Leadership Capabilities for Navigating a Polycrisis

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Executive Summary

In an era of global challenges, leaders face a landscape characterized by what scholars term "polycrisis"[1]– a convergence of multiple, interconnected crises that amplify each other's impacts. While the concept of polycrisis is gaining recognition, our study revealed a significant gap. No substantial body of literature currently addresses leadership in the midst of polycrisis. This absence underscores the novelty and importance of our study.

To bridge this gap, we turned to the concepts of "grand challenges" and "wicked problems," which share many characteristics with polycrisis and have more established leadership literature. Our study aims to identify the critical leadership capabilities for effectively navigating polycrisis contexts.

Through a synthesis of findings from relevant articles on leadership, grand challenges, and wicked problems, followed by expert validation, our analysis yielded six key themes of leadership capabilities:

1. Complex Problem-Solving
2. Collaboration and Relationships
3. Transformative Leadership
4. Inclusivity and Ethics
5. Inner Capabilities
6. Future Orientation

These themes represent a shift from current leadership paradigms, emphasizing the need for leaders to develop skills and mindsets that effectively address the complex challenges within a polycrisis. This shift reframes crises from isolated events to be mitigated to a chronic state of instability requiring active engagement and adaptability. It moves beyond mere preservation to transformational leadership that seeks opportunities within the multifaceted aspects of crises to shape more equitable, resilient, and sustainable futures. Our findings recognize that a polycrisis is not a binary state (present or absent) but rather a spectrum of interconnected challenges that can vary in intensity and complexity over time. Leaders must be prepared to navigate and respond to these fluctuating conditions, addressing specific aspects of a polycrisis while maintaining awareness of the broader context. This nuanced approach significantly impacts leadership development in an increasingly complex world. By identifying these critical capabilities and applying them to the concept of polycrisis, this study provides a framework for reimagining leadership education and development. It fills a crucial gap in existing literature and practice by offering a more dynamic and adaptable model of leadership suited to the multifaceted nature of contemporary global challenges.

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[1] In this paper, we distinguish between two uses of the term "polycrisis." When referring to our current period characterized by high global interconnectedness and multiple overlapping crises, we use "the polycrisis" as a proper noun. This usage emphasizes the significance of our current global situation, while acknowledging that previous eras have also faced interconnected challenges. When discussing specific instances or theoretical occurrences of multiple interconnected crises, we use "a polycrisis" as a common noun. This distinction aligns with the emerging literature on the concept, which recognizes both its broad, era-defining nature and its potential application to more localized or temporary convergences of crises. We do not use the plural form "polycrises" in this paper, focusing instead on these two primary usages to maintain conceptual clarity.

Introduction

The 21st century is witnessing a significant surge in the frequency, severity, and destructive potential of crises, confronting leaders with formidable challenges. Crises once considered relatively rare, such as extreme heatwaves, cybersecurity breaches, global pandemics, and geopolitical conflicts (Collins et al., 2023) have been predicted to increase in frequency and cascade due to the interconnectedness of global systems and the potential for exponential impacts (Heading & Zahidi, 2023; Lawrence et al., 2022). Global leaders, such as Tedros Adhanom Ghebreyesus, Director-General of the World Health Organization (Ghebreyesus, 2023) and Indra Nooyi, Former CEO of PepsiCo (Nooyi & Govindarajan, 2020), have sounded alarms about the need to reduce the risks of crises collectively.

The 2024 World Economic Forum's Global Risks Report reflects this escalating apprehension, revealing a pessimistic outlook for the world in the short and long term (Cavacluti-Wishart et al., 2024). The report's findings underscore the urgency of addressing global risks, with 84% of survey respondents expecting instability and risk of global catastrophes over the next two years, and nearly two-thirds anticipating even more turbulence in the coming decade. This outlook underscores the need to consider highly probable risks and unexpected events. In this context, it's useful to consider risk expert Michele Wucker's (2016) concept of "gray rhinos" - dangers that are highly obvious and highly probable, but still neglected – alongside Nassim Nicholas Taleb's notion of "black swan" events, which are largely unexpected. Examples of potential gray rhinos include climate change and cybersecurity threats, while black swan events include the sudden emergence of

COVID-19. While the survey data doesn't directly speak to the prevalence of one type of risk over the other, it does highlight the importance of a comprehensive approach to risk management that addresses both foreseeable challenges and enhances resilience against unpredictable events. This interpretation suggests a shift in how we should approach global risks, emphasizing the need for proactive measures against foreseeable challenges.

Scholars have termed this convergence of multiple, interconnected crises that amplify each other's impacts "polycrisis." This concept highlights the complex, interrelated nature of contemporary global challenges, moving beyond the view of crises as isolated events. While the concept of polycrisis is gaining recognition, our study revealed a significant gap in the literature. No substantial body of research currently addresses leadership in the midst of polycrisis. This absence underscores the novelty and importance of our study, which aims to answer the question: "What leadership capabilities are essential and necessary for effectively navigating a polycrisis?" To answer the question, we turn to the related concepts of grand challenges and wicked problems. Unlike single-event crises, these phenomena are characterized by their complexity, ambiguity, and interconnected nature. They span multiple domains— social, economic, technological, environmental, and political—requiring a holistic approach to leadership.

The following sections will explore critical concepts in detail, present our methodology and findings, and discuss the implications for leadership development.

Key Concepts

Polycrisis, grand challenges, and wicked problems share fundamental characteristics that are valuable for understanding leadership in complex, systemic situations despite their distinct origins. Let's examine each concept in detail, starting with polycrisis, representing the most recent development in understanding complex, interconnected challenges.

Polycrisis

The term "polycrisis" has evolved since its first appearance in Morin and Kern's 1999 book, *Homeland Earth, A Manifesto for the New Millennium*. The authors describe polycrisis as a "complex intersolidarity of problems, antagonisms, crisis, uncontrollable processes, and the general crisis of the planet" (1999:74). More recently, Davies and Hobson (2022) proposed eight properties to add analytical value to the concept:

1. Exhibits multiple, simultaneous crises
2. Demonstrates feedback loops with predicted and unexpected crisis interactions
3. Amplifies crisis through interactions
4. Presents an unbounded nature and is difficult to demarcate
5. Accumulates overlapping concerns from diverse groups about various crises
6. Causes breakdown of shared meaning
7. Impedes resolution due to cross-purposes
8. Generates unexpected emergent properties

An example of an incident encompassing various dimensions of a polycrisis is COVID-19 (Lawrence et al., 2022). First, it rapidly spread, overwhelming healthcare systems worldwide, causing severe illness and death. Second, it triggered an economic crisis, leading to business closures, job losses, disrupted supply chains, and sharp declines in consumer spending, resulting in a severe economic downturn. Additionally, COVID-19 brought about a social crisis characterized by increased social isolation, mental health challenges, educational disruptions, and unequal access to resources, with vulnerable populations being disproportionately affected. The pandemic had mixed effects on the environment, temporarily reducing human activities and improving localized environmental conditions yet disrupting conservation efforts and sustainability initiatives. Furthermore, the pandemic accelerated reliance on digital technologies, revealing the digital divide, and raised concerns about cybersecurity and privacy, contributing to an international security crisis. Humanitarian aid efforts were disrupted, making it challenging to aid vulnerable populations. The pandemic also raised ethical dilemmas concerning public health measures, resource allocation, vaccine distribution, and prioritization of vulnerable populations, underscoring the EDI crisis. Geopolitically, COVID-19 strained international relations, triggered tensions, imposed travel restrictions, and created and extubated political divides. Lastly, the pandemic amplified the spread of misinformation and conspiracy theories, hindering effective public health responses. These and other factors contributed to a geopolitical crisis and illustrate how multiple crises can interact and amplify each other in a polycrisis situation. Multiple interacting crises, feedback loops and amplification, worldwide effects, and emergent properties highlight the complexity and interconnectedness of a polycrisis.

Grand Challenges

Grand challenges originated within the context of research, technology, and mathematical advancement. The concept was popularized by the US National Academy of Engineering 2008 publication Grand Challenges for Engineering, which identified 14 grand challenges spanning health, sustainability, infrastructure, and security. The National Academy of Engineering (2008) notes 10 characteristics of grand challenges. Grand challenges exhibit these key attributes.

1. Produces global impacts
2. Demands prompt attention
3. Requires interdisciplinary approaches due to complexity
4. Necessitates long-term, sustainable solutions
5. Interconnects with overlapping impacts
6. Calls for diverse stakeholder collaboration
7. Raises crucial ethical considerations
8. Stimulates demand for innovative thinking and technologies
9. Requires public engagement and participation
10. Evolves continuously, necessitating adaptive solutions

An emergent illustration of a grand challenge is the development of ethical and beneficial artificial intelligence (AI). This challenge exemplifies the National Academy of Engineering (2008) delineated characteristics listed above. Ethical AI encompasses multiple dimensions of consideration, including but not limited to fairness and bias mitigation, transparency in AI decision-making processes, privacy and security concerns, potential social and economic impacts, and the establishment of robust accountability and governance frameworks (Gao, et al., 2024: Baker-Brunnbauer, 2021; Olatoye et al., 2024). The multifaceted nature of ethical AI development underscores the inherent complexity and interconnectedness of grand challenges. Moreover, given the pervasive influence of AI technologies across various sectors and geographical boundaries, AI highlights global significance. The AI challenge necessitates interdisciplinary approaches, requiring collaboration among computer scientists, ethicists, policymakers, social scientists, and other stakeholders to address its myriad aspects effectively. This example elucidates the comprehensive and systemic nature of grand challenges as conceptualized in the literature. Grand challenges are global in nature, need sustainable long-term solutions, and require ethical consideration and collaboration among diverse stakeholders.

Wicked Problems

Introduced by Rittel & Webber in 1973, wicked problems typically involve social pluralism (stakeholders' multiple interests and values), institutional complexity (the context of inter-organizational cooperation and multilevel governance), and scientific uncertainty (fragmentation and gaps in reliable knowledge) (Head & Alford, 2015). Rittel and Webber (1973) identified ten characteristics of wicked problems, including:

1. Resists clear and agreed-upon definition
2. Defies clear resolution points
3. Relies on judgment-based solutions rather than absolute truths
4. Precludes immediate or ultimate solution testing
5. Produces consequential impacts from implemented solutions
6. Presents an ill-defined set of potential solutions
7. Displays unique characteristics
8. Connects deeply to other problems
9. Involves multiple causal explanations
10. Holds problem solvers accountable for their actions

Climate change exemplifies a wicked problem due to its complexity and the challenges in finding comprehensive solutions (Grint, 2024). It aligns with Rittel and Webber's (1973) characteristics of wicked problems in several ways: it lacks a definitive formulation, has no clear resolution point, and its proposed solutions involve value judgments rather than true-or-false outcomes. The long-term nature of climate change complicates the assessment of interventions, and actions taken can have irreversible effects. There is no consensus on the best approach, and climate change is uniquely global and deeply connected to economic development and social equity issues.

While broad scientific consensus exists on human-induced climate change, debates persist about specific contributing factors. This complexity and the far-reaching consequences of climate-related decisions place intense scrutiny on policymakers and leaders. The high-stakes nature of climate change is well-documented in numerous scientific and policy papers, including reports from the Intergovernmental Panel on Climate Change (IPCC, 2021), articles in peer-reviewed journals, and policy documents from the United Nations Framework Convention on Climate Change (UNFCCC, 2015).

Wicked problems are distinguished by their lack of definitive formulation, deep connections to other problems, persistence without clear resolution, and the absence of immediate or ultimate tests for solutions. Despite their characterized resistance to solutions, wicked problems continue to attract interest in policy research (Head & Alford, 2015), management literature, and other disciplines.

Having examined polycrisis, grand challenges, and wicked problems individually, we can now explore how these concepts relate (see Table 1, following page). While each framework emerged from different contexts and times, they share several key characteristics in their approach to complex, systemic issues. The similarities among these concepts suggest that leadership capabilities developed for addressing grand challenges and wicked problems may apply to a polycrisis. This is particularly relevant given the current need for more specific literature on leadership in a polycrisis. However, it is important to note that a polycrisis may present unique challenges, such as the rapid, simultaneous occurrence of multiple crises, which may require adapted leadership capabilities. For example, the unboundedness and emergent properties of a polycrisis might demand an even greater degree of flexibility and rapid decision-making than typically seen in grand challenges or wicked problems. Leaders may be confronted with ethical dilemmas in the moment without personal precedent or clear organizational policies regarding how to act (Shantz et al., 2023).

Characteristic and Explanation	Polycrisis	Grand Challenges	Wicked Problems
Complexity - How tangled and difficult the situation is	Multiple, simultaneous interacting crises	Large-scale, multifaceted problems	No clear problem definition or formulation
Interconnectedness - How crisis/problems are linked and affect each other	Feedback loops and crisis amplification	Interconnected with overlapping impacts	Deep connection to other problems
Scale of Impact - How widely the effects are felt around the world	Global impacts (e.g., COVID-19)	Global impacts	Can range from local to global (e.g., climate change)
Temporal Aspect - How the issue persists and evolves over time	Ongoing and rapidly evolving	Requires sustainable, long-term solutions	Persistent, no clear resolution point
Stakeholder Involvement - How many different groups are involved or affected	Accumulates overlapping concerns from diverse groups	Requires collaboration among diverse stakeholders	Involves multiple interests and values
Uncertainty - How unpredictable or unclear the outcomes are	Generates emergent unexpected properties	Evolves continuously, requiring adaptive solutions as new knowledge emerges	Scientific uncertainty and fragmented knowledge
Ethical Dimensions - How the situation raises moral or value-based questions	Raises complex moral dilemmas	Involves significant ethical considerations	Solutions judged as good or bad, not true or false
Innovative Requirements - How new and creative ideas are needed	Novel approaches to manage multiple crises	Demands innovative thinking and technologies	Creative problem-solving for unique characteristics
Systemic Perspective - How the whole system needs to be considered	Necessitates understanding of cross-crisis interactions	Requires addressing interconnected challenges	involves institutional complexity and governance issues
Adaptability - How flexible the solutions need to be	Flexible responses to unbounded nature of crises	Solutions need adaptation over time	Constant reformation due to consequential impacts

TABLE 1

By analyzing polycrisis, grand challenges, and wicked problems in tandem, we gain deeper insights into the leadership capabilities required for navigating complex, systemic challenges in our increasingly interconnected world. This comparative framework serves as a springboard for investigating the specific leadership competencies essential for navigating a polycrisis, which is explored in depth in the following sections.

Method, Review Insights, and Evaluation

We employed a two-stage approach to identifying leadership capabilities. First, we conducted a semi-systematic literature review[2] (Snyder, 2019) to synthesize findings from scholarly articles on leadership, wicked problems, and grand challenges.

Second, we used a closed card sort (Paul, 2008) using categories and labels to test the information architecture by scoring participants' results with the existing structure.

Literature Search

We conducted a literature search using EBSCO Business, Bing, ERIC, MDPI, and Google Scholar databases. The search focused on English-language articles in scientific journals and book chapters, using search terms that included leadership approaches, wicked problems, solving wicked problems with leadership, wicked problems in leadership, leadership approaches to grand challenges, and how leaders tackle grand challenges. Initial screening involved reviewing titles, abstracts, keywords, and relevant sections of the main text to determine each article's relevance to the review objectives.

The final sample consisted of 22 articles from 22 different sources published between 2010 and 2021. Of these, 64% focused on wicked problems and leadership, while 36% addressed grand challenges and leadership. Through careful analysis of the selected literature, we identified 36 leadership capabilities.

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[2] A semi-systematic literature review is a flexible approach for examining broad or complex topics across diverse disciplines, balancing the rigor of systematic reviews with the interpretive freedom of narrative reviews to provide comprehensive overviews and track research developments over time.

Review Insights

The selected literature underwent a systematic review process. Each article was carefully examined to identify leadership capabilities for addressing wicked problems and grand challenges. We employed an inductive approach was employed to analyze the content of these articles. This involved iterative reading and coding the text to extract critical concepts related to leadership capabilities. As we identified capabilities, we developed nuanced definitions based on the context and discussion provided in the source papers. This process captured the subtleties and applications of each capability. Following the identification of capabilities, we conducted a thematic analysis to group these capabilities into broader, overarching themes. This grouping process involved comparing the identified capabilities, looking for common underlying concepts or approaches.

The thematic analysis of the extracted leadership capabilities yielded six themes of leadership capabilities essential for navigating polycrisis (detailed in Appendix A). Each theme encompasses several specific capabilities.

Card Sort

We conducted structured card sorting, specifically closed card sort (Paul, 2008), to evaluate the validity of the predefined themes and associated capabilities. Five subject matter experts (SMEs) participated in the analysis. These experts have extensive experience in leadership development, organizational change, and digital transformation across diverse industries. Their collective expertise spans executive coaching, strategic management, and organizational development research. The SMEs reviewed and sorted the leadership capabilities and rated the names and definitions within the established thematic framework. For the rating process, they used a 3-point Likert scale where 1 indicated "not clear/appropriate," 2 indicated "somewhat clear/appropriate," and 3 indicated "clear/appropriate." This scale assessed each theme's name and definition.

The closed card sort yielded an agreement rate of 97% (ranging from 80% to 100%) across leadership capability groupings, indicating strong consensus among SMEs in categorizing the capabilities based on the provided definitions. Furthermore, the SMEs exhibited substantial agreement regarding the nomenclature and conceptual definitions of the six themes, with an aggregate agreement rate of 92.22% (M = 13.83, scale maximum = 15) when evaluating them on a 3-point Likert-type scale. This thematic assessment corroborated the high level of consensus observed in the categorization of leadership capabilities, thus reinforcing the validity and coherence of the proposed framework.

Discussion

The following section discusses each theme, exploring its relevance to polycrisis and its implications for leadership.

Complex Problem-Solving

Navigating a polycrisis will demand a sophisticated set of problem-solving capabilities that work in concert to address multifaceted challenges (see Appendix A). At the core of this approach is **ambidextrous thinking**, which allows leaders to balance seemingly conflicting elements through "both/and" approaches (Schad & Smith, 2019). This capability is crucial when facing the competing demands typical of a polycrisis. Paradox scholars Jonathan Schad and Wendy K. Smith (2019) describe this skill as taking action to maintain commitment to both sides of a tension. For example, a hospital administrator might demonstrate this skill in a healthcare setting by investing in advanced medical technologies while implementing lean management practices to reduce waste, thus balancing quality patient care with cost-effectiveness. Ambidextrous thinking doesn't operate in isolation; it's augmented by **complexity awareness**, which frames problems within their broader context (Hornett & Lee, 2017). Together, these skills enable leaders to assess long-term consequences and navigate the shifting nature of problems as solutions unfold. Leaders who embrace complexity awareness analyze, synthesize, and develop strategies (Jordan et al., 2021; Hornett & Lee, 2017).

As the polycrisis evolves, **adaptive problem-solving** will become essential. This iterative approach encourages creativity, experimentation, and flexibility (Fien & Wilson, 2014; Grint, 2008), allowing leaders to apply novel solutions, support trial-and-error approaches, and adapt and refine ideas while maintaining alignment with strategic goals (Hornett & Lee, 2017; Grint, 2008). **Critical thinking** further enhances this adaptability by examining the validity of claims and considering alternative perspectives (Kejser et al., 2020). Underpinning these capabilities is **systems thinking**, which enables leaders to recognize interconnected factors and explore systemic patterns (Hassan et al., 2020). This holistic view is particularly crucial in a polycrisis, where seemingly unrelated issues can have cascading effects.

Dr. Ngozi Okonjo-Iweala's leadership of the World Trade Organization (WTO) during the COVID-19 pandemic illustrates how these capabilities can be applied in a polycrisis.[3] As the first woman and Nigerian-American to lead the WTO, Dr. Okonjo-Iweala navigated global trade relations during the COVID-19 pandemic. The pandemic presented a situation that required balancing multiple priorities as part of a polycrisis. Dr. Okonjo-Iweala successfully worked to maintain open trade (see World Trade Organization, n.d. a) while addressing the need for equitable access to vaccines and medical supplies. This approach suggests balancing competing demands

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[3] It's important to note that while we can observe Dr. Okonjo-Iweala's actions, we cannot definitively attribute specific skills or thought processes to Dr. Okonjo-Iweala without direct evidence or personal statements from her about her approach. However, her actions during this crisis illustrate how a leader might apply various skills to navigate a complex global challenge.

in a complex global environment of a polycrisis. Dr. Okonjo-Iweala's actions during this period included collaborating with WTO members to develop solutions to pandemic-related challenges. One such initiative was COVAX, aimed at ensuring global access to COVID-19 vaccines (see World Trade Organization, n.d. b). This effort indicates an approach to problem-solving that considers multiple stakeholders and global implications. Her leadership during this time appeared to prioritize cooperation and transparency among WTO members, focusing on the shared goals of global health and economic stability. This approach suggests an attempt to foster collaboration and **depoliticize the crisis** response. Dr. Okonjo-Iweala's efforts also seemed to recognize the interconnectedness of global trade, public health, and socio-economic factors (World Trade Organization, 2022). This view potentially informed her approach to developing comprehensive solutions to the pandemic's challenges.

Collaboration and Relationships

In today's interconnected world, effective leadership in a polycrisis demands a **collaborative approach**. The global effort to eradicate polio serves as an instructive parallel, illustrating how to orchestrate diverse stakeholders toward a common goal in the face of complex, life-threatening challenges. The Global Polio Eradication Initiative (GPEI) successfully brought together public and private organizations like the World Health Organization (WHO), UNICEF, Rotary International, the Centers for Disease Control (CDC), and national governments, each with distinct roles (Aylward & Tangermann, 2011). The WHO, for example, was responsible for planning, technical direction, surveillance, and eradication certification. The CDC deployed scientists and public health experts to WHO and UNICEF. UNICEF was responsible for the distribution of the vaccine, helping countries develop communication and awareness strategies, and the Gates Foundation provided substantial funding. This orchestration of diverse stakeholders from varied backgrounds, organizations, expertise, and perspectives to achieve a common objective (Alban-Metcalfe & Alimo-Metcalfe, 2010; Pless et al., 2021; Oliver, et al., 2022) offers a model for leaders navigating a polycrisis. At the heart of this collaborative leadership lies **effective communication**. Those navigating a polycrisis need to adeptly adjust their communication style to resonate with varied stakeholders (Jordan et al., 2021; Fien & Wilson, 2014). This adaptability in communication dovetails with the need for **transparent public engagement**, fostering trust through open, honest dialogue (Lilleker & Stoeckle, 2021).

Building on this foundation, successful leadership involves facilitating the **sharing of expertise**. This approach encourages cross-domain learning and direct interactions (Edmondson, 2016; Caulfield & Brenner, 2020; Onyura et al., 2019). To navigate complexities effectively, it's crucial to actively **seek wide counsel**, particularly from underrepresented perspectives. This broad input feeds into the critical process of **sensemaking**, where diverse information is synthesized to create meaning in chaotic situations (Lilleker & Stoeckle, 2021; Jordan et al., 2021). Underpinning all these collaborative efforts is **trustworthiness and reliability** (Jordan et al., 2021). Consistently demonstrating integrity and following through on commitments fosters the trust necessary to maintain long-term partnerships and secure ongoing support. The GPEI's long-term success relies on building trust with local communities and maintaining reliable partnerships with donors through consistent follow-through and transparent reporting of both successes and challenges.

In essence, the parallels between managing a polycrisis and coordinating global health efforts highlight that effective leadership is about orchestrating a symphony of collaborative relationships. By mastering these interconnected skills, it becomes possible to more effectively navigate the complex, interconnected challenges that define our world.

Transformative Leadership

Transformative leadership encompasses two key components: **disruptive leadership**, which involves high-risk bets with uncertain outcomes and significant potential consequences (Morais et al., 2021), and **visionary change**, which focuses on mobilizing people and sustaining that momentum until the change is complete (Caulfield & Brenner, 2020; Edmondson, 2016).

Yvon Chouinard's leadership of Patagonia exemplifies transformative leadership in the retail industry. When Patagonia was founded in 1973, the outdoor apparel industry, like most retail sectors, prioritized profit over environmental and social responsibility (Chouinard, 2016). Chouinard challenged this status quo by betting heavily on sustainable and ethical business practices, a high-risk strategy with uncertain outcomes and potentially significant consequences (O'Rourke & Strand, 2017). By articulating a compelling vision of a business that could thrive while minimizing environmental impact and promoting social justice, Chouinard inspired employees, customers, and other businesses, driving meaningful change that forced many retailers to reconsider their own practices (Gelles, 2022). His authentic leadership attracted like-minded employees and cultivated a loyal customer base, while his persistence in the face of numerous challenges, including potential profit losses and skepticism from the business community, maintained momentum towards the long-term goal of proving that a company can do well by doing good (Chouinard, 2005). This sustained effort eventually led to Patagonia becoming a model for sustainable business, significantly altering the retail landscape (Lowitt, 2011). While the transformation is ongoing, Patagonia has played a crucial role in making sustainable and ethical practices viable and desirable alternatives to traditional business models, with many major retailers now following Patagonia's lead (Rattalino, 2018). This commitment culminated in Chouinard's 2022 decision to transfer ownership of Patagonia to a trust and nonprofit organization dedicated to fighting climate change, a move that further challenged conventional notions of corporate ownership and purpose (Gelles, 2022).

This example illustrates the essence of disruptive leadership and visionary change leadership. In a polycrisis, transformative leaders should question the status quo, forge new paths, inspire others to embrace change, and remain committed to a transformative vision that addresses both business and societal needs.

Inclusivity and Ethics

The theme of inclusivity and ethics highlights leadership capabilities of **appreciation, empathy, equity and justice, enabling psychological safety** and fostering an **inclusive mindset**. These capabilities anchor leadership in ethics, concern for others, and ensuring all voices are valued - particularly critical when facing multiple crises. Amy Edmonson's (2016) research on psychological safety underscores the importance of creating environments where it's safe to suggest unconventional ideas, admit mistakes, and openly disagree without fear of ridicule or punishment. This is especially crucial when addressing the complex, multifaceted problems characteristic of a polycrisis. The following example illustrates how these leadership capabilities can be implemented to address complex social issues and drive positive change within an organization.

In April 2018, two African American men were arrested at a Starbucks store in Philadelphia after a manager, claiming they were trespassing, called the police (Held, 2018). The men had been waiting for a business meeting and had not made a purchase, which was against the store's policy. The incident sparked protests and accusations of racial discrimination (Held, 2018).

Starbucks' leadership responded swiftly, demonstrating several key leadership capabilities: appreciation, empathy, enabling psychological safety, equity and justice, and an inclusive mindset.[4]

Appreciation and Empathy: Starbucks CEO Kevin Johnson publicly apologized to the two men, took full responsibility for the incident, and offered to make amends through employee training and policy changes (Johnson, 2018). Johnson met with the two men to understand their perspectives and feelings, showing empathy and a willingness to listen and learn. Interacting with others through a lens of appreciation, gratitude, joy, and understanding of their feelings helps create a more just and sustainable system for all (Jordan et al., 2021).

Enabling Psychological Safety: Starbucks implemented a "Team Guidebook," an approach that encouraged employees to share personal experiences with racial bias and discrimination to foster an environment that is welcoming to all (Starbucks, 2018). This practice suggests fostering an atmosphere where employees can voice concerns without fear of reprisal.

Equity and Justice: In response to the incident, Starbucks took action to ensure fair treatment and equal opportunities for all customers. The company changed its policy, allowing anyone to use its restrooms and sit in its cafes without making a purchase (Shane & Horowitz, 2018). Starbucks also closed over 8,000 U.S. stores

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[4] While Starbucks has been recently criticized for removing seating and restricting access to its stores over safety concerns, these actions do not negate the company's ongoing commitment to inclusivity, as reflected in its broader efforts in training, community engagement, and policy changes. This situation highlights the complexity of balancing business demands with core values.

for a day to provide mandatory racial bias training for all employees, demonstrating a commitment to creating inclusive systems and addressing unspoken biases and assumptions (Starbucks, 2018c). The tenets of equity and justice ensure access to resources and opportunities while recognizing and valuing diverse identities and strengths to empower success (Farley et al., 2019).

Inclusive Mindset: Starbucks partnered with civil rights experts, community leaders, and diversity and inclusion specialists to develop its racial bias training curriculum (Starbucks, 2018c). By valuing diverse perspectives and treating differences as assets, Starbucks demonstrated an inclusive mindset in its approach to addressing systemic issues of racism and discrimination.

The impact of Starbucks' leadership response was admirable (Wagner, 2018). The company's swift action, public apology, and commitment to change helped to mitigate the negative backlash and rebuild trust with customers and communities. The racial bias training and policy changes were the first steps in a longer journey toward creating a more inclusive and equitable company culture. The Starbucks case illustrates how leadership capabilities related to inclusivity and ethics can address complex social issues within broader societal challenges. In a polycrisis, where multiple crises intersect and amplify each other, these capabilities can become even more critical. Leaders must navigate crises and their ripple effects across various systems. Starbucks' swift, comprehensive, and empathetic response provides a model for addressing immediate issues while working towards long-term, systemic change - an approach essential for building resilience and fostering inclusivity across interconnected domains in navigating a polycrisis.

Inner Capabilities

While research specifically focused on leadership for a polycrisis is limited, we can draw insights from a notable figure, Mary Barra, CEO of General Motors, who demonstrated key inner capabilities in addressing complex global issues. Mary Barra's tenure as CEO of General Motors, particularly during significant crises, has been marked by notable actions and decisions that have been observed and reported in business literature and media. Some observers have interpreted these actions as potentially indicative of specific leadership approaches (see Odeh, 2022). Although we did not assess Barra's inner capabilities directly, we can infer potential leadership qualities based on her observable actions and their outcomes.

Barra became CEO in 2014 and almost immediately faced a significant safety recall crisis. A faulty ignition switch that impacted 2.6 million cars produced between 2003 and 2011 was linked to 124 vehicular deaths. The defect could cause the car to suddenly shut off while driving, disabling the steering, braking, and airbags. Mary addressed the customer conflict and protected GM's reputation through a collaborative strategy. She proactively repaired customer relationships, offered compensation, and developed a learning journal to capture insights from the incident (Odeh, 2022). This approach aimed to prevent similar issues in the future. Barra demonstrated resilience as she navigated GM through multiple crises, including the COVID-19 pandemic. During the pandemic, Barra showcased adaptability by quickly pivoting GM's operations to produce ventilators and face masks, addressing urgent public health needs (GM, n.d.). Her ability to lead the company through diverse challenges while adapting to new circumstances illustrates Barra's resilience as a leader. Her optimism and vision for GM's future in electric and autonomous vehicles have driven significant strategic shifts in the company (Boudette, 2020). In the context of a polycrisis, these examples highlight how inner capabilities such as **resilience, adaptability,** and **visionary thinking** enable leaders to navigate complex, interconnected challenges. They allow leaders to maintain a steady course while remaining flexible enough to respond to rapidly changing circumstances - a crucial balance in a polycrisis.

Future Orientation

Future orientation encompasses three critical leadership capabilities for potentially navigating a polycrisis: future thinking, collaborative community leadership, and sustainability. Given the unknown nature of the future, thought-provoking questions can be a powerful tool for leaders to explore these capabilities and develop effective strategies for addressing the challenges ahead. This process can help them gain insights, find solutions, and prepare their organizations for a polycrisis.

Futures Thinking: With change occurring at an ever-increasing pace and growing complexity, a learn-from-the-past or current trends approach is not feasible. "In a time when literally anything can happen, it is dangerous to rely solely on what we know today" (Ross et al., 2022, p. 18). Instead, leadership needs to build the capacity to envision different futures, make choices to align the business strategy to pull us toward chosen futures, and be able to learn iteratively (Ross et al., 2022; Shantz et al., 2023). To cultivate these essential leadership capabilities, leaders should reflect and consider key questions that promote future thinking. The following inquiries are a starting point for exploring and applying these critical skills.

1. How can organizations actively engage their teams in scenario planning exercises that specifically address the interconnected nature of multiple crises, preparing for potential cascading effects?

2. What concrete steps can be taken to implement strategies that anticipate and mitigate the compounding impacts of a polycrisis?

3. What specific initiatives can leaders launch to inspire collective action towards a shared vision of resilience in the face of overlapping global challenges?

Addressing these questions fosters proactive and forward-looking mindsets that help anticipate and plan for a polycrisis, ultimately shaping a more sustainable and inclusive future.

Collaborative Community Leadership: Collaborative community leadership is crucial for addressing complex challenges as it leverages diverse expertise and resources to tackle multifaceted issues. These questions explore key aspects of collaborative community leadership in the context of a polycrisis.

1. What structures or processes can be established to foster shared responsibility and facilitate collective decision-making among diverse stakeholders when dealing with multiple intersecting crises?

2. How can leaders facilitate and support grassroots initiatives that enable diverse stakeholders to self-organize and take ownership in addressing the complex, interlinked challenges of a polycrisis?

3. What practical methods can be employed to create open dialogue spaces that effectively bridge gaps between experts from various fields, policymakers, and the public during times of multiple concurrent crises?

Engaging and empowering diverse stakeholders and fostering a sense of shared ownership and collective action are important in shaping an inclusive process for navigating a polycrisis (Summers & Howieson, 2015). These questions highlight the importance of collaborative community leadership.

Sustainability: Sustainability is a vital aspect of future-oriented leadership. The following quires explore sustainable practices and solutions applicable to a polycrisis.

1. What specific sustainable practices can be immediately implemented within

organizations to promote resilience and growth while simultaneously addressing multiple environmental, social, and economic challenges?

2. How can leaders collaborate with local partners to promote sustainable growth while adhering to rigorous sustainability standards, especially when addressing a polycrisis?

3. What storytelling techniques and creative projects can be developed to highlight unique community narratives, foster understanding of diverse perspectives, and inspire collective action towards sustainable solutions in a polycrisis?

These questions explore strategies for promoting sustainable growth, fostering local partnerships, and engaging communities through creative expression (Newman-Storen, 2024) to shape a more resilient and sustainable future.

The leadership capabilities we have identified for navigating a polycrisis necessitate reimagining leadership development approaches. Having examined these capabilities, we now focus on the implications these findings have for leadership development practices and approaches.

Implications for Leadership Development

The implications for leadership development are significant. We are preparing for a polycrisis while the world is already in polycrisis. Leaders want to lead differently, better, and sustainably to advance people, organizations, and society. The complex systemic nature of a polycrisis demands that leadership solutions offer approaches to meet that complexity. Our focus now turns to how we can develop leaders capable of navigating and responding to these intricate, systemic issues. We will explore several key ideas and trends in leadership development that are particularly relevant to this context. This includes insights from Day and Dannhäuser's (2024) recent paper, "Reconsidering Leadership Development: From Programs to Developmental Systems," which offers a systems approach to leadership development. We also examine other trends in leadership development that point to the direction in which leadership development professionals need to focus on building the learning systems of the future. We integrate the Center for Creative Leadership's fifty-four years of experience in studying the evolving nature of leadership development. This synthesis identified four critical leadership development practices: *shift from episodic to continuous learning, enable learning in action, prioritize wellbeing and inclusivity to grow organizational resilience, and integrate vertical development* (see Table 2).

FOUR LEADERSHIP DEVELOPMENT PRACTICES TO DEVELOP CAPABLE LEADERS FOR A POLYCRISIS

Leadership development practice	Rationale
Shift from Episodic to Continuous Learning	• Shifts in leadership needs met with just in time learning opportunities. • Leadership learning is normalized and ongoing. • Learning cultures are more adaptive to massive change.
Enable Learning in Action	• Application-based learning is proven to be the fastest way to rewire neural networks and become proficient in new capabilities. • Real-world engagement accelerates the development of critical problem-solving skills necessary for navigating the complexities of a polycrisis environment. • Enterprise-wide enablement systems ensure consistent skill development across the organization, maximizing the collective capacity to address polycrisis challenges.
Prioritize Wellbeing and Inclusivity to Grow Organizational Resilience	• Inclusion lever augments organizational problem-solving abilities. • Wellbeing cultures ensure employees have purpose-driven, agency, and caring for others and enterprise goals.
Integrate Vertical Development	• Transforming individual action logics to be able to contemplate and address more complex interconnected problems. • Cross-organization and industry problem-solving require higher-order thinking capabilities.

T A B L E   2

These practices form the foundation for building learning systems that can prepare leaders for the complexities of our current and future global landscape.

Shift from Episodic to Continuous Learning

The very nature of a polycrisis necessitates a fundamental rethinking of how learning occurs within organizations. We face multiple issues of significant complexity interacting simultaneously with uncertain and unpredictable outcomes, requiring constant adaptation and new knowledge. Organizations are seeking significant innovation amid constant change. Those charged with enabling leadership development for organizations are looking to create a level of preparedness for these ongoing and unpredictable challenges where new solutions involving shifting roles and functions are required.

Research indicates a significant shift in leadership development practices, moving from episodic, event-based approaches for select individuals towards continuous, organization-wide processes integrated into daily work (Day & Dannhäuser, 2024). A Deloitte study found that businesses that provide continuous learning opportunities are 92% more likely to innovate and 37% more productive (Deloitte Development LLC., n.d.). Continuous learning embodies a more systemic approach to learning and helps increase engagement and retention; it is likely more effective than episodic learning in creating the level of preparedness required in a polycrisis.

These shifts suggest that every individual, from frontline employees to top executives, should have a role in learning. They enable a culture of mutual learning and foster exchanges of knowledge and experience across hierarchical boundaries. Several key implications emerge from the shift from episodic to continuous learning.

Continuous Learning. Day and Dannhäuser (2004) state that "leadership is not just about individual capabilities, but also about the systems within which leaders operate. Transforming leadership development involves moving from periodically attending a highly structured program to an ongoing long-term perspective" (p. 6). In this view, learning is continuous, happens over time, and engages people across the entire organization. It requires a fundamental shift from episodic learning for a select few to ongoing learning for many.

Integration of Learning in the Flow of Work. Current organizational realities suggest that leaders cannot afford to leave work to develop; rather, they need to learn in real-time as they engage with the challenges they face (Branzetti et al., 2017). This is particularly evident in shift work and line work, where there is tremendous complexity associated with taking workers away from their daily tasks to engage in episodic learning, as they are left behind. To address this issue, learning should become part of daily work.

Microlearning and other short-format learning tools are essential, as are other hands-on forms of learning (Roth et al., 2022). We are seeing a significant proliferation of technology-enabled learning approaches (which we will discuss later in this section) that put learning in the hands of line workers and any employee who has very limited time to engage in formal training.

In the context of a polycrisis, where individuals must rapidly adapt to simultaneously evolving challenges, these same real-time learning approaches enable

employees to develop and apply new skills immediately.

Feedback and Recognition Systems. Ample research today highlights the importance of feedback and feedback environments in organizations. While managers provide the most critical feedback to employees, organizations with a culture of feedback are more important than any individual's personal approach (Ellison et al., 2022). As we have discussed the shift from episodic to continuous learning and adopting an enterprise-wide approach, it's important to consider the role and practicality of feedback in this new context.

Day and Dannhäuser (2024) emphasize the importance of leveraging feedback loops within an open systems approach to leadership development. Their work implies that both positive and negative feedback loops are essential for ongoing development. Positive feedback loops amplify changes, potentially accelerating learning, while negative feedback loops help maintain dynamic stability, allowing for consistent growth. The authors stress the importance of real-time, continuous feedback integrated into daily work, moving beyond annual formal reviews to more frequent, informal feedback focused on development. To facilitate this, they recommend using digital tools and platforms for tracking development goals, facilitating peer collaboration, and enhancing feedback and data loops critical for continuous learning. This digital approach is particularly valuable given the difficulty in tracking subtle shifts or insights over time and the need for an objective view to inform decision-making. In the context of a complex, ever-changing polycrisis, these insights imply a need for more dynamic and responsive feedback systems. Such systems can better equip leaders to navigate the multifaceted challenges they face in today's rapidly evolving organizational landscapes.

Technological Support for Scalable Development. With this perspective, we can look intentionally at the purpose of bringing technology into the picture. The challenges of ongoing leadership development, including motivation, real-time assessment and evaluation,

supporting cross-functional group efforts over time, and providing just-in-time learning support, imply a need for technological solutions. Technological solutions allow learners to stay on the job and track and monitor their progress over time. They enable quick pre/post assessments to be administered and tracked and for feedback to be sought and gathered from a broad network of stakeholders as well as from task-related assignments gathered through the tools.

Additionally, technological tools allow those in charge of leadership development to gather and analyze learning data from across the organization in discreet yet timely ways and make decisions at the organization, division, group, or individual level to improve outcomes. Non-technical approaches may not afford the ability to scale development effectively across an entire organization.

These implications suggest a significant shift in how organizations approach leadership development, moving towards more comprehensive, integrated, and adaptive methods to prepare leaders for the complexities of cascading crises.

Enable Learning in Action

In the previous section, we looked at continuous learning, which involves learning in the flow of work. In this section, we focus on learning directly applied to real-world challenges. At the most rudimentary level, we look at the store cashier who practices using the register in off hours and is quickly moved to a light shift where she engages in the activity of checking customers out while at the same time learning. We can apply this concept of learning in action to more complex leadership scenarios.

Experiential learning through engagement with significant organizational and societal challenges emerges as a crucial methodology for developing leadership capabilities suited to our complex global context. Leaders may develop the complex problem-solving abilities and systemic thinking necessary to navigate a polycrisis by engaging in projects addressing significant organizational, community, or societal challenges. There are three elements to enable learning in actions: engage employees in significant challenges, focus on practical applications, and implement a learning network.

Engage Employees in Significant Challenges. If you want to solve complex problems, ask your employees to help. In the now-famous marshmallow challenge, popularized by Tom Wujec, he asked a group of kindergartners to solve the problem of building the tallest tower of spaghetti while balancing a marshmallow on top. Surprisingly, the kindergarten students provided more novel responses than the MBA students (Wujec, 2010). This highlights the need and opportunity to engage employees in finding the answers to complex problems for which the organization's top leaders may not have ready solutions.

Today, multiple ways exist to help develop innovation skills, resolve ethical dilemmas, and address complexity while bringing a systems perspective. Research suggests that exposure to simulations of multiple, interconnected crises or real-world initiatives addressing complex issues (such as climate change impacts alongside economic instability) may prepare individuals for the multifaceted challenges of a polycrisis (Hornett & Lee, 2019). Hornett and Lee (2019) affirm that online business simulations, avatar-based negotiations, and cybersecurity games facilitate collaborative problem-solving, critical thinking, ambiguity management, sensemaking, and learning. Implications for leadership development include emphasizing polycrisis framing, adopting ecological approaches, and promoting social learning processes. Simulations enable us to engage in interactive work without having real-world implications. This allows for experimentation, learning from failures, and developing adaptive strategies in a safe environment.

Focus on Practical Application. Meaningful project work serves as a powerful vehicle for integrated learning and application in leadership development. Challenging projects that stretch people, also known as heat experiences, can create dynamic environments where individuals actively apply their thinking while simultaneously engaging in reflection, dialogue, and feedback. This process builds new ways of thinking and deepens perspectives and abilities to think systemically (Petrie, 2015).

Senior leaders' involvement in these practical learning experiences serves a dual purpose: they are part of the learning conversation, both celebrating the progress of employee learning and, over time, benefiting from new insights and expanded organizational capability. Projects may include cross-functional working groups providing research and proposals to tackle various aspects of presenting or impending challenges or solution development (focusing on tactics for resolving a specific problem). Engaging in challenging work typically features project(s) identified and selected by organizational decision-makers, extensive application-based learning, opportunities to engage in meaningful project work, and building and working in networks within and outside the organization (Petrie, 2015).

Implement a Learning Network. It is a fallacy to think that the burden of development lies solely on the individual. Research shows that while leadership development programs can provide participants with new insights, once they return to work, the demands of their work context will overtake those new insights (McCoy & Fry, 2023). If organizational systems are not focused on growth, the program is of very limited value. To that end, for leadership development to be effective, organizational systems must be focused on growth. An effective organization-wide approach might involve (1) explicit support from organizational leaders, (2) short, embedded learning sessions in day-to-day work, (3) personalized, evidence-based learning goals with peer group collaboration, (4) executive and group exchange for shared learning, and (5) learning groups leading organizational initiatives to expand impact. This networked approach to learning mirrors the interconnected nature of a polycrisis, implying that it may develop leaders' abilities to collaborate across boundaries, synthesize diverse information, and coordinate responses - critical skills for managing the cascading effects typical of a polycrisis.

Prioritize Wellbeing and Inclusivity to Grow Organizational Resilience

The COVID-19 pandemic ushered in a new era for the concepts of wellbeing and organizational resilience. This shift has led to a broadened definition of wellbeing and increased organizational investment in employee engagement. It has also brought recognition that organizations must respond to complex, ever-changing circumstances and setbacks, prompting a reevaluation of decision-making processes, use of emergent information, and the need for organizational agility. Consequently, leadership development practices must now integrate wellbeing and organizational resilience into their core framework.

The cultivation of wellbeing and inclusive cultures is critical for developing leadership capable of navigating a polycrisis. These concepts are increasingly viewed as fundamental to organizational success in today's dynamic and uncertain environment. In the context of polycrisis, wellbeing extends beyond self-care to include a sense of purpose and agency, inclusion and connection to others, engagement in work that aligns with individual needs, and equitable treatment and access to learning resources.

Wellbeing and Leadership Development. In the context of a polycrisis, the concept of wellbeing extends beyond self-care and caring for one's health. It includes having a sense of purpose and agency and being included and connected to others. Research shows that workplace wellbeing is associated with positive outcomes, including engagement, creativity, trust, innovation, resilience, job satisfaction, and performance, while high levels of wellbeing may reduce employee burnout (Yeung & Johnson, 2016). Wellbeing, as part of a leadership development practice includes some of the following: enabling employees to engage in ways that work for their individual needs, feel equitable treatment with other learners, and be connected to the right learning resources. Intentional leadership focusing on wellbeing can reduce organizational costs, attract younger generations, engage current talent, and retain high performers. Leading with a wellbeing focus involves practices that foster internal resources, empower others, and create supportive environments for sustained, thriving performance (Fernandez & Clerkin, 2021). This approach may promote behaviors

that enhance organizational hardiness in navigating polycrisis scenarios.

Implication of Fostering Inclusive Environments. Inclusive cultures may play a significant role in developing leadership for a polycrisis, as they can foster diverse perspectives that could be valuable in understanding, defining, and addressing multifaceted global challenges (McAllister-Wylie, 2024). Leadership development should prioritize inclusivity as a core organizational value. This could involve designing learning experiences that expose leaders to various viewpoints and experiences, which may enhance their ability to generate comprehensive solutions (Bourke, 2016). We see the legitimacy of these assertions when we consider the foundational skills of innovative design thinking and systems thinking. Design thinking starts with empathy mapping, which is in understanding all the different needs of end users. The practices to get to that empathy map are highly inclusive, as you want to understand the full range of thoughts and needs. Similarly, in the three most critical steps of systems thinking, Peter Senge (2006) asserts that we need to engage as many diverse perspectives as possible to truly understand a system. The logic, then, is that inclusive leadership development practices enable learning by all, and embolden people across organizations to address complex challenge through building collective problem-solving capabilities.

By incorporating inclusivity, organizations might prepare leaders to work effectively with diverse teams, engage multiple stakeholders, and synthesize varied insights—skills that could be beneficial in navigating the complexity of a polycrisis. These implications suggest a need for a leadership development approach that recognizes the interconnected nature of wellbeing, inclusivity, and the ability to navigate complex, multi-faceted challenges.

Integrate Vertical Development

Vertical development represents a critical shift in advancing cognitive abilities, particularly in preparing leadership for a polycrisis. This approach focuses on advancing cognitive capacities, enabling individuals to navigate increasingly complex and uncertain environments effectively (Kegan & Lahey, 2009). Unlike traditional horizontal development, which emphasizes acquiring new skills and knowledge, vertical development targets how leaders perceive, interpret, and respond to their environment at different stages. The mechanism of vertical development lends an expansive capacity to address a polycrisis. "Each successive stage holds greater ability for learning, complex problem-solving and the ability to set new directions and lead change (McGuire & Rhodes, 2009, p. 59)." People navigate through stages over time. If we want to accelerate how people evolve, we can design purposeful environments to accelerate that development. To accelerate vertical development, organizations can implement processes that challenge mental models and assumptions, facilitate peer learning and reflection over time, and develop multi-level attentional skills—simultaneously focusing on internal, group, and organizational dynamics (Petrie, 2015).

Develop Adaptive Mindsets. At its core, vertical development refers to expansion in a person's thinking capability (Coopersmith, 2024). Research shows that the outcome of vertical development is the ability to think and act in more complex, systemic, strategic, and interdependent ways (Petrie, 2016). This insight implies that leadership development should facilitate fundamental shifts in how leaders perceive and act. The concept of leadership logics in action (McGuire & Palus, 2018) suggests that as leaders progress through successive stages, they become more capable of dealing with increasing levels of uncertainty and complexity. This progression enhances their ability to adapt to our constantly shifting world. Notably, leaders who spend more time in complex environments become more adaptive and are often seen as showing more

significant levels of vertical development. Behaviors they show align with more evolved stages of vertical development: they lead in reframing challenges, reinterpreting a situation, and holding up a mirror for others (Cook-Greuter, 2004). These adaptive mindsets, fostered through vertical development, equip leaders with the cognitive flexibility necessary to navigate the complexities of modern leadership challenges.

Vertical Development for Organizational Readiness. In rapidly changing environments, organizations often need to promote people to positions for which they may not be ready. While role-specific skills are necessary, they are insufficient for addressing today's and tomorrow's leadership challenges. This reality underscores vertical development's importance, enabling individuals to handle greater complexity, process tensions more effectively, make decisions in uncertain environments, and work collaboratively across diverse groups (Petrie, 2015). These capabilities are key to preparing individuals for the cognitive demands of roles they might not be ready for, equipping them with the adaptive mindsets necessary for navigating a polycrisis. This suggests a need for leadership development approaches that prioritize cognitive complexity and adaptability alongside traditional skill acquisition.

The implications discussed in this section collectively point toward an integrated approach to developing polycrisis-ready leadership. This approach emphasizes continuous, organization-wide learning embedded in daily work, fostering wellbeing and inclusivity to build organizational resilience, advancing cognitive complexity through vertical development, and leveraging applied learning experiences. These elements create a comprehensive framework that moves beyond traditional, episodic training models to an interconnected leadership development system. This system permeates all levels of the organization, equipping leaders with the adaptive mindsets, cognitive capabilities, and practical skills necessary for a polycrisis.

Limitations and Future Research Directions

This study and emergent suggestions for readying leadership for a polycrisis have several limitations that should be considered. Our research drew from literature on grand challenges and wicked problems due to the limited work specifically addressing leadership in polycrisis contexts. While these concepts share fundamental connections - such as systems thinking, complex interdependencies, and the need for adaptive responses - it's important to acknowledge that polycrisis may present unique aspects not fully captured by existing research. Nonetheless, these conceptual similarities provide a strong foundation for understanding leadership needs in highly complex, interconnected global challenges.

There is also a potential geographic bias, as the research draws mainly from Western sources and perspectives, potentially limiting global applicability. The theoretical nature of the study, based on a literature review and expert validation, provides a strong foundation for effective leadership development but lacks empirical testing of the identified leadership capabilities in a real-world polycrisis.

Future research directions could address these limitations and further advance the understanding of leadership in the midst of polycrisis. Empirical studies should be conducted to test and refine the identified leadership capabilities in actual polycrisis situations, potentially through case studies, surveys, and/or longitudinal research. Cross-cultural research could expand the findings to include non-Western perspectives on leadership in complex, systemic challenges. As more literature on polycrisis emerges, focused studies on leadership capabilities unique to polycrisis should be pursued. An interdisciplinary approach, engaging researchers from fields such as complexity science, systems thinking, and crisis management, could enrich the understanding of leadership in a polycrisis. Evaluating leadership development programs' effectiveness based on the identified capabilities would provide practical insights. Future research could also explore how emerging technologies can support leaders in developing and applying these capabilities when leading through a polycrisis, investigate organizational readiness for a polycrisis, and examine leaders' ethical challenges. Longitudinal studies tracking how leadership capabilities develop over time in response to the ongoing and emerging polycrisis, as well as comparative analyses of different leadership approaches in various types of polycrisis, would contribute valuable insights to this emerging field of study.

Conclusion

This exploratory research into leadership capabilities essential for navigating a polycrisis makes important contributions to an emerging and critical investigation. Our study establishes an initial foundation for understanding the complex leadership requirements in an increasingly interconnected and crisis-prone world, filling a significant gap in the existing literature on leadership in the midst of polycrisis. By synthesizing insights from the literature on leadership, grand challenges, and wicked problems, we have identified key qualities of leadership necessary to navigate a polycrisis.

Our findings have significant implications for leadership development, suggesting a move from program-centric models to integrated development organizational systems. We propose that leadership development for a polycrisis should be an organization-wide endeavor, focused on the entire system, embedded in the organization's core efforts, and emphasizing approaches such as wellbeing and resilience, vertical development, and real-world experiences. We also believe the use of technology in supporting ongoing assessment, evaluation, and connection is crucial.

The urgency of developing these leadership capabilities cannot be overstated. As the frequency, complexity, and interconnectedness of global crises increase, organizations and societies face unprecedented challenges that require a new breed of leadership.

Our research provides a framework for reimagining leadership education and development to meet these challenges head-on.

We have identified four key practices for developing capable leaders for a polycrisis: shift from episodic to continuous learning, enable learning in action, prioritize wellbeing and inclusivity to grow organizational resilience, and integrate vertical development. These practices emphasize the need for a systemic approach to leadership development that goes beyond traditional training models. They highlight the importance of embedding learning in daily work, fostering organizational resilience through wellbeing and inclusivity, and developing leaders' cognitive complexity to handle the challenges of a polycrisis.

As our world grapples with increasingly complex and interconnected challenges, the need for effective leadership in the midst of polycrisis has never been more critical. This study aims to spur dialogue, deepen understanding, and catalyze action in developing the leadership capabilities required to navigate turbulent times. By developing our approach to leadership development, we can better equip leaders to respond to crises and proactively shape a more resilient, sustainable, and equitable future. The time for transformation in leadership development is now – the future of our organizations, communities, and indeed our world, may depend on it.

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LEADERSHIP THEMES AND CAPABILITIES

Themes and Definitions	Leadership Capabilities and Definitions
Complex Problem-Solving Mindsets and Skills: the ability to navigate and lead effectively in complex, dynamic, and uncertain environments by employing a set of interrelated cognitive and problem-solving skills.	**Ambidextrous thinking** - The ability to balance and harness seemingly conflicting elements in paradoxical situations, recognizing the innate tensions between solutions and exploring "both/and" approaches. **Complexity awareness** - The practice of framing problems within their broader context, understanding how they interact with their environment, and assessing the long-term social and environmental consequences of proposed solutions. **Adaptive problem-solving** - An iterative approach to problem-solving that encourages creativity, experimentation, and flexibility in the face of changing circumstances. **Critical thinking** - The process of examining the validity of claims, considering alternative perspectives and outcomes, and looking beyond simple cause-and-effect explanations for complex issues. **Depoliticizing crisis** - The act of removing political influence from problem-solving and promoting neutrality in decision-making during a crisis. **Systems thinking** - An approach to understanding complex problems by exploring systemic patterns and relationships, recognizing multiple interrelated factors, and considering how social, economic, environmental, and political elements interconnect and impact one another.
Collaboration and Relationships: a set of skills, processes, and approaches that foster strong partnerships, effective communication, and collective action among diverse stakeholders to achieve common goals and create shared value.	**Collaboration** - The process of bringing together diverse perspectives, facilitating understanding among stakeholders, and encouraging collective efforts to achieve common goals. **Collective leadership** - An approach to leadership that emphasizes partnering with others across sectors, encouraging effective teamwork, and creating value through collaboration. **Collaborative problem-solving** - A process in which individuals from various fields and backgrounds work together to define complex problems, identify common goals, and develop solutions. **Effective communication** - The ability to convey information clearly and transparently, navigate difficult conversations, listen deeply to understand others' perspectives, and adapt communication styles to diverse audiences. **Facilitating sharing of expertise** - Encouraging and creating opportunities for individuals to share their unique perspectives, knowledge, and skills with others. **Transparent public engagement** - Openly sharing information and engaging in honest dialogue with the public, inspiring trust through transparency in public forums, and effectively communicating with external audiences, including the media, government, and the general population. **Aligning collective action** - The process of mobilizing and coordinating the efforts of interdependent individuals or groups towards a common objective. **Seeks wide counsel** - Actively seeking out and incorporating diverse input, dissenting opinions, and perspectives from various sources, particularly from underrepresented or traditionally excluded groups. **Sensemaking** - The process of creating meaning and understanding from complex or ambiguous situations by encouraging dialogue, sharing information, looking for patterns in data, considering different interpretations, and inviting contrasting perspectives. **Trustworthiness and reliability** - Consistently demonstrating behaviors that inspire trust, such as acting with integrity, following through on commitments, and maintaining open communication.

LEADERSHIP THEMES AND CAPABILITIES, CONTINUED

Themes and Definitions	Leadership Capabilities and Definitions
Transformative Leadership: the ability to challenge the status quo, inspire others towards a transformative future, and drive meaningful change within organizations and society.	**Disruptive leadership** - An approach to leadership that challenges the status quo, questions dominant assumptions, and seeks out perspectives that differ from the mainstream. **Visionary change leadership** - The ability to inspire and mobilize others towards a transformative future by communicating a compelling vision, aligning resources and support, and forming coalitions to encourage broad-based buy-in.
Inclusivity and Ethics: the principles and practices that anchor leadership in ethics, justice, empathy, and concern for others, appreciating diversity, and ensuring all voices are valued.	**Appreciation** - The practice of recognizing and valuing the contributions, experiences, and successes of others. **Empathy** - The ability to understand and share the feelings of others, demonstrating genuine care, concern, and compassion. **Enabling psychological safety** - Fostering an environment where individuals feel secure to express ideas, take risks, and make mistakes without fear of negative consequences. **Equity and justice** - Ensuring fair treatment, equal opportunities, and the removal of inequities for all individuals, regardless of their background or identity. **Inclusive mindset** - A perspective that values and leverages diversity as a strength and source of ideas.
Inner Capabilities: a set of personal and interpersonal qualities that enable leaders to navigate complex challenges, inspire others, and drive positive change while remaining true to their values and purpose.	**Self-awareness** - Self-awareness is the ability to be in reflective contact with own thoughts, feelings and desires, having a realistic self-image and ability to self-regulate. **Courageous leadership** - The ability to make bold decisions, take decisive action and remain composed and effective in the face of uncertainty, unfamiliar situations, and challenges. **Creativity** - The capacity to generate novel ideas, foster innovative approaches, and develop original solutions to complex problems. **Emotional intelligence** - The ability to recognize and manage one's own emotions while being attuned to the emotions of others. **Humility** - The quality of being modest, self-aware, and open to learning from others. **Inner compass** - A strong sense of personal values, ethics, and purpose that guides decision-making and actions. **Optimism** - The ability to maintain a positive outlook and inspire confidence in the possibility of meaningful change, even in the face of challenging realities **Resolute perseverance** - The determination to stay focused on goals and continue making progress despite setbacks, challenges, or resistance. **Resilience** - Resilience refers to the ability to withstand, adapt to, and recover from adversity, change, and uncertainty **Mindful awareness** - The practice of being fully present, engaged, and non-judgmental in the moment.
Future Orientation: a set of strategic approaches and practices aimed at anticipating, planning for, and shaping a sustainable and inclusive future.	**Futures thinking** - A strategic approach that involves anticipating and planning for potential future scenarios, needs, and possibilities. **Collaborative community leadership** - An approach to leadership that prioritizes acting in the public interest, empowering others to self-organize, and minimizing the emotional distance between experts and the public. **Sustainability** - The practice of collaborating with local partners to promote sustainable community growth while adhering to the highest sustainability standards.

About the Authors

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Jean Brittain Leslie is a Senior Fellow and Director of Strategic Initiatives in the Leadership Research and Analytics Group at the Center for Creative Leadership. With 35 years of experience, Jean has made numerous contributions in the areas of research, publication, product development, and training. Jean has published over 100 pieces on leadership, assessment, and feedback, including peer-reviewed papers, popular press articles, blogs, book chapters, and books.

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