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Jazz as an Organizing Logic. Leadership, Improvisation and Coordination in Complex Systems Operations

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ABSTRACT

Complex systems operations—such as emergency response, defence, and critical infrastructure management—require the simultaneous integration of stability, adaptability, and real-time decision-making under conditions of uncertainty. Traditional hierarchical models provide control but often lack responsiveness, whereas fully decentralized approaches enable innovation at the cost of coherence. This paper proposes an organizational framework based on the "jazz organization logics", positioning jazz not as a metaphor but as an empirically grounded model of distributed coordination in complex dynamic environments. Drawing on complexity theory, systems thinking, and organizational behaviour, the approach conceptualizes jazz ensembles as high-reliability adaptive systems in which actors align around shared structures while engaging in disciplined improvisation. Four core pillars underpin the model: (1) Structured Flexibility, where minimal enabling constraints support adaptive action; (2) Distributed Leadership, where authority shifts according to situational expertise; (3) Relational Attunement, emphasizing continuous active sensing, mutual adjustment, and feedback; and (4) Rhythmic Structures, referring to enabling units that sustain operational continuity and tempo. The study integrates insights from case analyses across complex operational contexts, suggesting that teams operating with bounded autonomy show increased decision velocity and reduced coordination breakdowns compared to rigid command-and-control systems. The findings challenge the assumption that flexibility undermines control, reframing improvisation as disciplined adaptability grounded in shared norms. In environments characterized by volatility, uncertainty, complexity, and ambiguity (VUCA), the proposed framework offers a robust approach for achieving coherence without sacrificing innovation, contributing to the field of complex systems leadership and governance by articulating actionable principles for organizational design and adaptive coordination.

Keywords: Adaptability, Complexity, Creativity, Improvisation, Jazz, Organizational behaviour, Systems

INTRODUCTION

Most domains of human activity are facing a considerable amount of challenges across multiple spheres, and the rising complexity contexts in which organizations of any type operate is no exception. Organizations, and especially networks of organizations, are often complex systems. Typically

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a complex system, more often than not operates in a complex context, characterised by many interacting parts whose relationships are nonlinear, often meaning that small changes can have large effects. Such contexts are dynamic and exhibit emergence, where outcomes arise from interactions from systems' elements rather than being imposed. Systems evolve over time, shaped by their history and environment in irreversible ways. Although patterns may seem clear in hindsight, they are not predictable in advance because conditions keep changing. In such systems' contexts, both the individual elements and the overall structure influence each other, making precise forecasting impossible (Snowden & Boone, 2007). The first obvious consequence of complex contexts is that the traditional industrial-age command and control thinking is not the most adequate way to manage and govern in such contexts, as the need to adapt in face of complexity is of the essence. Complex systems operations require simultaneous improvisation, adaptability and stability. The second consequence is that traditional hierarchical models provide control but often lack responsiveness, while fully decentralized approaches encourage innovation but risk fragmentation and incoherence. Hence, because in complex contexts, outcomes cannot be predicted or controlled in advance, leaders must experiment, observe emerging patterns, and adapt rather than impose fixed solutions—*probe, sense, respond* (Snowden & Boone, 2007).

This paper discusses an organizational framework for leading and governing complex systems by drawing on jazz as an empirically grounded model of distributed coordination. Jazz ensembles function as high-reliability, real-time adaptive organizations (systems): musicians follow shared structures—harmony, rhythm, and form—while engaging in improvisation. Leadership shifts fluidly depending on the melodic lead, yet cohesion is maintained through deep listening, shared mental models, and disciplined norms. This mirrors challenges in complex operations, where interdependent actors must make time-sensitive decisions with incomplete information. Improvisation does not imply informality or lack of discipline. Like jazz, effective improvisation relies on rigorous training, shared repertoires, and established procedures. This challenges the view that flexibility weakens control, suggesting instead that disciplined adaptability strengthens reliability. In volatile and uncertain environments, organizations must move beyond rigid hierarchies toward adaptive coordination, integrating structure and emergence to achieve coherence, resilience, and innovation in complex systems management. This paper follows and IMRaD structure (Introduction, Methods, Results and Discussion). After this introduction, some relevant background is presented in section two, after which some considerations are referred regarding the methodological approach in section three. Section fours, results, proposes ways of dealing with the problem, after which a discussion follows in section five.

BACKGROUND

Centralised command and control has been the mantra behind management and leadership for over a century in business and beyond, however, the world and the context changed, and organizations shall adapt accordingly if they want to thrive.

The Problem

Most management and leadership approaches have been adequate for simple and complicated contexts, however, in complex contexts, they lack effectiveness, as they rely in traditional command and control approaches – a sort of "orchestration". The orchestration metaphor falls short in a VUCA world because it presumes a predetermined score, a central conductor, and obedient performers that simply do not exist in complex decentralized environments. While orchestration suggests harmony and control, a VUCA context is often better defined by unpredictable interactions, lack of a single "conductor", and the inability to foresee how small changes will ripple through the system, or system-of-systems, giving place to emergent effects. In a truly complex context, there is no single entity with total visibility or control. Orchestration implies a top-down hierarchy, whereas VUCA contexts require decentralized, agile responses. A symphony follows a written score, but in a VUCA environment, the "rules of the game" change frequently. Planning for a set outcome often leads to rigidity rather than the necessary flexibility—crucial for adaptation ability. Moreover, orchestration focuses on alignment, but complex contexts are defined by non-linear interactions where a small action can have massive, unintended consequences. The jazz metaphor has been studied before, however as happens with many valid management theories that were discarded just for the sake of the *Sorcerer's Apprentice syndrome* —a situation where the *apprentice* cannot flourish without the disappearance of the master (Hirsch, 2021)—and need to be recovered. This syndrome is a leading cause for the premature abandonment of valid management models, which are often discarded with arguments of poor implementation or unrealistic expectations. Likewise the jazz logic has not been paid enough attention for management, leadership and governance. Therefore, to bring attention to the relevance of the subject some of the core principles of the jazz logic are laid down below.

Searching for Guidance and the Principles Behind the Jazz Logic

Jazz is an organizational system which evolved naturally, once the right conditions were available in the context where jazz born (Myers, 2013). The jazz logic is characterized by intense listening, collective responsibility, improvisation within a minimal structure, and real-time adaptation is increasingly used in complex, high-stake fields where rigid, top-down planning fails – something that implies a different leadership style (De Pree, 1992; Barrett & Peplowski, 1998; Ackerman, 2018). Key examples include: (1) Management and Strategic Execution, (2) Innovation and Product Development, or (3) Crisis Management. Barrett (2012) identified a set of core principles at play in what concerns the logic behind jazz, providing a useful framework which allows for analysis and solution design whenever an organization facing a complex context needs a different kind of approach. These core principles which characterise the jazz logic are visible at most situations presented on the fourth section of this paper, which illustrates examples from several fields of human activity where complexity and critical operations are the norm (Table 1). Rather than relying on rigid plans and routines, organizations can become more innovative and adaptive by

embracing uncertainty, experimentation, and collaboration supported by a dynamic, flexible approach to leadership that mirrors how jazz musicians perform together in unpredictable environments. This demands a need to "unlearn" routines. While routines provide comfort and efficiency, they can also limit creativity and prevent organizations from adapting to change. Leaders must therefore develop improvisational skills—learning to act without complete information, adjust quickly, and refine their actions through experience. Like jazz musicians, who rely on learned patterns but creatively adapt them in performance, leaders and managers must balance preparation with spontaneity.

Table 1: Jazz logic core principles [Adapted from Barret, 2012].

Core Principle	Core Idea
1. Mastering the art of unlearning	Let go of rigid routines. Overreliance on habits limits adaptability and innovation
2. Developing affirmative competence	Act despite uncertainty. Progress often requires stepping into ambiguity with confidence
3. Embracing errors as a source of learning	Learn through mistakes. Performing and experimenting simultaneously. Errors are valuable sources of insight, not just failures
4. Minimal structure & maximal autonomy	Balance control with freedom. Too much structure stifles creativity; too little creates chaos
5. Jamming & hanging out	Foster spontaneous collaboration. Learning by doing and talking. Innovation emerges from informal, open exchanges of ideas
6. Taking turns soloing & supporting	Share leadership roles. Effective teams require both leading and supporting
7. Leadership as provocative competence	Challenge the status quo. Growth comes from disrupting comfort zones and routines
8. Advancing engaged, strategic improvisation	Combine structure with improvisation

Barrett (2012) suggested the concept of "affirmative competence", as a willingness to move forward despite ambiguity and risk. Instead of relying on traditional planning to avoid problems, effective leaders embrace them as opportunities for discovery and learning. Many tasks in organizations are not fully defined, requiring employees to rely on creativity and resourcefulness rather than strict procedures. Hence, learning from errors is a central pillar. In jazz, mistakes are not failures but opportunities to create something new, leading to adaptation. Musicians repeat or build upon a mistake, transforming it into a novel pattern. Similarly, organizations that treat errors as learning opportunities can accelerate innovation. However, many organizations discourage risk-taking by punishing mistakes, which stifles creativity reinforcing the value of trial-and-error learning.

METHODS

This paper adopts a conceptual and theoretical methodology grounded in structured critical reasoning (Paul & Elder, 2009). It combines elements of abductive reasoning, and problem-structuring approaches to examine

the documented cases. These methods sought analytical comparison and conceptual clarification rather than empirical validation. By combining a comparative analysis of cases, and alternative analysis methods, such as the *Logical Thinking Process* with its logical validation approach (Dettmer, 2007), it provides a robust approach, as the use of multiple methods (aka models) cover the insufficiencies or blind spots of single models (Page, 2016). Furthermore, the Five Whys technique was used to determine the root causes of the problem by asking "why" enough times.

RESULTS

This section provides evidence of jazz logic operating across several critical fields of human activity. Several examples from distinct fields of activity—business, medical, and defence—are briefly presented in the following sections, as well as a structuring tree supporting the main argument.

Examples of Jazz Logic at Play From Business

Jazz logic in business refers to applying principles of improvisation, collaborative leadership, and adaptability to thrive in unpredictable environments, moving away from rigid, centralized and hierarchical industrial-age thinking business structures. Several examples are captured in Table 2, where the jazz logic are used, consciously or unconsciously.

Table 2: Examples of jazz logic in business [Adapted from: Gold & Hirshfeld, 2005; Satell, 2013; Czarnecki, 2015; Água & Conceição, 2024].

Cases	Description
Corporate strategy and consulting (Jazzcode)	Former IBM executive Gunnar Størmer founded Jazzcode, a consultancy that applies jazz improvisation to business. Treating business mistakes not as disasters but as "wrong notes" that offer opportunities for new creative directions.
Open innovation (Procter & Gamble)	Procter & Gamble's *Connect and Develop* program. Listening to external "voices" (consumers, innovators) and collaborating across boundaries, just as jazz musicians feed off different ideas and instruments.
Adaptive service delivery	Service personnel (desk clerks, flight attendants) who embrace "variations" in service delivery when technology fails or a special request is made, enable employees to fix problems.
Leadership and creativity (Mastercard/General Dynamics)	Executive coaching in companies like Mastercard, General Dynamics promote increasing situational awareness and improvising to achieve goals, rather than waiting for a "conductor" to dictate every action.
Project management	Project managers adopt a "jazz mindset," treating plans as flexible frameworks rather than rigid rules, allowing teams to react to context and market shifts while maintaining core goals.
Crisis management units	Teams handling immediate crises (firefighting, police, civil protection operations) must rely on shared knowledge and immediate communication adapting to evolving situations, much like collective improvisation in jazz.

Table 3 clarifies the parallel between jazz logic and business.

Table 3: The parallel between jazz logic and business.

Jazz Principle	Business Parallel
Improvisation	Rapid problem-solving and adapting to disruption.
Jam session	Collaborative, cross-functional innovation sessions.
Swing	Flexibility in plans, giving "flex" time for creativity.
Individual voice	Encouraging diverse, employee-driven ideas.
Listening	Empathic interaction with consumers and peers

Examples of Jazz Logic at Play From the Medical Field

Jazz logic in the medical field refers to applying the principles of jazz—improvisation, deep listening, collaboration, and structured freedom—to clinical practice, health organizations management, and medical education. It is often used to manage uncertainty, enhance patient communication, and foster teamwork among healthcare professionals (Haidet, 2007). Table 4.

Table 4: Examples of jazz logic in the medical field [Adapted from: Haidet, 2007; Haidet et al.,2017; van Ark & Wijnen-Meijer, 2019; Pearl & Greenberg, 2020].

Application	Obs.
Patient-physician communication (Improvisational Encounter)	*Deep Listening and Space* - Use of jazz to teach doctors how to listen like jazz musicians, focusing on "creating space" in a conversation rather than taking it up with rapid-fire questions. This approach, inspired by Miles Davis, allows patients to tell their stories, leading to better diagnostic information.
	Saying Something - Jazz logic can be applied in medical training to move clinicians beyond just memorizing symptoms to developing "their own voice" in conversations.
	"Yes, and..." Technique - Nurses and clinicians have used "Yes, and..." improvisation exercises (a core concept of improvised theatre) to improve communication during patient handoffs and in high-stress, unpredictable situations.
Teamwork and interprofessional collaboration	*The Jazz Ensemble Model* - Interprofessional health care teams have been modelled on jazz ensembles, where different specialists work together, balancing individual expertise with collective improvisation.
	Rhythmic Synchronization - Teams use this metaphor to learn how to communicate without overplaying or underplaying their roles, aiming for a shared mental model.
	Medical-Surgical Unit Team Building - Applied improvisation has been used on nursing units to create a culture of psychological safety, allowing staff to share ideas or mistakes without fear.
Surgery and technical skill application	*Managing the Unexpected* - Surgeons have used jazz logic to "reflect in action" during unexpected surgical challenges. It bridges the gap between standardized protocols and necessary spontaneous adaptations (the improvisation)
Clinical decision-making	*Evidence-Based Clinical Jazz* - Practitioners often combine the rigid structure of evidence-based medicine (the rhythm section) with their own personal "clinical improvisation" to manage unique or uncertain cases.

Key Cases of Jazz Logic in Military Operations

Jazz logic in the military refers to a leadership style of improvisation, intuition, and high-tempo adaptation, often contrasted with the "orchestra" approach of rigid, top-down planning, where strict, long-term plans fail when facing VUCA conditions. Core Components of Jazz Logic when applied to a military operations context are: (1) *Versatility*, the ability to change plans rapidly; (2) *Decentralized Command*, or allowing lower-level leaders to exploit opportunities (the "soloist"), and (3) *Improvisation*, which requires adapting to the enemy's actions. (Table 5).

Table 5: Examples of jazz logic in military operations (Based on: Sullivan, 1998; FitzGerald, 2020; Hulm, 2019).

Cases	Obs.
WWII – general Patton's advance	While much of WWII planning was "symphonic", as in orchestras, rapid, decisive movements like Patton's Third Army advance across France required commanders to operate with limited information and act on initiative, a form of improvisational, high-tempo combat that fits the jazz analogy.
1991 Kurdistan & 1992 Somalia (10th Mountain Division)	Leaders in these operations, such as during the deployment to Somalia, were noted for tailoring or task-organizing based on METT-T (mission, enemy, troops, terrain and weather, and time available) rather than following a rigid, predefined plan. This improvisational, mission-driven approach is a key example of jazz logic in practice.
2003 invasion of Iraq (2nd BCT, 3rd Infantry Division)	During the push to Baghdad, the 2nd Brigade Combat Team demonstrated jazz logic. Col. David Perkins equated formal military training to practicing scales, but the fast-paced, highly collaborative manoeuvring in April 2003—where decisions were made on the fly to meet rapidly changing conditions—was described as "playing jazz".
Ukrainian UAS (Drone) operations (2022- …)	Ukrainian drone units, have used a form of jazz logic by intentionally operating at the same time and frequency as Russian drones, creating dilemmas for the adversary. This approach is an improvisational tactic designed to render enemy jamming ineffective.

Perhaps no other field like defence and security convey a more urgent substrate to apply jazz logic nowadays, as summarised in Table 6.

Table 6: Comparing the classical/traditional approach to the jazz logic in VUCA contexts.

Concept	Classical/Traditional Approach	Jazz Logic (VUCA-Ready)
Strategy	Fixed score or Master Plan	Improvisation & Emergent Strategy
Leadership	Centralized Conductor/Hierarchy	Rotating, Distributed, & Adaptive
Error handling	Failure to be avoided/punished	Source of learning
Change	Seen as a disruption to be controlled	Embraced as the "natural flow" of work
Expertise	Adhering to standard methodologies	Diverse specialists co-creating in real-time

Summarising, the jazz logic is present in critical fields of human activity, from management and general business, to medical field, to defence, security and high reliability organizations. Drawing from the previous examples, and taking a logical thinking process approach one can build a logic tree structuring the jazz organizing principles in practice (Figure 1) (Dettmer, 2007). The figure shows a set of actions that organizations facing complex contexts can take into account when designing their management and governance architectures, helping lead such organizations navigate in VUCA contexts.

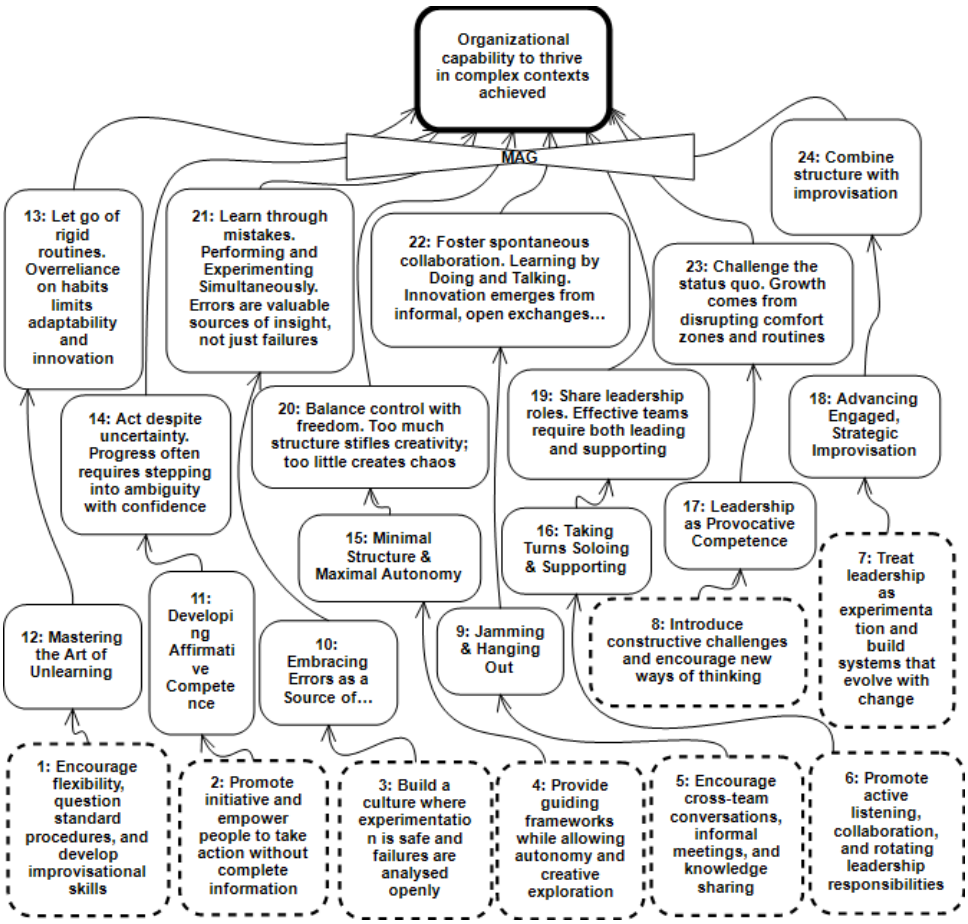

Figure 1: Logic tree mapping the causal structure underneath the jazz logic.

Logic trees such as this one are build though a process of logical thinking, where causality is ensured by means of the *Categories of Legitimate Reservation*, a *Logical Thinking Process* tool (Dettmer, 2007). They have the benefit of strengthening understanding by mapping the cause and effect chains from the actions at the bottom up to the effects at the top of the tree.

DISCUSSION & CONCLUSIONS

From general business to High Reliability Organizations (HRO), most current contexts are characterised by an increased complexity, which makes traditional command and control leadership and governance ineffective. The jazz logic provides some help, which allow for practical recommendations (Table 7). The jazz concepts provided by Barrett (2012) provide the basis for practical recommendations, which these organizations can implement as part of their cultures, hence driving their organizations into better futures amid the aforementioned complexity.

Table 7: Practical recommendations [Inspired on Barret, 2012].

Jazz Concept	Practical Recommendations
1. Mastering the art of unlearning	Encourage flexibility, question standard procedures, and develop improvisational skills
2. Developing affirmative competence	Promote initiative and empower people to take action without complete information
3. Embracing errors as a source of learning	Build a culture where experimentation is safe and failures are analysed openly
4. Minimal structure & maximal autonomy	Provide guiding frameworks while allowing autonomy and creative exploration
5. Jamming & hanging out	Encourage cross-team conversations, informal meetings, and knowledge sharing
6. Taking turns soloing & supporting	Promote active listening, collaboration, and rotating leadership responsibilities
7. Leadership as provocative competence	Introduce constructive challenges and encourage new ways of thinking
8. Advancing engaged, strategic improvisation	Treat leadership as experimentation and build systems that evolve with change

Supported by the logic tree in Figure 1, and Table 7, it is possible to conceive strategies and approaches to lead, manage and govern organizations in VUCA contexts.

The implementations of the jazz logic recommendations are not without adverse pressures, however, as it challenges the *status quo*—the industrial-age centralized control thinking—inherited from the early years of industrialization. The successful change of organizations which have to operate in complex contexts will depend not only on successful change management processes (Kotter, 2012), but on the will of visionary decision makers, which have the ability to understand that traditional industrial-age centralised control is not only ineffective as it does not steer their organizations to any good place. The main argument of this paper supports a shift from rigid, control-based management to a more fluid, improvisational style, where learning, collaboration, and adaptability drive innovation, and are critical traits of leadership for VUCA contexts—the new normal. Given the relevance and importance of the subject under focus in this paper, an extension to this research is already taking place, which will further elaborate

on the way to improve organizational performance for High Reliability Organizations in complex contexts, often including sociotechnical systems-of-systems for critical domains.

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