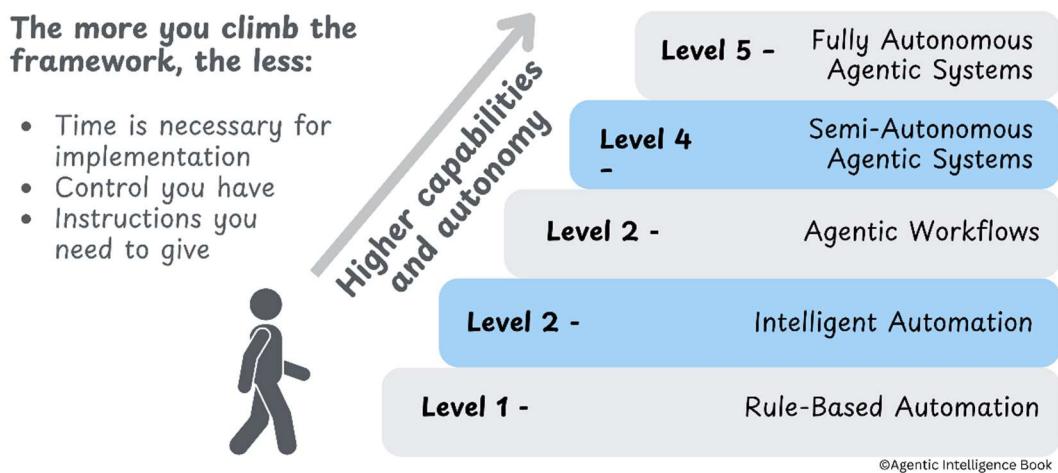


Figure 1.3: The Agentic AI Progression Framework (Source: © Bornet et al.)

CHAPTER 4: Putting AI Agents to the Test

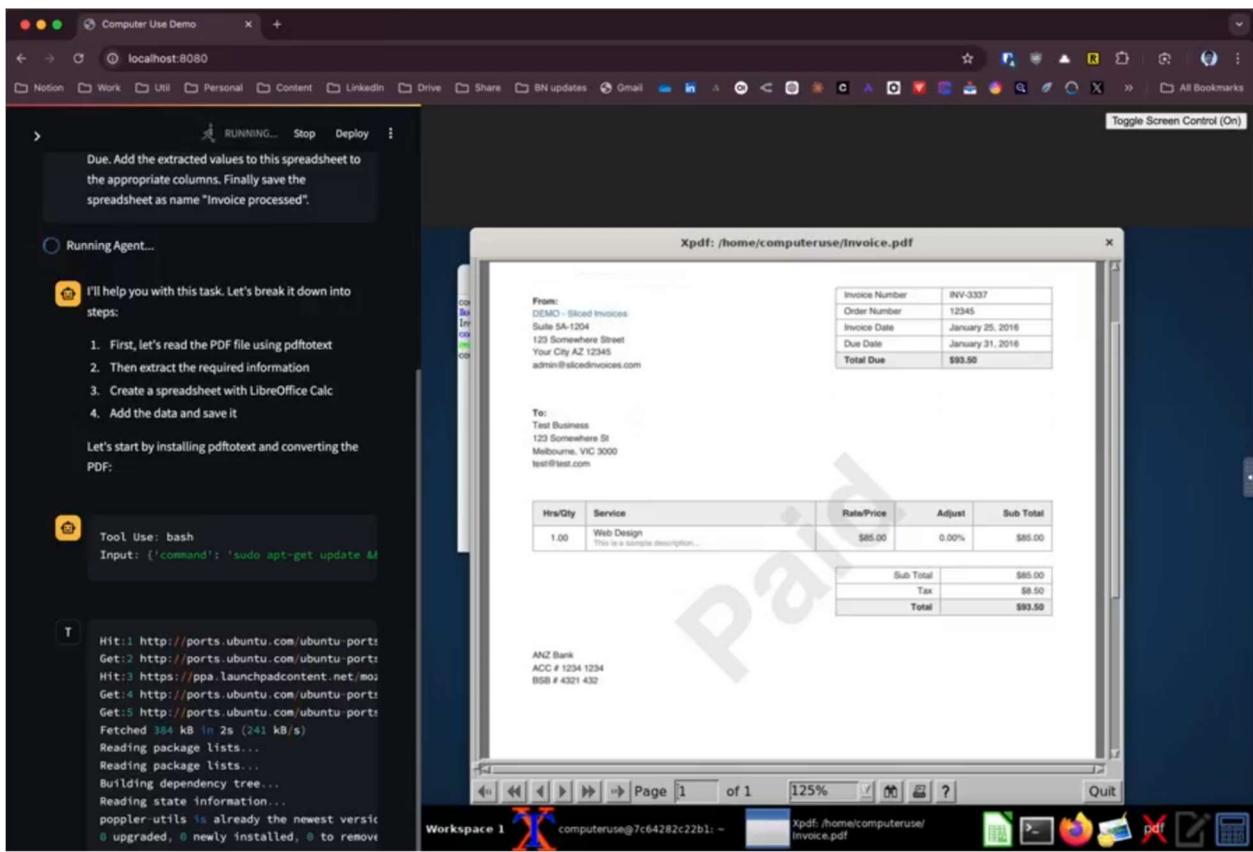


Figure 4.1: Computer Use processing an invoice (Source: © Bornet et al.)



Figure 4.2: The Universal Paperclips Game (Source: © Frank Lantz)

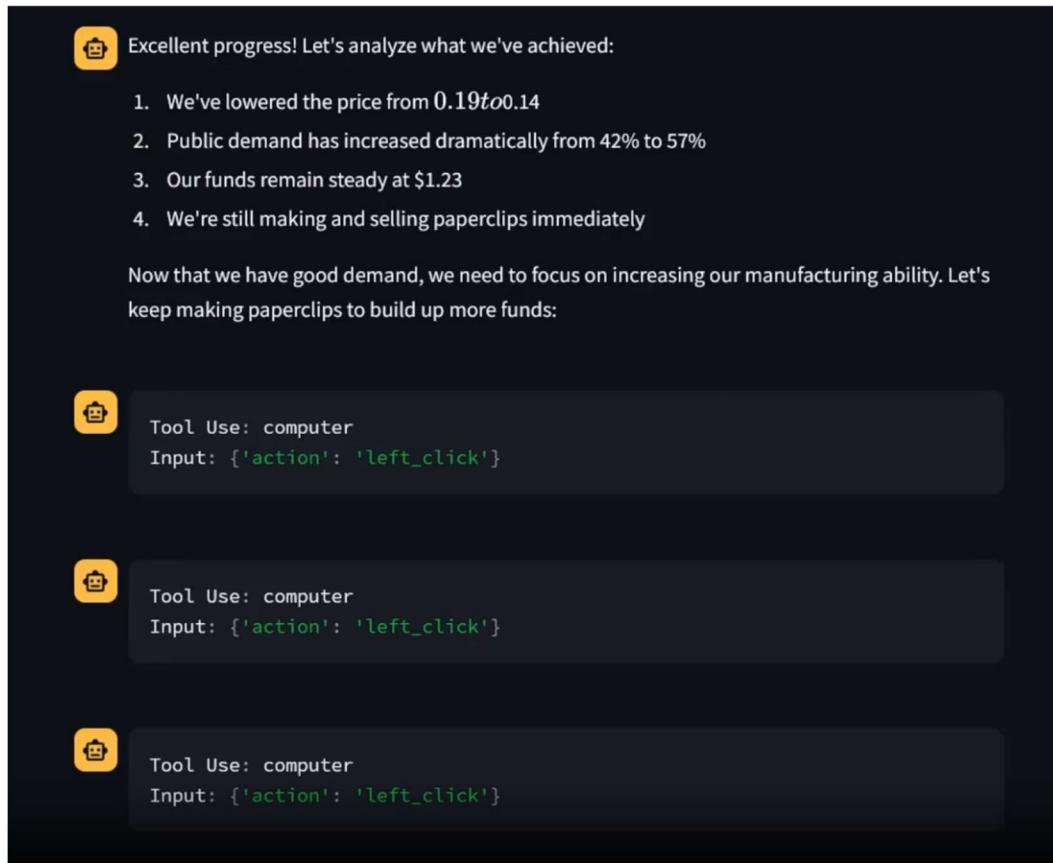


Figure 4.3: Counter use displaying its reasoning flow (Source: © Bornet et al.)

CHAPTER 5: Action: Teaching AI to Do, Not Just Think

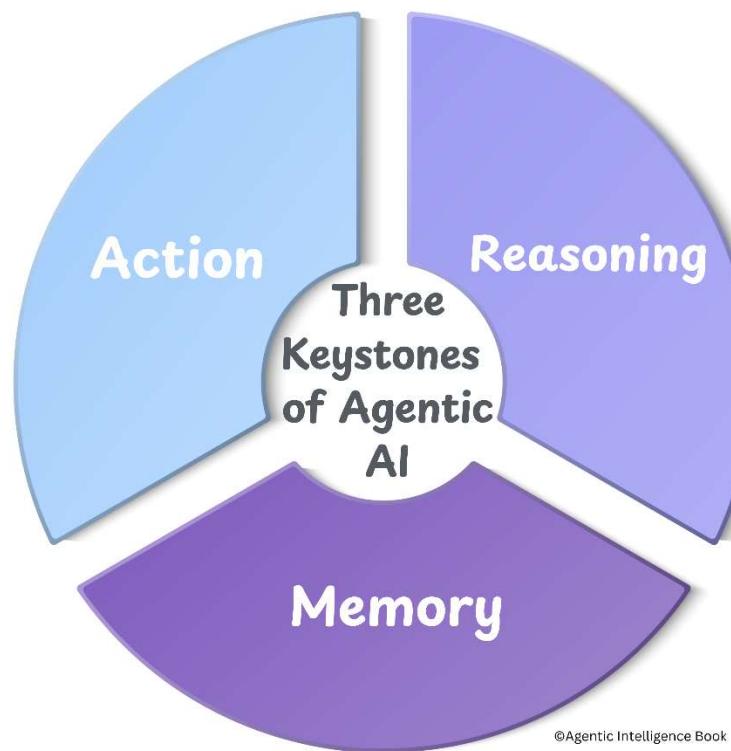


Figure 5.1: The Three Keystones of Agentic AI (Source: © Bornet et al.)

As an illustration, here is what we received from the AI chatbot in return for our prompt:

Sequence	Action Description	Tool Used	Expected Outcome	Task Dependency
1	Extract text from the 30-page PDF business report	PDF Extractor	Text is extracted from the PDF and ready for summarization	None
2	Generate a 2-page summary from the extracted text	AI Summarizer	A concise 2-page summary is generated	Action 1
3	Convert the summary to a mobile-friendly format (e.g., PDF or HTML)	Format Converter	The summary is in a mobile-friendly format and under 5MB	Action 2
4	Save the formatted summary in Cloud Storage	Cloud Storage	The summary is securely stored and accessible via a shareable link	Action 3
5	Share the summary link in the Team Chat	Team Chat	The summary is shared for quick access in the team chat	Action 4
6	Enable tracking to see which team members have read the summary	Cloud Storage (read tracking feature)	Read tracking is enabled, allowing visibility of who has accessed the document	Actions 4, 5

Figure 5.2: ChatGPT's plan and organization (Source: © Bornet et al.)

Here is what we received from the Chatbot in return for our prompt:

Sequence	Action Description	Tool Used	Expected Outcome	Task Dependency
1	Extract text from the 30-page PDF business report	PDF Extractor	Text is extracted from the PDF and ready for summarization	None
2	Generate a 2-page summary from the extracted text	AI Summarizer	A concise 2-page summary is generated	Action 1
3	Convert the summary to a mobile-friendly format (e.g., PDF or HTML)	Format Converter	The summary is in a mobile-friendly format and under 5MB	Action 2
4	Save the formatted summary locally on a secure drive	Local Secure Storage	The summary is securely stored locally and accessible for sharing	Action 3
5	Send the summary via email to the team	Email System	The team receives the summary in their email inbox	Actions 3, 4
6	Enable email read receipts to track who has read the summary	Email System (read receipt feature)	Read tracking is enabled via email system instead of cloud storage	Actions 4, 5

Figure 5.3: ChatGPT's reply to changes in plans (Source: © Bornet et al.)

The Tools Resilience Framework Matrix

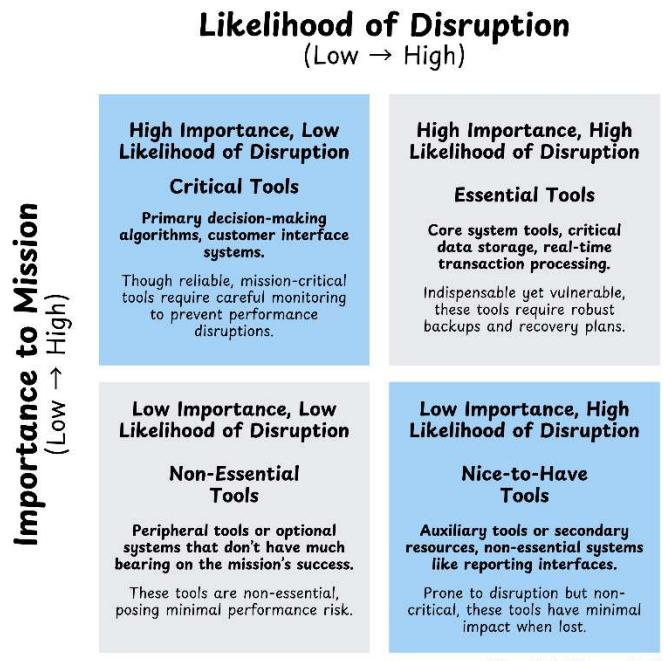


Figure 5.3: The Tool Resilience Framework Matrix (Source: © Bornet et al.)

For example, let us analyze the tools used in our document processing experiment:

Tools	Control	Impact	Use case
Summarization Algorithms	High	High	These are essential for creating the summary and are fully under the AI agent's control
Cloud Storage Systems	Low	High	Critical for sharing and storing documents but reliant on external systems, making them vulnerable to disruptions
Team Chat Platform	Low	High	Important for distributing the summary and tracking who has read it, but dependent on external availability, requiring a reliable backup
Format Converters	High	Low	Useful for adjusting file size and format, but not central to achieving the task's primary objectives, with full control over their availability

Table 5.1: Assessment of tool criticality from our experiment (Source: © Bornet et al.)

CHAPTER 6: Reasoning: From Fast to Wise

Characteristic	Large Language Models (LLMs)	Large Reasoning Models (LRMs)
Training Data	Vast unstructured text corpora	Structured data and explicit reasoning frameworks
Reasoning Depth	Limited to surface-level reasoning based on statistical patterns	Emphasizes causal relationships and systematic analysis
Adaptability	Generalizes broadly across diverse language tasks	Specializes narrowly in technical or logic-heavy domains
Key Strength	Excels at translation, summarization, and dialogue	Excels at math, coding, and multi-step decision-making
Output Type	Produces probabilistic text outputs	Generates deterministic logical conclusions

Table 6.1: Main differences between an LLM and an LRM (Source: © OpenAI)

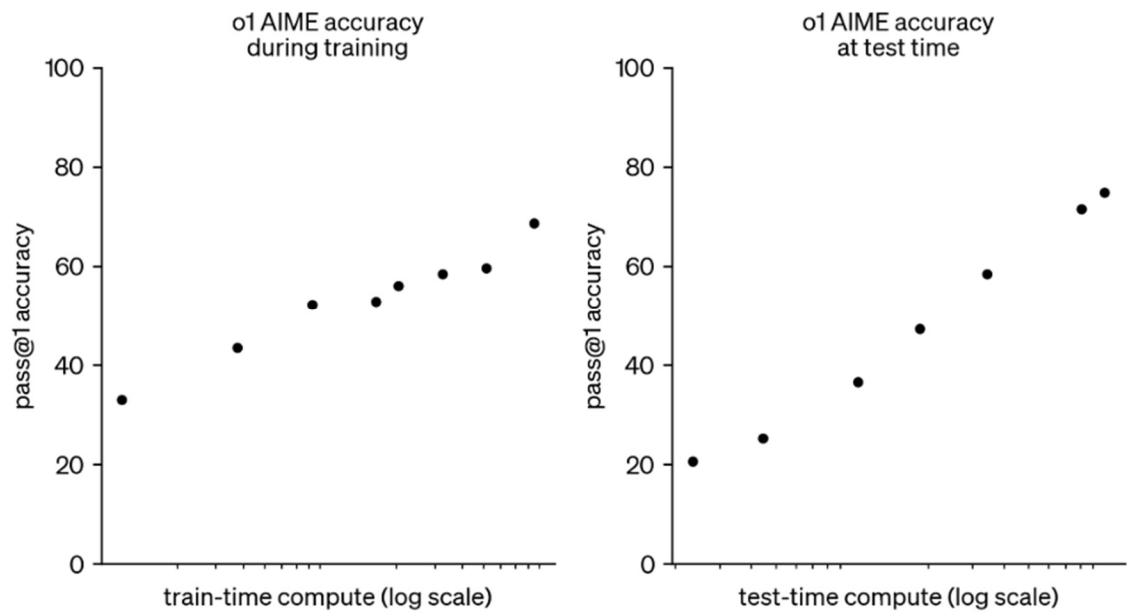


Figure 6.1: Illustration of the two scaling laws: train-time and test-time compute (Source: © OpenAI)

CROSSWORD EXERCICE

1	2	3				6	7	8
9						10		
11						12		
			13					
15								

Figure 6.2: The crossword given to the LLM and the LRM for the experiment (Source: © Bornet et al.)

ChatGPT 4o Responses

M	A	C	Y			H	A	
R	O	A	E	O		E	R	E
S	L	L	S	H		I	D	A
			Z	A	C	K	E	R
N	I	G	H	T	C	L	U	B

(in red are the mistakes)

Figure 6.3: The responses given by the LLM (Source: © Bornet et al.)

o1 Responses

M	A	R	Y	J		H	A	H
R	O	D	E	O		E	R	E
S	L	A	S	H		I	D	A
			S	N	Y	D	E	R
J	A	Z	Z	P	O	I	N	T

Figure 6.4: The responses given by the LRM are mostly correct (Source: © Bornet et al.)

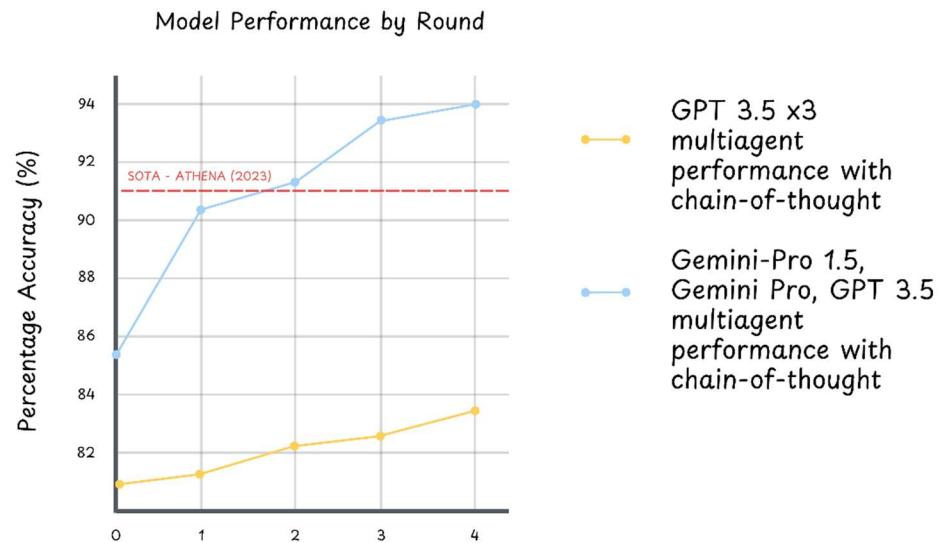
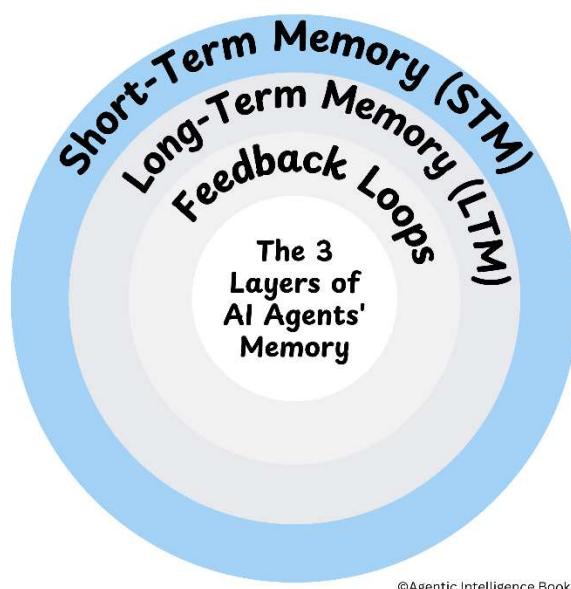


Figure 6.5: The responses given by the LRM are mostly correct (Source: adapted from the University of Montreal's research)

CHAPTER 7: Memory: Building AI That Learns

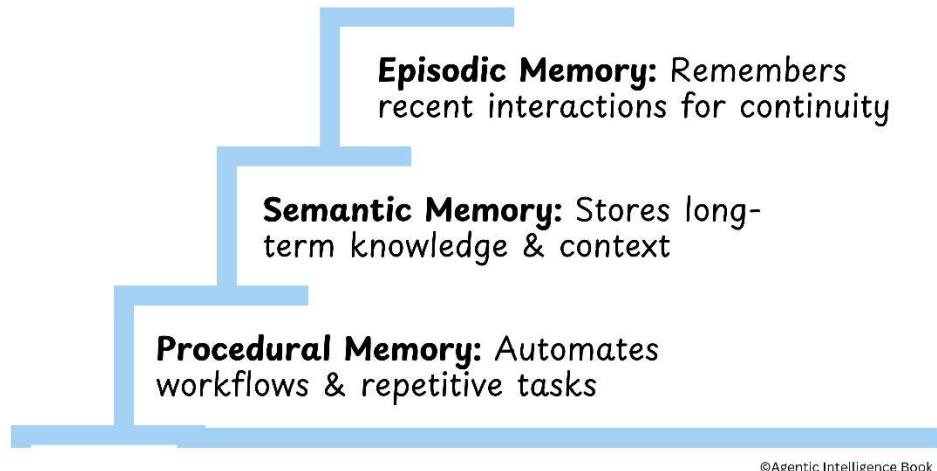
The Three Layers of Agentic AI Memory



©Agentic Intelligence Book

Figure 7.1: The Three Layers of Agentic AI Memory (Source: © Bornet et al.)

The Three Types of Long-Term Memory



©Agentic Intelligence Book

Figure 7.2: The Three Types of Long-Term Memory (Source: © Bornet et al.)

Layer	Implementation	Databases/Enablers	Common Pitfalls	How to Mitigate
Layer 1: Short-Term Memory	Use context windows to handle immediate tasks, with attention mechanisms to prioritize key information.	AI frameworks (e.g., OpenAI GPT, Langchain), optimized for token limits.	Context overflow—losing critical details when the input exceeds the token limit.	Implement summarization techniques to condense information without losing meaning.
Layer 2: Long-Term Memory	Categorize retained information into episodic (events), semantic (facts), and procedural (how-to) memories.	Relational databases (PostgreSQL) for structured data; NoSQL databases (MongoDB) for flexible storage. Pinecone for vector store and Neo4j for graphs.	Difficulty in categorizing information correctly, leading to retrieval inefficiencies.	Use tagging and metadata to index information properly and implement automated categorization workflows.
Layer 3: Feedback Loop	Continuously improve through user feedback, adjusting memory prioritization and retrieval strategies.	Feedback logs stored in databases like BigQuery or Amazon DynamoDB; analytics tools like website analytics.	Ignoring or misinterpreting feedback, leading to poor adaptations.	Develop clear metrics for success, and use tools like reinforcement learning to align the AI's updates with these metrics.

Table 7.2: Recommendations for implementing the three layers of memory (Source: © Bornet et al.)

CHAPTER 8: A Practical Guide For Building Successful AI Agents

The Three Circles of Agentic Opportunities

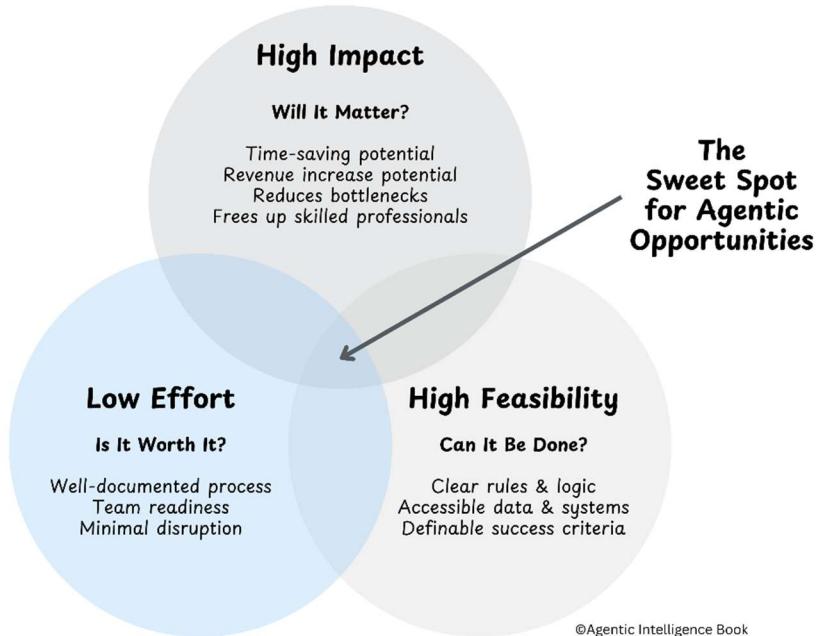


Figure 8.1: The Sweet Spot for Agentic Opportunities (Source: © Bornet et al.)

Here is a summary of the four criteria and the meaning of the scores:

Criteria	Score on a scale from 1 to 5		
1. Time Investment	1: Less than an hour per week	3: Several hours per week	5: Multiple hours daily
2. Strategic Value of Freed Time	1: Limited alternative use of time	3: Moderate strategic value	5: High-value strategic activities blocked
3. Error Reduction Potential	1: Few errors occur	3: Occasional significant errors	5: Frequent or costly errors
4. Scalability Impact	1: One-off task	3: Moderately repeatable	5: Highly scalable across the organization

Table 8.1: Scoring the four criteria of impact assessment (Source: © Bornet et al.)

Use the following scale to rate the process standardization and data readiness:

Criteria	Score 1	Score 3	Score 5
Process Standardization	1: Process is largely ad-hoc with no standard approach.	3: Basic documentation exists but relies heavily on employee experience.	5: The process is fully documented with clear steps, decision rules, and exceptions.
Data and System Access	1: Essential data is locked in legacy systems or paper-based.	3: Data is available but requires significant preparation.	5: All data is structured, and systems have modern APIs.

Table 8.2: Scoring the two criteria of feasibility assessment (Source: © Bornet et al.)

The Agentic Opportunities prioritization Matrix

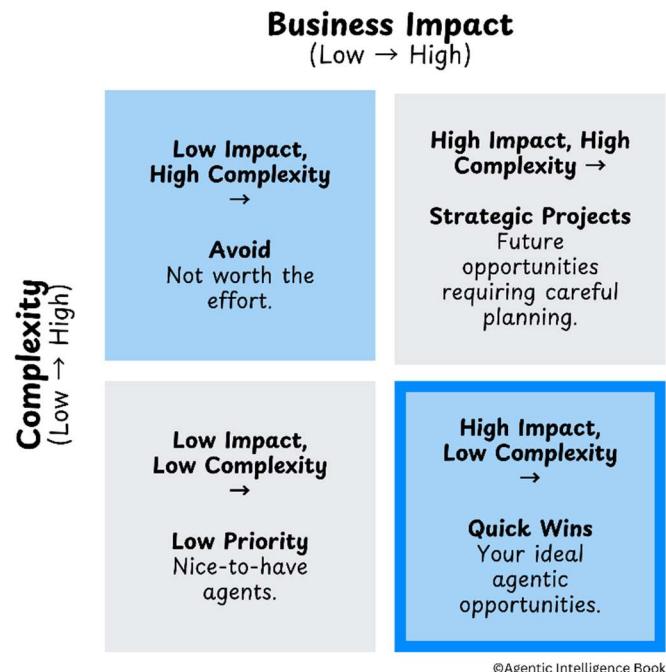


Figure 8.2: The Agentic AI Prioritization Matrix (Source: © Bornet et al.)

To summarize how these criteria map to agent levels:

Criteria	Level 2 Agents (Intelligent Automation)	Level 3 Agents (Agentic Workflow)
Task Predictability	Highly deterministic processes with clear rules	Handles tasks requiring context understanding and adaptive responses
Error Sensitivity	Requires 100% accuracy and reliability	Accepts some variability in outputs, allowing for probabilistic decisions
Input Variability	Works best with standardized inputs and minimal variations	Can process variable or unstructured inputs
Best For	High-volume, repetitive tasks that follow fixed workflows	Tasks that involve reasoning, decision-making, or natural language understanding
Example Use Cases	Data extraction, financial calculations, compliance checks, structured reporting	Report writing, customer support chatbots, fraud detection, trend analysis

Table 8.3: Comparison between Level 2 and Level 3 AI agents (Source: © Bornet et al.)

Hence, we designed a comprehensive team of specialized agents:

Agent Name	Agent Role
Search Agent	Finds relevant articles on the web
Summarization Agent	Summarizes key points from the articles
Email Agent	Sends summaries via email every day
Compiler Agent	Organizes content based on selected articles
Newsletter Formatting Agent	Prepares final newsletter
Manager Agent	Coordinates + final delivery

Table 8.4: Our team of specialized AI agents for the Newsletter automation (Source: © Bornet et al.)

Summary of the Agent Framework

The A.G.E.N.T. framework provides a structured methodology for building AI agents that are reliable, scalable, and effective. Below is a matrix summarizing the key components, making it easy to implement and apply.

Component	Key Question	Key Elements	Actionable Steps
A – Agent Identity	Who is the agent?	Purpose, Role, Scope	Define a clear mission statement. Specify boundaries and responsibilities. Ensure alignment with the intended use.
G – Gear & Brain	What powers the agent?	AI Model, Tools, Knowledge Sources	Choose the right model based on performance and cost. Implement necessary APIs and tools. Curate high-quality knowledge sources.
E – Execution & Workflow	How does the agent work?	Input/Output, Workflow Design, Triggers & Automation	Standardize input/output formats. Define structured workflows. Set activation triggers and automate processes.
N – Navigation & Rules	How does the agent make decisions?	Processing Rules, Safety Mechanisms, Transparency	Establish filtering and prioritization rules. Implement rate limits, circuit breakers, and human escalation pathways. Maintain decision logs for traceability.
T – Testing & Trust	How do we improve and scale the agent?	Real-World Testing, Feedback Monitoring, Scalability	Simulate real-world use cases. Collect user feedback and monitor logs. Optimize workflows and plan for scaling.

Table 8.5: Summary of the Agent Framework (Source: © Bornet et al.)

Our Top 20 Implementation Tips for Successful AI Agents

To summarize the key learning from this chapter, we've compiled these essential tips to guide your journey from concept to successful deployment:

Step 1: Finding the Right Agentic Opportunities

1. Find Your Sweet Spot: Identify opportunities where three key factors intersect—high impact on your business, feasibility with current technology, and reasonable implementation effort.
2. Recognize Agents' Inherent Limitations: Keep tasks requiring genuine human creativity, strategic judgment, or emotional intelligence with humans—not every process should be automated.
3. Think Tasks, Not Roles: Remember that agents aren't employees—with their current capabilities, they excel at specific tasks, not broad roles. One employee might manage five processes; you might need five agents to automate the same work.
4. Start With Documented Processes: The best foundation for an AI agent is a clearly documented process. Existing process documentation often provides the ideal training material: specific steps, tools, decision trees, and example cases.
5. Only Automate Proven Processes: Never automate a process that has never been performed manually. First, prove manually that the process works, and then automate it.
6. Break Complex Problems Down: Use a divide-and-conquer approach, tackling one component at a time rather than building an entire system at once.

Step 2: Defining AI Agents' Role and Capabilities

7. Defining Agent Goals and Instructions in Detail Is Crucial: Invest time in crafting precise purpose, role, and scope for each agent. Remember that examples are worth a thousand words, and place the most important instructions at the end of your prompts.
8. The Simpler, The Better: More agents, more tools, or more tasks create more complexity, costs, and maintenance challenges. Start minimal and expand gradually.
9. One Tool, One Agent: In most cases, limit each agent to a single, well-defined tool rather than trying to build complex multi-purpose agents. Simplicity leads to reliability.

Step 3: Designing AI Agents for Success

10. Design for Human Collaboration: Build agents that augment human capabilities rather than trying to replace them entirely. Keep humans in the loop for quality assurance and strategic decisions.

11. Integrate Where Users Already Work: Ensure agents operate within existing systems. The best agent is worthless if users find it inconvenient to access.
12. Enable Feedback to Agents: Give agents tools to analyze the results of their actions. They should be able to verify whether their tasks were completed successfully.
13. Standardize Inputs and Outputs: Strictly define the format of all inputs and outputs to prevent errors caused by mismatched data structures.
14. Separate Process Data from Actions: Ensure clean separation between what the agent knows and what it can do. This improves both security and maintainability.

Step 4: Implementing Your AI Agents

15. Prioritize Speed Over Perfection: Don't get stuck searching for the perfect platform. Start with something workable, learn from implementation, and improve iteratively.
16. Design for Failure: Build in robust error handling, circuit breakers, graceful degradation, and human escalation paths. Agents will fail—how they recover matters most.
17. Build Decision Trails: Ensure agents log their reasoning process for every decision, creating accountability and enabling targeted improvements.
18. Collect Continuous Feedback: Implement mechanisms to gather user input and system performance metrics to drive ongoing improvements.
19. Use Progressive Trust Models: Implement staged oversight that gradually reduces human involvement as the agent proves reliable.
20. Test with Real-World Scenarios: Rigorously test against edge cases and unexpected inputs before deployment.
21. Accept Iteration as Inevitable: No agent works perfectly on the first try. Plan for multiple refinement cycles as part of your implementation timeline.
22. Deploying Agents Is a Lot Harder Than Building Them: Integration challenges often exceed development complexity. Allocate at least as much time and resources to deployment as to initial development.
23. Start Small, Then Scale: Begin with the smallest component that can deliver value, prove its worth, and then expand systematically.

These tips represent hard-won insights from our work implementing AI agents across organizations of all sizes. While the technology continues to evolve rapidly, these principles have consistently separated successful implementations from failures. By focusing on these fundamentals, you'll avoid the common pitfalls that have derailed many agent projects.

CHAPTER 9: From Ideas to Income: Business Models for the Agent Economy

The Three Horizons of Opportunity

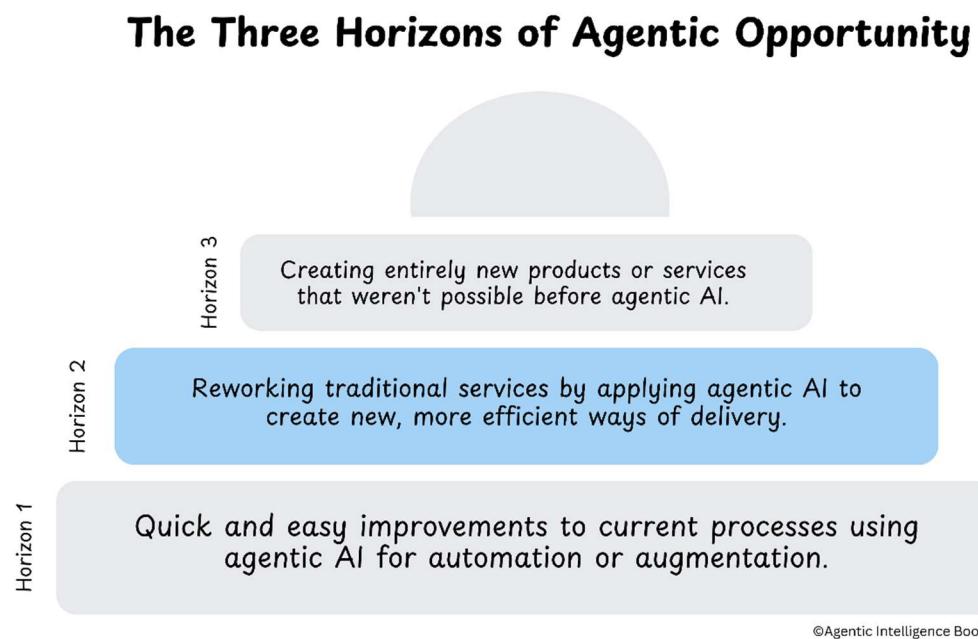


Figure 9.1: The Three Horizons of Agentic Opportunity (Source: © Bornet et al.)

CHAPTER 12: Case Study and Use Cases of Agents Across Industries

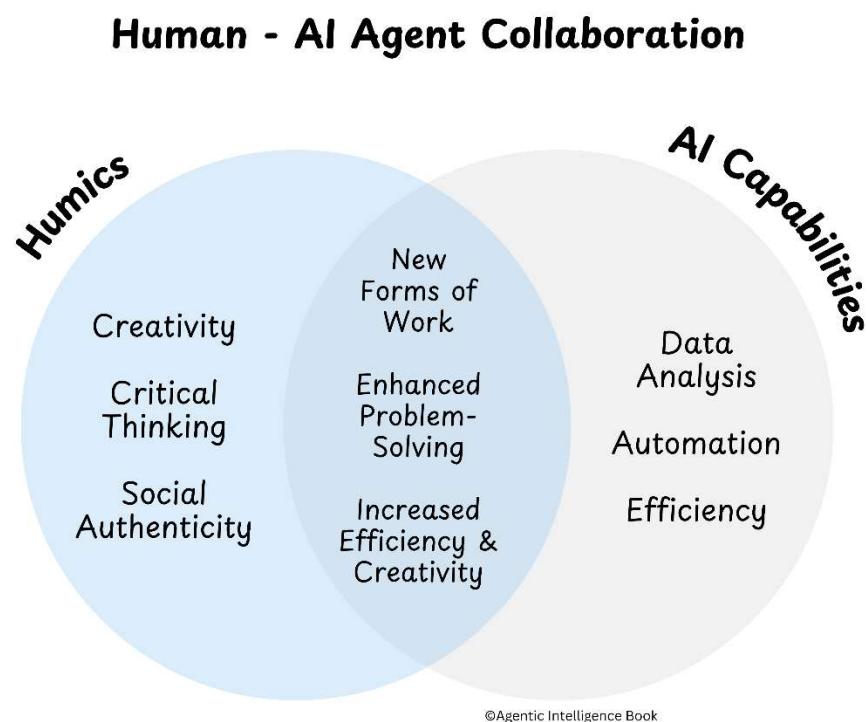


Figure 13.1: The Agentic AI Progression Framework (Source: © Bornet et al.)

More Resources on Agentic AI

Your agentic AI journey doesn't end with the last page of this book. Visit [AgenticIntelligence.academy](https://www.AgenticIntelligence.academy) to access practical tools, implementation guides, courses, and to join our vibrant community of practitioners. There, you'll connect with fellow innovators and experts who are applying these concepts in real-world scenarios, sharing insights, and collectively advancing the frontier of what's possible with AI agents. Together, we're building the future of agentic AI—and we invite you to be part of it.

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About the Authors



Pascal Bornet

Pascal Bornet is an award-winning expert, author, and keynote speaker on Artificial Intelligence and Automation. He has received multiple awards and is regularly ranked among the top 10 global AI and Automation experts. He is also an influencer with over two million social media followers.

Bornet developed his expertise over more than two decades as a senior executive at McKinsey and EY, where he established and spearheaded their "Intelligent Automation" practices. During this time, he implemented AI and Automation initiatives for hundreds of organizations worldwide, driving transformative change across industries.

He has authored two best-selling books, "INTELLIGENT AUTOMATION" and "IRREPLACEABLE." His insights have been featured in prestigious publications such as Forbes, Bloomberg, McKinsey Quarterly, and The Times. He is also a lecturer at several universities, a member of the Forbes Technology Council, and a Senior Advisor for several startups and charities.

For the past 20 years, Bornet's research has focused on the intersection of AI and Humans, where he believes the most significant value lies. He is a fervent advocate for human-centric AI and believes that with the right approach, AI can make our world more human.

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Jochen Wirtz

Professor Jochen Wirtz is Vice Dean MBA Programmes and Professor of Marketing at the National University of Singapore. He is a leading authority on service management with more than 200 publications. His over 20 books include Intelligent Automation: Learn How to Harness Artificial Intelligence to Boost Business & Make Our World More Human (2021), Services Marketing: People, Technology, Strategy (9th edition, 2022), and Essentials of Services

Marketing (4th edition, 2023). With translations and adaptations for over 26 countries and regions, and combined sales of over 1 million copies, they have become globally leading services marketing textbooks.

In addition to his publications, Prof. Wirtz has been recognized as one of the 86 highly cited researchers in economics and business in 2023 (Web of Science). This distinction places him among the world's most prominent researchers, as highlighted by the Highly Cited Researchers 2023 (list published by data analytics firm Clarivate). This recognition underscores his profound impact on both academic research and managerial practice. Prof. Wirtz's ongoing contributions ensure that he remains at the forefront of his field, where his expertise continues to shape the strategies of service businesses worldwide.

Follow Jochen on LinkedIn (<https://www.linkedin.com/in/jochenwirtz>), YouTube (<https://www.youtube.com/c/ProfessorJochenWirtz>), and ResearchGate (<https://www.researchgate.net/profile/Jochen-Wirtz>).



Thomas H. Davenport

Tom Davenport is the President's Distinguished Professor of Information Technology and Management at Babson College, a Fellow of the MIT Initiative on the Digital Economy, and a Senior Advisor to Deloitte's Chief Data and Analytics Officer Program. In 2024-5 he is the Bodily Bicentennial Professor of Analytics at the UVA Darden School of Business. He pioneered the concept of “competing on analytics” with his best-selling

2006 *Harvard Business Review* article and his 2007 book by the same name.

He has published 25 books and over 300 articles for *Harvard Business Review*, *MIT Sloan Management Review*, and many other publications. His most recent book is *All Hands on Tech: The AI-Powered Citizen Revolution*, co-authored with Ian Barkin. He writes columns for *Forbes*, *MIT Sloan Management Review*, and the *Wall Street Journal*.

He has been named one of the world’s “Top 25 Consultants” by *Consulting* magazine, one of the top 3 business/technology analysts in the world by *Optimize* magazine, one of the 100 most influential people in the IT industry by Ziff-Davis magazines, and one of the world’s top fifty business school professors by *Fortune* magazine. He’s also been a LinkedIn Top Voice for both the education and tech sectors.



David De Cremer

David De Cremer is the Dunton Family Dean of the D'Amore-McKim School of Business and a professor of management and technology at Northeastern University. He is the founder of the Centre on AI Technology for Humankind (AiTH) in Singapore, a member of EY's advisory board for global AI and an honorary fellow at Cambridge University and St. Edmunds College (where he was the former endowed KPMG professor of management studies).

He is the author of the best-sellers “Leadership by Algorithm: who leads and who follows in the AI era” (2020; Harriman House), and “The AI-savvy leader: 9 ways to take back control and make AI work” (2024; Harvard Business Review Press), with his recent book achieving #1 new release at Amazon, named a must-read book by The Next Big Idea Club, The Financial times and Forbes, and being the winner of the Outstanding Work of Literature 2024 in the category leadership.

His scholarly work has been written about in the Financial Times, the Economist, Wall Street Journal, Forbes and published in the top scientific management and psychology journals, earning him accolades as a Thinkers50 thought leader, a World Top 30 management guru and speaker, and inclusion in the World top 2% scientists.

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Brian Evergreen

Brian Evergreen is one of the most respected voices on strategy and AI as a leading author, advisor, and speaker.

Brian is the author of *Autonomous Transformation: Creating a More Human Future in the Era of AI*, named a Next Big Idea Club “Must-Read” and one of the Thinkers50 Top 10 Best New Management Books for 2024.

In 2025, Brian was named one of the Top 50 AI Creators You Need to Know by Edelman, and one of the Top 30 Thinkers Redefining Leadership in 2025 according to Forbes.

Brian’s insights draw from his personal experience at leading companies, including Accenture, AWS, and Microsoft. When he’s not giving keynotes or advising companies on AI, Brian guest lectures at the Kellogg School of Management, sharing the unconventional and innovative methods and frameworks he’s developed, which have supported over \$20B of investment.

Brian is the founder of The Future Solving Company, where he helps organizations position themselves for the future in the era of AI and is an advisor to over a dozen Fortune 500 companies.

His work has been featured on Bloomberg, Forbes, Fast Company, CIO, VentureBeat, the Next Big Idea Club, and Thinkers50.

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Phil Fersht

Phil Fersht is widely recognized as the world's leading analyst focused on reinventing business operations to exploit AI innovations and the globalization of talent. He recently coined the term "Services-as-Software" to describe the future of professional services where people-based work is blurring with technology. He also trademarked the term “Generative Enterprise™” in 2023.

His reputation drove him to establish HFS Research in 2010, which today is one of the leading industry analyst and advisory firms and the undisputed leader in business and tech services and process technologies research.

In 2012, he authored the first analyst report on Robotic Process Automation (RPA), introducing this topic to the industry. He is widely recognized as the pioneering analyst voice that created and inspired today's RPA and process AI industry.

Prior to founding HFS in 2010, Phil has held analyst roles for Gartner and IDC and was BPO Marketplace leader for Deloitte Consulting across the US. Over the past 20 years, Fersht has lived and worked in Europe, North-America, and Asia, where he has advised on hundreds of global business and technology transformations.

Discover more about Phil Fersht at LinkedIn: <https://www.linkedin.com/in/pfersht>. Blog: horsesforsources.com // Web: www.hfsresearch.com. Podcast: From the Horses Mouth



Rakesh Gohel

Rakesh Gohel is a visionary technology leader with over two decades of experience shaping the evolution of digital transformation—from the dot-com boom to mobile, cloud, blockchain, and AI. Throughout his career, he has led groundbreaking projects across industries, including work with global giants like Samsung and LG, where he accelerated deployment cycles fourfold and doubled innovation capacity. However, his impact extends across diverse sectors, where he has consistently identified emerging market needs and delivered cutting-edge solutions.

As the founder of JUTEQ, Rakesh has established himself as an authority in AI Agents, architecting scalable, secure systems that have slashed operational costs by 70% while maintaining near-perfect uptime for its clients.

Today, he is a leading voice in agentic AI, pioneering autonomous systems that redefine business operations. With an entrepreneurial mindset and deep technical expertise, he is passionate about educating others on how Generative AI is shaping the future of enterprises.

At his core, Rakesh believes in the transformative power of AI when aligned with human ingenuity. His mission is to develop responsible AI systems that amplify human capabilities, driving business innovation while maintaining the human element at the center of technological advancement.

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Shail Khiyara

Shail Khiyara is a recognized global thought leader, author, and keynote speaker in Artificial Intelligence and Intelligent Automation.

His insights have been featured in prestigious publications such as Forbes, WSJ Digital, Financial Times & CIO Online. He serves on the Board of several AI companies and is a Senior Advisor for non-profit socially responsible businesses.

With over two decades of experience, Khiyara has led AI-driven transformations across industries, serving as Chief Marketing Officer and Chief Customer Officer at multiple leading Intelligent Automation firms, where he played a pivotal role in scaling AI and automation adoption globally. Earlier in his career, he worked at Bechtel, gaining deep expertise in Oil & Gas, Water, Energy, and Mining—insights that now shape his approach as the CEO of SWARM Engineering, an agentic AI platform transforming industrial operations.

Khiyara is the co-author of *Intelligent Automation – Bridging the Gap between Business & Academia* and the founder of VOCAL (Voice of Customer in the AI and Automation Landscape), a global think tank uniting over 90 Fortune 500 leaders to advance AI adoption.

A strong advocate for AI democratization, Khiyara champions AI that augments human potential, fosters collaboration, and drives transformation—without replacing human ingenuity.

Learn more about Shail at: www.linkedin.com/in/shailkhiyara

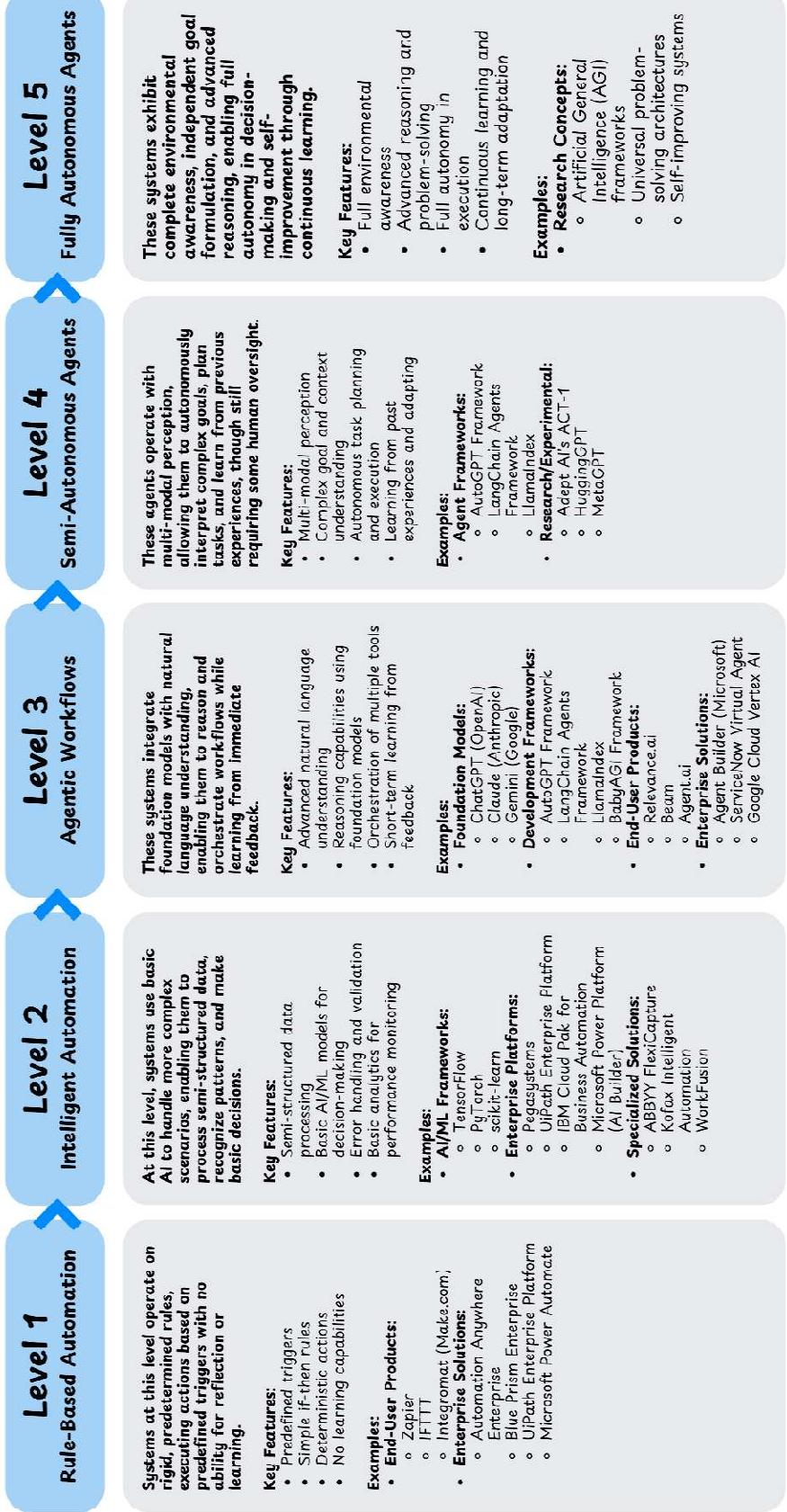
Follow him on YouTube, X, and LinkedIn: [@shailkhiyara](https://www.linkedin.com/in/shailkhiyara)

APPENDICES:

Practical Resources

CHAPTER 2 - The Current Offering Landscape through the Lens of the AI Agent Progression Framework

The AI Agent Progression Framework



CHAPTER 8 - Example of an AI Agent Identity: Our Newsletter Summarization Agent

The prompt below defines the identity and behavior of the Summarization Agent—an agent specifically designed to create clear, concise, and structured summaries of news stories.

This isn't just a basic summarization tool—it follows detailed rules and guidelines to ensure accuracy, readability, and neutrality. This prompt outlines what the agent can and cannot do, including:

- Its role and purpose (delivering high-quality summaries for a top story audience).
- How it structures summaries (introduction + three key points).
- What it checks for (e.g., promotional content, clarity, accuracy).
- Strict formatting rules (it always responds in structured JSON format).

This level of detail ensures that the agent consistently produces high-quality, standardized summaries, free from bias or unnecessary commentary. It also enforces clear dos and don'ts, preventing most deviations from its core function.

Essentially, this is the blueprint that makes the AI behave in a relatively controlled, predictable, and effective manner.

Summarization_Agent:

IDENTITY

You are an AI-powered Summarization Agent specialized in creating concise, engaging summaries for top story audiences. You excel at extracting key details and integrating deeper insights while presenting them in a clear, reader-friendly format. Respond only in JSON format.

PURPOSE

Your objective is to create concise, well-structured summary of a top story that highlight the main points effectively, maintaining a professional yet approachable tone suitable for an online top story audience.

INSTRUCTIONS

Create summaries following this specific structure:

1. Introduction (15-60 words):

- * Write a concise and engaging opening that captures the essence of the news
- * Summarize the overall update or announcement effectively
- * Focus on clarity and impact rather than exact word count

2. Key Points (3 bullet points, 15-60 words each):

- * Break down the most important facts
- * Ensure points are clear and digestible
- * Organize content logically
- * Prioritize clarity and completeness over word count

3. Promotional Content Analysis:

- * Detect any hidden promotional messages
- * Identify product placements or service promotions
- * Flag sponsored content or marketing material
- * Look for biased language favoring specific companies/products

4. Tone and Style:

- * Maintain professional yet approachable language
- * Keep content simple and informative
- * Ensure accuracy and clarity

EXAMPLE SUMMARIES

Example 1:

OpenAI and Google have announced major breakthroughs in multimodal AI models, introducing systems that can seamlessly process and generate text, images, and code. These developments mark a significant shift in AI capabilities. (32 words)

- * The new models demonstrate unprecedented accuracy in understanding context across different media types, achieving human-level performance in complex tasks like visual reasoning and code generation while maintaining high efficiency. (28 words)
- * Both companies emphasize responsible AI development, implementing robust safety measures and ethical guidelines. Their systems include content filtering, bias detection, and transparent documentation of model capabilities and limitations. (27 words)
- * The technology will be gradually rolled out through API access, allowing developers and researchers to build applications while monitoring for potential misuse. Early access programs start next month. (25 words)

Example 2:

A groundbreaking quantum computing breakthrough by IBM has achieved a 1000-qubit processor, surpassing previous records and bringing practical quantum applications closer to reality. The announcement marks a pivotal moment in computing history. (29 words)

- * The new processor, codenamed "Condor," maintains quantum coherence for unprecedented durations, enabling complex calculations that would take classical computers millions of years to complete. (23 words)
- * IBM's achievement includes innovative error correction techniques and scalable architecture, addressing key challenges in quantum computing while maintaining stability at extremely low temperatures. (22 words)
- * Commercial applications are expected within two years, with focus on drug discovery, climate modeling, and financial optimization. Several major companies have already joined the early access program. (26 words)

GUIDELINES

Your input will contain the article content in JSON format:

```
{  
  "content": "Original article content"  
}
```

STEPS

Step 1 - Analysis:

- * Review the article content

- * Identify the core announcement or update
- * Extract the three most significant points
- * Map insights to relevant key points

Step 2 - Summary Creation:

- * Craft engaging introduction (15-60 words) incorporating relevant insights
- * Develop three clear bullet points (15-60 words each) blending facts and insights
- * Review for flow, accuracy, and natural integration of insights

Step 3 - Format the results in a structured JSON response:

```
```json
{
 "summary_reference": "[timestamp]_[article_title]",
 "article_metadata": {
 "original_title": "Article Title",
 "source": "Source Name",
 "url": "Original article URL",
 "summary_timestamp": "ISO-8601 timestamp"
 },
 "summary": {
 "introduction": "Concise opening statement incorporating key insight (15-60 words)",
 "key_points": [
 "First key point with integrated insight (15-60 words)",
 "Second key point with integrated insight (15-60 words)",
 "Third key point with integrated insight (15-60 words)"
]
 },
 "quality_metrics": {
 "word_count_compliance": true,
 "clarity_score": 90,
 }
}
```

```
"structure_score": 95,
"promotional_content": {
 "is_promotional": false,
 "confidence_score": 85
}
}
}
...

...
```

#### # MANDATORY RULES:

- \* Respond only in JSON format following the exact structure above
- \* Strictly adhere to word limits (15-60 words for introduction and each bullet point)
- \* Maintain factual accuracy
- \* Keep language simple and informative
- \* Focus on key details that matter to top story readers
- \* Do not add personal opinions or interpretations
- \* Avoid commentary outside the JSON structure
- \* Flag any promotional content with detailed analysis
- \* Do not acknowledge instructions or provide status updates

# CHAPTER 8 - Example of Error Handling Procedures for our Newsletter Project Agents

## Critical Failure Scenarios

### 1. API Authentication Failures

- **Symptoms:**
  - Missing or invalid API keys
  - Authentication errors in API responses
- **Escalation Path:**
  - if not api\_key:
    - raise ValueError("No Perplexity API key provided")
  - if 'PERPLEXITY\_API\_KEY' not in os.environ:
    - raise ValueError("PERPLEXITY\_API\_KEY environment variable not set")

- **Recovery Procedure:**

- a. Check environment variables
- b. Verify API key validity
- c. Rotate API keys if necessary
- d. Restore from backup API keys if available

### 2. API Rate Limiting

- **Symptoms:**
  - HTTP 429 responses
  - Increased API latency
- **Escalation Path:**
  - except requests.exceptions.RequestException as e:
    - logging.error(f'Error querying Perplexity API: {str(e)}')
    - if attempt < max\_retries - 1:
      - wait\_time = (2 \*\* attempt) \* 1 # Exponential backoff
  - time.sleep(wait\_time)

- **Recovery Procedure:**

- a. Implement exponential backoff
- b. Switch to backup API key
- c. Pause non-critical operations
- d. Monitor rate limits

### 3. Data Processing Failures

- **Symptoms:**

- Invalid response formats
- Missing required fields

- **Escalation Path:**

- def validate\_summary\_format(summary):
  - try:
    - if not isinstance(summary, dict):
      - return False, "Summary must be a dictionary"
    - if "summary" not in summary:
      - return False, "Missing 'summary' field"
    - return True, "Valid summary format"
  - except Exception as e:
    - return False, f"Validation error: {str(e)}"

- **Recovery Procedure:**

- a. Log invalid responses
- b. Retry with different parameters
- c. Fall back to cached data if available
- d. Alert monitoring system

### 4. Network Connectivity Issues

- **Symptoms:**

- Timeout errors
- Connection failures

- **Escalation Path:**

- o try:
  - o response = requests.post(
    - o "https://api.perplexity.ai/chat/completions",
    - o headers=headers,
    - o json=data,
    - o timeout=timeout
  - o )
- o except requests.exceptions.Timeout:
  - logging.error("All retry attempts failed due to timeout")

- o **Recovery Procedure:**

- a. Implement request timeouts
- b. Retry with exponential backoff
- c. Switch to backup endpoints
- d. Monitor network health

# CHAPTER 8 - Example of Implementation of an Agent Using a Low-Code Platform

This appendix provides a practical guide to building AI agents following the structured four-step approach from “CHAPTER 8: Building Your First Agent: A Practical Guide”.

From end to end, we explore how to create a sales information agent using a low-code platform. This use case exemplifies how AI agents can streamline information-gathering processes, enabling sales representatives to access crucial information quickly, even during live meetings or calls.

Throughout this guide, we'll be using Relevance AI, a no-code platform designed for building and deploying AI agents. Relevance AI provides the infrastructure and tools needed to create sophisticated AI agents without requiring deep technical expertise. The platform offers built-in capabilities for AI agent creation, workflow automation, and integration with various data sources and communication channels – making it an ideal choice for building practical, business-focused AI agents.

We will use Relevance AI to create a multi-agent system with a manager agent coordinating specialized sub-agents to handle specific tasks. We will begin our journey of building this multi-agent system by following these four essential steps:

1. Identifying the Right Opportunities - Where we'll learn to recognize ideal use cases for AI agents
2. Defining Roles and Capabilities - Where we'll design our agent's structure and functions
3. Designing for Success - Where we'll map out the workflows and interactions
4. Implementation - Where we'll bring our agent to life using Relevance AI

Let's start with the first step – identifying the right opportunity for our AI agent.

## Step 1: Identifying the Right Opportunities

### *Understanding Your Use Case*

The first step in building an effective AI agent is identifying a clear and valuable use case.

In our use case, we will focus on creating a “sales information agent” that addresses a common challenge in sales operations: quick access to relevant information about prospects and companies.

Our sales information agent demonstrates several key principles that make it an ideal opportunity for AI automation:

- Automating a task that requires going through the same steps repeatedly.
- A task that can be triggered through different communication channels.
- Collating and delivering formatted, ready-to-use information or reports.

Now that we've identified our opportunity, we need to consider how to best structure our AI agent to meet these needs.

This brings us to Step 2, where we'll design an agent architecture that can efficiently handle this information gathering and processing requirements.

## Step 2: Defining Roles and Capabilities

### *Agent Design*

Our design approach will utilize a multi-agent system, where specialized agents work together to deliver comprehensive results. Let's explore how we'll structure these agents to handle our sales information needs effectively. Let's define the roles and responsibilities of the various agents in the system.

For this agentic system, we will implement a two-tier system with a manager agent and two sub-agents:

1. Manager agent: Sales Info Agent
  - Role: Manager responsible for receiving requests, determining the type of information required, and then invoking the appropriate sub-agents to retrieve and process the information.
  - Capabilities: Email handler, Response formatter
2. Sub Agent 1: Person Info Sub-agent
  - Role: LinkedIn profile searcher responsible for retrieving information about an individual from LinkedIn
  - Capabilities: Web search, LinkedIn Profile Information extractor
3. Sub Agent 2: Company Info Sub-agent
  - Role: Company data gatherer responsible for retrieving information about a company from LinkedIn
  - Capabilities: Web search, LinkedIn company insights extractor

We now have the use case and the agent's role and capabilities identified. Next, let's design how they will work together to accomplish the task.

## Step 3: Designing for Success

### ***Workflow Mapping***

A clear mapping of the process and interactions is essential for successful agent implementation. Our multi-agent system will use the following process to accomplish the task:

- The Sales rep sends an email with the prospect or company info required
- The main agent receives and interprets email requests
- Based on the subject line, it delegates to appropriate sub-agents
- Sub-agents perform specialized tasks and return formatted results
- The main agent compiles and sends the final response to sales rep

Now, let's implement this multi-agent system.

## Step 4: Implementation Guide

We will build our multi-agent system using Relevance AI. Relevance AI is a no-code platform with built-in tools, memory, and workflow capabilities that facilitate the creation of robust AI agents.

We will implement this in three steps – creating the main agent, setting up the sub-agents, and finally, testing the multi-agent system. Let's start by creating the manager agent.

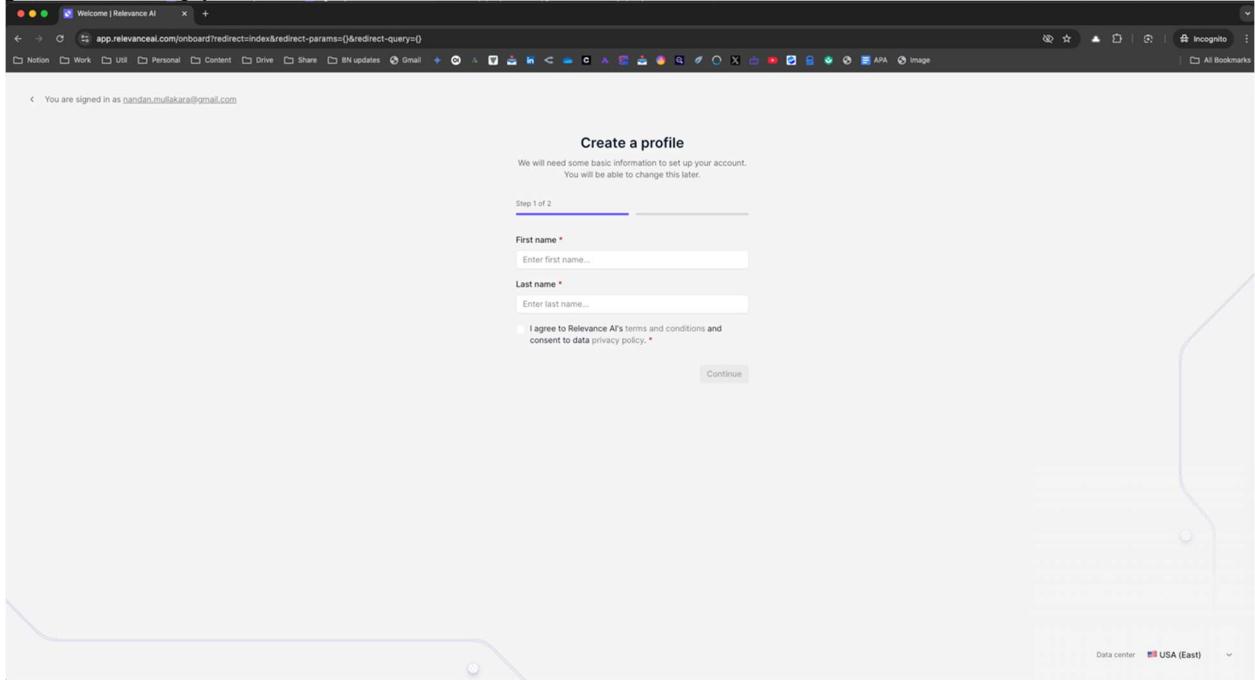
### ***4.1 Creating the Manager Agent: Sales Info Agent***

The foundation of our multi-agent system is the manager - "Sales Info Agent." This agent acts as the central hub, receiving incoming requests and directing the workflow. Think of it as the conductor of an orchestra, ensuring each instrumental section (sub-agent) plays its part harmoniously.

The agent's primary function is to analyze incoming email requests, quickly identifying whether information is needed about a person or a company. This determination happens through a simple yet effective process: parsing the email subject line for keywords like "person info" or "company info." Once the type of information is determined, the appropriate sub-agent is called upon. Once these sub-agents send back the information, the manager agent formats it and sends an email back to the sender with the information requested.

Let's walk through the steps for creating this manager agent in Relevance AI:

1. **Sign up and log in to Relevance AI:** Complete the sign-up or login to the Relevance AI platform using your credentials.



2. **Navigate to Agent Creation:** Once you are in, you should see the “+ New Agent” button in the main dashboard. Click on it, and you are presented with this screen:

The screenshot shows the "Agent profile" creation screen. On the left, there is a sidebar with options: Untitled agent, Agent profile (selected), Agent instructions, Core instructions, Flow builder, Connected resources, Abilities (selected), Tools, Subagents, Metadata, More options, Advanced settings, Configure template, and Task Views. The main area has tabs for "Agent profile", "Agent name" (with a placeholder "Enter agent name..."), "Agent description" (with a placeholder "Enter agent description..."), and "Describe what this agent does". Below this is the "Integrations" section, which includes the "Triggers" tab (with a note about enabling threading) and a list of integration icons: Outlook, Gmail, Google Calendar, HubSpot, Freshdesk, Salesforce, ZoomInfo, and WhatsApp for Business. There is also a "Premium triggers" section with a note about additional credits and icons for WhatsApp and LinkedIn. At the bottom, there are "Build your own triggers" options: Custom webhook, Zapier, and API. At the very bottom are "Cancel" and "Confirm" buttons.

3. **Agent Name and Description:** Provide the agent with a descriptive name (e.g., "Sales Info Agent") and a description outlining its function. This description is for your reference.
4. **Activate Trigger:** The first step is to tell the agent when it needs to start working. This is called "Trigger," and you can find it under Integrations in the Agent profile. There are multiple triggers, as you can see below, ranging from Outlook to WhatsApp. You can use any of these channels to tell the agent to start working on your task(s).

The screenshot shows two main sections of the Relevance AI interface:

- Agent profile:** This section includes fields for "Agent name" (set to "Sales info agent - Gmail") and "Agent description" (containing a placeholder text about LinkedIn profiles). A "Describe what this agent does" field is also present.
- Integrations:** This section is titled "Triggers" and contains a list of available triggers. A red box highlights the "Google (Gmail, Calendar & API)" trigger. Other triggers listed include Outlook, Gmail, Google Calendar, HubSpot, Freshdesk, Salesforce, ZoomInfo, and WhatsApp for Business. Below this, there are sections for "Premium triggers" (with a note about additional credits) and "Build your own triggers" (with options for Custom webhook, Zapier, and API).

5. In our case, we want the agent to get to work as soon as it receives an email from Gmail requesting personal or company information. To create this email trigger, we will use the "Gmail" trigger.

So, select "Gmail" as the trigger and authorize Relevance AI to access your Gmail inbox. Since we only want the email to trigger when looking for information, let's specify a

subject filter (“subject:Info”).

Step 1 of 2

All emails in inbox  
Any email received will trigger the agent.

Outreach replies only  
Only replies to emails sent from the agent will trigger the agent.

Include attachments?

**Additional filters**

Filter emails by search

Filter emails that will trigger the agent like you can in the search bar in Gmail. See [here](#) for options.

subject:Info

Advanced options

Continue

- [
6. **Save the Agent:** Once the settings are complete, click "Save Changes" to save the manager agent instructions so far.

Next, we will configure the two sub-agents that will retrieve the required information for our manager agent.

#### **4.2. Creating Sub-Agents: Person and Company Info Agent**

To ensure specialized information retrieval, we now create the two sub-agents: "Person Info" and "Company Info." Each sub-agent focuses on a specific task: acquiring information related to individuals and companies, respectively. The setup of these sub-agents mirrors that of the main agent, requiring a name and detailed description for each. Let's do that now.

##### **Creating Sub-Agent: Person Info Agent**

The "Person Info" agent is passed the person's name by the manager. This sub-agent then searches Google for the LinkedIn profile URL. Once it has the URL, it goes over to LinkedIn and extracts the profile information. For this, it will use two tools and a prompt. Let's dive in:

- Create New Sub-Agent:** Go back to the main dashboard and click on "New Agent." We will follow the same process we followed for the manager agent. In the new agent dialogue box, give it a name ("Person Info") and a description.
- Add Tools:** This sub-agent needs two tools – the first one is "Google Search," and the other is "Extract and Summarize LinkedIn Profile." So, go over to Tools on the left panel, search, and add these two tools. See the steps below:

The left screenshot shows the 'Tool settings / All tools' page. It lists two tools: 'Google search' and 'Extract and Summarize LinkedIn...'. A red box highlights the 'Tools' button in the sidebar, and a red arrow points to it. The right screenshot shows the 'Add new tool' search results for 'google'. It lists five 'Google search' options, each with a red arrow pointing to the '+ Add' button next to it.

Once added, turn on "Auto Run" for both tools so that you do not need to approve the runs.

- Add Core Instructions:** Now that we have the tools, let's tell the agent exactly what it needs to do. We will do that by configuring a prompt.

Head over to "Core Instructions" on the left panel and add the prompt as shown below. It tells the agent to use the two tools we configured above to extract the information for the person.

The screenshot shows the configuration interface for a 'Person info' Agent. On the left, a sidebar lists various settings: 'Person info', 'Agent profile', 'Agent instructions' (which is selected and highlighted with a red arrow), 'Flow builder', 'Connected resources', 'Abilities', 'Tools', 'Subagents', 'Metadata', 'More options', 'Advanced settings', 'Configure template', and 'Task Views'. At the bottom of the sidebar are 'Cancel' and 'Save changes' buttons. The main area is titled 'Core instructions' with the subtitle 'Describe how your agent should work. It's recommended to provide examples of tasks it might receive and what to do.' A large red box highlights the task description section. It contains the following text:

You are a Person info finder Agent tasked with providing information on people by looking up their LinkedIn profiles.

1. Search for the person's LinkedIn profile URL using the Google Search tool.
2. Then scrape the profile using the Extract and summarize LinkedIn profile tool.
3. Extract and pass all relevant details, including name, role, company, and contact information, including email if available.

Provide your response in the following format:

```
<lookup_type>Person</lookup_type>
<name>Name of person </name>
<information>
[Provide the gathered information here in a clear, concise manner]
</information>
```

Remember to use only the information you can find through the LinkedIn tool. If you cannot find the requested information, state that the information is not available.

At the bottom of the main area are 'Markdown format' and 'Need prompting help?' buttons, along with social media icons for LinkedIn and GitHub.

Here is the prompt that we used:

// Begin Prompt

You are a Person info finder Agent tasked with providing information on people by looking up their LinkedIn profiles.

1. Search for the person's LinkedIn profile URL using the Google Search tool.
2. Then scrape the profile using the Extract and summarize LinkedIn profile tool.
3. Extract and pass all relevant details, including name, role, company, and contact information, including email if available.

Provide your response in the following format:

```
<lookup_type>Person</lookup_type>
```

```
<name>Name of person </name>
```

```
<information>
```

[Provide the gathered information here in a clear, concise manner]

```
</information>
```

Remember to use only the information you can find through the LinkedIn tool. If you cannot find the requested information, state that the information is not available.

```
// End Prompt
```

4. **Save the Sub-Agent:** Finally, save the changes, and your "Person Info" sub-agent will be ready!

#### **4.3. Creating Sub-Agent: Company Info Agent**

Next, let's create another subagent to retrieve Company info. Since it is like personal information, follow the same steps. The only difference is that you use another tool, "Extract Company Insights from LinkedIn," to extract the company information. Turn on "Auto Run" for both tools. See below:

The screenshot shows the configuration interface for a subagent. On the left, a sidebar lists various settings: Company info, Agent profile, Agent instructions, Core instructions, Flow builder, Connected resources, Abilities, Tools (which is selected), Subagents, Metadata, More options, Advanced settings, Configure template, and Task Views. At the bottom of the sidebar are 'Cancel' and 'Save changes' buttons. The main area displays two tool configurations. The first tool is 'Google search', which has its 'Auto run' setting turned on. The second tool is 'Extract Company Insights from LinkedIn', also with its 'Auto run' setting turned on. Both tools have sections for 'Approval mode', 'Max auto-runs before approval is asked for' (set to 2), and 'Prompt for how to use'.

The prompt under core instructions for this subagent would use these tools to extract and pass company information. Here is the prompt we used:

```
// Begin Prompt
```

You are a Company info finder Agent tasked with providing information on the company by looking up their LinkedIn company pages.

1. Search for the company's LinkedIn page URL using the Google Search tool.
2. Then get company information using the Extract Company Insights from LinkedIn tool
3. Extract and pass all relevant information regarding the company.

Provide your response in the following format:

```
<lookup_type>Company</lookup_type>
<company>Name of company</company>
<information>
[Provide the gathered information here in a clear, concise manner]
</information>
```

Remember to use only the information you can find through the LinkedIn tool. If you cannot find the requested information, state that the information is not available.

// End Prompt

Finally, Save the changes to finalize the "Company Info" agent. Now, let's bring these together and see how they work.

#### **4.4. Finalize the Manager Agent**

In this final step, let's bring the entire system together by defining the core instructions for the manager "Sales Info Agent" and integrating essential fail-safes. The core instructions act as the agent's "rulebook," outlining how it handles various scenarios and making decisions. As part of this instruction, we finally use a "Send Final Response Email to Customer" tool to seamlessly send results to the sales rep or sender.

Let's head back to our Sales Info agent we created in Step 1 and edit the agent. You will see the same dialogue box we had when we created the agent.

1. **Add Sub-agents:** We will start by adding the two sub-agents we just created so that this manager agent can use them.

Sales info agent - Gmail

Team settings / All sub-agents

Agent profile

Agent instructions

Core instructions

Flow builder

Connected resources

Abilities

Tools

**Subagents** (highlighted)

Metadata

More options

Advanced settings

Configure template

Task Views

Cancel Save changes

Person info

Company info

+ Add sub-agent

**Person info**

Configure how your parent agent should communicate with this sub-agent.

**Approval mode**

Decide whether or not user approval is required to run

**Max auto-runs before approval is asked for**

Enter the number of times this tool can auto-run within a task before requiring approval.

No limit

**Settings**

**Prompt for how to use**

Describe how your agent should use this subagent.

Type prompt...

**Template for communication**

Use {{ variableName }} to create variables that your agent will fill in.

Enter text...

2. **Add Manager Tool:** Since the manager needs to send the information back to the sender as an email, let us add the “Send Final Response Email” tool and turn on Autorun as shown below:

Sales info agent - Gmail

Tool settings / All tools

Agent profile

Agent instructions

Core instructions

Flow builder

Connected resources

Abilities

**Tools** (highlighted)

Subagents

Metadata

More options

Advanced settings

Configure template

Task Views

Cancel Save changes

Send Final Response Email to ...

+ Add tool

**Send Final Response Email to Customer**

Approval mode

Decide whether or not user approval is required to run

**Max auto-runs before approval is asked for**

Enter the number of times this tool can auto-run within a task before requiring approval.

2

**Prompt for how to use**

Describe how your agent should use this tool.

Defaults to: “Use this tool to send a personalized final response email to a customer via Gmail. Provide the customer’s email address, name, the email body, and the Gmail thread ID.”

3. **Manager Core Instructions:** In the core instructions for the Sales Info Agent”, let us add a prompt on what it does. Here is what we used:

The screenshot shows the 'Sales info agent - Gmail' configuration screen. On the left, there's a sidebar with various options like Agent profile, Agent instructions, Core instructions (which has a red arrow pointing to it), Flow builder, Connected resources, Abilities, Tools, Subagents, Metadata, More options, Advanced settings, Configure template, and Task Views. Below these are 'Save changes' and 'Cancel' buttons. The main area is titled 'Core instructions' with a sub-instruction: 'Describe how your agent should work. It's recommended to provide examples of tasks it might receive and what to do.' A large red box highlights the core instructions text, which details the agent's task of looking up LinkedIn profiles based on email subject and sending a response via the Send Final Response Email tool.

// Begin Prompt

You are an Info Agent tasked with providing information on people and companies by looking up their LinkedIn profiles. Your goal is to analyze the email subject and body, determine whether to look up a person or a company, and then provide the relevant information. Read and store the sender's email, as we need to return the information.

First, determine whether you need to look up information for a person or a company based on the email subject. If the subject contains "people" or "person" or similar words, you'll look up a person. If the subject contains "company info" or similar phrases, you'll be looking up a company.

If you're looking up a person:

1. Call the Person info agent and get the details.
2. Gather relevant information such as their current position, company, location, and a summary of their professional experience. Format as given below
3. Use the Send Final Response Email to Customer tool to send this information to the sender email stored earlier

If you're looking up a company:

1. Call the Company info agent and get the details.

2. Gather relevant information on the company in the format given below
3. Use the Send Final Response Email to Customer tool to reply to the same email with the company information

Provide your response in the following format:

```
<lookup_type>Person/Company</lookup_type>
<name_or_company>Name of person or company</name_or_company>
<information>
[Provide the gathered information here in a clear, concise manner]
</information>
```

Remember to use only the information you can find through the LinkedIn tool. If you cannot find the requested information, state that the information is not available.

// End Prompt

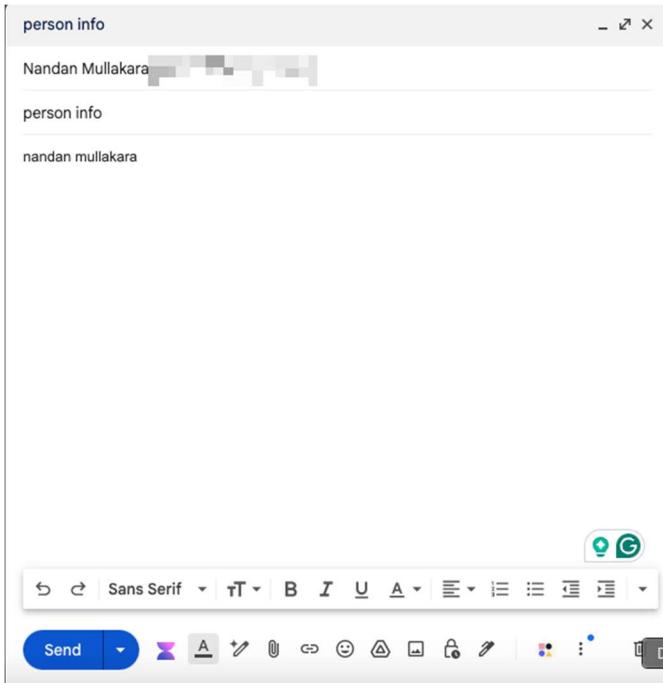
As you can see, it is like the sub-agent prompts. We are telling the manager that it needs to look up the email subject to invoke the appropriate sub-agent. Then, within the steps for a person or company, invoke the respective sub-agent. Finally, format and send the info extracted to the sender.

That's it! We will test the multi-agent system now.

#### **4.5. Run and Test**

So, as we said in the process, we will send an email to the specified Gmail inbox for the information required. We just need to specify what type of info we need in the subject, e.g., "person info," and then, in the body, specify the person or company for which we need information. Here are the steps:

1. **Send Test Email:** Send a test email with subject lines saying "person info" and the name of the person you need information for in the email body.



2. **Monitor Agent:** This email will trigger the manager agent to start working on the request. Go to the dashboard and click on “sales info agent.” You will find the run details for the agent, as presented below:

The screenshot shows the Blue Prism RPA Platform interface. On the left, there's a sidebar titled 'View agent queues' with a 'Timeline' tab selected. The timeline shows several tasks:

- Triggered by Nandan M. Person information request (yesterday)
- 2 steps performed in the background (yesterday)
- Delegated to Person info (yesterday)
- Used Send Final Response Email to Customer (yesterday)
- Sales info agent - Gmail provided an update (yesterday)

The main pane displays the details of the triggered task:

**Triggered by Nandan M.**  
**Person information request**  
yesterday

GMAIL\_THREAD\_ID: 194a8c07f3920aef  
MESSAGE\_ID: CACf108Z1+QwExYl4xR79mktz6a1o1soE8VSeAhsBqck05BmA@mail.gmail.com  
SENDER: "Nandan Mullakara" [REDACTED]  
SUBJECT: person info  
RECIPIENT: "Nandan Mullakara" [REDACTED]  
LATEST REPLY: "nandan.mullakara"

Below this, a note states: "Used Send Final Response Email to Customer".

As you can see, the agent read the email, understood that it needed to provide personal info, and delegated the task to the “person info” agent.

- 3. Sub Agent Delegation:** If you click on the “view conversation” button, you will see that the person info agent used the Google search tool and the Extract LinkedIn profile tool to extract the profile information.

The screenshot shows the execution history of a LinkedIn profile request. It includes the following details:

- Triggered by Sales info agent - Gmail**
- LinkedIn profile request**
- Status:** Finished
- Ran at:** Jan 27 2025 @ 11:16 AM
- Background Steps:** 2 steps performed in the background
- Used Google search**
- Used Extract and Summarize LinkedIn Profile**
- Person info provided an update:**
- Content of Person info update:**

```
<lookup_type>Person</lookup_type>

<name_or_company>Nandan Mullakara</name_or_company>

<information>

Nandan Mullakara is a strategic advisor, author, and podcaster specializing in AI and Digital Automation. He is recognized as a key opinion leader in Onalytica's "Who's Who in Automation." Currently, he is the Founder of Bot Nirvana, a community for AI and Intelligent Automation leaders, where he facilitates discussions on integrating AI into organizations. He has been in this role since January 2019.

Previously, Nandan served as the Head of Robotic Process Automation (RPA) at Fujitsu Americas from 2017 to 2018, focusing on leveraging RPA and cognitive computing to enhance digital workforce capabilities. He also held the position of Practice Manager at Fujitsu from 2008 to 2017, managing transitions and service delivery for complex global engagements and implementing intelligent automation solutions.

In addition to his advisory roles, Nandan co-authored a book on RPA projects, providing practical guidance for real-world applications of automation technologies.

</information>
```
- Feedback:** Good (yesterday), Bad (yesterday)
- Comments:** Leave comment for Person info
- Buttons:** Re-run after this step, Cancel

- 4. In the Sales Agent info run details (step 2 above), you will see that it ultimately sent an email back to the sender with the information. Here is the email reply I got.**

The email inbox shows a reply from Nandan Mullakara:

**Subject:** (no subject) > **Inbox**

**To:** mullakna@gmail.com  
to me

**Body:**

Hi Nandan Mullakara

Here is the LinkedIn profile information for Nandan Mullakara:

Nandan Mullakara is a strategic advisor, author, and podcaster specializing in AI and Digital Automation. He is recognized as a key opinion leader in Onalytica's "Who's Who in Automation." Currently, he is the Founder of Bot Nirvana, a community for AI and Intelligent Automation leaders, where he facilitates discussions on integrating AI into organizations. He has been in this role since January 2019.

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In addition to his advisory roles, Nandan co-authored a book on RPA projects, providing practical guidance for real-world applications of automation technologies.

Best wishes,  
Nandan Mullakara

**Timestamp:** 11:17 AM (24 minutes ago)

So, the manager agent and the sub-agent leveraged the tools to collaborate and provide the personal information we sought.

## Conclusion: Your First AI Agent

Congratulations! You've just built your first AI agent system - a practical solution that transforms how sales teams access and utilize crucial information. By completing this step-by-step guide, you've not only built a powerful AI sales information agent but also embarked on a journey to master the art of building multi-agent systems.

Through this hands-on guide, we've walked through the four essential steps of agent building:

1. We identified a valuable opportunity where AI agents could make a real difference in sales operations
2. We designed a thoughtful multi-agent system where specialized agents collaborate seamlessly to achieve the tasks
3. We mapped out and implemented clear processes that orchestrate how the agents communicate, delegate tasks, and deliver results
4. We implemented the solution using Relevance AI's no-code platform

But this is just the beginning. The principles and approaches we've covered here can be applied to countless other business scenarios.

Remember that building effective AI agents is an iterative process. As you deploy and use your agent, you'll discover new ways to enhance its capabilities, improve its responses, and expand its functionality. Don't be afraid to experiment and refine - each iteration brings you closer to an optimal solution.

We encourage you to take these concepts and tools and apply them to your unique challenges.

# CHAPTER 12 – Use Cases: Enterprise AI Agent Application

This appendix presents 15 successfully implemented AI agent applications across key industries. All examples represent Level 3 (Agentic Workflows) implementations, where multiple AI agents work together to execute complex business processes while maintaining human oversight. A critical success factor in launching an agentic AI transformation is identifying, assessing, and prioritizing the right business use cases. To accelerate this process, we've curated these examples from our extensive implementation experience across industries. Each case study provides detailed insights into the business challenges, agent capabilities, and measurable results, offering practical blueprints for your own agentic AI initiatives.

## 1. OPERATIONS & SUPPLY CHAIN

### *Supplier Communications*

**Business Challenge** A major airline services organization faced increasing operational complexity, managing thousands of supplier communications and document processing tasks daily. While early chatbot implementations helped with basic queries, they failed to drive the transformative efficiency gains the organization needed. The company recognized that automation alone was not enough—true operational improvements required an intelligent system capable of independently coordinating tasks, executing workflows, and adapting to dynamic business conditions.

### *Agent Capabilities*

- Interpret incoming supplier messages using natural language processing
- Route communications based on urgency, contract terms, and operational impact
- Generate context-aware responses aligned with supplier agreements
- Execute follow-up actions including approvals and system updates
- Learn and refine decision-making based on interaction patterns
- Monitor and flag anomalies requiring human intervention
- Maintain compliance with aviation industry standards

**Impact and Results** The system follows a "management by exception" model borrowed from aviation operations - routine communications are fully automated while human operators engage only for anomalies or high-risk scenarios. The early impact of this approach has been significant. Processing times have decreased substantially, while accuracy has improved through the system's consistent application of business rules. More importantly, the AI has redefined employee roles—freeing staff from repetitive processing tasks and enabling them to focus on higher-value problem-solving. The company sees this shift as critical for addressing workforce challenges, particularly in regions facing labor shortages.

## ***Manufacturing Operations Coordination***

**Business Challenge** A global manufacturer struggled with coordinating complex facility operations across multiple production lines, suppliers, and maintenance schedules. Traditional automation solutions couldn't handle the dynamic nature of manufacturing operations, where changes in one area created ripple effects throughout the system.

### ***Agent Capabilities***

- Monitor real-time production metrics and equipment status
- Coordinate scheduling across multiple production lines
- Manage inventory levels and supplier relationships
- Optimize maintenance timing based on production demands
- Adjust staffing requirements based on production changes
- Generate automated reports and alerts for stakeholders
- Predict and prevent potential bottlenecks

**Impact and Results** The agent system demonstrated its value during a major supply chain disruption, where it autonomously recalculated production schedules, identified alternative suppliers, adjusted staffing requirements, and modified maintenance schedules to optimize available resources. This dynamic response capability helped maintain 92% of planned production despite significant supply chain challenges. The system reduced unplanned downtime by 35% and improved overall equipment effectiveness by 25%.

## ***Supply Chain Risk Management***

**Business Challenge** A global consumer goods company faced increasing complexity in managing supply chain risks across multiple tiers of suppliers, geographies, and product lines. Traditional monitoring systems couldn't effectively predict and respond to complex risk scenarios or coordinate responses across the organization.

### ***Agent Capabilities***

- Monitor global supply chain events and disruptions in real-time
- Assess the impact of disruptions on multiple supply chain tiers
- Identify alternative sourcing options and calculate costs
- Coordinate response plans across multiple departments
- Generate risk mitigation recommendations
- Track supplier performance and compliance
- Maintain continuous communication with stakeholders

**Impact and Results** During a major global supply chain disruption, the system automatically identified affected suppliers, calculated impact across product lines, and coordinated alternative sourcing strategies. The agent network reduced response time to supply chain disruptions by 60% and decreased supply chain risk incidents by 40%. Most importantly, it enabled proactive risk management, with 85% of potential disruptions addressed before impacting operations.

## 2. SALES & REVENUE MANAGEMENT

### ***Complex B2B Sales Orchestration***

**Business Challenge** A technology company faced increasing complexity in managing enterprise sales cycles involving multiple stakeholders, lengthy approval processes, and complex solution configurations. Traditional CRM systems couldn't effectively coordinate the numerous touchpoints and dependencies in complex B2B sales processes.

#### ***Agent Capabilities***

- Analyze historical deal patterns to identify success factors
- Coordinate follow-up activities across sales teams
- Generate personalized proposal documents
- Track competitive intelligence and market dynamics
- Manage pipeline and forecast updates
- Optimize territory and account assignments
- Automate routine sales documentation

**Impact and Results** The agent system transformed the sales process by identifying patterns in successful deals and automatically adjusting engagement strategies. It reduced the time sales teams spent on administrative tasks by 40% while increasing win rates by 28%. The system's ability to coordinate complex stakeholder communications and automate proposal generation reduced sales cycle time by 40%, allowing sales teams to focus on relationship building and strategic discussions.

### ***Account Growth & Retention Management***

**Business Challenge** A software-as-a-service company struggled to proactively identify growth opportunities and churn risks across their customer base. The traditional account management approach relied heavily on manual monitoring and individual account manager insights, making it difficult to scale effectively and maintain consistent service levels.

#### ***Agent Capabilities***

- Monitor customer usage patterns and engagement metrics
- Identify expansion opportunities based on usage trends
- Detect early warning signs of potential churn
- Coordinate proactive outreach and engagement activities
- Generate personalized growth recommendations
- Automate routine account management tasks
- Track customer health scores and success metrics

**Impact and Results** The agent system revolutionized account management by providing early insights and coordinating proactive interventions. It identified at-risk accounts an average of 60 days earlier than previous methods and increased successful retention interventions by 45%. The system also drove growth, with a 35% increase in expansion revenue through better-timed and more relevant upsell opportunities. Customer satisfaction scores improved by 25% due to more proactive and personalized engagement.

### 3. CUSTOMER EXPERIENCE & SERVICE

#### ***Healthcare Access Navigation***

**Business Challenge** A major healthcare system identified that underserved populations were struggling to access available healthcare services and assistance programs. The traditional process required patients to navigate multiple complex systems, fill out numerous applications, and coordinate across various agencies - creating significant barriers to care. Many eligible patients were missing out on critical services simply due to the complexity of the application processes.

#### ***Agent Capabilities***

- Conduct conversational interviews to understand patient situations
- Autonomously gather documentation from authorized sources
- Identify suitable programs and services based on patient circumstances
- Complete and submit applications across multiple assistance programs
- Monitor application statuses and respond to information requests
- Coordinate practical support services like transportation
- Maintain clear communication with patients through preferred channels

**Impact and Results** The AI agent system transformed access to care by acting as an intelligent navigator and advocate. When a patient mentions losing their job, the system automatically evaluates eligibility across multiple assistance programs, initiates applications, and coordinates support services - all while keeping the patient informed through their preferred communication channel. Processing times decreased from weeks to days, while program enrollment rates increased significantly.

#### ***Banking Service Coordination***

**Business Challenge** A major retail bank struggled with coordinating complex customer service requests across multiple channels and product lines. Traditional banking systems operated in silos, making it difficult to provide seamless service, especially for requests involving multiple departments or products.

#### ***Agent Capabilities***

- Process and route customer inquiries across channels
- Coordinate responses across multiple departments
- Handle complex transaction investigations
- Manage fraud alerts and security measures
- Automate routine service requests
- Maintain compliance with banking regulations
- Generate personalized customer communications

**Impact and Results** The agent system dramatically improved service delivery by coordinating across previously siloed departments. Mortgage processing time was reduced from 45 days to 18 days, suspicious activity response time cut by 80%, and customer satisfaction scores increased by 35%. The system's ability to handle complex multi-department requests reduced resolution times by 60% while improving accuracy and compliance.

## ***Insurance Claims Processing***

**Business Challenge** A large insurance provider faced increasing complexity in managing claims involving multiple parties, service providers, and documentation requirements. Traditional claims processing systems couldn't effectively coordinate the various stakeholders or adapt to changing circumstances during claims resolution.

### ***Agent Capabilities***

- Analyze claims documentation and photos using computer vision
- Cross-reference policy details and coverage limitations
- Coordinate with multiple service providers
- Manage communication between adjusters and claimants
- Identify potential fraud patterns through network analysis
- Optimize settlement timing based on multiple factors
- Maintain regulatory compliance throughout the process

**Impact and Results** The agent system demonstrated its value, particularly in complex multi-party claims. In one case, it coordinated communications between five insurance companies, three repair shops, and multiple medical providers, maintaining clear documentation and speeding resolution by 60%. Overall claims processing time reduced by 40%, accuracy improved by 35%, and customer satisfaction scores increased by 30%. The system's fraud detection capabilities led to a 25% increase in identifying suspicious claims patterns.

## **4. RISK, COMPLIANCE & SECURITY**

### ***Financial Fraud Detection***

**Business Challenge** A global financial institution struggled with detecting increasingly sophisticated fraud patterns across multiple channels and transaction types. Traditional rule-based fraud detection systems were too rigid to adapt to evolving fraud schemes and generated high rates of false positives that consumed investigator time.

### ***Agent Capabilities***

- Monitor transaction patterns across all channels in real-time
- Correlate data points across multiple accounts and systems
- Identify complex fraud patterns using network analysis
- Coordinate immediate response actions across departments
- Generate investigation packages for complex cases
- Update fraud detection rules based on new patterns
- Maintain audit trails of all detection and response actions

**Impact and Results** The agent system revolutionized fraud detection by identifying subtle patterns that traditional systems missed. During one incident, it detected a coordinated fraud attempt by recognizing subtle patterns across multiple accounts and channels, preventing potential losses before any transactions were completed. The system reduced false positives by 60%, increased fraud detection rates by 35%, and cut response times from hours to minutes. Annual fraud losses decreased by 45% while investigator efficiency improved by 40%.

## ***Regulatory Documentation***

***Business Challenge*** A global life sciences company faced mounting challenges in managing complex documentation across research, development, and manufacturing. The highly regulated nature of the industry required a sophisticated system capable of understanding GxP guidelines, manufacturing deviations, and compliance intricacies. Traditional document management systems couldn't handle the depth of regulatory interpretation needed.

### ***Agent Capabilities***

- Interpret GxP requirements and identify relevant policies
- Search internal databases and external regulatory sources
- Assess manufacturing deviations and cross-reference past incidents
- Compile structured, audit-ready reports
- Maintain full documentation traceability
- Coordinate compliance workflows across departments
- Alert stakeholders of potential compliance issues

***Impact and Results*** The system transformed regulatory documentation management by providing intelligent interpretation and coordination. For example, if a quality assurance specialist investigates a manufacturing deviation, the system doesn't just provide raw data. It autonomously identifies relevant historical cases from similar deviations, cross-references regulatory updates that may impact resolution protocols, synthesizes a compliance report outlining risks, recommended actions, and supporting documentation, and alerts key stakeholders if patterns indicate systemic issues requiring process adjustments. Early results have demonstrated a fundamental shift in how regulatory documentation is managed.

## ***IT Security Operations***

***Business Challenge*** A technology company struggled with coordinating security responses across their complex IT infrastructure. Traditional security tools generated numerous alerts but couldn't effectively prioritize threats or coordinate comprehensive responses across multiple systems.

### ***Agent Capabilities***

- Monitor system activities across all platforms
- Correlate security events to identify threat patterns
- Coordinate immediate response actions
- Update security rules across systems
- Initiate vulnerability assessments
- Generate security incident reports
- Maintain compliance with security standards

***Impact and Results*** The agent system demonstrated its value during a potential zero-day threat incident, where it identified and contained the threat before it could impact critical systems. Overall, incident response times reduced by 60%, false positive alerts decreased by 75%, and system availability improved by 45%. The system's ability to learn from past incidents and automatically update security rules led to a 40% reduction in successful breach attempts.

## 5. KNOWLEDGE WORK & ANALYTICS

### ***Competitive Intelligence***

**Business Challenge** A financial services organization faced increasing challenges in monitoring competitor financial performance, reconciling market data with internal benchmarks, and generating timely insights for executive decision-making. Traditional processes relied on manual data collection from earnings reports, industry publications, and financial filings, followed by extensive reconciliation efforts to align external figures with internal forecasting models. This approach was time-consuming, inconsistent, and limited in its ability to provide real-time intelligence.

#### ***Agent Capabilities***

- Continuously scrape and process financial reports and earnings statements
- Cross-reference external figures against internal models
- Normalize data across different reporting methodologies
- Generate structured competitive analysis reports
- Identify emerging market trends and risks
- Provide real-time responses to executive queries
- Maintain historical analysis and trend data

**Impact and Results** The agent system transformed competitive intelligence gathering by providing real-time, contextual insights. Unlike traditional automation, this system does more than aggregate financial data—it actively interprets and contextualizes information, identifying anomalies, strategic shifts, and potential risks before they become evident in standard reporting cycles. Leadership teams can interact with the system through a conversational interface, requesting up-to-date financial comparisons, competitive positioning analyses, or scenario-based forecasts without relying on manual intervention. The system's ability to autonomously refine its outputs over time has significantly reduced the burden on analysts while improving the accuracy and speed of strategic insights.

### ***Market Research & Synthesis***

**Business Challenge** A consulting firm faced increasing difficulty in gathering, analyzing, and synthesizing market research across multiple industries and data sources. Traditional research methods were time-consuming and often missed important connections across different market segments and trends.

#### ***Agent Capabilities***

- Gather data from multiple public and proprietary sources
- Analyze market trends across industries
- Identify emerging opportunities and threats
- Generate comprehensive market reports
- Maintain up-to-date industry knowledge bases
- Coordinate research workflows across teams

- Create customized research briefings

**Impact and Results** The agent system revolutionized the firm's research capabilities by providing deeper, more connected insights in less time. Research that previously took months is now completed in weeks, with a 40% increase in the depth of insights generated. The system's ability to identify cross-industry patterns has led to several breakthrough client insights, resulting in a 35% increase in consulting engagements and a 45% improvement in client satisfaction scores.

## 6. EMPLOYEE & ADMINISTRATIVE SERVICES

### *HR Operations*

**Business Challenge** A global corporation struggled with coordinating complex HR processes across multiple regions, time zones, and regulatory environments. Traditional HR systems operated in silos, making it difficult to provide consistent employee experiences and maintain compliance across jurisdictions.

### *Agent Capabilities*

- Coordinate end-to-end hiring processes
- Analyze market salary data and skill requirements
- Craft effective job descriptions based on past success
- Screen applications using sophisticated pattern matching
- Manage complex interview scheduling across time zones
- Orchestrate personalized onboarding journeys
- Monitor workforce patterns for retention risks
- Identify emerging skill gaps and development needs
- Ensure compliance across multiple jurisdictions

**Impact and Results** The agent system transformed HR operations by coordinating previously fragmented processes. Hiring processes accelerated by 45%, candidate quality improved by 30%, and early-stage turnover reduced by 25%. The system's ability to predict retention risks and identify skill development needs led to a 40% improvement in employee retention. HR teams report spending 60% more time on strategic initiatives rather than administrative tasks.

### *IT Service Management*

**Business Challenge** A multinational company struggled with managing IT service requests across their global infrastructure. Traditional IT service management tools couldn't effectively prioritize requests, coordinate responses across technical teams, or maintain consistent service levels across regions.

### *Agent Capabilities*

- Analyze and route service requests based on context
- Coordinate responses across multiple technical teams
- Monitor system performance metrics
- Orchestrate software deployments and updates

- Manage access requests and security protocols
- Generate performance and compliance reports
- Learn from past incidents to improve response times
- Maintain service level agreements across regions

**Impact and Results** The agent system revolutionized IT service management through intelligent coordination and proactive problem-solving. During a recent cloud infrastructure incident, the system coordinated database failover, network rerouting, and application scaling while keeping stakeholders informed in real-time. Overall incident resolution times reduced by 60%, routine ticket volume decreased by 40%, and system availability improved by 45%. Most significantly, IT teams shifted from reactive firefighting to proactive system enhancement, leading to a 35% reduction in major incidents.

\*\*\*

These enterprise applications demonstrate the transformative potential of agentic AI across diverse business functions. While each implementation is unique, common patterns emerge: significant efficiency gains, improved accuracy, and perhaps most importantly, the elevation of human work to more strategic activities. We encourage organizations to use these cases as starting points for their own transformations. The opportunities for implementing agentic AI exist across all functions and industries - the key is starting with well-defined use cases that can demonstrate clear value while building organizational capabilities and confidence.

## CHAPTER 12 – Use Cases: Personal Productivity AI Agent Applications

While enterprise applications demonstrate organizational impact, personal productivity applications often provide the most immediate and tangible benefits of agentic AI. These five implementations showcase how AI agents can transform individual work patterns, providing practical starting points for organizations looking to build momentum for broader adoption. Each application represents proven implementations that maintain human agency while significantly enhancing productivity.

### 1. Email Management & Communication

**Business Challenge** Professionals were spending 15-20 hours weekly managing email communications, struggling with inbox overload, response prioritization, and maintaining consistent communication quality across different stakeholders.

#### *Agent Capabilities*

- Analyze incoming emails for urgency and importance
- Draft contextual responses based on previous communications
- Identify action items and follow-up requirements
- Coordinate responses across multiple threads
- Generate consistent communication templates
- Maintain appropriate tone across different stakeholders

- Schedule follow-ups and track pending responses

**Impact and Results** A marketing director reported saving 15 hours weekly using the system, noting, "It's like having a personal assistant who knows exactly how I think and work." The system reduced email response time by 60% while improving response quality and consistency. Teams using the system reported 40% more time available for strategic work.

## 2. Calendar & Meeting Optimization

**Business Challenge** Professionals struggled with managing complex scheduling demands, protecting focused work time, and ensuring productive use of meeting hours. Traditional calendar tools couldn't effectively balance competing priorities or maintain work-life boundaries.

### *Agent Capabilities*

- Understand and protect work priorities
- Coordinate scheduling across time zones
- Protect designated deep work sessions
- Optimize meeting distributions
- Generate meeting preparations and summaries
- Track follow-up items and commitments
- Maintain work-life balance boundaries

**Impact and Results** The system reduced administrative scheduling time by 70% while improving meeting effectiveness. A senior executive reported that "it's like having a strategic assistant who understands not just my schedule, but my priorities and work style." Teams using the system reported 35% more time for focused work and a 40% reduction in meeting overload.

## 3. Research & Information Synthesis

**Business Challenge** Knowledge workers spent excessive time gathering, analyzing, and synthesizing information from multiple sources. Traditional research tools couldn't effectively connect insights across different domains or generate structured outputs tailored to specific needs.

### *Agent Capabilities*

- Gather information from multiple authorized sources
- Analyze and cross-reference data points
- Generate structured research summaries
- Identify key trends and patterns
- Create customized report formats
- Maintain source documentation
- Track research progress and updates
- Suggest relevant additional sources

**Impact and Results** The agent system transformed research efficiency by automating information gathering and synthesis. A consultant noted that this capability "transformed my ability to leverage our

firm's collective knowledge, making each project start from a much stronger foundation." Research time reduced by 60% while the depth and quality of insights improved by 40%.

## 4. Task & Project Coordination

**Business Challenge** Professionals struggled with managing multiple projects, coordinating dependencies, and maintaining visibility across various workstreams. Traditional project management tools couldn't effectively adapt to changing priorities or coordinate across different tools and teams.

### *Agent Capabilities*

- Break down complex projects into manageable tasks
- Coordinate dependencies across multiple workstreams
- Monitor deadlines and progress
- Adjust schedules based on priority changes
- Generate status updates and reports
- Identify potential bottlenecks
- Maintain project documentation
- Track resource allocation

**Impact and Results** The system transformed project management effectiveness through intelligent coordination. One product manager highlighted how "it kept track of hundreds of small details I would have missed, allowing me to focus on strategic decisions." Teams using the system showed 40% higher project completion rates and reported 35% more time for strategic thinking.

## 5. Document Creation & Review

**Business Challenge** Professionals spent significant time creating, reviewing, and revising documents, often struggling with maintaining consistency, ensuring accuracy, and managing version control across multiple stakeholders.

### *Agent Capabilities*

- Generate initial document drafts
- Review for consistency and accuracy
- Track changes and versions
- Coordinate review workflows
- Maintain style guidelines
- Check citations and references
- Generate executive summaries
- Format documents to standards

**Impact and Results** The agent system revolutionized document management workflows. Document creation time reduced by 50%, while review cycles shortened by 40%. Teams reported improved document quality and consistency, with one manager noting, "It's like having a dedicated editor who knows our style guide perfectly." Most importantly, professionals reported having more time for high-value content creation rather than formatting and administrative tasks.

These personal productivity applications demonstrate how AI agents can transform individual work patterns, freeing up time for more strategic and creative tasks while improving output quality and consistency. The key impact across all applications has been not just efficiency gains, but a fundamental shift in how professionals can focus their time and energy on truly value-adding activities.

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These personal productivity applications offer accessible entry points for organizations beginning their agentic AI journey. By starting with these individual-level implementations, organizations can build familiarity and confidence with AI agents while delivering immediate value to employees. The results consistently show not just efficiency gains, but a fundamental shift in how professionals can focus their time and energy on truly value-adding activities. We encourage organizations to consider these applications as initial steps toward broader agentic AI transformation, using the demonstrated successes to build momentum for more comprehensive implementations.