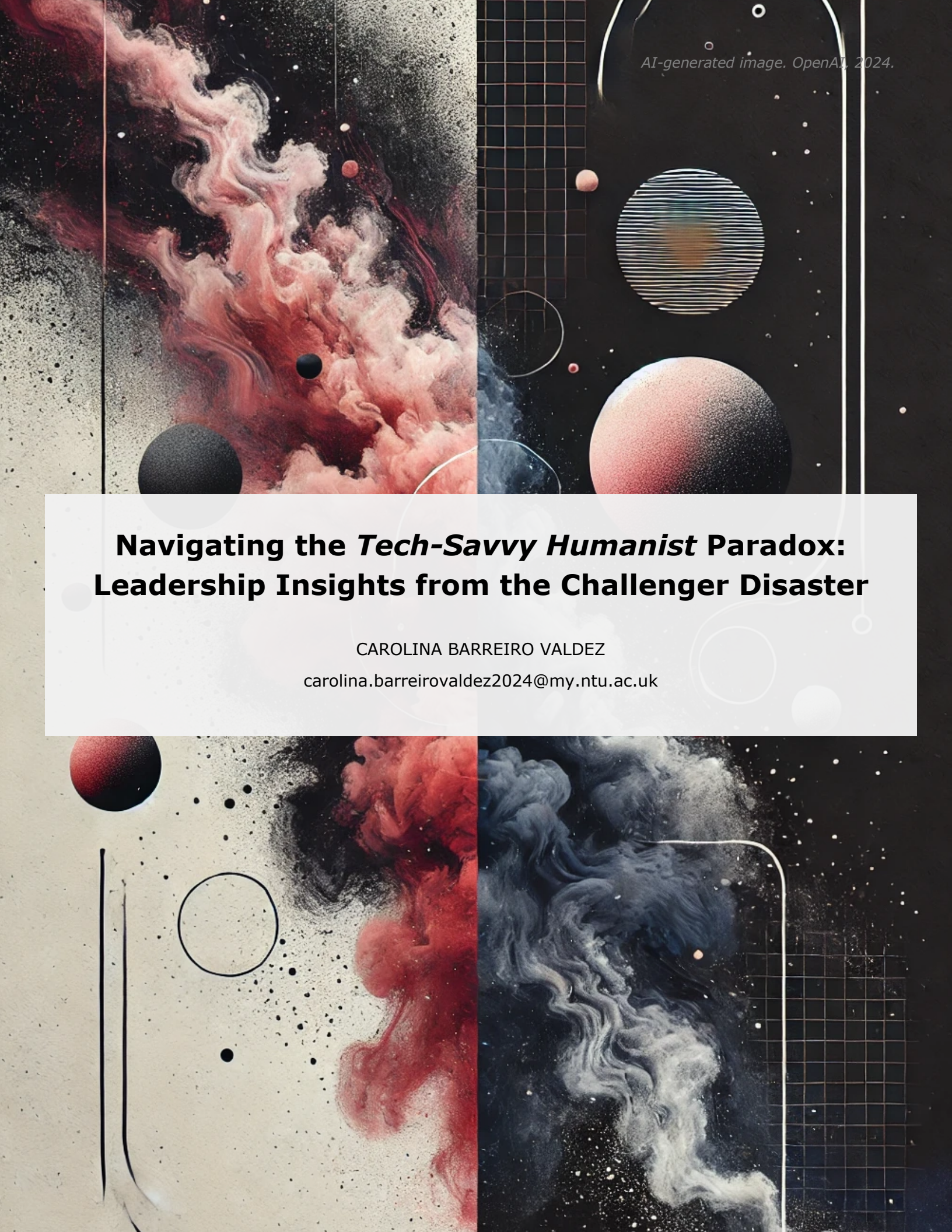




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Navigating the *Tech-Savvy Humanist* Paradox: Leadership Insights from the Challenger Disaster

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EXECUTIVE SUMMARY

This essay examines the *tech-savvy humanist* paradox through the Challenger disaster, revealing how a leadership vacuum emerged. Thiokol's managers prioritised control over leadership, fostering a culture of toxic, dysfunctional practices. Engineers, constrained by rigid role expectations, withdrew from responsible decision-making, leaving critical issues unaddressed. NASA's fixation on maintaining a flawless image created a paradox, where high expectations overlooked the potential for failure, reinforcing a self-perpetuating negative cycle. This essay argues that a communication gap, rigid role-based "hats," and a lack of shared accountability led to the tragedy, with lessons for human-centred leadership in technical fields.

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INTRODUCTION

As the world rapidly shifts towards the digital, the demand for tech leaders has increased (PwC, 2020). Yet, effective leadership in technology demands more than expertise—it requires a deep commitment to people (PwC, 2020). From my early career, I’ve been aware of the importance of this dual focus. In many of my roles, I have relied on my ability to speak the language of technology, bridging the gap between technical and non-technical teams. Yet, finding this balance remains a constant challenge. I always find myself encouraging reflection on our view of tools and artefacts. I often ask, “What exactly is technology? What if we see it simply as a tool?” No matter how advanced, if a tool doesn’t serve its purpose, it’s meaningless. From my experience, this purpose is nearly always tied to the user; people are at the heart of any tool’s value. I consider that without this focus, technology loses meaning.

The Challenger incident brings this into sharp focus. Contractor recommendations and engineering data, among others, were tools that could enable collaborative, multi-perspective decision-making. But NASA’s idealisation of itself as a flawless organisation that “would not fail” (See Werhane, 1991, p.680) may have reduced these tools to mere formalities, overshadowed by a need to maintain its image. By failing to align the mission with this purpose, they lost sight of the very people the technology was meant to serve.

As a technology leader myself, I’m drawn to examine what went wrong between NASA, Thiokol’s managers and engineers, and reflect on how the *tech-savvy humanist* paradox is seen within these decisions.

“You have to take off your engineering hat and put on your management hat”
(Hesge Bzvafe, 2015).

This statement, delivered by Jerry Mason, Thiokol’s Senior Vice President, to Bob Ebeling, the Vice President of Engineering (Hesge Bzvafe, 2015) struck me immediately. Jerry’s tone implied that Bob’s technical mindset was a limitation, as if being an engineer prevented Ebeling from making management decisions.

Why do we confine certain professions to rigid roles, as if engineers lack the skills to make managerial decisions or managers can’t grasp technical complexities? Could it be an unconscious bias boxing people in, assuming they must “take off” their engineering hat to make a management decision? How can non-tech leaders make informed technological decisions without being engineers?

Wouldn’t it be more responsible for leaders in technology or sciences to make decisions by “wearing both hats,” considering multiple perspectives? Believing management and engineering can’t work in synergy may limit our potential. I think effective decision-making demands a synthesis of both, as relying on a single perspective oversimplifies real-world complexities.

The Void of Leadership in Management

Werhane (1991) points out that there is a conflict in priorities between managers and engineers at Thiokol, alongside a communication gap between them. Engineers recommended against launching due to technical concerns, but management dismissed these reservations, interpreting the engineers’ caution as an absence of conclusive proof of failure. This “glass half-empty, glass half-full” outlook illustrates misalignment between technical and managerial perspectives (Werhane, P., 1991).

During this, “the most important meeting of their careers” (Hesge Bzvafe, 2015), engineers voiced their concerns, but Thiokol’s managers appeared fixated on pushing forward and proceed with the plan, unable to see the problem through a human-centric lens as a leader would do (Lunenburg, F., 2011). It seems this drive to proceed wasn’t solely about managerial oversight; it was, I suspect, also fuelled by intense pressure from NASA (Werhane, P., 1991). With a multi-million-dollar contract still under negotiation with NASA (Hesge Bzvafe, 2015), Thiokol’s managers faced an unspoken expectation to recommend launching.

Another key difference between a leader and a manager, as Lunenburg (2011) highlights, is the focus on people rather than things. The management team at Thiokol prioritised doing what they considered “doing things right” (Lunenburg, F., 2011), proceeding with the launch— a thing, in a high-pressure environment, prioritising NASA’s expectations over concerns there were already stated from different levels of people in the organisation— people (Werhane, P., 1991; Waldman, D., Galvin, B., 2008).

This perspective gap and the lack of leadership specifically among Thiokol’s managers, who failed to consider their colleagues’ voices, led to an inability to effectively communicate and acknowledge the risks associated with the launch (Werhane, P., 1991).

The Engineering Hat: A Non-Humanist Role?

The *tech-savvy humanist* paradox suggests that those with technical expertise may not consider human implications, while those focused on people might overlook technical complexity (PwC, 2020). As a tech leader, I strive to break this paradox, alongside many other professionals who bridge the gap between engineering and human insight. In fact, I'd say *tech-savvy humanist* describes me well, as it does many technical leaders. For many of us, understanding technology and caring about people don't seem in conflict; to call it a paradox, I believe, overlooks how naturally these perspectives can complement one another.

A memorable example from the Challenger case is Roger Boisjoly, one of Thiokol's engineers, telling his wife, "...we are going to launch tomorrow and kill the astronauts, but outside of that it was a great day" (Hesge Bzvae, 2015). He knew the gravity of what would unfold, a perspective seemingly lost on management—a stark reminder of the need for leaders to see beyond technical success.

Part of my professional shift towards management came from recognising that I could bridge the communication gap between tech and management. With the ability to easily understand and process technology, I realised I could also lead it. Effective leadership as I lived it, depends on understanding your limitations and making them clear to the team, inviting input where it's needed most. Not all managers truly understand this dual responsibility, but as I've seen in practice working at a global software company, leaders who actively seek insights from their teams create a more collaborative, responsible work culture.

This brings me to a key issue within Thiokol's managers, who used their authority to change the engineers' minds, telling them to take off their profession's hat (Hesge Bzvae, 2015). Does wearing one hat exclude the possibility of wearing the other? To me, this reflects a practice of boxing engineers into technical roles, suggesting that if they're focused on technology, they're somehow unable to show sensitivity, soft skills, or even the capacity to step beyond that role.

A leader doesn't use authority negatively, to exert control, but rather uses influence to empower their colleagues, trust in their team, and guide rather than dominate (Lunenburg, 2011). I don't believe that being able to "speak both languages," is the only way to challenge the *tech-savvy humanist* paradox. In this software company, I worked for a regional manager, who despite having experience in the tech industry, didn't come from a technical background. She was always open and honest about the gaps in her knowledge and actively sought our input to complement her vision. When we raised concerns or highlighted potential issues, it was clear she genuinely wanted to understand our perspectives.

In my view, this approach makes the difference. In the Challenger meeting scene (Hesge Bzvae, 2015), there wasn't a single moment of "help me understand, explain this to me," as a leader should ask when trying to see things from their team's perspective. For them, the glass was half full, and it seemed they didn't truly want to understand why the engineers saw it as half empty.

This reinforces my belief that as leaders, we need to be aware of our own shortcomings, openly share them with our teams, communicate our expectations of their roles, and foster an environment where they feel confident to step into those roles. I'd even go further and say we shouldn't just let them fulfil their roles, but also challenge them—ensuring we aren't unconsciously framing someone into a single “hat,” when they might have much more to offer.

The Absence of Responsible Leadership

But what about the engineers? They now believe they could have exercised more agency, thinking, “maybe I should have got up and screamed better” (Hesge Bzvae, 2015).

This may have stemmed from a lack of psychological safety, or perhaps from a belief that ultimate responsibility rested solely with management, allowing others to “wash their hands” of the outcome. In hierarchical power dynamics, we often assume that authority figures bear responsibility for decisions, making it “easier” to avoid defending critical positions—even when they challenge management, falling in the need for a toxic leadership or absence of it (Kets de Vries, 2003). Perhaps, unconsciously, the engineers may have relinquished their efforts, seeing authority as the final decision-maker and thus distancing themselves from the consequences.

I've seen this tendency in several companies where I've consulted and worked, especially in software. Teams operate in silos based on their roles or specialisations, each refusing to share accountability. Responsibility became something to pass around—from design to frontend, backend, and testing. Each team bounced the burden back and forth, rather than tackling it together.

Engineer's intent alone, however, doesn't make a leader responsible. Also, can we truly be fully responsible to one stakeholder while ignoring another? Waldman and Galvin (2008) argue that, from a stakeholder perspective of responsible leadership, we should balance the needs of the impacted groups. Judging NASA's and Thiokol's actions from this perspective, it becomes clear that by failing to prioritise the lives of their employees, they failed not only astronauts as stakeholder, but all stakeholders involved (Waldman, D., Galvin, B., 2008). In this light, we see there was no responsible leadership on the part of anyone involved in the incident.

NASA's Paradox

NASA, fuelled by pride in its achievements in space exploration, became so fixated on its technical expertise and reputation that it lost sight of potential failure. Dismissing the latest contractor recommendations, NASA pressured Thiokol, framing them as a possible obstacle to the launch (Hesge Bzvae, 2015). This dynamic reflected a narcissistic leadership style, where power demanded loyalty—“are you with us or against us?”—and blinded the organisation to its own controlling and dysfunctional practices (Kets de Vries, 2003).

Overall, I believe everyone involved was driven by the same paradox that NASA itself embodied: positioning itself as a leader in the industry yet relying on management practices that lacked effective leadership. This rigid identity fostered toxic, dysfunctional behaviours that cascaded into NASA's relationship with Thiokol, pressuring Thiokol's managers to mirror these same dynamics.

In this relentless push, where was the space for people impact considerations?

RECOMMENDATIONS

Overall, I see a negative cycle at play. Managers failed to exercise leadership in their process thinking, governance and relations instead adhering to a thing-focused, results-driven approach shaped by NASA's culture (Lunenburg, 2011). Toxic and dysfunctional managerial traits permeated all levels, stifling the engineers' sense of agency and, with it, their capacity for responsible leadership. Without a culture of safety where individuals felt able to speak up or be genuinely heard, each actor could detach from full responsibility, further reinforcing the image of NASA's rigid structure (Waldman, D., Galvin, B., 2008).

To prevent this, bridging the communication gap between technical and management roles is crucial in addressing the *tech-savvy humanist* paradox. The Challenger disaster illustrates what happens when this gap is ignored, paradoxes "can polarise people or groups if not managed well" (PwC, 2020).

Leaders—and organisations as a whole—should strive to understand their field deeply, even if they are not technical experts. By acknowledging our limits, both individually and collectively, we open space to welcome our team's expertise, ensuring each voice plays a crucial role in decision-making. This reflective awareness helps prevent the kind of unconscious framing that can lead to toxic, dysfunctional practices, as seen at NASA. Equally important is fostering a culture of shared responsibility. Had the Challenger team felt collectively accountable, perhaps those with concerns would have spoken more forcefully. Leadership should extend beyond senior roles; encouraging leadership at every level, while fostering psychological safety, enables both technical and human perspectives to guide decisions. In this way, we could break the paradox and create organisations that truly prioritise both people and technology.

CONCLUSIONS

In the Challenger case, I believe the actors lost sight of the human element, narrowing their view to isolated concerns and missing the mission's ultimate purpose. Rather than "seeing the forest," they focused on just one tree (Lunenburg, F., 2011), ignoring critical perspectives. Both management and engineers bear responsibility: management's toxic traits and power dynamics fostered a culture of authority, eroding psychological safety and suppressing dissent. Engineers, by remaining silent, became complicit in flawed decisions. NASA's top-down, narcissistic leadership style (Kets de Vries, 2003) reinforced a rigid hierarchy that sidelined Thiokol and deepened the leadership vacuum. Although the core issue was recognised by all, fragmented accountability left responsibility unfocused—making it both everyone's concern and no one's responsibility.

I find myself questioning how much of this stems from organisational pressure that unconsciously defines—and confines—roles. Within NASA's hierarchy, authority cascaded down in a way that boxed people into narrow, predefined expectations. Under pressure to align with NASA, Thiokol's managers became dismissive of engineers' concerns, discouraging the engineers from fully defending their viewpoint (Hesge Bzvafe, 2015).

This rigid hierarchy might create a "psychic prison" of roles, limiting individuals' capacity to act beyond organisational expectations, regardless of the situation's gravity. Driven by a focus on organisational goals, this model of control made people feel unable—or even forbidden—to step outside their assigned roles. These boxed-in expectations prevented the team from recognising the full scope of their responsibility, ultimately hindering their ability to make informed, human-centred decisions.

I would encourage more people in STEM (Science, Technology, Engineering and Mathematics)—and in all professions—to be aware of this dynamic. For those, like me, who possess both technical and emotional intelligence, it's essential to use both. We can be sensitive engineers, we can be both managers and engineers, and we can be responsible leaders who care about people while excelling in technology. We can break the *tech-savvy humanist* paradox.

REFLECTION

Through this learning, I've come to realise how many unconscious expectations and labels shape our understanding of roles, subtly confining us and, by extension, limiting organisations. What impacts me most is recognising how many unseen forces might still be at play—growing, unnoticed, and potentially causing harm. This process has also made me confront my own leadership practices, challenging assumptions I once held about what it means to lead.

For instance, I used to see leadership as binary—you either had it, or you didn't. Leadership seemed inherently positive to me, while I viewed management as a source of negative traits. If I noticed a flaw, I'd label it as "management," failing to see the potential for toxic or dysfunctional leadership. Another example would be that although I strive to communicate openly and invite my team's input, I now wonder if my communication practices—as the leader—unintentionally influence them to align with my thinking. Studying these organisational dynamics has forced me to acknowledge that I, too, may have perpetuated some of these unconscious patterns.

Now, equipped with a broader understanding, I feel prepared to navigate these complex emotional arenas with a sharper awareness. At the root of it all lies what I've always valued, though now I understand it more deeply: the true foundation of any organisation is, and always has been, its people. These hidden assumptions create an invisible web within organisations, driving behaviours that can go unquestioned. I believe that as leader, it's our responsibility to uncover and challenge these patterns where needed, so we can build organisations that are genuinely accountable to the people they serve.

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APPENDIX

Prompt behind AI-generated cover image: A powerful abstract background in A4 format with a split black and white background, inspired by engineering and humanist leadership. The design uses only two colors, a rich guinda pink and a dark blue, with a heavy, stain-like grain texture. Abstract cosmic shapes and matte, muted lines flow between the contrasting black and white spaces, embodying a balance of precision and fluidity. This design is minimalistic, modern, and ideal for a background with room for overlaying content.