Emergent Intelligence

Spycraft and Intelligence in the AI Era

Rachel Grunspan, Jessica D. Smith, and Elizabeth VanderVeen

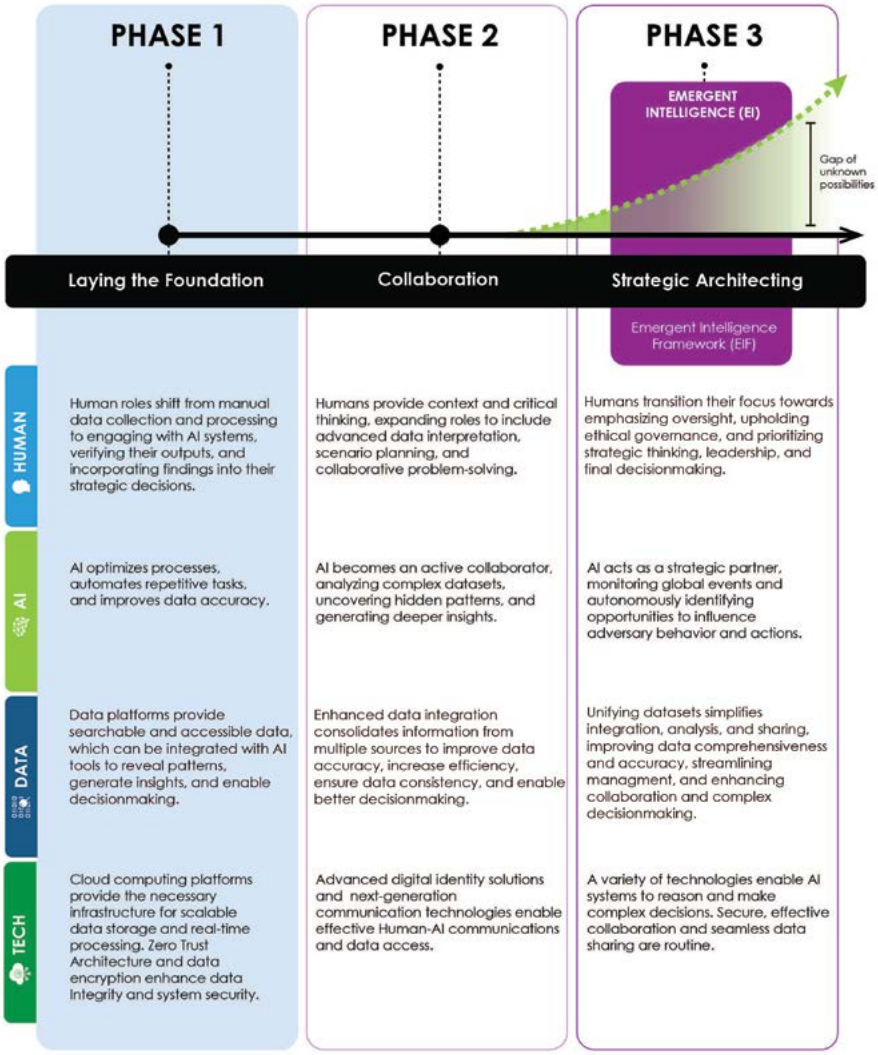
Rachel Grunspan is a retired CIA officer and the former director of Digital Futures in CIA's Directorate of Digital Innovation. Jessica D. Smith is a digital intelligence strategist in DDI Futures. Elizabeth VanderVeen is an AI strategist in DDI Futures.

The concepts presented in this paper rely heavily on substantial advances in AI's ability to process, analyze, and combine extensive and varied datasets. Furthermore, we acknowledge that concurrent progress in other related technologies will be equally important for the success of these concepts.

Although there are currently limitations, we believe the early signs of potential in these areas warrant not only serious discussion at this time, but also the launch of concrete research and development initiatives.

The Intelligence Community (IC) is adapting its core methodologies to meet the demands of rapid technological advancements, Artificial Intelligence (AI) in particular. For more than 80 years, the IC has relied on the intelligence cycle—a structured, methodical approach involving collection, processing, analysis, and dissemination—to support decisionmaking and safeguard national security.

Today's environment is marked by an overwhelming influx of data, rapid technological evolution, and the need for immediate response capabilities, more than what the traditional intelligence cycle was designed for. To remain effective as AI matures, intelligence organizations require a more agile framework—one that fully leverages advanced technologies like artificial intelligence alongside human expertise to generate Emergent Intelligence. (EI)

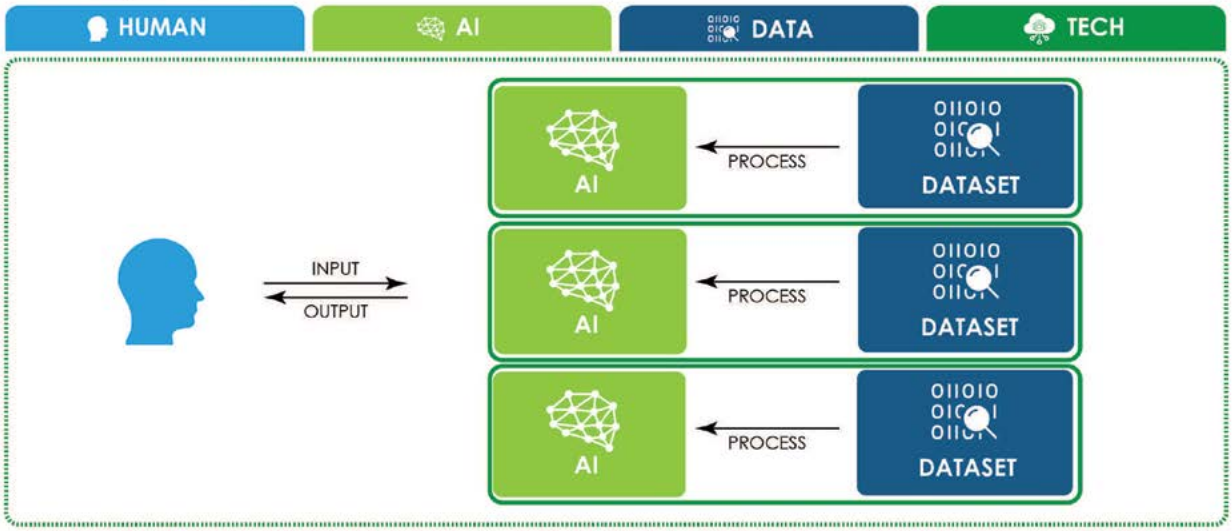


This new type of intelligence could provide policymakers with a quantifiable advantage, allowing them to make well-informed decisions based on real-time insights tailored to the complexities of the global landscape. EI represents an advanced capability to persistently shape adversary behavior while avoiding direct confrontation. This is achieved by designing subtle interventions, continuously assessing outcomes, and adapting tactics in novel ways. While traditional intelligence is often reflective of past events, EI focuses on enabling opportunities to shape future outcomes of complex geopolitical challenges. It is driven by real-time data analysis and continuous learning within Human-AI Teams (HMTs), which refine their strategies and insights based on evolving mission requirements and newly ingested intelligence.

HMTs consist of human experts and AI systems working together to create actionable strategies. Operating as a team of teams, HMTs with different skills sets come together to solve time sensitive or highly complex challenges for their missions. By combining AI's analytic and compute capabilities with human reasoning and judgment, HMTs deliver more effective responses, especially in environments requiring rapid adaptation and strategic foresight.

To achieve EI, a well-defined framework to guide the process is crucial. The Emergent Intelligence

Phase 1: Setting the stage for more advanced AI applications, fused datasets, and advanced technology solutions.



Framework (EIF) lays the groundwork to do this, converting the traditional intelligence cycle into a real-time, interconnected information exchange model, where collection, analysis, and dissemination occur concurrently and adaptively.

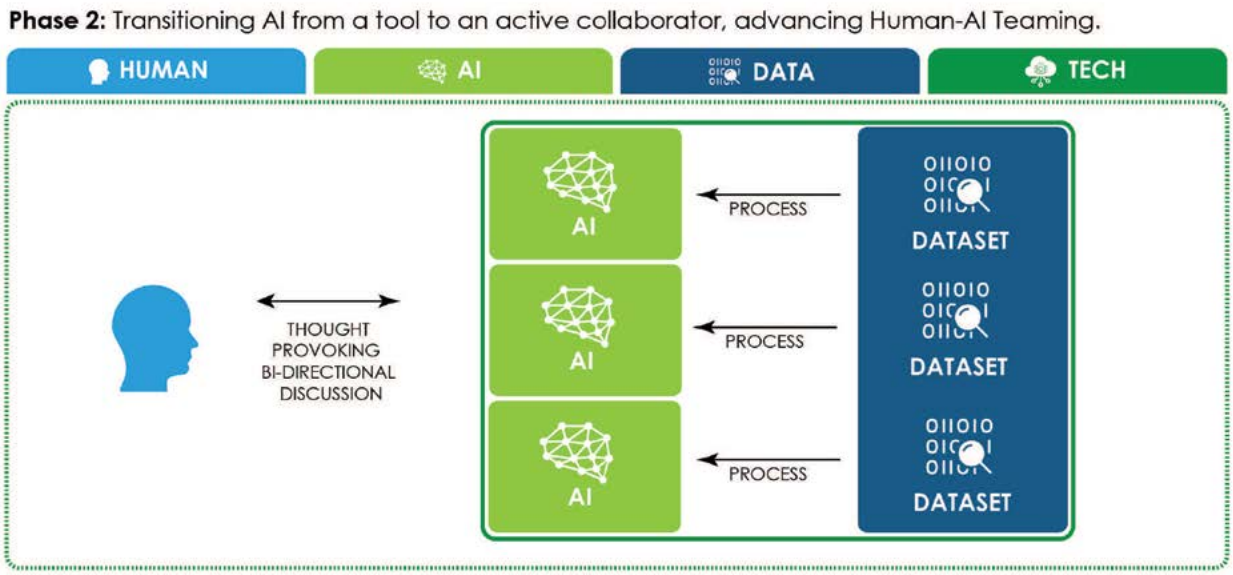
Three Phases of Evolution

Understanding the possibilities of EI compels us to explore how it can be realized in practice. Realizing EI involves a coordinated HMT transformation across human roles, AI capabilities, and data infrastructure. The phases outline a structured path to reshape the intelligence landscape by integrating human expertise, next-generation AI capabilities, and a centralized data ecosystem. The evolution of these elements could position the intelligence profession to shift from its current stance to one that is focused on preemptively shaping adversarial pathways. The goal is to harness and apply information so effectively that it disrupts adversaries' strategies and maintains a systematic advantage.

Phase 1: Laying the Foundation

In this initial phase, AI is employed to optimize processes, automate repetitive tasks, and improve data accuracy. Cloud computing platforms provide the necessary infrastructure for scalable data storage and real-time processing. AI and machine learning (AI/ML) handle data processing and generating insights from large datasets. Data management platforms provide searchable and accessible data, while cybersecurity measures protect data integrity and system security as AI systems are integrated into intelligence activities. Human roles shift from manual data collection and processing to overseeing AI systems, verifying their outputs, and incorporating findings into strategic decisions. This transition requires intelligence officers to develop new technical skills, including the ability to engage with AI systems effectively, communicate insights generated by AI, and understand the underlying processes.

Officers need to be proficient in managing AI tools and interpreting complex outputs, but they also need to cultivate skills in judgment, ethics, and reasoning. Understanding the ethical implications of AI-generated recommendations and applying human judgment to validate and contextualize these insights are crucial. This phase sets the stage for more advanced AI applications by equipping officers with the foundational knowledge and skills necessary for effective human–AI collaboration.



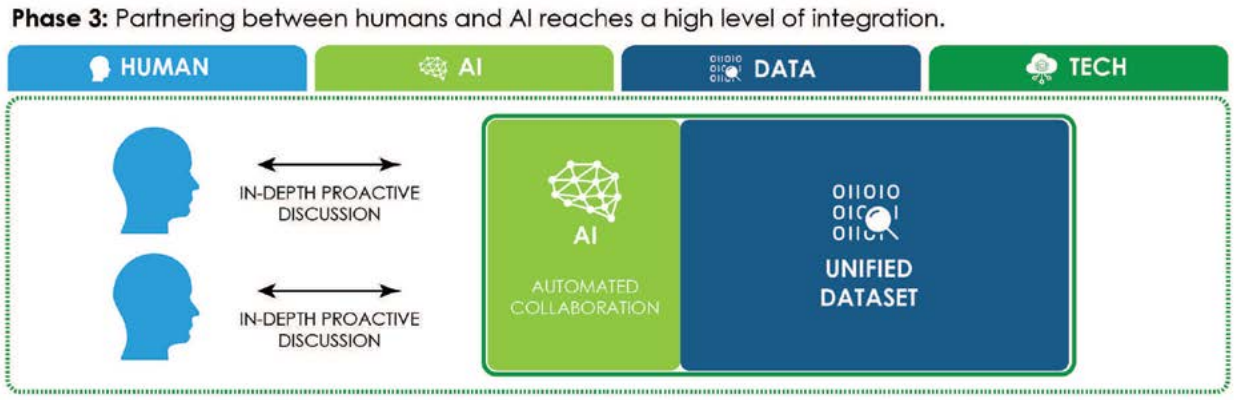
Phase 2: Collaboration

In Phase 2, AI transitions from a tool to an active collaborator. Multi-modal AI models and reinforcement learning agents provide insights from diverse data sources, and adapt to changing conditions. Enhanced data integration enables AI to consolidate information from multiple sources and synthesize new data to fill gaps, facilitating decisionmaking that aligns with mission priorities. Advanced digital identity solutions along with next-generation communication technologies support secure, real-time collaboration and data sharing, which are essential for effective human-AI interactions. Integrating datasets provides a more complete, accurate, and consistent view of data, reduces fragmentation and redundancy, enables efficient analysis, facilitates data sharing, and improves decisionmaking by providing broader access to high-quality data.

As AI systems become more capable, human roles expand to include advanced data interpretation, scenario planning, and collaborative problem-solving. Officers are trained to engage actively with AI, guiding hypothesis development and refining analytical focus based on strategic priorities. This phase requires significant up-skilling in data science, machine learning, and advanced analytics, but also in communication and ethical decisionmaking. Officers must learn to ask the right questions, critically evaluate AI-generated outputs, and effectively communicate the nuanced insights to stakeholders. Additionally, they need to develop a strong ethical framework to ensure that AI-driven analyses and recommendations align with organizational values and legal standards. This integration of technical, ethical, and communication skills enables a more precise intelligence picture and better supports policymakers with richer, context-aware insights.

Phase 3: Strategic Architecting

In this final phase, the partnership between humans and AI reaches a high level of integration. AI acts as a strategic partner, monitoring global events, shaping adversary actions, and developing strategies. Advanced autonomous systems ensure secure and efficient communication, essential for strategic collaboration. Unifying datasets simplifies integration, analysis, and sharing, providing a more comprehensive and accurate view of complex systems, streamlining data management, improving decisionmaking, and enhancing collaboration and knowledge sharing.



Human-AI teams work as strategic planners, engaging in detailed analysis and co-creating complex influence operations. In this phase, humans transition their focus toward emphasizing oversight, upholding ethical governance, and prioritizing strategic thinking, leadership, and final decisionmaking.

Officers must develop not only technical skills but also advanced reasoning, ethical decisionmaking, and strategic communication skills. They are trained to collaborate deeply with AI, using skills in strategic modeling, influence operations, and risk assessment. This includes understanding how AI generates scenarios and predictions, evaluating the ethical implications of different strategies, and effectively conveying complex AI-driven insights to decision-makers.

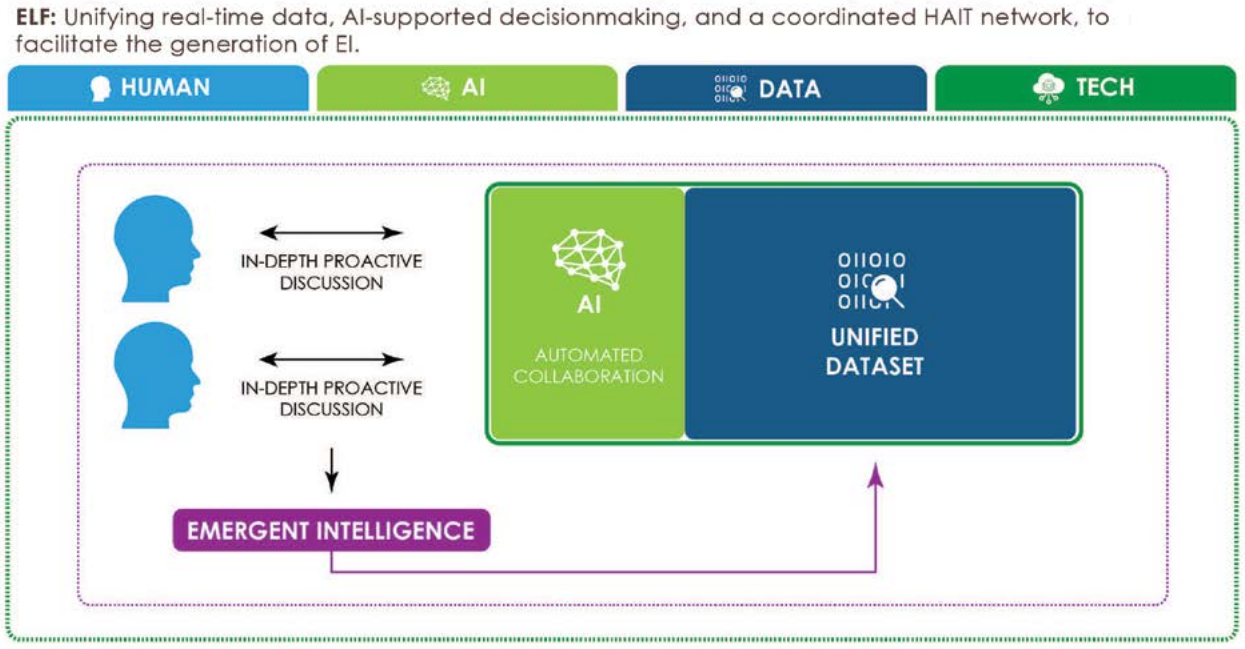
AI autonomously detects and exploits opportunities to influence adversarial behavior, aligning with strategic actions. The unified data ecosystem supports Human-AI teams in shaping strategies and refining their approaches through simulations and real-time feedback. In this phase both parties use their strengths to address complex challenges and achieve strategic goals. Human experts are not only consumers of AI outputs but active participants who guide AI applications, exercise judgment, and ensure that AI-driven strategies are ethical and aligned with broader national security interests.

Policymakers benefit from this integration by gaining detailed strategic insights and the ability to influence global events with subtlety. The adaptive capabilities of Human-AI teams ensure that intelligence organizations can anticipate and respond to changing conditions, supporting long-term strategic goals aligned with national security interests. This evolution could transform intelligence capabilities at the same time enhancing human skills in strategic planning, influence operations, and AI collaboration. It prepares the workforce to engage with AI effectively, making informed decisions that are ethically sound and strategically effective in the evolving landscape of intelligence work.

The Emergent Intelligence Framework

To implement EI effectively, the EIF provides the necessary foundation. Unified, real-time data, AI-supported decisionmaking, and a coordinated HMT network, the EIF facilitates the generation of EI. Inspired by General McChrystal's "Team of Teams" approach—which prioritizes collaboration, decentralized decisionmaking, and agility—the EIF transforms intelligence operations from rigid hierarchies into interconnected, responsive systems. This enables organizations to maintain a strategic advantage by rapidly adapting to new insights and evolving challenges.

The EIF breaks down traditional silos and bottlenecks by creating interconnected workflows, allowing HMTs to share



knowledge and expertise fluidly across the network, enabling real-time collaboration. This interconnected, cross-functional approach accelerates decisionmaking and improves the organization's adaptability, significantly increasing its overall effectiveness.

HMT Structure and Functionality

HMTs are designed to operate as self-directed units, empowered to make decisions at the team level while aligned with overarching mission goals. Comprising officers with diverse skill sets, HMTs collaborate effectively with AI systems, maximizing collective capabilities. A crucial formation phase involves developing a deep understanding of each member's strengths and the capabilities of AI, fostering a collaborative environment aimed at optimizing performance.

Decentralized decisionmaking enables HMTs to act swiftly within their mission scope without needing to escalate decisions, enabling rapid responses to shifting situations. Their actions are guided by a shared strategic vision and human oversight, ensuring alignment with broader organizational objectives.

Collaboration and Communication

HMTs operate within a communication framework supported by AI-driven protocols that facilitate real-time information exchange across teams, optimizing collaboration and resource allocation. This decentralized model forms an integrated network where human reasoning, AI capabilities, and real-time data converge to produce EI. AI systems manage information flow between teams, ensuring that insights are distributed to those who need them most.

This immediate, need-to-know communication model allows HMTs to overcome traditional organizational barriers, functioning as a cohesive network. This approach enables organizations to adapt quickly to new intelligence, providing timely, relevant, responses to policymakers and other stakeholders.

Synergy and Collective Intelligence

The core strength of the EIF lies in the synergy between HMTs, data unification, and

next-generation technologies. Each HMT operates as an independent node within a larger network, contributing unique insights and capabilities while benefiting from the collective intelligence of the entire organization. This decentralized model forms a collaborative ecosystem where human skills, AI capabilities, and unified data generate EI. Human expertise refines AI models and directs strategic focus, while advanced data integration ensures that AI accesses the most relevant information, producing more precise and actionable insights. This constructive collaboration enhances individual and organizational performance, enabling intelligence organizations and policymakers to anticipate and respond more rapidly to future challenges in a dynamic environment.

Maximizing EIF Potential

To fully realize the EIF's benefits, intelligence organizations must cultivate a culture that embraces AI as a strategic partner. This involves redefining human roles to emphasize strategic oversight and ethical judgment, allowing AI to handle complex data analysis. Building trust in AI-generated insights and integrating them into decisionmaking enhances agility and maintains a strategic edge over adversaries.

Future-Proofing Intelligence

Human-AI Teaming will provide a path to leverage advanced technologies to evolve the craft of intelligence. The output of these teams will equip organizations with unique capabilities to predict, influence, and shape global events. The roadmap to get there is through the three phases described above. By systematically adopting these phases, intelligence agencies can leverage AI-generated insights and human expertise to improve decisionmaking, streamline operations, and proactively drive strategic initiatives.

Intelligence communities now face a critical decision: adopt an approach to competition that aligns with a future state-of-the-art operating environment, or risk being outpaced by adversaries who are more adaptable and willing to deviate from legacy cultures. In the future, the competitive standard for intelligence will lie in consistently generating actionable knowledge through human-AI interactions, enabling insights that were previously unattainable. Committing to this transformation would likely enable intelligence organizations to redefine their intelligence frameworks, ensuring a sustainable strategic advantage in the evolving global digital landscape.■