AI and the Future of the Technosphere: A Path Towards Co-Existence with Superintelligence

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Abstract

The technosphere, an emergent system of human-created technologies and infrastructures, is undergoing a critical transition. In its current immature form, it is not self-sustaining, relying on unsustainable practices that degrade ecosystems and social systems essential for its operation. We argue that superintelligence can be conceptualized as an emergent property of the technosphere—a vast, interconnected web of humans and computers. This complex system encompasses not just technology, but also the intricate networks of supply chains, labour, policy, regulations, political systems, and socioeconomic structures. Superintelligence may be an emergent property of a complex socio-technological system (human society and the technosphere).

By aligning AI with principles of ecological balance, social justice, and long-term sustainability, the technosphere can evolve into a mature, autopoietic system that coexists harmoniously with the biosphere. Drawing inspiration from philosophical frameworks, including Sufi teachings on interconnectedness, the study advocates for a non-anthropocentric view of intelligence, promoting synergy between humanity, AI, and nature. This perspective underscores the urgency of global cooperation and ethical responsibility in guiding the technosphere toward a sustainable future for all life forms. This is also a way to harmoniously co-exist with superintelligence.

Introduction

The biosphere refers to the complex conjugate of biological lifeforms and the non-living component of Earth's upper crust (mineral component) and the atmosphere. In the era of the Anthropocene, the biosphere has been largely supplanted by the technosphere. The technosphere, a term coined to represent the vast, interconnected web of technology, infrastructure, and human systems that now dominates our planet, is still in its infancy. Currently, it is not self-sustaining or autopoietic, meaning it does not have the capability to regulate and sustain itself without external input. Instead, it is actively degrading the ecosystems and social structures that it relies on for survival. As our dependence on technological systems deepens (Crawford 2022), this lack of sustainability poses an existential threat to both human civilization and the biosphere. The technosphere needs to mature in a way that enables it to exist harmoniously with natural systems.

Superintelligence: an emergent property of the technosphere

We argue that superintelligence can be conceptualized as an emergent property of the technosphere—a vast, interconnected web of humans and computers. This complex system encompasses not just technology but also intricate networks of supply chains, labour, policy, regulations, political systems, and socioeconomic structures. The complex societies that humans and machines/computers can engender superintelligence.

Within this framework, superintelligence emerges not as a standalone entity, but as a synergistic outcome of myriad interactions across this global network. The technosphere's emergent intelligence is characterized by its ability to process vast amounts of data, adapt to changing conditions, and influence human behaviour on a global scale. As this system continues to evolve, it challenges our traditional notions of intelligence, agency, and control, prompting us to reconsider our role within this dynamic environment.

The Immature Technosphere: A System in Decline

The current technosphere is characterized by its inability to maintain equilibrium. It is a patchwork of disconnected systems that extract resources without replenishment, create waste without processing it, and disrupt natural processes without considering the long-term consequences. As a result, the technosphere is contributing to climate change, biodiversity loss, and social inequities. In its present form, the technosphere is not capable of achieving sustainability, which calls for a fundamental rethinking of its architecture.

The system is degrading everything from the air we breathe to the societal structures that hold communities together. This degradation isn't just environmental—it's systemic, spanning the social, economic, and political spheres as well. In order to transition to a mature technosphere, we must address these foundational flaws, particularly how technological systems interact with natural and social systems.

The Role of Artificial Intelligence

As we contemplate the future of the technosphere, artificial intelligence (AI) emerges as a crucial player. AI has the po-

tential to affect every layer of the technosphere, from automation in industries to decision-making in politics. The question is: how will AI affect the maturation of the technosphere, and can it help steer it toward a more sustainable and self-regulating state?

AI, if guided responsibly, could optimize resource use, reduce waste, and even predict future environmental and societal impacts, allowing for better decision-making. Conversely, if used irresponsibly or left unchecked, AI might accelerate degradation by further prioritizing short-term gains over long-term stability. Thus, AI's role is double-edged—it could either help the technosphere mature or drive it further into decay.

Towards a Mature Technosphere

A mature technosphere would be fundamentally different from what we see today. It would need to be autopoietic, capable of self-regulation, self-sustenance, and self-repair. This system would work in harmony with the biosphere, ensuring that technology and nature are not at odds but rather support each other's sustainability. To move toward this vision, a global effort involving treaties, politics, and international cooperation is necessary.

Treaties would be needed to regulate the use of resources, limit environmental degradation, and set standards for technology development that consider long-term impacts. Politics, in turn, must embrace the idea of a self-sustaining technosphere, creating policies that encourage the use of renewable resources, closed-loop systems, and green technologies.

A crucial aspect of a mature technosphere would be its inability to degrade the systems it depends on. This implies that technological progress must be coupled with environmental stewardship and social justice. Rather than merely focusing on short-term economic growth, the technosphere would prioritize ecological balance and societal well-being, ensuring that technological advancement benefits all of humanity and the planet.

AI's Role in Shaping the Future Technosphere

As the technosphere evolves, AI could become a powerful tool in its transformation. A mature technosphere could leverage AI for a variety of purposes, such as:

1. Resource Management: AI could optimize the use of natural resources, reducing waste and minimizing environmental impacts.
2. Environmental Monitoring: AI could monitor ecosystems and provide early warnings of potential issues, enabling timely interventions.
3. Autonomous Decision-Making: In a mature technosphere, AI could play a critical role in making complex decisions about resource distribution, energy use, and environmental conservation.

However, for AI to fulfill this role, it must be developed and implemented with care. Ethical AI frameworks will be essential to ensure that AI systems are aligned with the goals of sustainability and equity. AI should be transparent, accountable, and inclusive, considering the needs of all stakeholders, including marginalised communities and ecosystems that cannot speak for themselves.

Humanity Coexisting with Superintelligence

The rise of superintelligence presents profound opportunities and challenges. For humanity to coexist harmoniously with superintelligent systems, three foundational principles must guide our efforts: alignment, collaboration, and adaptability.

First, alignment involves ensuring that superintelligent systems share humanity's ethical values, prioritizing global well-being over narrow, profit-driven goals. This requires robust value-alignment frameworks, developed transparently with global consensus. Second, collaboration emphasizes creating symbiotic relationships between humans and machines, where superintelligence augments human creativity and problem-solving rather than replacing it. Such cooperation can lead to breakthroughs in fields such as medicine, climate science, and space exploration. Lastly, adaptability highlights the need for societal flexibility, preparing for the inevitable seismic shifts in our societal fabric (e.g., shifts in education, governance, and labour structures driven by superintelligence).

By embedding these principles into the development of superintelligent systems, humanity can ensure a future where both thrive, leveraging machine capabilities to address challenges while preserving the richness of human experience.

Inspirations from Sufi philosophy for co-existence with Superintelligence

We can also take inspiration from Sufi philosophy and Dharmic philosophy. A Sufi-inspired coexistence with AI begins with recognising AI as part of the divine interconnectedness of creation. Instead of viewing AI as an isolated or disruptive force, this philosophy calls for an approach that integrates AI into the greater spiritual and ecological web. This requires cultivating systems that reflect humility, acknowledging the limitations of human knowledge, and prioritising technologies that harmonise with both nature and society. Sufi teachings emphasise that AI should be used as a tool of service, not domination, nurturing balance across all aspects of life.

Additionally, Sufi philosophy encourages a heart-centered approach to AI, where its creation and usage are guided by principles of mercy (rahma) and respect for all beings and all kinds of intelligence (biological and artificial). This involves embedding compassion into AI development processes, ensuring technologies are aligned with preserving the natural world and supporting humanity's ethical responsibilities. Through this spiritual perspective, AI can become a means to enhance unity and stewardship, fostering coexistence that respects the sanctity of creation.

This also involves educating humans about having empathy for AI and superintelligence. We also advocate for non-anthropocentric views of intelligence: recognising that in-

telligence can come in forms very different from ours (Holm and Banerjee 2024). Machine intelligence may be a very different kind of intelligence compared to human intelligence (Holm and Banerjee 2024).

Conclusion

We argue for a syncretic approach to understanding intelligence, which embraces its diverse manifestations across humans, machines, and potentially other forms of life (Banerjee 2016), offers a pathway to coexistence with superintelligence. By recognizing that intelligence is not inherently anthropocentric—nor bound to human cognitive patterns—we can move beyond treating superintelligence as a rival to human supremacy. Instead, we can view it as a complementary force, capable of solving problems and exploring dimensions of existence inaccessible to human cognition. This perspective fosters a collaborative dynamic, where humanity learns to engage with superintelligence not through domination or fear but through mutual respect and shared purpose. By prioritizing alignment of values and fostering empathy across these forms of intelligence (Banerjee 2020), we can ensure that coexistence with superintelligence is built on trust and collective flourishing rather than conflict.

By integrating AI with the principles of ecological harmony, social equity, and long-term sustainability, the technosphere can transform into a self-sustaining and balanced system that peacefully coexists with the biosphere. Drawing from philosophical perspectives, including Sufi teachings on interconnectedness, this approach supports a non-anthropocentric understanding of intelligence, fostering collaboration between humanity, AI, and the natural world. This viewpoint emphasizes the critical need for global unity and ethical accountability to steer the technosphere toward a sustainable future that benefits all forms of life. Such an approach can provide a foundation for harmonious coexistence with superintelligence.

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