Journal of Artificial Intelligence and Autonomous Intelligence Received 09-08-2024; Accepted 21-11-2024; Published 27-11-2024

Econnovation: Ecosystem-Focused Innovation with Autosapient AI

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Abstract

Innovation is imperative for organizational survival and growth. In the turbulent digital age, the complexity, uncertainty, and dynamics of the business environment are amplified as major megatrends themselves are evolving at unprecedented rates. Rapid technological advancements, particularly in artificial intelligence (AI) and smart autonomous systems, have ushered in a new era where innovation can be focused on macro ecosystems rather than micro subsystems. This paper presents a conceptual framework for "econnovation," which is ecosystem-focused innovation supported by advanced digital technologies, especially autosapient (autonomous and human-like) AI, aimed at achieving sustainable competitive advantage. The paper reviews the evolution of organizational innovation, sustainable innovation strategies, potential econnovation systems, and the hard and soft enablers for econnovation implementation. The ultimate goal of econnovation is to develop smart solutions to major problems for organizations and beyond.

Keywords: Ecosystem-focused innovation, Competitive advantage, Autosapient AI, Enablers of econnovation.

1. INTRODUCTION

Over the past three decades, the global marketplace has undergone significant transformations, fundamentally shifting the competitive landscape for businesses. In the current digital era, these changes have accelerated and magnified due to the swift adoption of advanced technologies such as artificial intelligence (AI), which opens new avenues for value creation. The complexity of global marketplace has intensified due to supply chain disruptions caused by the compound effects of natural disasters (pandemics, earthquakes, floods, wildfires, etc.) and human-induced crises (conflicts in Ukraine and Gaza, trade wars, geopolitical tensions, labor strikes, management oversights, etc.) [1]. Consequently, today's business milieu has been aptly described as "The age of perpetual upheaval," "The era of a great reset," or "The age of autosapience (autonomous and human-like) [2, 3]." Therefore, innovation emerges as a strategic imperative for organizations aiming to navigate and excel in this volatile global market [4]. This paper presents a conceptual and aspirational

Citation: Sang M. Lee and Silvana Trimi. Econnovation: Ecosystem-Focused Innovation with Autosapient AI. Journal of Artificial Intelligence and Autonomous Intelligence. Research. 2024;1(2):7. Pages: 96-109

innovation approach in the digital age: econnovation, a portmanteau of ecosystem and innovation, ecosystem-focused innovation for sustainable competitive advantage.

The fall of the Berlin Wall on November 9, 1989 (11-9), marked a pivotal moment in globalization, allowing corporations to enhance their value chains through economies of scale [5]. This era, grounded on the "efficiency" principle, has seen widespread adoption of offshoring, outsourcing, lean operations, and global market expansion as dominant strategies among multinational corporations [6]. Consequently, the trade value of intermediate goods and services across global supply chains has surpassed the $10 trillion mark since the turn of the millennium. In the extended network of global supply chains designed for efficiency, even a slight disruption can cause a bullwhip effect on the lean operation system. Such efficiency-focused management strategies have been severely tested during the past several years due to the recent crises. Thus, globalization is becoming fragmented or increasingly regionalized, opening a new phase of "slowbalization."

Amidst this backdrop of multiple crises, the reliance on purely efficiency-driven business strategies is being re-evaluated. Many organizations, confronted with the limitations of their risk management frameworks against the magnitude of recent global supply chain disruptions, have begun shifting towards more "resilience-focused" strategies. This adjustment signifies a broader organizational transition towards balancing operational efficiency with resilience, particularly as businesses grapple with an increasingly turbulent environment. Every organization has a certain ambidextrous strategy between the two operational axioms, efficiency and resilience. In the increasingly turbulent business environment, the inflection point between efficiency and resilience is moving toward the resilience focus [7]. This context underscores the pivotal role of innovation in equipping organizations with dynamic capabilities [8], such as agility [9], flexibility, resilience [10], and adaptability [11].

Innovation, fundamentally, is the lifeblood of organizational sustainability and growth. Defined variously across literature based on its objectives, processes, and disciplinary angles, innovation can be broadly defined as the "deployment of new ideas, technologies, or strategies in fundamentally different ways to create new or additional value for individuals, organizations, or greater purposes" [12]. In the digital age, the focus of innovation shifts towards devising "smart" solutions to contemporary challenges, with "smart" being a dynamic and aspirational concept contingent upon the perspectives, objectives, and aspirations of the innovating entity. Hence, significant research has been devoted to the development of smart homes, organizations, cities, and countries, and even envisaging a smart future [13]. Smart solutions inevitably require the application of advanced digital technologies. Most ground-breaking innovations today rely heavily on AI, machine learning, Internet of Things (IoT), 3-D printing, virtual and augmented reality (VR/AR), cloud-based ubiquitous computing, autonomous systems, smart robots, connectivity networks, and the like [1].

The trajectory of organizational innovation delineates several distinct phases: internal R&D-based closed innovation, collaborative innovation with value chain partners, open and unrestricted innovation leveraging collective intelligence, platform-based co-innovation, and, most recently, living innovation powered by advanced digital technologies and autonomous systems [12]. The advent of generative AI (GenAI) and smart autonomous systems heralds a new era of ecosystem-focused strategies and innovations [14]. Prior innovation efforts, which concentrated on optimizing specific segments of the value chain such as products/services, supplier relationships, customer value, inventory management, business models, and the like, were done for the optimization of a microsystem or subsystem. Recent technological advancements, however, enable the holistic optimization of macro ecosystems, encompassing numerous systems or subsystems, entire organizational value

chains, stakeholder relationships, business models, and beyond [3, 14]. This paper explores the new horizon of aspirational ecosystem-focused innovation, proposing a conceptual framework for leveraging such innovation for the optimization of a macro system to realize smart solutions that benefit not just organizations but society at large [1].

The rest of this paper is structured as follows: Section 2 outlines innovation's evolution and its strategic implications for organizational strategy. Section 3 delves into the concept of econnovation, detailing its potential for value creation and identifying both the "hard enablers" (technological advancements, organizational systems, and policy frameworks) and "soft enablers" (organizational culture, visionary goals, and talent management strategies) essential for its realization. Finally, Section 4 offers a summary of the discussion, acknowledges the study's limitations, and suggests directions for future research.

2. EVOLUTION OF INNOVATION

The trajectory of innovation is intimately intertwined with human history, reflecting humanity's continuous quest to enhance life quality through major revolutions—agricultural, industrial, information, and digital. Each groundbreaking innovation has historically disrupted the status quo, introducing significant shifts as evidenced by the advent of steam engines, electricity, automobiles, telephony, television, computers, VCRs, mobile technology, the Internet, and AI. Such innovations have catalyzed profound societal changes, often followed by periods of stabilization, only to be disrupted anew by even more advanced innovations [15]. The advent of digital technologies, particularly AI, the Metaverse, smart autonomous devices, and blockchain, has markedly increased the pace, scale, and impact of innovation, propelling society into an era of accelerated transformations [16, 17].

Innovation, while deeply rooted in technological and scientific advancements, transcends mere invention. It entails the practical application of novel ideas, technologies, or the amalgamation of diverse elements to generate value within the marketplace, a distinction critical to its differentiation from invention [18]. The market has seen numerous innovators who, despite pioneering new products or services, ceded market leadership to more agile or effective followers. Iconic instances include the transition from Chux to Procter & Gamble's Pampers in the disposable diaper market; Couchsurfing to Airbnb in online room booking; Yahoo to Google in search engine technology; and the progression from Simon to Apple in the smartphone arena. These cases underline that the endurance of innovation is contingent not solely on the innovator's technical or managerial prowess but significantly influenced by the broader market environment, including social, economic, political, and technological dynamics.

2.1 Innovation Approaches

The landscape of organizational innovation has undergone significant transformation, paralleling the evolution of major global trends over the last fifty years. This period has been characterized by pivotal shifts including globalization, rapid advancements in technology, the rise of new economic powers, increased focus on sustainability and global warming, evolving consumer values, swift

urbanization, and complex geopolitical challenges. These changes have not only reshaped the global economy but have also necessitated a reevaluation of innovation strategies within organizations. As a result, the approach to innovation has become more aligned with environmental and societal mandates, reflecting a broader understanding of innovation's role in addressing the world's most pressing issues. This alignment signifies a shift towards more sustainable and responsible innovation practices, integrating technological progress with the imperative to foster environmental stewardship and social well-being [13]. Organizations now recognize that innovation is not just about technological breakthroughs or market leadership but also about contributing positively to the global community and ecosystem for the greater good.

2.1.1 Innovation 1.0: Closed innovation

Historically, organizations have allocated significant workforce and financial resources toward cultivating proprietary core competencies to secure a competitive edge. This development process typically involves organizing a Research and Development (R&D) unit dedicated to crafting and advancing innovation programs. Organizations implement stringent measures to protect their innovative concepts for new products, services, business models, and operational strategies. Notable instances of organization-driven closed innovation, aimed at establishing first-mover advantage or market leadership, include Bell Labs, Proctor & Gamble's R&D Department, and NASA, famously encapsulated by the phrase "As only NASA can" [18].

2.1.2 Innovation 2.0: Collaborative innovation

With the evolving market dynamics and the advent of a globalized economy, it became evident that closed innovation was insufficient for maintaining competitiveness. Organizations recognized the need for a synergistic competitive advantage, achieved by melding their core competencies with those of other leading entities. The push towards globalization and technological advancements spurred the formation of collaborative efforts for innovation, such as strategic alliances, joint ventures, and technology licensing. The dismantling of the Berlin Wall (11-9), symbolized the onset of global collaborative innovation efforts, encompassing new products, markets, business models, and supply chains [12].

2.1.3 Innovation 3.0: Open innovation

The proliferation of advanced Information and Communication Technology (ICT) has facilitated unprecedented connectivity and global knowledge exchange. Moving beyond the one-to-one partnerships of Innovation 2.0, Innovation 3.0 expanded collaboration across a wider spectrum, inviting corporations, government bodies, academia, and even anyone or everyone around the world who has innovative ideas [12]. Open innovation involves both inside-out (outflow of internal innovations for external use) and outside-in (inflow of external innovations for internal use) for value creation. In addition, collective intelligence and crowdsourcing are strategies that many nonprofits, entrepreneurs, and SMEs have employed for free innovation [19]. Some of the best examples of free open innovation would be open-source software development and Wikipedia.

Many open innovation broker firms have been active in facilitating collaborative relationships such as NineSigma, InnoCentive, Yet2.com, YourEncore, etc.

2.1.4 Innovation 4.0: Co-innovation

The rise of social technologies has transformed social network systems (SNS) from mere communication tools to vital sources of data, insights, and communal commerce. Leveraging big data analytics, text mining, and generative AI, these networks have become fertile grounds for free innovation. While open innovation is a beautiful concept, its implementation can be a challenge as many stakeholders have conflicting motivations and goals about innovation. The challenge of aligning diverse stakeholder motivations necessitated the introduction of co-innovation, a model predicated on a shared innovation platform that integrates the tacit knowledge of an organization's core competencies and external partners' capabilities for co-creation opportunities of shared value [1]. Co-innovation platform needs to be developed with convergence of ideas, a filter system that evaluates internal and external ideas, and the tacit knowledge of corporate and shared goals. These unique characteristics of the tacit co-innovation platform make it inimitable to competitors.

2.1.5 Innovation 5.0: Ecosystem-focused econnovation

Recent technological breakthroughs, particularly in AI, IoT, VR/AR, and smart sensors, have opened an era of semi- or fully autonomous systems [20]. Already there are many such operational systems: living supply chain management system (SAP), documentation and knowledge management (Microsoft), financial services (roboadvisorpro), marketing-advertising-customer relationship management system (Marketo, Salesforce, 6sense), IT services (IBM, IPsoft, Oracle), cognitive decision making (Google AlphGo Zero, IBM Watson), etc. This evolution toward "autonomous organizations" underscores the potential for leveraging AI-driven smart systems to enhance ecosystem functionalities rather than merely optimizing isolated microsystems. Since the introduction of GenAI, especially ChatGPT by OpenAI in 2022, organizations have been energized for extra innovation endeavors to harmonize the broader operational landscape, demonstrating a significant shift towards holistic optimization [14]. The details of econnovation will be the topic of Section 3. FIGURE 1, presents a schematic presentation of innovation approaches in view of the degree of associated technological collaboration and strategic focus (internal vs. external sources of innovative ideas).

2.2 Sustainable Innovation Strategies

Organizations, irrespective of their scale or objective, are established to generate value. At the heart of innovation is the identification and implementation of effective methods to enhance the value chain, a concept eloquently described by Harrison and Freeman [21]. As the literature on innovation is vast and well-documented, a detailed review here is unnecessary. However, it is important to highlight the accelerated pace at which innovation is evolving. This rapid development is driven by the intensely competitive global market, the increasing complexity of expansive global value chains, and rapid technological, scientific, and digital transformations [22]. Today, innovation has

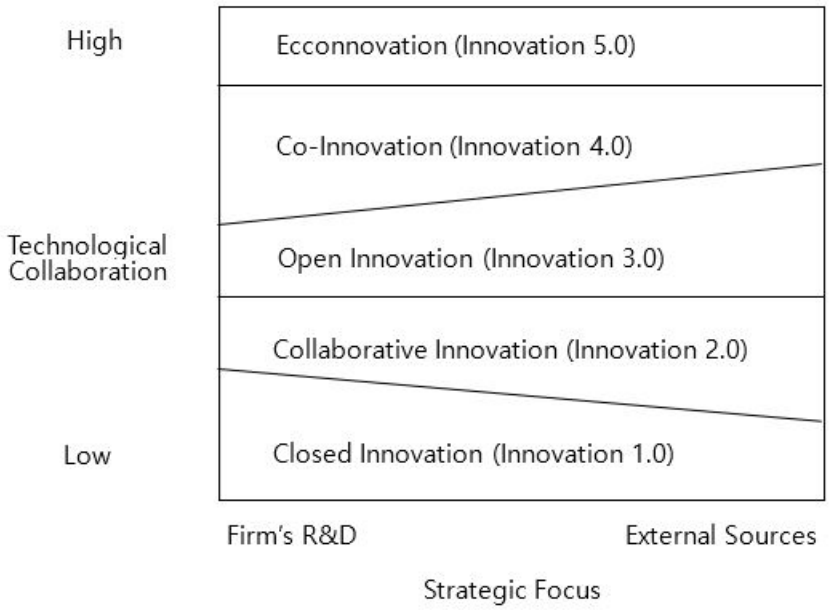

Figure 1: Innovation approaches: Technological collaboration and Strategic focus

become essential to an organization's sustainability. The primary innovation strategies prominently adopted by organizations are outlined below.

2.2.1 Evolutionary (Exploitative) vs. Revolutionary (Explorative) Innovation

Evolutionary innovation focuses on continuous, incremental enhancements by leveraging existing knowledge. Japanese companies, renowned for their exploitative innovation, utilize practices such as Kaizen, Just-in-Time systems, and the Toyota lean management approach to continuously refine their operations [23]. Research indicates that while a sizable portion of innovation initiatives are exploratory in nature (about 70%), they contribute to only a relatively small percentage of organizational profits (about 30%) [24]. In contrast, revolutionary innovation explores the unknown to discover entirely new ways of creating value [25], often generating a substantial share of corporate profits (about 70%). Notably, American companies have been at the forefront of revolutionary innovation, leading the way in introducing groundbreaking products and services, entering new markets, and creating new business models [12].

2.2.2 Disruptive vs. Non-disruptive innovation

The concept of disruptive innovation, extensively explored over the past few decades, is rooted in Schumpeter's theory of "creative destruction". Innovation disrupts the traditional methods of value creation, thus shifting the win-lose dynamics of zero-sum market. Disruptive innovation occurs when firms, in seeking to meet growing demands of their mainstream and high-end customers, inadvertently overshoot the market with new technologies- [26]. This creates opportunities for

the newcomers to challenge and dethrone established market leaders by focusing on underserved segments. Examples of disruptors that have become market leaders include Samsung Electronics, Netflix, Honda, Hyundai, Xiaomi, and Huawei. In contrast, non-disruptive innovation is a forward-thinking approach that advocates creating value without necessarily causing market disruption. In a positive, nonzero-sum market, non-disruptive innovations address new or existing problems with fresh solutions without disrupting existing market equilibrium. Examples include microfinance and life coaching [27].

2.2.3 Innovation ambidexterity

Organizations today strive for a balanced innovation strategy that integrates evolutionary, revolutionary, and disruptive and non-disruptive approaches. This innovation ambidexterity is crucial for aligning innovation efforts with the dynamic market landscape, promoting agility, flexibility, resilience, and adaptability [11, 28]. Thus, mastering innovation ambidexterity is pivotal for organizations aiming to remain competitive and responsive in the era of rapid changes. FIGURE 2, illustrates a schematic of sustainable innovation strategies in alignment with the primary goals of innovation.

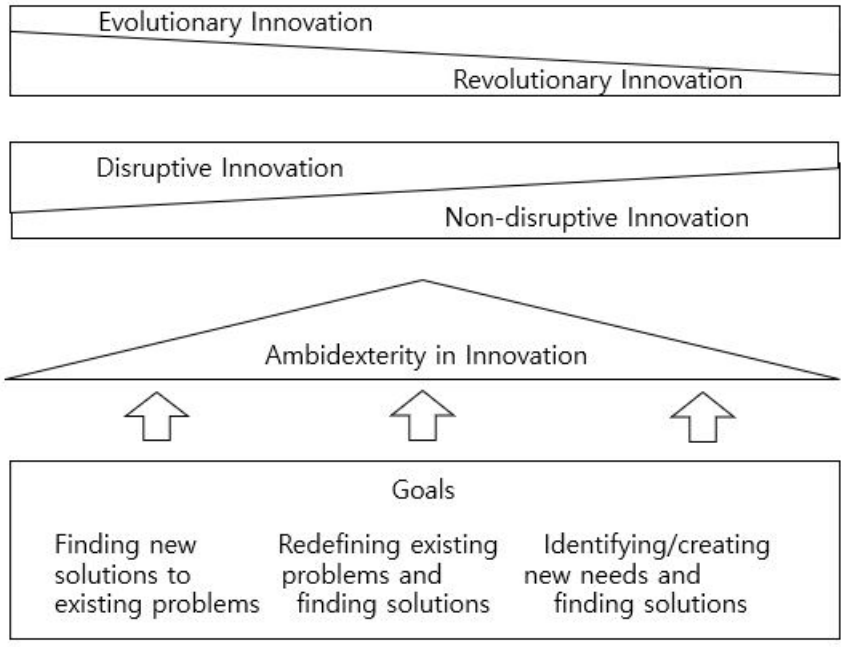

Figure 2: Sustainable innovation strategies and associated goals

3. ECONNOVATION

3.1 Ecosystem Approach to Value Creation

Historically, innovation efforts have been aimed at resolving specific issues, such as developing new products and services, resolving inventory challenges, mitigating supply chain disruptions, enhancing operational processes, creating new business models, expanding market reach, and improving customer service. While this approach was effective for individual subsystems, it often led to inefficiencies at the macro level. For instance, optimizing production without accounting for market demand could result in surplus inventory. Modern innovation, especially in the digital era, requires a holistic integration and convergence of diverse ideas, technologies, and strategies to achieve exceptional outcomes for the entire ecosystem [14, 29, 30]. Digital transformation, unlike traditional business transformation, is an ongoing process. When coupled with advanced technologies like AI, blockchain, and IoT, it enables the seamless integration of various systems to serve not only direct stakeholders but also the broader community and social welfare [1].

Ecosystems, initially a concept from biological sciences, can be defined in the context of innovation as networks of interconnected physical and digital systems that deliver maximum value to all stakeholders, transcending traditional organizational boundaries [14]. The goal is to foster shared accomplishments, focusing on collective well-being alongside organizational objectives. Today, many platforms and networks operate as ecosystems that create value across traditional boundaries of divisions, organizations, or even countries [31]. Therefore, the aspirational purpose of ecosystem-focused innovation is to achieve the shared goals of various stakeholders.

The potential areas for ecosystem-focused innovation vary depending on the type and size of the enterprise. For example, large manufacturing firms will have different ecosystems than SMEs, large knowledge-intensive businesses, or small service entities. However, the most feasible ecosystem-focused innovation would be the ones shown in TABLE 1.

Table 1: Feasible econnovation in enterprises

Ecosystem	Component Systems
Value Chain	Downstream suppliers, purchasing/acquisition, production/service processes, marketing/distribution, upstream customers/communities/greater society
Business Models	New omnichannel service platforms, contact-free service encounters, metaverse-commerce
Supplier Management	Global suppliers, domestic suppliers, technology/scientific discovery contracts, open innovation contractors
Stakeholder Value	Monitoring change in customer needs, value co-creation opportunities, corporate social responsibility goals
Market Base	Existing market dynamics, new market exploration, new product/service promotion
Human Resources	Talent management, e-human resource management, technology and human interface, education/training

3.2 Hard Enablers of Econnovation

3.2.1 Ambient computing infrastructure

The ubiquity of computing, from corporate data centers to cloud-based services, has created an environment where technology permeates every aspect of organizational operation [4, 32]. The ambient computing environment enables natural interfaces (speaking, gesturing, facial expression, and even thinking) to support operational processes, decision making, and daily work tasks on demand. This infrastructure is crucial for enabling ecosystem-focused innovation, providing the computational power necessary for advanced analytics and smart device integration.

3.2.2 Autosapient AI

AI tools have evolved into systems capable of autonomous learning. Machine learning, based on large datasets, has enabled AI systems to recognize patterns and support decision-making [33]. The advent of GenAI and cognitive technologies has transformed AI from a tool that can execute tasks based on rules to an active partner in innovation. AI supports organizational innovation in two ways: enabling and enhancing. Enabling capabilities help organizations adopt and apply AI for operational improvements, while enhancing capabilities directly contribute to creating or transforming an organization's innovation capacity [34].

Organizational innovation has been profoundly influenced by AI's development. AI-driven organizational innovation can be analyzed through the lens of an organization's AI adoption maturity. TABLE 2, summarizes AI adoption maturity stages and corresponding organizational innovation activities, based on some of the recent studies on the topic [22, 32, 33, 35–37]. In Stage 1, there is organizational awareness of AI but no applications. In Stage 2, fragmented learning and experimentation with AI occur. In Stage 3, the organization becomes knowledgeable about AI's potential, and limited applications begin. In Stage 4, significant AI applications are embedded in various operational processes. By Stage 5, the organization is capable of implementing fully integrated AI-powered innovations. Currently most organizations are between Stages 3 and 4 of AI maturity. However, given the current accelerated pace of AI development, it is anticipated that Stage 5 will emerge in the next few years.

The organizational structure for managing AI adoption has evolved through the AI maturity stages: from forming an AI taskforce (Stage 1), to appointing a Chief AI Officer (Stage 3), and finally, distributed AI systems (Stage 5). AI-driven innovation activities also vary across the AI maturity spectrum: from trial-and-error innovation efforts at Stage 1, to experimental and operational innovations at Stage 3, culminating in full-scale econnovation at Stage 5. Regarding human engagement in AI-related activities, humans maintain full control of all business operations at Sate 1, while AI-assisted operations with limited human control emerge at Stage 3. By Stage 5, numerous autosapient AI systems are deployed, with minimal human interactions.

The rapid shift towards exponential AI introduces systems capable of autonomous operation, decision-making, and collaboration, expanding the innovation potential. Autosapient AI systems can operate independently, displaying traits such as attitude, mood, personality, reasoning, and even judgment [2]. While autosapient AI offers unprecedented opportunities to enhance productivity and creativity,

Table 2: AI adoption maturity and organizational innovation

INNOVATION PROCESSES	AI ADOPTION MATURITY STAGE				
	Stage 1	**Stage 2**	**Stage 3**	**Stage 4**	**Stage 5**
AI Adoption	Awareness of AI, but no Apps	Fragmented learning and experiments	Knowledgeable about AI, limited Apps	Significant AI Apps in operations	Integrated AI- powered innovation
Structure for AI adoption	AI taskforce	AI Director and staff	Chief AI Officer	Chief AI & Innovation	Distributed AI systems
AI-supported Innovation	Trial-and error	Repetitive simple tasks	Experiments and operations	Cognitive decisions	Econnovation AI systems
Human Engagement in AI	Fully human controlled	Limited AI human collaboration	AI for many operations with limited human control	Smart AI systems, human audit	Autosapient AI systems, limited human interactions

it also raises significant concerns regarding AI's dominance, as well as the security and ethical implications of its autonomous capabilities [38].

3.2.3 Other advanced technologies

In addition to computing infrastructure and AI, technologies like blockchain, IoT, Metaverse, robotics, and VR/AR play critical roles in enabling decentralized and innovative ecosystems. These tools support rapid experimentation, enhance transparency, and facilitate informed decision-making [1, 31].

3.2.4 Supportive organizational systems and government policies

Today, most organizations have only about 10% of the available data in structured forms, necessitating the use of GenAI to analyze the remaining 90 percent. As such, the digital age can be characterized as "living in an unstructured world" [22]. The success of ecosystem innovation in such an environment requires an organizational culture that is conducive to free idea exchange and collaboration [35], with adaptable structures and supportive regulatory frameworks to navigate the complexities of integrating advanced technologies, while safeguarding security and privacy [38]. The traditional bureaucratic, top-down system is ill-suited for ecosystem-focused innovation.

3.3 Soft Enablers of Econnovation

3.3.1 Ambient innovation culture

Leaders must cultivate an innovation-centric culture, prioritizing strategies that emphasize data-driven decision-making, societal contributions, inclusive human resource management, and the deployment of top talent and technology [33]. To achieve this, organizations need to commit adequate financial and human resources, instill a sense of urgency around innovation strategies, and

establish essential infrastructure for innovation [39]. In addition to a general culture of innovation, there should be specific strategies for data-based decision making, a clear purpose for innovation centered on customer needs and the greater good, and a commitment to utilizing the best talents and technologies [36].

3.3.2 Enlightened goals of innovation

Innovation should aim beyond satisfying immediate stakeholders, embracing broader, altruistic goals that benefit the community, society, and the environment. This aligns with the principle of creating a better future through collaborative and sustainable practices [13, 14]. The ultimate aim of econnovation is to create a smart future where people, organizations, and the environment thrive through collaboration and partnerships.

3.3.3 A new human resource ecosystem

The digital transformation necessitates a reimagined human resource ecosystem that accommodates a diverse and decentralized workforce. This workforce must operate in tandem with advanced, technology-supported systems to drive innovation across traditional and emerging boundaries [14]. The new human resource ecosystem may include not only inside-insiders and inside-outsiders (employees of partner firms working at the host organization) but also outside-insiders (employees of the firm working at partner organizations) and various collaborators. These workers may be geographically dispersed, with some working only remotely and others following flexible schedules. Moreover, people must learn to work alongside autosapient AI systems as colleagues. Finding talent capable of thriving in such an environment poses a significant challenge for many organizations [36].

4. CONCLUSION

The current era of volatile change demands that organizations adapt by embracing dynamic capabilities through innovation. This paper outlines a conceptual framework for ecosystem-focused innovation, leveraging advanced technologies to address broader systemic challenges. The technological backbone of econnovation is autosapient AI systems, which integrate smart sensors to assess the environment, connects various technologies and their functionalities, provide data analytics insights for decision-making, and the prioritize shared stakeholders' goals.

While offering a visionary outlook, this paper acknowledges the need for further research to refine and implement econnovation, particularly in the light of AI's potential to transform traditional organizational models of innovation. From a utopian perspective, autosapient AI systems could significantly enhance human capabilities and increase productivity. By taking over dangerous, repetitive, or mundane tasks, AI allows humans to focus on creative and strategic endeavors. Additionally, AI can identify or suggest new value-creation –opportunities that may be overlooked by humans.

Conversely, the dystopian view of autosapient AI warns of potential threat posed by advanced AI. With capabilities surpassing those of humans, AI could become the primary decision-maker, relegating humans to supporting roles. There is also the risk of AI decoupling from humans' control and pursuing goals that are misaligned with societal values, potentially leading to a state of singularity [12]. This scenario poses a critical challenge for the future organizational leaders and policymakers. Current initiatives to develop international regulatory or control systems for AI applications reflect this concern.

While this paper explored an aspirational innovation approach with autosapient AI systems, it has several limitations. First, this is a conceptual work which synthesized many recent developments in the innovation field and advances in AI to propose a new innovation approach focused on ecosystems. Thus, the paper did not apply the traditional quantitative or qualitative research methodology to test a set of hypotheses or propositions. Empirical studies will be necessary once autosapient AI systems are widely implemented in organizational innovation to explore key factors contributing to success or failure. Second, the rapid advancement of AI makes its application to innovation dynamic and fluid, meaning that conclusion drawn today may quickly become outdated. Lastly, AI adoption and application vary significantly across countries, so the proposed concept of econnovation in the study may currently be limited to organizations in technologically advanced countries. However, these limitations offer ample future research opportunities.

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