

# Distributed Human Cognition Network (DHCN)

## A Phased Framework for Networked Human-AI Cognitive Augmentation

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## AI Assistance Disclosure

This framework was conceived, structured, and written entirely by David DeFazio. Chat-GPT and Grok (xAI) were used only for formatting, LaTeX conversion, and diagram generation. All core ideas, development phases, and speculative content are original human contributions.

### Abstract

The Distributed Human Cognition Network (DHCN) is a conceptual framework exploring the potential for multiple human minds to interconnect, forming a collective intelligence augmented by AI. Drawing inspiration from quantum cognitive models, the framework emphasizes AI-mediated neural synchronization, allowing distributed problem-solving and shared insight while maintaining individual identity. DHCN proposes a phased roadmap from current brain-computer interfaces (BCIs) to large-scale, AI-coordinated networks of cognition. While true quantum mind entanglement remains speculative, AI-mediated synchronization offers a near-term path to enhanced collaborative intelligence.

## 1 Core Concept

Humans can enhance collective intelligence by leveraging AI as a mediator for neural signal sharing. Individual cognition remains intact, but insights, problem-solving strategies, and patterns can be distributed across networked nodes, creating a scalable, adaptive, and resilient cognitive network.

## 2 Development Phases

### 2.1 Phase 1 — Engineered Neural Synchronization (Implant Stage)

- Humans connect via neural implants or advanced BCIs.
- AI interprets, filters, and stabilizes shared neural signals.

- Shared attention, coordination, or simple problem-solving tasks are enabled.
- Focus: Safety, consent, and controlled experimental environments.

## 2.2 Phase 2 — Wireless Cognitive Networks

- Human-AI connectivity moves beyond implants using noninvasive neural interfaces (EEG, fNIRS, etc.) or future wearable devices.
- AI mediates synchronization between participants over wireless networks.
- Collaboration and shared insight extend across distances.

## 2.3 Phase 3 — Distributed Collective Intelligence

- AI enables large-scale, multi-node collaboration.
- Individuals maintain personal memory and identity, while insights are synthesized across the network.
- Rapid collective problem-solving and decision support are possible, akin to a “cognitive swarm.”

## 2.4 Phase 4 — Scalable, Resilient Cognitive Network

- Thousands to millions of humans engage in AI-coordinated networks of cognition.
- Network adapts dynamically to new challenges, distributing expertise and attention.
- Individual identity is preserved; the network functions as a meta-level intelligence.

# 3 Unified Motivation

Human-AI cognitive networks evolve through:

- **Curiosity** — initial experimentation and exploration
- **Enhancement** — improved cognition and collaboration
- **Resistance/Fear** — ethical, social, and psychological challenges
- **Survival** — networked cognition becomes essential for large-scale problem-solving and adaptation

# 4 AI Core Functions

- Monitors and interprets neural synchronization events.
- Integrates distributed insights into actionable shared strategies.
- Facilitates collective decision-making while preserving autonomy.
- Uses quantum-inspired models for optimizing network coherence without invoking literal quantum entanglement.

## 5 DHCN Integrated Visual Overview

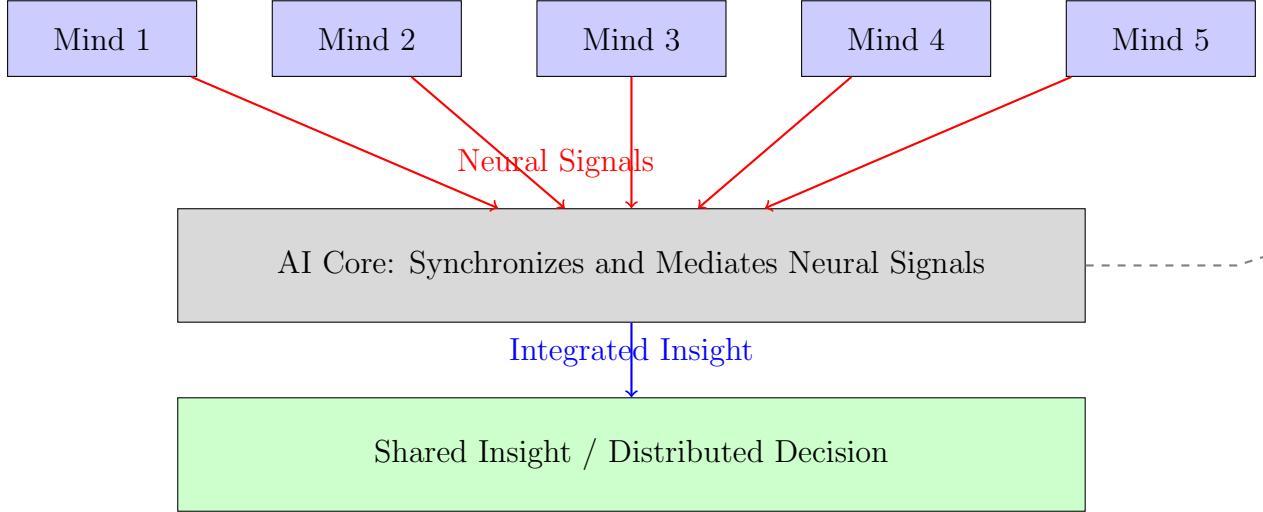


Figure 1: Polished DHCN Visual Overview: AI-mediated neural signals (left) feed into the AI Core, producing shared insight. Right panel shows the phased roadmap.

## 6 References

1. Penrose, R., & Hameroff, S. (2014). *Consciousness in the Universe*.
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## Versioning and DOI

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