Exploring the Role of Agentic AI in building Organizational Agility: A Conceptual Model

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Abstract. Artificial Intelligence has revolutionized multiple aspects of human life and has fundamentally changed the way we work, make decisions, communicate and solve problems. Over the years, AI has evolved to advance machine learning algorithms solving complex problems. The recent advancement in Generative AI driven by the advent of large learning models (LLMs) have significantly increased the capabilities of AI, enabling machines to generate content, images and videos. Generative AI has transformed how the content is being generated and consumed driven by human type conversational 'Prompts' made between man and the machine. The next phase of AI evolution is Agentic AI. Agentic AI extends the capabilities of both traditional AI and Generative AI by incorporating 'autonomy' and 'goal directed' reasoning. Based on theoretical grounding of dynamic capability of sensing, seizing and transforming, this paper is a conceptual study to explore the role of Agentic AI in driving external market agility and internal operational agility.
Based on the theoretical grounding of dynamic capability of sensing, seizing, transforming this paper explores the role of agentic AI in procurement and human resource and how it can help drive market capitalizing agility and operational adjustment agility.

Keywords: Agentic AI, Organizational Agility, Dynamic Capabilities

1. Introduction

Rapid and disruptive technological innovations are disrupting existing markets, with new players and startups challenging the traditional business models. Technological disruptions have resulted in reduced barriers to entry and are giving customer plethora of choice. For example, Quick commerce often called as Q-commerce with promise of under 10 minutes delivery has transformed how we plan and buy our day-to-day groceries. All this is leading to what we called as hypercompetition where there is intense competition among players fighting for customer wallet share and market share. D'Aveni (1994) coined the term 'hypercompetition' to describe environments where "advantages are continually created, eroded, destroyed, and recreated" (p. 217). In such scenario, moves by competitors and counter moves are quick and fast. As result first mover advantage cannot be sustained for long. Hence, organizations need to keep innovating and adapting to stay relevant and to survive. Eisenhardt and Martin (2000) argued that for an organization to compete in such scenarios, it is important to "continuously build, integrate, and reconfigure resources". This ability is also called organizational agility. Goldman et al. (1995) defined agility as the "ability to respond to uncertain and changing demands" (p. 4), with importance on speed and flexibility. Overby Bharadwaj, and Sambamurthy (2006) defined this as "the ability to detect and respond to opportunities and threats with ease, speed, and dexterity" (p. 122). Teece

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(2007) defined agility as set of dynamic capabilities comprising of "sensing, seizing and transforming."

Agility measures "how well a system can adjust itself and also seek help from other systems (enterprises)" (Huang & Nof, 1999, p. 53). "Without information technology, enterprise agility at all the enterprise levels would be impossible" (Huang & Nof, 1999, p. 52). Information Technology has emerged as a strategic differentiator. Therefore, it is important to understand, how IT resources influence firm performance. Information technologies can strengthen organizational processes and knowledge systems (Alavi & Leidner, 2001). Therefore, IT acts as enabler for automating, informing and integrating activities. IT has been studied as enabler of agility by many researchers (Börjesson& Mathiassen, 2005; Fink and Neuman ,2007; Lu & Ramamurthy, 2011; Mathiassen et al., 2006; Nazir et al., 2012; Oosterhout et al., 2006; Overby et al., 22006; Tallon & Pinsonneault ,2011; Zain et al., 2005). The role of IT in enabling enterprise agility could be direct or indirectly through digital options. Also, Information technology enables agility through collaboration with partners and enabling logistics of goods and information between partners (Huang & Nof, 1999). The strategic processes like capability building, Entrepreneurial action and co-evolutionary adaptation are also facilitated by information technology (Sambamurthy, 2003).

Information technology capabilities of firms are evolving at an unprecedented speed due to Artificial Intelligence. AI is a disruptive innovation and has the potential to force the organization to redefine their business model to survive, sustain operations, and gain competitive advantages Davenport et al. (2020). AI is revolutionizing every aspect of human life, every sector and every industry. Artificial intelligence (AI) systems are designed to perform tasks based on rule-based logic. Generative AI focuses on generating new content in the form of combination of text, images or code. Generative AI systems such as ChatGPT are based on user prompt and create an output which could be text or image or a code. However, they don't have independent goal seeking capabilities. Russell and Norvig (2016) define AI as "the study of agents that receive percepts from the environment and perform actions" (p. 34). The role of AI in the field of cybersecurity presents both an opportunity as well as threat levels of different scale and enormity. The result revealed that organizations are effectively using AI to 'protect & detect' various types 'intelligent cyberattacks, leading to increased threat intelligence and counter day zero attacks. All this is made possible as AI has strengthened agility of the organization by sensing at scale and accelerating decision making. Today, AI enables continuous scanning and detection of large data sets in real time, performing real time anomaly detection and triggering real time alarms to counter the cyberattack. According to Atienza-Barba, del Río-Rama, Meseguer-Martínez, and Barba-Sánchez (2024) "AI's contribution to agility lies in its ability to improve sensing and responding capabilities" (p. 3).

Agentic AI extends the capabilities of both traditional AI and Generative AI by incorporating 'autonomy' and 'goal directed' reasoning. For example, in Wealth management, Agentic AI can act as investment advisor. The Agent Advisor as they are refereed to can "sense & interpret" real time stock market performance, benchmark this against customer's risk profile and financial goal and can take decision to sell/buy.

While doing this, it balances competing goals like minimizing risks, liquidity requirement and maximizing shareholder return. The Agent Advisor acts autonomously rebalances portfolio by executing trade (Buy/Sell), rebalances portfolio without any manual intervention.

This paper is a conceptual study to explore the role of agentic AI in building organizational agility. It is asserted that Agentic AI has the potential to enhances organizational agility by introducing *autonomous, adaptive, and context-aware systems* capable of managing and optimizing complex workflows in real time. These systems would enable organizations to respond to changing conditions quickly and effectively, reduce manual intervention, and support continuous adaptation across business processes.

2. Literature Review and Theoretical Grounding

2.1 Dynamic Capabilities and Organizational Agility

Teece et al. (1997) argued that "VRIN resources are the elements that undermine a firm's current competitive advantage, not **sustained competitive advantages**. That competitive advantage requires the exploitation of existing internal and external firmspecific capabilities as well as developing new ones. The ability to develop new VRIN resources is the key factor for sustained competitive advantages. Teece (2007) further explicated the construct of dynamic capability and emphasized that dynamic capabilities can help organizations create, deploy, and protect the intangible assets (VRIN resources, valuable, rare, inimitable and non-substitutable) for long-term business performance (sustained competitive advantages)."

Later, Eisenhardt and Martin (2000) and Teece (2007) redefined dynamic capability as the "capabilities to integrate and reconfigure internal and external resources to respond to market opportunities and threats that help organizations gain a sustained competitive advantage." However, these definitions do not factor in speed. Organizational agility has been defined as the "ability to detect and respond to opportunities and threats with ease, speed, and dexterity." The dynamic capability framework provides the theoretical foundation to explain why organizational agility is studied as a dynamic capability.

Agility has been expressed as "delivering value to the customer, being ready to change, valuing human knowledge and skills and forming virtual partnerships." Gunasekharan (1998) mentioned that agile management systems make organizations more flexible, responsive and efficient.

"Strategic agility can be briefly defined as the dynamic change of the resources and competencies of the firm" (Arici & Gok, 2023, p. 1)." "Organizational agility is delineated as the ability to perceive and swiftly adapt to external and internal changes to achieve pertinent outcomes in a productive and cost-effective manner." (AtienzaBarba et al., 2024, p. 2) "It would be beneficial to consider OA as a higher-order capability built around three specific capacities: operational, market, and partnership." (Atienza-Barba et al., 2024, p. 11)

The paper by (Teece et al., 2016) differentiates "**managing risk** (Known Probabilities) with **managing deep uncertainty** (Unknown Unknowns)." Risk is associated with outcomes that are known and is measure of probability of particular event taking place or not. Organization can manage risk by allocating required resources. For example, to manage and hedge exchange rate risk, a multinational corporation sets up different subsidiaries in different countries or through forward contracts. Airlines industry manage fluctuation in aviation fuel prices by hedging against fuel price increases without cutting flights. Organizations also manage threat against a known cyber risk by buying requisite cyber insurance. On the other hand, managing uncertainty is about managing "unknown unknows". When the external environment is uncertain, focus of the organization should be to do right things instead of doing things right (operational efficiency). For example, Covid
19 was all about managing uncertainty as it was all about managing "unknown unknows". To focus on achieving right things requires entrepreneurial mindset on part of management, managers and leaders.

It is important for managers to differentiate between risk and uncertainty. Agility of an organization is not a measure of risk. Agility is the ability to "sense" and respond to uncertain changes in the environment with speed. In literature two concepts used are agility and flexibility. Agility and flexibility are often used interchangeably. However, there is difference between the two in the context of dynamic capabilities. According to Teece (2007), flexibility enables organizations to "bend without breaking,". Flexibility is the ability to change when it is necessary and is reactive. Flexibility allows organization to respond to expected changes in environment. Flexibility is operational in nature and is linked to predefined exigencies and need not necessarily be source of competitive advantage. For example, alternate suppliers, multiple supply chain routes or alternate production plan are example of firms being flexible. Agility is proactive and strategic and enables organization to deal with ambiguous and uncertain situations. Backhouse & Burns (1999) mention agility as "ability of firm to adapt with unforeseen changes in external environment". Sanchez and Nagi (2001) mention agility as "a strategy to thrive in unpredictable environment due to constant change and cite cooperation and synergism as the key to agility". Brown& Bessant (2003) focus on "links, people and processes and imply a change in existing configuration to meet the needs of the system." Agility is defined as "changes in marketing, production, design, and organization" (Storey et al., 2005). Narsimhan et al. (2006) define agility as the "ability to respond to uncertain and changing demands."

Addressing agility as Dynamic capabilities, comprise of sensing, seizing and transforming. **Sensing** is ability to sense the uncertainties of environment. It involves identification and development of opportunities and threats. **'Seizing'** involves leveraging of resources to meet customer needs and opportunities and **'Transforming'** involved adopting unconventional mode of thinking to drive significant change. It is argued that "sensing, seizing, transforming are essential for organization to sustain as customers, customer needs, competitors and technology changes.

Driving agility through Dynamic capabilities.

Generative sensing capabilities involves creation of hypothesis about "future implications of observed events and trends and testing these hypotheses to grease the

pathways for new products, services and business models." Generative sensing is assisted by "abduction". Abduction involves using available information and data to identify patterns to generate something new". Outcome of abduction may or may not be logically true and hence it is important for an organization to drive action to achieve desired outcome and test the hypothesis. It is important to note that abduction is different than deductive reasoning (from general principles to specific truths) and inductive reasoning (specific examples to general principles). Scenario planning can also help accelerate generative sensing as it helps to identify likely scenarios. Driving organizational Agility by seizing is all about execution. This can be achieved through flexible sourcing (in house manufacturing vs outsourcing), building 'slack' or pursuing open innovation process.

As far as flexible sourcing is concerned, there is no simple answer between inhouse or contract manufacturing and which one between the two offers greater flexibility. Many times, firms, "designed in" flexibility within supply chain. For example, cloud service providers like Microsoft, or AWS has a huge dependence on electricity to power their data centres. Therefore, to ensure electricity is available 24*7, they may decide to have captive power plants instead of relying on power generation companies. 'Slack' involves maintaining excess resources and capacity. While 'slack' helps in driving agility, it is costly. By maintaining organizational slack, can help maintain buffer against outages or failures. For example, airlines keep spare planes as back up to provide support in case an aircraft develops snag. Organizational structure also impacts agility. If the organizational structure is more hierarchical or rule based, it may not promote agility. Open innovation methodologies assist in driving agility and accelerate new product development and innovation.

Realizing Agility through 'transforming' is the ability of an organization to reconfigure and reorganize its available resources, internal & external capabilities, organizational structure and business model to ensure relevance to customers and market. In an uncertain environment, where there is technology change or there is implicit customer need, in such cases building a minimal viable product (MVP) helps in accelerating time to market. MVP helps to launch new product quickly, learn quickly based on customer/market feedback and incorporate changes and launch new version. For example, Netflix transformed its business model by shifting its business model of renting movies to online streaming. Transformation requires moving away from conventional mode of thinking. In large organizations, transformation becomes difficult and slow if not impossible. Organizational culture plays an important role in driving the change. Organizational dynamics, power groups, vested departmental interest also plays an important role in driving transformation.

To summarize, management, managers, leaders must recognize that 'agility' requires sensing, seizing and transforming. It requires entrepreneurial mindset on part of managers to distinguish between risk vs uncertainty, and both should be managed differently. Uncertainty resulting from technological disruptions, business model innovations and geopolitical events is difficult to manage rather than risk.

2.2 Information Technology Capability and Organizational Agility

Information technology agility capability (Lu & Ramamurthy, 2011) includes IT infrastructure capability, IT business spanning capability and IT proactive stance. The superior IT infrastructure capabilities provide globally integrated platform for enforcing the standardization, and integration of data and processes. The second capability known as IT business spanning capability emphasizes on IT business partnership. The IT proactive stance helps in sensing agility since the firms proactively search ways to embrace IT innovations or exploiting existing IT resources to address or create new business opportunities. IT capability helps in knowledge sharing and dissemination facilitates agility, however IT infrastructure has to adapt to changing needs of environment. But once the employees become comfortable with existing IT infrastructure and certain level of credibility is built, they may not feel compelled to change their present IT infrastructure (Tallon et al, 2008) thus impeding the agility. Therefore, IT may act as both enabler of Agility as well as disabler of agility (Oosterhout et al. (2006) & Tallon & Pinsonneault (2011)). Those who have studied IT as disabler of agility, mention that inflexible architecture can be disabler for agility (Overby et al., 2006).

According to Lu & Ramamurthy, there are two types of agility. These are (a)external "Market capitalizing agility and (b) internal Operational adjustment agility."

(a) **"Market capitalizing agility** is the ability of an organizational to respond quickly to external environment by way of improving product and services to address customers need." This requires entrepreneurial mindset to respond to uncertain conditions."
(b) **"Operational adjustment agility** is the ability of an organizational internal business process to respond rapidly to market demand and customer changes." This agility focuses on flexibility to respond quickly in response to sudden changes in external environment.

By driving digital transformation fuelled by IT enablement, organization can achieve "market capitalizing agility and operational adjustment agility". This is made possible through processing of large amount of data spread across various silos within organization and real time processing of data. Advances in technology now allows organization to mix real time data with existing data and take real time decision to acquire new customer or drive purchase.

3. Understanding Agentic AI

3.1 Definition of Agentic AI

"Agentic AI refers to a class of autonomous artificial intelligence systems capable of sensing their environment, reasoning about goals, making context-sensitive decisions, learning from experience, and acting proactively to achieve complex objectives with minimal human intervention. These systems exhibit intentionality, adaptiveness, and self-directed behavior, making them distinct from rule-based or machine learning approaches."

(Acharya, Kuppan, & Divya, 2024; Microsoft Research, 2023; Anthropic, 2023; OpenAI, 2023). "Agentic AI refers to autonomous computational entities that possess the ability to perceive environments, reason over goals, learn from experience, and act independently to achieve complex objectives. (Acharya, D. B., Kuppan, K., & Divya, B., 2024)"

"Agentic AI is defined by their ability to handle complex goals characterized by constant changes in a given situation by autonomously managing and allocating resources. In other words, Agentic AI refers to AI system that undertake to complete a set of complex tasks that may span over a long period of time without human supervision." Unlike AI systems which are rule based and delivers basis set of instructions given to them, Agentic AI is autonomous, adaptable to given situation and is aware of the context where they are operating. Agentic AI stands out because of features of being autonomous, adaptiveness to a situation, and are context aware. Agentic AI goes beyond of just assisting human action. Because of goal directed behaviour, they adapt to situations with sudden changes and toggle between tasks to complete a goal.

This is achieved through advances in reinforcement learning, goal-oriented architectures and adaptive control mechanism. Unlike traditional architecture which focuses on single task, Goal oriented architectures enable agents to prioritize and pursue multiple objectives simultaneously. Goal oriented architecture supports modular structure where bigger goals are broken down into sub-goals. Agentic AI makes adjustment to changing environment. Through adaptive control, agents recalibrate while responding to external changes. By combining reinforcement learning, goaloriented architecture and adaptive control, Agentic AI systems attain a level of autonomy which makes them operate effectively in diverse environment. There are three characteristics of Agentic AI **(a) Autonomy and goal complexity (b) Environment & operational complexity (c) Independent decision making & adaptability**

Autonomy & goal complexity: Being autonomous is one of the standout qualities of Agentic AI. This becomes important in large, complex and multi goal scenarios where continuous supervision of human beings is neither nor desired. For example, an AI agent responsible for onboarding employees, guides fresh hires by creating personalized onboarding plan including details of documents, learning modules, mandatory trainings, organizational policies etc. It can divide this into smaller subgoals like filling up of mandatory legal forms, calendarize trainings, nudge completion through reminders.

Environmental & operational complexity: Agentic AI has the capability to operate within varied and changing circumstances. Agentic AI can adjust quickly to the environmental conditions including pattern or data change. Agentic AI are equipped with means for environmental interaction and situational context comprehension. For example, Agentic AI is fit for use in environment where reactions may be rapid like disaster management or healthcare. For example, an AI system responsible for managing employee sentiment analysis will continuously analyze cross team collaboration data available on Teams, email, slack, employee survey data, to detect

employee morale, any signs of burn out etc. This is done across different departments, different geographies and different job roles type. It can then flag issues and can recommend manager or HR intervention.

Independent decision making & adaptability: Being autonomous and flexible are core requirements of agentic AI. Unlike AI systems which are rule based, agentic AI has to adjust itself in current context and take decision as it is working. Example, in a customer service situation, Agentic AI can change its communication strategy in line with customer mood to achieve customer satisfaction. For example, AI talent acquisitive agent will actively scout various platforms like LinkedIn, Github to source and shortlist potential candidates based on job description. It can adapt its logic of sourcing based on recruiter feedback and hiring outcomes and accordingly change its outreach strategies. Over time, it also learns candidate profile which has higher retention and outstanding on job performance.

3.2 Role of Agentic AI in enhancing organizational Agility

Teece et al (2016) highlighted "the need of 'Sensing' of unknown which would involve identification and development of technological opportunities and threats with respect to customer needs." In an uncertain business environment, organization can drive growth before competitors through generative sensing, sense making, and scenario planning. Agentic AI can analyze big data (volume and velocity) comprising of structure, semi-structured and unstructured data covering market trends and competitor actions. Agentic AI can help drive 'abduction' using available information and data to identify patterns to generate something new. It can create hypotheses based on language reasoning. Agentic AI can perform these tasks autonomously, capturing early signal and emerging patterns before managers can detect them in line with 'proactive' stance identified by Lu & Ramamurthy. Agentic AI system can help to monitor emotional health and employee engagement at scale.

'Seizing' opportunities through autonomous decision making: Seizing is all about execution and getting things done. As per Teece, this involves leveraging resources to meet customer needs and opportunities. Agentic AI can dynamically allocate task and drive outcomes. Organizational structure also impacts agility. If the organizational structure is more hierarchical or rule based, it may not promote agility. Agentic AI can take autonomous decision without waiting for managerial input thereby cutting through hierarchical decision-making process and thereby enhancing seizing capabilities. Deploying cutting edge technology like Agentic AI can help drive open innovation methodologies which can accelerate new product development and innovation. Agentic AI system based on feedback loops can trigger HR actions.

'Transforming' involves adopting unconventional mode of thinking to drive significant change. Agentic AI can help drive organizational transformation via adaptive workflows. This requires reconfiguring resources and workflows. Agentic AI can orchestrate across multiple enterprise systems like ERP, CRM, can adapt to alternate plans and reconfigure actions. Agentic system which are human augmented agents supports adaptation by learning from previous decision, integrating new data and

finetuning execution accordingly. Agentic architecture also introduces flexibility without creating chaos thereby allowing organizations to experiment with low-risk iterations.

4. Architectural approaches in Agentic AI

Architectural approaches in Agentic AI would include modular design that will facilitate the system to manage complex goals and adapt to dynamic environment. Some of the popular architectures are (a) multi-agent system **(MAS),** (b) hierarchical reinforcement learning (**HRL) and (c) goal oriented modular architecture**

(a) Multi-agent system **(MAS)** divides a task among multiple independent agents that collaborate among themselves to achieve common goal.

(b) Hierarchical reinforcement learning **(HRL)** involves hierarchical decision making. In this high-level agent defines sub-goals which are handled by low level agents. This approach works where a particular task has multiple level of complexity.

(c) **Goal oriented** architecture modular architecture organizes agent functions into modular components where each module specializes in specific aspect of task

4.1 Vertical AI agent vs LLM agent vs Agentic AI system

Vertical AI agents combine expertise of industry vertical with context aware system by adapting to problem solving in real time. Vertical agents with domain expertise are vertical or industry specific and leverages domain specific reasoning engines. The reasoning engines are specific knowledge and workflow to solve complex challenges. For example, legal contract analysis, financial risk assessment, medical imaging interpretation. Vertical AI agents adapt to changing environmental conditions. It transforms raw data into actionable outcomes by driving end to end workflow automation

LLM agents are autonomous intelligent systems supported by LLM's. LLM agents have different components that includes reasoning engine, memory and cognitive skills that enables it to solve complex task in dynamic environment. LLM agents execute different tasks by combining domain specific expertise along with contextual understanding. LLM agent has the cognitive skills module which bridges the gap between pre-trained LLM reasoning, external module for environment interaction and new inference model. Cognitive module also ensures that LLM agents are equipped with purpose-built models for specific tasks. LLM agents are different than LLM workflows as the latter are predefined static process designed to perform linear task. LLM workflows are basis predefined structured pipeline where each step is defined and executed in a sequence with defined flexibility. Core module of LLM agent comprises of "memory, reasoning engine, cognitive skills", and other tools. The Memory module

helps agents to achieve contextual awareness, personalization and domain expertise. The Reasoning Engine module is the brain of the agent and is powered by the LLM.

"Agentic AI systems are advanced frameworks that integrate one or more LLM agents to automate complex tasks and streamline processes across various domains. These systems work autonomously enabling agents to collaborate through direct communication or through orchestration module that coordinates their interaction." Based on structure, interaction and scope, Agentic AI systems can be task specific agents or muti-Agent systems or human-Augmented Agents. A **task specific agent** handles specific function or a specific problem. **Multi-agent systems are** combination of independent agents that collaborate and solve problems that are interconnected. **Human-Augmented agent** involves human in the loop.

4.2 Popular Agentic AI framework

As Agentic AI technology evolves, framework underlying them will also evolve and change. Some of the existing popular Agentic AI frameworks are AutoGen, CrewAI, LangChain, LanGraph and Semantic Kernel.

AutoGen: It is an open-source framework of Microsoft for orchestrating multi-agent system to solve complex problems in a distributed environment. It has 3 layered architectures:

- Programming framework at the core which develops scalable and distributed network of agents.
- AgentChat is used to build conversational AI assistant and offers single agent or multiagent with predefined patterns and behaviour.
- Key features of Microsoft AutoGen include event driven architecture which provides scalability. It supports integration of agents with application programming interface (APIs), advanced reasoning and task prioritization. As AutoGen provides support for creating system with multiagent collaboration, it makes good used cases like IT Infra management and cloud automation. For example one of the used case could be an AI driven cloud system that autonomously resolves server misconfigurations be delegating tasks to specialized agents.

CrewAI: It is an orchestration framework for multiagent AI system based on open source. It's architecture is based on role it is going to perform and treats agentic AI as a 'crew' of workers. Every agent is assigned specific and specialized role while collaborating on complex task and workflow. Natural language is used to define an agent's role, task and the goal which an agent is expected to perform. A process tracks task completion which could be either sequential inline with preset order or it can be hierarchical where manager agent oversees task delegation, execution and completion. For example, for stock market analysis, crew collaborates in a sequential manner. In this a market analyst agent is given a task to analyse data for a scrip, followed by researcher agent which then gathers relevant information before strategy agent taking decision on 'Buy/Sell'

- CrewAI supports integration with various LLM's including OpenAI Chat GPT, IBMwatsonx.ai, Google's Gemini to name a few.
- CrewAI also supports suite of retrieval augmented generation (RAG)
- Features of CrewAI are (1) Role based agents (2) Multi agent collaboration (3) Integration with LLMs

LangChain: Open-source framework to build LLM powered applications like GPT-4. It is useful to develop simple AI agents with simple and straight workflows. It employs modular architecture where each module represents complex concept and what steps it need to take to work with LLMs. These modular components are integrated together to build AI application. It connects LLMs to external data and build agents that can reason, plan and use tool. LangChain platform allows to debug, test and undertake performance monitoring.

LangGraph: It is an extension of LangChain to create multi-step agent based workflow. This is framework is ideal when application needs complex logic, looping and branching or collaboration between multiple agents. It has a graph based architecture with specific task. In this an action of AI agent is depicted as nodes. Transition between actions are represented as edge. This architecture is recommended for workflow that are cyclical, conditional and nonlinear in nature. Example. An airline builds "Travel assistant AI agent" to help search and book flights.

Microsoft Semantic Kernel is based on open source to build enterprise ready generative AI applications. It offers production ready SDK which can integrate with LLMs and is supported by Microsoft unified support. It supports option of two built-in agent implementation including chat completion agent and advanced assistant agent.

5. Use cases of Agentic AI mapped with Agility dynamic capability

5.1 Mapping of Procurement automation lifecycle with Agentic AI

The use of technology to manage procurement plays an important role in procurement automation. It involves, sourcing of suppliers, price/commercial along with bill of material and negotiation, monitoring of compliance, contract management, release of purchase order, invoice reconcilement, and invoice payment. The integration of Agentic AI into procurement workflows has the potential to drive agility through external Market Agility and internal Operational Agility.

Discovery & Sourcing: Market Research Agent (Sensing → MCA): Market research agent functions as a *sensing AI. It* continuously scans external environments to identify suppliers, change/variations in demand, and supply chain disruptions. This agent enhances Market Capitalizing Agility of the organization by proactively identifying and acting upon emerging opportunities. This AI system can continuously monitor databases, geopolitical risks, global market trends, thereby enabling the organization to quickly identify alternate suppliers. This market capitalizing agility is critical in

sectors like automotive, oil and gas where supplier agility can drive competitive advantage.

Evaluation of Suppliers: Evaluation Agent (Sensing → MCA + OAA): The role of evaluation agent is to interpret sensing signals across environmental, social, and governance (ESG) metrics, delivery risks, quality metrics and compliance history. This improves Market Capitalizing Agility by driving better decision. It also improves Operational Adjustment Agility by enabling quick evaluation of suppliers.

Commercial Proposal & Negotiation: Commercial Agent (Seizing → MCA): The commercial agent acts in the seizing phase. It manages technical commercial evaluations and contract discussions. It can assign quantitative scores and undertake scenario simulation. AI system can extract and compare contractual clauses across different suppliers. This has the potential to shorten negotiation cycle thereby driving Market Capitalizing Agility

Release of Purchase Order: PO Agent (Seizing → OAA): The PO agent can automate the internal workflow by raising the request to create, approve and release purchase orders thereby improving operational adjustment agility.

Invoicing & Payments: Finance Agent (Seizing → OAA): The finance agent ensures suppliers are paid on time and in accordance with contractual terms. AI system can integrate real time delivery tracking, matching invoicing verification and adherence to contractual terms to trigger payments automatically. This drives operational adjustment agility enabling organizations to ensure good supplier relationships and optimize cash flow planning.

Risk Management & Compliance: Risk Agent (Sensing + Transforming → MCA + OAA): The risk agent continuously monitors suppliers, deviations from contractual terms and other external risks. This drives both external Market Agility and internal Operational Agility by adjusting workflows and controls internally.

Supplier Relationship Management: Supplier Agent (Transforming → MCA + OAA): The supplier agent monitors supplier performance by tracking service level agreements and initiating corrective action. This helps to reshape supplier ecosystem to align with organizational goals. This helps drive Market capitalizing agility and also improves organizational adjustment agility.

Contract Management – Compliance Agent (Transforming → OAA): The compliance agent drives enforcement of contracts. AI system scans existing agreement to identify terms and conditions, identify contract violations and drive corrective actions. This ensures better and faster compliance and continuous improvement of procurement policies thereby driving operational adjustment agility.

Table 1: *Mapping of Procurement automation lifecycle with Agentic AI*

S.No	Procurement stage	Agent	Role	Agentic AI capabilities	Type of Agility

1.	Discovery & Sourcing	Market research agent	Sensing	Scans market and trends; demand changes; new suppliers	Market capitalizing agility (MCA)
2	Evaluation of supplier	Evaluation agent	Sensing	Collects the information; interpret information on deliverables including ESG, delivery risk, etc	Market capitalizing agility (MCA) + Operational adjustment agility (OAA)
3	Commercial proposal and negotiation	Commercial agent	Seizing	Technocommercial evaluation of supplier, discussion on contract terms and conditions	Market capitalizing agility (MCA)
4	Release of purchase order (PO)	PO Agent	Seizing	Creates internal workflow for PO approval process and release PO on vendor	Operational adjustment agility (OAA)
5	Invoicing and release of payment	Finance Agent	Seizing	Ensures timely release of payment to supplier in line with deliverables	Operational adjustment agility (OAA)

6	Risk management and compliance	Risk agent	Sensing and transforming	Continuousl y evaluates potential risk to ensure timely execution of contract as per terms and conditions; triggers required changes in policy and supplier in line with market needs	Market capitalizing agility (MCA) + Operational adjustment agility (OAA)
7	Managing supplier relationship	Supplier agent	Transforming	Manages supplier relationship ongoing basis; continuously check evaluation among different suppliers and take corrective action to ensure business continuity	Market capitalizing agility (MCA) + Operational adjustment agility (OAA)
8	Contract management	Compliance Agent	Transforming	Evaluates compliance to contract by suppliers and initiates action to ensure compliance	Operational adjustment agility (OAA)

5.2 Mapping of Agentic AI in HR

Agentic AI agents autonomously manage different HR lifecycle stages. It senses various internal and external signals, seizing opportunities to intervene and act, and transforming HR policies in line with employee needs and external environment. These agents can assist in workforce planning, forecasting and talent acquisition, candidate

screening and shortlisting, offer management, payroll processing, HR compliance and risk monitoring, employee engagement and can enhance external Market Agility and internal Operational Agility.

Workforce Planning, Forecasting & Talent Acquisition: The Talent Acquisition Agent 'sense' the external environment by continuously scanning external signals such as job postings, industry growth etc. It also assesses internal skill gaps to predict talent need. AI systems respond to talent shortages, skill in demand (like AI/ML) thereby increasing Market Capitalizing Agility.

Candidate Screening and Shortlisting: Evaluation Agent automates screening and shortlisting of candidates. It scans resumes and matches the experience and skill sets with job description and rank the potential candidates. This enhances Operational Adjustment Agility as it reduces the hiring cycle (reduced time to hire) and also recruiter bias.

Offer Management: Job Offer Agent seizes the opportunity to manage negotiations with potential candidates, secure internal approvals to release offer letter in time. The agent helps in reducing interna delays, stakeholder alignment thereby driving operational adjustment agility.

Payroll Processing: The Payroll Agent automates payroll task by integrating with attendance logs, timesheet, leave data and performance metrics. It ensures error free payroll processing and in time thereby enhancing operational adjustment agility.

HR Compliance & Risk Monitoring: The HR Risk Agent plays a dual role of sensing and transforming. It senses internal threats by analysing employee sentiments, attrition risk, Teams/Slack messages and exit interviews. It can recommend changes in processes based on feedback thereby transforming HR policies. Thus, it enhances Market Capitalizing Agility and Operational Adjustment Agility.

Employee Engagement: Engagement Agent is responsible to measure and act on employee engagement levels. It uses different sources including emails, collaboration platforms, employee pulse surveys. It uses different sources of information including emails, employee pulse surveys to determine employee sentiment and initiate HR/Manager intervention as required. This drives operational adjustment agility by empowering managers and HR to make changes in workflows, leadership style based on employee feedback.

Table 2: *Mapping of Agentic AI in HR*

S.No	HR function	Agent	Role	Agentic AI capabilities	Type of Agility

1.	Workforce planning, Forecasting & and Talent acquisition	Talent Acquisition Agent	**Sensing** business growth signals	Scan external environment, job posting websites, identifies emerging skills and maps internal skill gaps	Market capitalizing agility (MCA)
2	Candidate Screening and shortlisting	Evaluation Agent	**Sensing**	Screen CV's, matches with job skill requirement, ranks candidatesbased skill match	Operational adjustment agility (OAA)
3	Offer Management	Job Offer Agent	**Seizing**	Based on benchmarks salaries, negotiates compensation with	Operational adjustment agility (OAA)
				candidates, secures internal approval, manages internal workflow, make real time changes in offers	
4	Payroll Processing	Payroll Agent	**Seizing**	Analyze key KPIs like attendance, timesheets and initiates salary processing for disbursement	Operational adjustment agility (OAA)

5	HR compliance & Risk Monitoring	HR Risk Agent	**Sensing & Transforming**	Track and monitors internal grievances, employee signals, attrition signals, HR policy violations, and recommends changes	Market capitalizing agility (MCA) + Operational adjustment agility (OAA)
6	Employee Engagement	Engagement Agent	**Transforming**	Analyzes employee engagement level collected through various internal tools like Teams, Slack, Email etc, employee pulse check, escalates for human (manager) intervention	Operational adjustment agility (OAA

6. Limitation and future research

Current study is conceptual in nature and lack empirical validation. The study is based on secondary literature without any case studies, or quantitative analysis. Future research should incorporate quantitative analysis and case studies to establish role of Agentic AI in building organizational agility

7. Conclusion

The research explores the role of Agentic AI in building organizational agility. Agentic AI extends the boundaries of traditional AI and Generative AI by being autonomous, goal oriented and by being contextually aware. By detecting early signals (in the form of structured and unstructured data), Agentic AI enhances 'sensing' capability of an organization. Agentic AI can enhance 'seizing' capability by autonomously allocating resources and enables 'transforming' by orchestrating multi agent system across different functions. Organization can deploy and integrate Agentic AI within their organizational processes, thereby enhancing their "external market capitalizing agility

and internal operation adjustment agility" as demonstrated through the mapping of procurement automation lifecycle with Agentic AI and mapping of Agentic AI in HR.

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