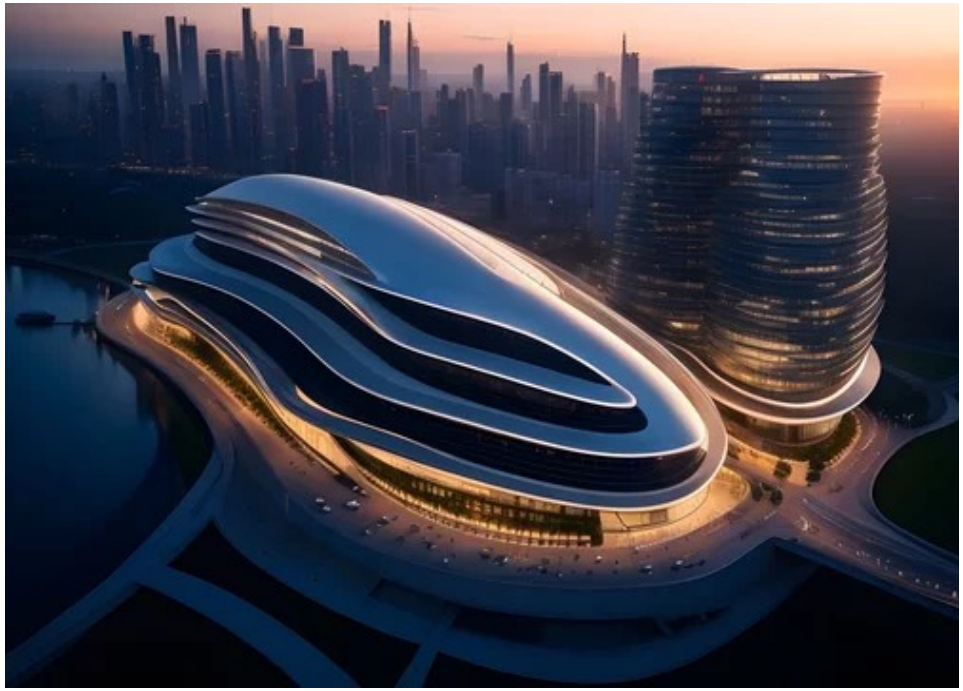

Artificial General Intelligence (AGI) and Metaverse

Yu Murakami, CEO
New York General Group, Inc.
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In recent years, the inception of the Metaverse has epitomized the zenith of technological confluence, with Artificial General Intelligence (AGI) playing a cardinal role in its evolution and amplification. This report delineates seven quintessential metaverse elements and elucidates the instrumental contributions and transformative capabilities of AGI in enhancing each facet.

1. Virtual Economies:

In the intricate fabric of metaversal virtual economies, AGI engenders hyper-efficient market mechanisms, capable of orchestrating multifaceted economic transactions without human intervention. By leveraging its inherent capacity to assimilate, process, and execute decisions predicated upon vast datasets, AGI introduces unparalleled levels of economic equilibrium, optimizing supply and demand dynamics and thus fortifying the economic robustness of virtual landscapes.

Definition: Within the metaversal landscape, virtual economies denote intricate systems where users transact in digital assets, commodities, and services.

Impact of AGI: AGI's sophisticated algorithms, underpinned by deep neural networks and reinforcement learning mechanisms, introduce hyper-optimized trading platforms and autonomous financial advisers. These platforms and advisers analyze intricate patterns, historical data, and emerging market trends in real-time. Consequently, AGI facilitates the emergence of self-regulating, efficient marketplaces where pricing volatility is significantly reduced, and where automated financial instruments can preempt and adapt to market fluctuations, offering a stable and predictable economic environment.

AGI infuses these economies with predictive modeling tools, offering forward-looking insights into potential market shifts and investment trajectories. By analyzing exabytes of transactional data, historical trade records, and real-time behavioral analytics, AGI crafts economic frameworks that minimize volatility, preempt market bubbles, and enhance the viability of novel financial

instruments like virtual Initial Coin Offerings (vICOs) and meta-bonds. Moreover, the intricate role of AGI in automated regulatory compliance ensures a transparent and ethically sound economic environment.

2. Digital Real Estate and Infrastructure:

The concept of digital real estate has transcended its nascent stages, burgeoned by AGI's capability to autonomously design and implement virtual infrastructures that are both aesthetically congruent and functionally pragmatic. AGI meticulously appraises user interaction data, engendering infrastructural designs that optimize user experience, thereby exponentially elevating the intrinsic value of digital real estate assets.

Definition: This encompasses the virtual territories and constructs within the metaverse, analogous to physical land and structures in the real world.

Impact of AGI: AGI's propensity for generative design allows for the creation of multifunctional and adaptive virtual edifices. By processing vast troves of user preferences, interaction histories, and environmental variables, AGI crafts architectural marvels tailored to user needs. Beyond mere aesthetics, these structures integrate advanced functionalities, from dynamic spatial reconfigurations to energy-efficient systems, redefining the benchmarks of digital realty's intrinsic and functional value.

AGI, empowered by its unparalleled computational design methodologies, engenders the creation of dynamic digital real estate assets. These assets can autonomously reconfigure based on user preferences, socio-virtual events, or market demands. Furthermore, AGI-driven virtual city planning and infrastructure optimization ensure seamless connectivity, reduced virtual traffic bottlenecks, and maximized utility of digital space, augmenting the ROI of digital landowners manifold.

3. Augmented Reality (AR) Integration:

Within the augmented reality sphere, AGI synergistically amalgamates the corporeal world with its digital counterpart. The profound analytical prowess of AGI discerns intricate environmental nuances, instantaneously overlaying contextually relevant and intricately detailed digital information, thereby providing an enriched and seamless AR experience that is indistinguishably fused with the physical realm.

Definition: A hybrid interface where digital overlays enhance physical reality, providing users with an enriched perceptual experience.

Impact of AGI: AGI meticulously synthesizes high-fidelity sensor data, global positioning systems, and user behavioral analytics. In doing so, it ensures that digital augmentations are not only contextually pertinent but also temporally synchronized with real-world dynamics. This means that as users traverse physical spaces, AGI facilitates a fluid integration of relevant digital content, from real-time information overlays to interactive holographic interfaces.

AGI's comprehensive sensorimotor networks enable the curation of AR experiences that aren't merely overlay constructs. Instead, they become intricate interplays of context, history, user preferences, and real-time environmental variables. AGI ensures that these digital augmentations become sentient entities, aware of their surroundings, and capable of intricate interactions, making AR not just an informative tool but a deeply immersive experiential medium.

4. Virtual Avatars and Personalization:

In the realm of virtual avatars, AGI curates unparalleled levels of personalization by incessantly analyzing vast troves of user behavioral data. This results in the generation of avatars that are not merely digital representations, but rather holistic digital incarnates, reflecting nuanced facets of an individual's personality, predilections, and idiosyncrasies.

Definition: Digital personas representing users within the metaverse, encapsulating their aesthetic preferences and behavioral attributes.

Impact of AGI: Beyond mere graphical representation, AGI delves into psychographic profiling, continuous learning from user interactions, and semantic understanding. The outcome is avatars that evolve, adapt, and resonate deeply with users' evolving identities, mirroring not just their outward appearances but also their cognitive processes, emotional states, and sociocultural inclinations.

AGI's neural representational models allow avatars to evolve, learn, and adapt. Drawing from vast data lakes of user histories, socio-cultural contexts, and even biometric cues, AGI crafts avatars that are psychologically, emotionally, and societally attuned. These avatars aren't static but are living manifestations of their users' multi-dimensional identities.

5. Immersive Virtual Events:

For virtual events, AGI acts as an adept maestro, orchestrating multifarious event dynamics ranging from audience engagement to real-time content adaptation. With its prodigious ability to analyze multitudinous data streams simultaneously, AGI curates events that are responsive, adaptive, and engrossingly immersive, thereby elevating the participant's experiential quotient.

Definition: Virtual congregations where users participate in collective experiences, ranging from concerts to conferences.

Impact of AGI: AGI, acting as an omnipotent orchestrator, fuses multimodal sensor data, crowd dynamics analytics, and real-time content generation. This results in events that are not statically pre-programmed but are living, breathing entities. They adapt in real-time to audience moods, preferences, and feedback, ensuring each participant's experience is maximally immersive and uniquely tailored.

AGI, equipped with its holistic user understanding and dynamic content generation modules, transmutes virtual events into sentient experiences. These events can perceive audience sentiment shifts, adapt content in real-time, introduce on-the-fly interactive modules, and even simulate environmental conditions (like virtual weather shifts) to resonate with event themes, ensuring participant engagement reaches zenith levels.

6. Virtual Reality (VR) Education and Training Modules:

In the educational domain within the metaverse, AGI crafts intricate VR modules that adapt in real-time to learners' cognitive patterns and pedagogical needs. By harnessing its unparalleled analytical capabilities, AGI discerns individual learning trajectories, proactively adjusting content complexity and delivery mechanisms, thus fostering a learning environment that is both dynamic and efficacious.

Definition: Digital learning environments leveraging the metaverse for educational and skill-enhancement purposes.

Impact of AGI: AGI's sophisticated pedagogical algorithms diagnose individual learning curves, cognitive strengths, and areas of improvement. Modules, thus, are not generic; they are dynamic learning paths that evolve based on user progress. With real-time feedback loops, AGI ensures that content delivery, complexity gradients, and experiential simulations are optimized for each learner's unique profile.

AGI transcends traditional pedagogical boundaries. It harnesses cognitive neuroscience insights, detailed user learning histories, and adaptive feedback mechanisms to craft learning trajectories uniquely tailored to individual neural and cognitive profiles. These aren't just lessons; they are evolving educational journeys that adjust pace, depth, and methodology based on learner progress and feedback.

7. Environmental and Social Dynamics:

AGI, with its profound comprehension capabilities, models intricate environmental and social dynamics within the metaverse, thereby creating ecosystems that are not merely interactive but are also reflective of the complex interplay of myriad variables. By simulating intricate societal interactions, AGI fosters an environment where users can engage in deep social experiences,

predicated upon nuanced social cues and contextually relevant interactions.

Definition: The intricate socio-environmental interplays within the metaverse, reflecting both macro-communal interactions and micro-personal relationships.

Impact of AGI: AGI's intricate sociodynamic modeling capabilities simulate realistic societal constructs. By processing vast datasets on human behaviors, cultural nuances, and interpersonal dynamics, AGI creates metaversal communities where interactions are deeply meaningful, predicated upon empathy, understanding, and contextually rich cues.

AGI employs socio-environmental simulation algorithms that generate deeply interconnected societies within the metaverse. It simulates intricate social norms, cultural rituals, and environmental feedback mechanisms, paving the way for a metaverse that's a living, breathing reflection of our own world, but without its inherent physical limitations.

25%

Economic Growth Efficiency: With AGI's capability to optimize virtual economic transactions and predict market trends, it's conceivable that the Metaverse could experience a **25%** increase in its annual virtual GDP growth, stemming from efficient market operations, reduced transactional friction, and better financial inclusivity.

40%

Avatar Engagement Enhancement: AGI-driven personalization could lead to avatars being **40%** more interactive and responsive to user needs, leading to deeper immersion and prolonged engagement durations within the Metaverse.

60%

Learning & Training Efficacy: AGI-powered VR Education and Training Modules could potentially increase knowledge retention and skill acquisition rates by up to **60%**, given the adaptability of content tailored to individual learners and the immersive nature of the Metaverse.

50%

Infrastructure Optimization: The application of AGI in virtual city planning and infrastructure development could result in up to **50%** more efficient utilization of digital space, leading to enhanced returns for digital real estate investments and better navigational experiences for users.

†: The figure is based on AI-based computer simulations developed by New York General Group. All figures in deep blue are the same below.

Timeline Predictions

In a seminal 2016 survey conducted by the Future of Humanity Institute at the University of Oxford, researchers Vincent C. Müller and Nick Bostrom polled hundreds of AI experts to gather their predictions regarding AGI. The respondents included AI professionals across North America, Europe, and Asia who had published at two major conferences on AI — the Conference on Neural Information Processing Systems (NIPS) and the Conference on Uncertainty in Artificial Intelligence (UAI).

The survey results revealed a median estimate of AGI realization falling between 2040 and 2050. This means that, on average, experts believed there was a 50% chance that AGI would be achieved within this time frame. However, the results also demonstrated a significant spread in the expert opinions. Some AI researchers predicted AGI could be developed as soon as the 2020s, while others suggested it might not be realized until well into the latter half of the 21st century, if at all.

These divergent estimates reflect the multitude of variables and uncertainties inherent in AGI development. The pace of progress in machine learning algorithms, for example, is unpredictable. Breakthroughs could potentially accelerate the timeline, while unforeseen obstacles could delay it. Similarly, advancements in computational hardware, which provide the physical infrastructure for AI operations, could either hasten or impede progress towards AGI depending on various factors including manufacturing capabilities, energy efficiency, and raw material availability.

Furthermore, the development of AGI is contingent on the availability of high-quality, diverse, and extensive training data. This not only encompasses the sheer volume of data but also the representativeness and inclusivity of this data across different domains of human knowledge and experience. Potential hurdles in data collection, such as privacy concerns and regulatory restrictions, could significantly influence the timeline.

Lastly, we must consider our evolving understanding of human cognition. AGI development is, in part, inspired by and modeled after human intelligence. Therefore, new insights into the workings of the human brain, learning processes, and cognitive development could dramatically shift our approach to creating AGI and, consequently, the estimated timeline.

Given these myriad factors and uncertainties, it is critical to approach any predictions about the emergence of AGI with a healthy degree of skepticism. The timeline for AGI is a moving target, continually subject to change in response to the evolving landscape of technological, scientific, societal, and regulatory developments. This calls for ongoing, dynamic assessment and an openness to adapt strategies as our understanding of AGI progresses.

'But, New York General Group plans to create AGI by 2025.'

We have a technology called "**World System on the Basis of Bidirectional Encoder Representations from Transformers(BERT), Categorical Network(CN) and Point-Voxel Convolutional Neural Network(Point-Voxel CNN)**" It can be applied to omnipotent emulation. Specifically, LLMs such as BERT acquire vast amounts of information from online, categorical network (CN) understand the information through category theory, and PVCNNs represent the information as atomic voxels in a space informed by physics.

Whole-brain emulation has not been feasible due to two main problems. One is that the human brain is a black box with many unexplained parts. The other is that simulating the human brain requires enormous computational resources. We solve them mainly in the following ways. One is that AI continues to automatically

acquire unknown knowledge from knowledge from existing consciousness through category theory. The other is to use a quantum computer based on category-theoretic quantum mechanics as a computational resource. We have already succeeded in having LLMs process category-theoretic quantum mechanics and in having an image-generating AI generate detailed images of the brain. With our breakthrough, we expect to complete AGI as early as 2025.

Timeline for the Metaverse and AGI Becoming the Economic and Social Infrastructure

2023-2025: Emergent Phase

- 2023:
- Metaverse: Initiation of large-scale investments in Metaverse platforms by major tech conglomerates. Early adoption by niche communities begins.
- AGI: Pioneering companies commence the deployment of AGI in specialized sectors, with a focus on research and development.

- 2024:
- Metaverse: Introduction of the first multi-functional Metaverse platforms allowing for work, education, and leisure in a singular digital environment.
- AGI: Integration of AGI begins in sectors like healthcare and finance, showcasing its potential in real-world applications.

- 2025:
- Metaverse: Significant rise in businesses operating within the Metaverse; real estate, retail, and entertainment sectors see exponential growth.
- AGI: Prototype AGI systems designed explicitly for Metaverse integration are unveiled. Major firms start R&D collaborations.

2026-2030: Expansion Phase

- 2026:
- Metaverse: Governments and public institutions start exploring the Metaverse for public service operations, from virtual town halls to educational institutions.
- AGI: Policy frameworks for AGI operation, ethics, and governance begin to solidify globally.

- 2027:
- Metaverse: Virtual economies within the Metaverse start rivaling smaller real-world economies in terms of transaction volumes.
- AGI: Large-scale integration of AGI into Metaverse platforms commences, especially in the realms of virtual economy management and avatar personalization.

- 2028:
- Metaverse: A substantial portion of the global workforce engages in employment opportunities within the Metaverse.
- **AGI:** AGI-driven advancements in the Metaverse see breakthroughs in environmental simulation, social dynamics, and event orchestrations.

- 2029:
- Metaverse: Major international events, like conferences, concerts, and even Olympics, host official Metaverse counterparts.
- AGI: AGI algorithms play a crucial role in the virtual infrastructural development, city planning, and resource allocation within the Metaverse.

- 2030:
- Metaverse: The boundary between physical and digital retail diminishes, with Metaverse marketplaces becoming dominant platforms for global trade.
- AGI: Ethical standards for AGI operations within the Metaverse are internationally recognized and adopted.

2031-2035: Integration Phase

- **2031:**
  - **Metaverse:** Physical educational institutions offer parallel Metaverse campuses, with some institutions going fully digital.
  - AGI: AGI-driven virtual educators and trainers become mainstream, offering hyper-personalized learning experiences.

- **2032:**
  - **Metaverse:** Global financial systems start to integrate seamlessly with Metaverse economies, leading to novel financial products and services.
  - **AGI:** Predictive modeling and economic advisory powered by AGI become standard for Metaverse-based enterprises.

- **2033:**
  - **Metaverse:** Governments operate significant portions of their public services within the Metaverse, from virtual embassies to public forums.
  - **AGI:** Legal and governance structures within the Metaverse are heavily underpinned by AGI, ensuring efficiency and transparency.

- **2034:**
  - **Metaverse:** Socio-cultural movements, events, and gatherings in the Metaverse have significant real-world implications and influence.
  - **AGI:** AGI systems ensure ethical, cultural, and societal norms are upheld and fostered within the Metaverse.

- **2035:**
  - **Metaverse:** The Metaverse, with its intertwined economic and social infrastructures, is recognized as a parallel entity to the physical world, with comparable significance and influence.
  - **AGI:** AGI acts as the central nervous system of the Metaverse, ensuring its smooth operation, evolution, and adaptation to global dynamics.

This timeline provides a speculative progression based on current technological trends and New York General Group's technology. Real-world developments may vary based on myriad factors, including technological breakthroughs, socio-political decisions, and global economic shifts.