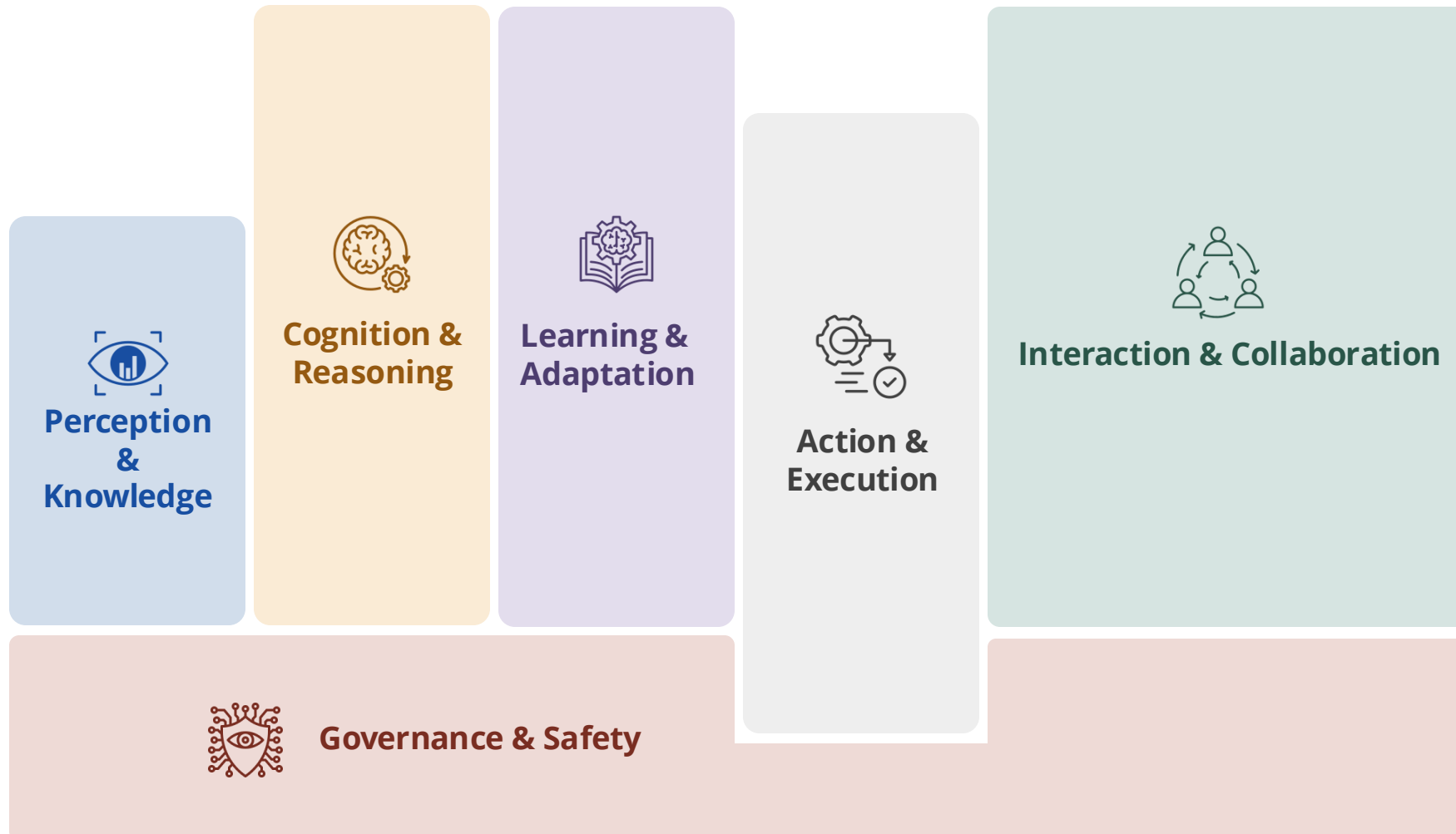




AI Agent Capabilities Periodic Table (AIA CPT)

AI Agent Capabilities Periodic Table v1.0



● Perception & Knowledge
 ● Cognition & Reasoning
 ● Learning & Adaptation
 ● Action & Execution
 ● Interaction & Collaboration
 ● Governance & Safety

AI Agent Capabilities Periodic Table v1.0

	CG.PL Planning & Decomposition	LA.MM Memory Management		IC.NL Natural Language	IC.CS Consensus Protocols
	CG.RS Reasoning	LA.RL Reinforcement Learning	AE.TX Task Execution & Implementation	IC.DM Dialogue Management	IC.CF Conflict Resolution
PK.OB Environmental Sensing	CG.DC Decision Making	LA.AD Self-Optimization	AE.TL Tool Usage & API Integration	C.HL Human-in-Loop	IC.SI Industrial Integration
PK.KB Knowledge Access	CG.PS Problem Solving	LA.SL Supervised Learning	AE.CG Code Generation & Execution	IC.AC Agent Communication	IC.ES Enterprise Integration
PK.CX Context & Memory	CG.PP Formal Planning	LA.VM Vector Memory	AE.CX Content Creation & Generation	IC.CL Collaboration	IC.MB Message Brokers
PK.MF Multi-Modal Fusion	CG.PA Plan Adaptation	LA.MS Memory Scoring	AE.TM Tool Lifecycle Management	IC.RB Role Behavior	IC.DS Distributed Coordination
GS.DL Deployment Management	GS.MO Monitoring	GS.EV Evaluation	AE.MC MCP Integration	GS.ET Ethics	GS.PR Privacy
GS.SC Scaling	GS.SF Safety	GS.SE Security	GS.EX Explainability	GS.RL Reliability	GS.TC Trust Management

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AIA CPT – AI Agent Types

Type 0: Static Automation

- Pre-programmed responses with no learning or adaptation
- *Traditional rule-based Symbolic AI systems and basic automation*

Type 1: Conversational Agents

- Natural language interaction with basic context management
- *Customer service chatbots, FAQ systems, voice assistants*

Type 2: Procedural Workflow Agents

- Multi-step task execution with tool integration and role-based collaboration
- *Workflow automation, task orchestration, process management*

Type 3: Cognitive Autonomous Agents

- Self-directed planning, learning from experience, sophisticated reasoning
- *Research assistants, predictive systems, autonomous decision-making*

Type 4: Multi-Agent Generative Systems (MAGS)

- Collaborative intelligence with emergent behaviors and distributed coordination
- *Industrial automation, smart city systems, complex orchestration*

Typical AIA CPT Development Workflow

