The Leadership & Network Field Guide for Space Professionals

A five-year companion for professionals building the future of space. The science of leadership, the art of networks, and the formation principles that have shaped leaders across millennia.

By Patrick Connolly · 2026

How to Use This Field Guide

This is not a textbook. You don't read it once, pass an exam, and shelve it. This document is a **field guide** — the kind you return to at a specific moment of professional pressure, and find that it has something to say to you that it didn't the last time.

It is built from the foundations of leadership and networking training, extended through peer-reviewed research from the leading journals in organizational psychology and leadership science, and filtered through one further lens: the teaching methods of history's most effective formator of leaders. Wherever you stand on the theological question, the pedagogical record is unambiguous: Jesus of Nazareth transformed twelve ordinary people into a movement that changed the world using methods that modern adult learning science is only now articulating.

> **Three ways to use this guide**
> 1. Read it straight through when you are entering a new leadership context.
> 2. Return to a specific chapter when you're facing a leadership or network challenge in your career.
> 3. Use the Year 1-5 Scaffolding section (Chapter 9) as an annual review discipline.

A note on the research. Every framework in this guide has a peer-reviewed foundation. Where a concept originates in a single seminal source (Dweck, Edmondson, Collins, Bass & Avolio), that source is named. Where a concept is supported by a body of research, representative studies are referenced. The guide is designed for practitioners, not academics, so the research serves the application, not the other way around.

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> *"Tell me and I forget. Teach me and I remember. Involve me and I learn."*
>
> **— Often attributed to Benjamin Franklin**

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CHAPTER ONE

The Leadership Distinction

Why managing complexity and leading change are not the same skill

John Kotter spent decades studying why organisational transformations fail. His conclusion, first published in the *Harvard Business Review* in 1990, was precise: most organisations are over-managed and under-led. The two functions are both necessary. They are not interchangeable.

Management vs. Leadership: The Kotter Framework

Management, in Kotter's formulation, is the system that handles **complexity**. It was invented in the 20th century as organisations grew beyond what any one person could hold in their head. Planning, budgeting, organising, staffing, controlling; these are managerial functions. They produce predictable results from complex systems.

Leadership, by contrast, deals with **change**. It sets direction by developing a vision of the future. It aligns people around that vision, not by issuing orders, but by communicating the direction in a way that makes others genuinely want to move toward it. And it motivates sustained action by appealing to the most fundamental human drivers: **belonging**, **self-esteem**, and **purpose**.

MANAGEMENT	LEADERSHIP
Planning & Budgeting	Setting Direction (Vision)
Organising & Staffing	Aligning People
Controlling & Problem-Solving	Motivating & Inspiring
Produces Predictability	Produces Change
Works on Complexity	Works on Change

The space sector implication

The space sector is simultaneously hyper-managed (regulatory compliance, range safety, mission assurance) and radically change-dependent (new launch architectures, evolving regulatory frameworks, commercial disruption). You will be required to do both. The critical competency is knowing which mode the moment demands — and being able to shift.

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The Science of Motivation: Why Compliance Is Never Enough

Kotter's observation that leadership motivates by appealing to *fundamental human needs* is not rhetorical. It is physiological. Self-Determination Theory (Deci & Ryan, 1985), one of the most replicated frameworks in motivation psychology, identifies three universal psychological needs that must be met for a person to move from *compliance* to *commitment*:

Autonomy	Competence	Relatedness	Purpose
The need to feel ownership and self-direction in one's actions	The need to feel effective and capable	The need to feel genuinely connected to others	The integration of these three into meaningful contribution

When a leader appeals to these needs–when they help someone see that the work matters, that they are capable of it, that they belong to a team doing it together–the result is not compliance. It is commitment. And commitment, as any mission director will tell you, is what holds when the simulation ends and the real problem starts.

> *"Management is doing things right; leadership is doing the right things."*
> **— Often attributed to Peter Drucker**

Application: The Leadership/Management Audit

One of the most useful personal disciplines for an early-career space professional is a weekly audit. Not of tasks completed, but of **mode**. Ask yourself:

- What percentage of this week was I managing complexity vs. leading change?
- Where was management-mode being applied to a problem that actually required leadership-mode?
- Where was I attempting to inspire and motivate when the situation actually needed clear structure and control?

The goal is not balance. Different moments require different modes. The goal is **discernment**: developing the situational awareness to know which you need, and the range to deliver it.

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Research Note

Kotter's distinction has been supported by decades of subsequent research. Yukl (2012, Journal of Management) found that effective leaders demonstrate both management and leadership behaviours, but that contextual factors determine which is most predictive of performance. The mistake is not failing to lead or manage — it is applying the wrong tool to the moment.

CHAPTER TWO

The Full Range

From transactional to transformational, and why the spectrum matters

Bass and Avolio's Full Range Leadership Model is one of the most rigorously validated frameworks in leadership science. It maps leadership behaviour on a continuum from *inactive* to *fully engaged*, and identifies the specific behaviours that produce transformational outcomes.

The Full Range Model

The model identifies three broad zones:

Zone 1: Laissez-Faire (Avoidant Leadership)

The leader abdicates responsibility. Decisions are delayed or avoided. Absent when needed. This is not a style choice: it is an absence of leadership, and it has real costs: team confusion, poor performance, and the erosion of trust. Research consistently shows it as the most destructive leadership pattern (Judge & Piccolo, 2004, *Journal of Applied Psychology*).

Zone 2: Transactional Leadership

Transactional leadership works through exchange. Two sub-patterns dominate:

- **Management by Exception (Active):** Monitoring for deviations, taking corrective action. Effective in high-risk, safety-critical environments–a.k.a. most space operations.
- **Contingent Reward:** Clarifying expectations and rewarding compliance. The basis of most incentive systems. Produces reliable performance when the work is well-defined.

Transactional leadership is not failure. It is the foundation. The problem is when organisations mistake foundation for ceiling.

Zone 3: Transformational Leadership, The Four I's

Transformational leadership changes what followers *want*, not just what they *do*. Bass and Avolio identified four specific behaviours that produce this outcome:

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Idealised Influence	Inspirational Motivation	Intellectual Stimulation	Individualised Consideration
Acting as an ethical role model. Followers trust and respect you. They want to be like you.	Articulating a compelling, emotionally engaging vision of where the team is going and why it matters.	Challenging assumptions. Encouraging creative thinking. Making it safe to question the status quo.	Treating each person as an individual with unique needs, goals, and developmental potential.

Research foundation

The Four I's are not theory. They are measurement categories developed through the Multifactor Leadership Questionnaire (MLQ), which has been used in hundreds of peer-reviewed studies across cultures, industries, and hierarchy levels. Meta-analyses (e.g., Judge & Piccolo, 2004) consistently show transformational leadership outperforming transactional approaches on follower motivation, satisfaction, and organisational performance. The strongest effects are seen in dynamic, novel environments. Like space.

The Teacher Who Knew the Model

Before Bass formalised the Four I's in 1985, one leader had practiced all four with measurable outcomes across two thousand years of organisational persistence. The teaching record of Jesus of Nazareth–examined purely as a leadership case study–maps perfectly onto the transformational model:

Transformational I	How Jesus Applied It
Idealised Influence	He modelled what he taught. He didn't ask followers to go where he wasn't willing to go himself. The pattern was: "Do what I do," not "Do what I say."
Inspirational Motivation	He articulated a vision of a Kingdom that transcended present circumstances. He made it emotionally vivid. He told stories that activated imagination, not just intellect.
Intellectual Stimulation	He constantly challenged assumptions. "You have heard that it was said… But I tell you" (Matthew 5:21–22). Questions, parables, reversals: all designed to disrupt settled thinking.
Individualised Consideration	He treated each person according to their specific condition. Nicodemus needed intellectual engagement. The woman at the well needed dignity

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	and truth. Peter needed direct confrontation. Zacchaeus needed inclusion. One person at a time.

Practical Application: Your Leadership Profile

The Multifactor Leadership Questionnaire (MLQ) is available in research form and can be self-administered with peer feedback. But before that, a simpler practice:

- **At the end of each week,** identify one leadership moment from the past five days. Which of the Four I's did you use? Which did you neglect?
- **When you think of someone you consider a great leader (in space or otherwise)** map their specific behaviours to the Four I's. What does it teach you about what they did?
- **In your next team interaction,** deliberately practise the I you use least. Notice what happens.

> *"The most dangerous leadership myth is that leaders are born — that there is a genetic factor to leadership. This myth asserts that people simply either have certain charismatic qualities or not. That's nonsense."*
>
> **— Warren Bennis**

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CHAPTER THREE

Know Yourself First

The Adizes typology, the growth mindset, and the Level 5 paradox

The most common leadership failure is not ignorance of leadership theory. It is ignorance of self. You cannot lead others into territory you have not mapped in yourself. Three frameworks, taken together, form a complete picture of self-aware leadership.

The Adizes PAEI Model: Your Leadership Style

Dr. Ichak Adizes spent decades studying why organisations succeed and fail. His conclusion: every organisation needs four functions to thrive, and no individual is naturally gifted at all four. The implications for leadership are significant.

(P) Producer	(A) Administrator	(E) Entrepreneur	(I) Integrator
Results-driven. Gets things done. Focused on immediate, external goals. Urgency is natural.	Process-oriented. Systems, efficiency, control. Ensures things run correctly and consistently.	Visionary. Future-focused. Loves new ideas, hates routine, sees possibilities everywhere.	Social glue. Builds cohesion. Reads the room. Maintains team harmony and relationships.

Every person has a dominant type, usually one or two secondary types, and one or two natural blind spots. The research on self-awareness (Eurich, 2018, *Harvard Business Review*) suggests that most people believe they have strong self-awareness but significantly overestimate their own competence in their weaker functions.

The conflict pattern you need to understand

Natural conflicts arise predictably between types: the (P)'s urgency clashes with the (A)'s insistence on process. The (E)'s constant new ideas drive the (A) toward despair. The (I)'s focus on team harmony frustrates the (P) who just wants to execute. Understanding these conflicts doesn't eliminate them, but it removes the personalisation. The conflict is structural. That means it can be designed for.

What This Means for Space Professionals

Any high-performing team is a living example of the PAEI spectrum. Watch your next project team: who drives toward deadlines, who keeps wanting to redesign

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the approach, who holds the group together when tension rises, who makes sure the details are right. All four types will be present. All four will be necessary.

The professional implication is twofold: **know your dominant type**, so you can leverage it without becoming its prisoner. And **build complementary teams**, so that you are not the only kind of person in the room.

The Growth Mindset: The Prerequisite for Everything Else

Carol Dweck's research on mindset is one of the most replicated findings in educational and organisational psychology. It is also one of the most misunderstood. The growth mindset is not optimism. It is not positive self-talk. It is a specific belief about the nature of ability.

Fixed Mindset	Growth Mindset
Ability is innate and static	Ability develops through effort and learning
Challenges are threatening — they might reveal my limits	Challenges are developmental — they expand my limits
Failure means I'm not capable	Failure means I haven't learned enough yet
Feedback is a verdict on me	Feedback is information I can use
Success of others is threatening	Success of others is instructive
Effort is what you need when you're not talented	Effort is what talent actually is

Satya Nadella's transformation of Microsoft is the canonical business example. He diagnosed Microsoft's stagnation as a cultural *know-it-all* problem, a company where being seen as smart was more important than learning. His intervention: reframe the entire culture around being *learn-it-all*. The result, by market capitalisation alone, speaks.

Research Note

Dweck's mindset research (2006) has been replicated across age groups, cultures, and domains. In organisational contexts, Heslin & VandeWalle (2008, Academy of Management Journal) found that managers with growth mindsets give more developmental feedback, are more likely to coach underperformers,

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and are more willing to revise their initial judgements of people. The growth mindset is not a personal trait. It is a leadership competency.

Level 5 Leadership: The Paradox That Produces Greatness

Jim Collins and his research team spent five years studying what distinguished companies that made the leap from good to *sustained* greatness. They had expected to find visionary, charismatic, larger-than-life leaders. They found the opposite.

Every *Good to Great* company was led by what Collins called a Level 5 Leader: someone who combined **fierce professional will** (relentless, results-driven, absolutely determined to create excellent outcomes) with **deep personal humility** (not self-effacing — genuinely more interested in the mission and the team than in their own reputation).

FIERCE WILL	DEEP HUMILITY
Fierce Professional Will	Deep Personal Humility
Creates superb results, a clear catalyst for sustained greatness	Demonstrates compelling modesty, shunning public adulation
Demonstrates unwavering resolve to do whatever is necessary for the best long-term results	Acts with quiet, calm determination; relies on inspired standards, not inspiring charisma
Sets the standard of building an enduring great organisation	Channels ambition into the company, not themselves
Looks in the mirror, not out the window, to apportion responsibility for poor results	Looks out the window, not in the mirror, to apportion credit for the success of others

The window/mirror distinction is particularly important. Level 5 Leaders look *out the window* to credit others for success, and *in the mirror* to accept responsibility for failure. The inverse, crediting yourself for success and blaming others for failure, is the default pattern of ego-driven leadership. It destroys teams.

> *"We're not just what we do or what we say. We're also what we don't do and don't say–the space we hold for others."*
>
> **— After Parker Palmer's writing on "holding space"**

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Integration: The Three-Layer Self-Assessment

At any major career transition — new role, new organisation, new mission — run this three-layer audit:

1. **Adizes:** What is my dominant type right now? Which of the four functions does this role require most? Where is my natural blind spot most likely to create risk?
2. **Dweck:** In this new context, where am I operating from a fixed mindset? Where is my ego most likely to prevent me from learning what I need to learn?
3. **Collins:** Where is my will aligned with the mission rather than my own advancement? Where am I crediting myself for results that belong to others?

CHAPTER FOUR

Power, Influence, and Persuasion

Why getting what you want requires understanding what others need

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Power is one of the most misunderstood concepts in leadership. Most people, particularly those trained in technical disciplines, are uncomfortable with the word. The result is that they either avoid using power altogether (and become ineffective) or they use it bluntly (and generate resistance). Neither is the answer.

The Problem with Power

The foundational insight from the research on power is simple and uncomfortable: **power gets compliance, not commitment.** You can require someone to do something. You cannot require them to care about it, to bring their best thinking to it, or to sustain it when you're not watching.

In the space sector (where mission success depends on people exercising judgment under pressure, often in the absence of supervision) compliance is genuinely dangerous. You need commitment. Which means you need influence, not just authority.

Rational Persuasion: The Most Effective Tool

Research on influence tactics consistently shows that **rational persuasion**–making a well-structured, evidence-based case for a course of action–is the most

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effective influence strategy in all directions: upward (influencing your boss), lateral (influencing peers), and downward (influencing your team).

This seems obvious until you watch how people actually argue. The most common mistake is what researchers call the *donkey's side of the argument*: constructing one long, relentless chain of logic that doesn't leave room for the other person to engage. The more comprehensive your argument, the more it feels like you're trying to overpower rather than persuade. The result is often resistance, even when your argument is correct.

> **The Socratic principle**
> The most effective persuaders in history have been questioners, not declarers. Socrates, and Jesus after him, led people to conclusions by asking questions that generated insight in the listener. The listener who arrives at a conclusion themselves is far more committed to it than one who has been argued into it. This is not manipulation. It is respect for the other person's capacity for reasoning.

Cialdini's Principles: The Less Rational Layer

Robert Cialdini's research on social influence (1984) identified six principles that operate below the level of explicit reasoning. They are not tricks; they are descriptions of how human cognition actually works. Understanding them makes you both a better influencer and a more resistant target of manipulation.

PRINCIPLE	APPLICATION
Reciprocity	People feel obligated to return favours. Give first. Give genuinely. Give without expectation of immediate return. The research shows it creates durable obligation.
Commitment & Consistency	People want to be consistent with prior commitments. Public, voluntary, active commitments are the most binding. Start small.
Social Proof	In uncertainty, people look to what others are doing. Use peer examples and testimonials strategically.
Authority	People defer to legitimate expertise. Build and signal credibility early in any new relationship.
Liking	People are influenced by those they like. Genuine

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	interest, similarity, and warmth increase influence disproportionately.
Scarcity	People value what is rare or disappearing. Real scarcity (not manufactured urgency) is a legitimate influence factor.

The ethical boundary

Cialdini himself is clear: these principles can only be used ethically in the service of the other person's genuine interests. The moment you use them to get something that harms the other party, you have crossed into manipulation–and you have permanently damaged the relationship. In a sector as small and interconnected as space, where everyone knows everyone within two degrees, reputation is the only real long-term asset. Protect it.

Using Emotions as Levers: Roger Fisher's Framework

Fisher and Shapiro's research on negotiation (*Beyond Reason*, 2005) identifies five core concerns that drive emotional responses in any high-stakes conversation:

Appreciation	Affiliation	Autonomy	Status
The need to feel heard and valued. When this is missing, people shut down.	The need to feel connected: colleague, not adversary.	The need to feel ownership over decisions affecting oneself.	The need to feel appropriately acknowledged for one's role and contribution.

A fifth concern, **role**, addresses whether people feel their function in a conversation is meaningful and well-defined. When these five concerns are addressed, emotional resistance drops and genuine negotiation becomes possible. When they are ignored, you get an argument about the logical content when the real problem is the emotional context.

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The First Follower: Why Your Initial Ally Matters More Than You

One of the clearest demonstrations of influence dynamics is the *first follower* phenomenon. When a lone actor begins a new behaviour, they appear eccentric. When one person joins them, the pattern is legitimised. When a third person joins, it becomes a movement. The first follower is frequently more important than the initiator.

For space professionals, this is a critical strategic insight. When you are trying to shift a team culture, advocate for a new approach, or lead change in a large organisation, the most valuable investment you can make is not in your own argument; it is in finding and converting **the right first follower**. Who has credibility that you don't have? Who has access to groups you don't reach? Find them. Invest in them.

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CHAPTER FIVE

Network Thinking

The architecture of influence beyond your immediate team

Network thinking is not about LinkedIn connections. It is not about collecting business cards or working a room at a conference. It is a **structural understanding** of how information, trust, opportunity, and influence actually move through organisations and industries — and how to position yourself within those flows.

The Trust/Diversity Tradeoff

Every network involves a fundamental tension: the people you trust most are usually the people most like you. They share your background, your worldview, your assumptions. This makes communication easy and coordination fast. But it also makes your network **informationally redundant**. Everyone knows the same things.

The research on network structure (Burt, 2004, *American Journal of Sociology*) consistently shows that the most valuable professionals in any industry are those who **bridge structural holes**, who connect groups that are not otherwise connected. They have access to information nobody else has, they see combinations nobody else sees, and they have influence nobody else can replicate.

CLOSED NETWORK	OPEN NETWORK
High trust, low diversity	Lower trust initially, high diversity
Fast execution and delivery	High innovation and discovery
Information is redundant — everyone knows the same things	Information is additive — different parts know different things
Best for: mission execution, tight team coordination	Best for: strategic positioning, problem-solving, career development
Risk: groupthink, blind spots, echo chamber	Risk: coordination costs, lower cohesion

The Three Types You Need to Know

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Gladwell's *Tipping Point* popularised three social types that function differently in networks. The framing is not scientifically precise but the underlying observation is real and practically useful:

- **Connectors:** People who know an extraordinary number of people across different social circles. They don't just have large networks — they have *diverse* networks. A connector in the space sector might be a journalist who knows launch operators, investors, regulators, and astronauts. If you have one, cultivate it.

- **Mavens:** Information brokers. They accumulate knowledge compulsively and love to share it. They are the person who knows the best new propulsion paper before anyone else does, who has read all the policy documents, who can tell you what's actually happening at the regulator. They are disproportionately valuable sources.

- **Salespeople:** Natural persuaders. They have an emotional attunement that allows them to create resonance with almost anyone. They are the people who make you feel something about an idea, not just understand it.

> **The space sector application**
> The space sector is a living network laboratory. You will work alongside people from every continent, every domain (policy, engineering, medicine, business, law), and multiple career stages. These are not just social connections, but rather structural assets. The question to ask is not "who do I like?" but "what structural hole do I uniquely bridge, and with whom?"

Social vs. Expert Networks: The Critical Distinction

One of the most robust findings in network research (Casciaro & Lobo, 2005, *Harvard Business Review*) is that professional networks are not primarily driven by competence. They are primarily driven by *liking*. The "lovable fool," someone people like but don't respect technically, almost always has more network access than the "competent jerk." The ideal, obviously, is the "lovable star." But if you have to choose which to develop first, the research is clear: **social capital precedes expert capital in network formation**.

This has a specific implication for technically-trained space professionals. You have invested years in becoming technically excellent. The return on that investment in your network is lower than you think, because technical competence is table stakes in your peer group. What differentiates you is not being more technically excellent than your peers. It is **being someone people want to be around, work with, and advocate for**.

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Building Your Base: The Strategic Principle

Every effective political leader, military commander, and organisational builder in history has understood the same principle: **before you move forward, build your base**. The most common mistake of early-career high performers is horizontal expansion: trying to develop relationships across the entire organisation before any of those relationships have depth.

The better approach is concentric. Start with a small group of genuine allies, people who know you, believe in you, and will advocate for you when you're not in the room. Deepen those relationships first. Then expand from that base, carrying credibility outward through your existing advocates.

The Power of Giving: The Research on Strategic Generosity

Adam Grant's research (*Give and Take*, 2013) found that the most effective professionals in any field are *Givers* — people whose default orientation is to contribute value to others without immediate expectation of return. But there is a critical nuance: effective Givers are not martyrs. They give strategically, manage their time and energy deliberately, and have a clear sense of their own priorities.

The gift that most consistently builds network strength is not money, time, or resources. It is **connection**: introducing people who should know each other, and doing it with enough context that both parties understand why. One well-made introduction generates more goodwill than a dozen attended events.

> *"Your network is the primary vehicle for the movement of opportunity. The question is not whether to invest in it but whether to do so deliberately."*
>
> **— After Ronald Burt's research on structural holes**

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CHAPTER SIX

High-Performing Teams

The five factors, the four stages, and the one condition that changes everything

Most of your professional output for the next five years will be generated in teams. Not solo. Teams. The quality of those teams–and your ability to contribute to, lead, and build them–will be a larger determinant of your impact than any individual technical skill you develop.

Katzenbach & Smith: What a Team Actually Is

Jon Katzenbach and Douglas Smith's research (published in the *Harvard Business Review*, 1993) identified something important: most groups called "teams" are not actually teams. They are *working groups*, where individuals contribute independently and share information, but don't have collective accountability for a shared outcome. True teams are something else.

A real team has five characteristics:

1. **Small size:** Small enough for direct communication and genuine mutual accountability. The research suggests fewer than twelve as a practical ceiling. Above that, you have a committee, not a team.
2. **Complementary skills:** Technical expertise, problem-solving ability, and interpersonal skill — all three must be present. A team of brilliant engineers with no interpersonal skill is not complementary. It is brittle.
3. **Common meaningful purpose:** Not a goal statement on a slide. A genuinely shared understanding of *why the work matters*, that the team has shaped themselves and feels ownership of.
4. **Specific performance goals:** Measurable, concrete, and proximate enough to generate a clear sense of progress.
5. **Mutual accountability:** Team members hold *each other* accountable — not just the manager. This is the hardest element to build and the most diagnostic of genuine team function.

Tuckman's Stages: The Map for What Is Normal

Bruce Tuckman's model (1965, later extended) describes how groups develop through predictable stages. The value of knowing this model is not academic — it is that it allows you to **normalise the hard parts** instead of catastrophising them.

Forming	Storming	Norming	Performing
Politeness, uncertainty, seeking direction. People	Conflict, competition, power struggles. This is not failure. This is	Shared norms emerge, trust builds, cohesion develops. The team	High efficiency, minimal friction, energy on outcomes.

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are on their best behaviour and don't yet know each other.	the team discovering it has real opinions. Navigate it, don't suppress it.	finds its rhythm and establishes how it works together.	The goal, but only reachable through the prior stages.

The Storming insight

The single most important thing to know about Tuckman is this: teams that skip or suppress Storming rarely reach Performing. Suppressed conflict doesn't disappear; it goes underground, where it corrodes trust and sabotages execution. The role of a leader in Storming is not to eliminate the conflict but to give it a productive structure. Create space for disagreement. Model how to disagree well. Make it safe to storm.

Psychological Safety: Google's Most Important Finding

Google's Project Aristotle studied 180 teams over two years to identify what distinguished their highest performers. The team included organisational psychologists, sociologists, statisticians, and engineers. They expected to find that the best teams were composed of the best individuals.

They did not find that. The factor that most consistently predicted team performance was **psychological safety**: a shared belief among team members that the team is safe for interpersonal risk-taking. Amy Edmondson, who coined and researched the concept (1999, *Administrative Science Quarterly*), defines it as a belief that you will not be humiliated or punished for speaking up, asking questions, admitting errors, or offering ideas.

Low Psychological Safety	High Psychological Safety
People withhold concerns to avoid embarrassment	People voice concerns and errors early, when they're still fixable
Questions are perceived as evidence of incompetence	Questions are valued as evidence of engagement
Innovation is suppressed, ideas are too risky	Innovation flourishes, ideas can fail safely
Bad news travels slowly upward	Bad news travels quickly, enabling fast response
High individual performance, poor team performance	High team performance that exceeds individual contributions

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How Leaders Create Psychological Safety

Edmondson's research identifies specific leader behaviours that build psychological safety:

- **Model vulnerability:** Admit your own mistakes and uncertainties first. This is the most powerful signal available to a leader.
- **Actively invite input:** Not in a general, vague way. "Who sees this differently?" "What are we missing?" "Where is this wrong?" Specific questions, directed to specific people.
- **Respond constructively to bad news:** The moment you punish someone — directly or indirectly — for bringing you a problem, you have lowered the psychological safety of everyone who witnessed it.
- **Frame work as a learning problem:** Not "This needs to be right," but "This is hard and we're going to learn as we go." The framing changes what failure means.

> **The formation parallel**
>
> Jesus operated with extraordinary psychological safety. He called people to speak, act, and fail in front of him, and then he used the failure as the teaching moment rather than as a verdict. Peter's impulsive walk on water, his denial after the arrest: neither was the end of the relationship. Both were the implemented *into* the curriculum. Leaders who create this kind of environment–where failure is information rather than condemnation–build teams that take the risks required for great work.

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CHAPTER SEVEN

Formation Principles

What the greatest teacher in history can teach space professionals about developing people

This chapter is not about theology. It is about formation: the process of developing leaders who can operate autonomously, make sound judgments, and pass on what they've learned to the next generation. Whatever your own faith position, the pedagogical record of Jesus of Nazareth is extraordinary. Twelve ordinary people, formed over three years, who went on to build an organisation that still exists two thousand years later.

Modern adult learning science (particularly Knowles' andragogy theory and Kolb's experiential learning cycle) has formalised what was already present in the Gospels. Here are the principles, paired with their research foundations and space sector applications.

Principle 1: Experience Before Explanation

The dominant model of education from primary school through most postgraduate programmes leads with information and follows with application. The research on adult learning suggests this is backwards.

Knowles' andragogy framework (1968) identifies readiness to learn as the critical variable in adult education. Adults are not ready to receive information in the abstract; they are ready to receive information that solves a problem they are currently experiencing. The sequence that works: create the experience (including the confusion or failure), *then* provide the framework that explains what just happened.

> **The parable pattern**
> Jesus never taught in abstractions when a story would do. But look more closely: the parables create a situation before they name a principle. The Prodigal Son does not begin with a lecture on forgiveness. It begins with a character who makes a terrible decision and has to live with it. The listener has experienced the discomfort of the situation before the teaching lands. This is not accidental.

Principle 2: The Debrief Is the Product

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In Kolb's Experiential Learning Cycle (1984), there are four stages: Concrete Experience, Reflective Observation, Abstract Conceptualisation, and Active Experimentation. The stage most consistently skipped in professional development is Reflective Observation: the debrief.

The experience without the debrief is entertainment. The debrief is where learning actually occurs, where the experience is named, its significance is identified, and the principle is abstracted for application in new contexts. Military training has understood this for decades. The After-Action Review (AAR) is, in formal terms, exactly Kolb's reflective observation stage institutionalised.

Experience	Reflect	Conceptualise	Experiment
Do the thing. Make the decision. Lead the team. Run the simulation. Face the real problem.	What happened? What did I notice? What surprised me? What was hard?	What principle explains what I observed? What framework helps me understand this?	What will I do differently next time? How will I test the new approach?

Principle 3: Failure Is the Point

The formation model in the Gospels is striking in its willingness to let people fail. The disciples are sent out on missions before they are ready. They fail. They come back. Jesus debriefs them. They go again, with more capacity than they had before. This is not accidental. The failure is part of the curriculum.

This maps directly to the research on deliberate practice (Ericsson, 2006, *Cambridge Handbook of Expertise and Expert Performance*). Expert performance is not produced by practising what you already do well. It is produced by operating at the **edge of your current competence**, failing at that edge, receiving corrective feedback, and adjusting. The failure is not the obstacle to learning. It is the mechanism.

> *"The pit is not a detour from the journey. The pit is the journey. Joseph cannot rule Egypt without the pit. He cannot forgive his brothers without the pit. The pit is the curriculum."*
>
> **— Applied formation principle**

Principle 4: The Question Underneath the Question

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One of the most distinctive features of Jesus' teaching method is his refusal to answer the surface question when a deeper question is more important. *Who is my neighbour?* The questioner wants to know where his obligations end. Jesus tells a story that reframes the question entirely: *Which one of these was a neighbour?* The questioner's map gets rebuilt, not just answered.

In coaching and leadership development, this is the principle of **operating below the presenting problem**. People rarely come with the question that matters most. A team member who says "I'm struggling with time management" may actually be struggling with unclear priorities, which is itself a symptom of misaligned values, which is the question worth addressing. The first discipline is to not solve the presenting problem too quickly.

> **The practitioner implication**
> When someone comes to you with a problem, develop the habit of sitting with it before solving it. Ask one more question than feels necessary. Try to find the structural root, not just the presenting symptom. This is slower in the short term. It is more effective in every other time frame.

Principle 5: Commission Before You Feel Ready

The disciples were sent on mission before they were fully formed. This is intentional. The pattern is: some formation, then commission, then return and debrief, then more formation. The commissioning is not a graduation — it is a development tool. Sending people to do real things with real stakes develops capacities that no classroom experience can produce.

For space professionals, this principle has a direct application. The instinct to wait until you feel completely ready — for the big presentation, the leadership role, the external opportunity — is frequently a fixed mindset instinct masquerading as prudence. The research on leadership development (McCall, Lombardo & Morrison, 1988, the foundational *Lessons of Experience* study at the Centre for Creative Leadership) found that the most significant leadership development happens not in training programmes but in **challenging assignments**, particularly those that involve hardship, high stakes, and novelty.

SOURCE	
TRAINING PROGRAMMES (10%)	What you learn from formal education and courses

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COACHING & MENTORING (20%)	What you learn from other people: feedback, observation, relationship
CHALLENGING EXPERIENCE (70%)	What you learn from doing hard things in real contexts with real consequences

The **70-20-10 model** is not a criticism of formal learning. It is a proportional reminder. You are unlikely to learn leadership primarily through programmes or guides — including this one. You will learn it by being in rooms where things are at stake, making decisions, getting feedback, and going again.

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CHAPTER EIGHT

The Space Sector Context

Why these principles apply with particular force in your industry

The principles in this guide are not generic. They apply with particular intensity in the space sector because of specific structural features of the industry. Understanding those features is itself a leadership competency.

The Sector Is Smaller Than It Looks

The commercial space industry is growing rapidly in absolute terms. In relational terms, it is extraordinarily small. The number of people who hold significant roles in launch, satellite operations, regulation, investment, and policy globally can be counted in the low thousands. The conferences, programmes, and professional communities you move through are not simply events but the relational nexus of a field small enough that almost everyone eventually connects.

The implications: reputation travels faster than opportunity. Burning a relationship has longer consequences than in larger industries. Integrity both ethically and strategically necessary.

The Technical/Leadership Transition Is Coming Faster Than You Think

Almost every space professional trained in a technical discipline faces the same transition: at some point, your primary value shifts from what *you* can build or calculate or design to what *teams under your direction* can produce. This transition is rarely announced. It happens when your scope of responsibility expands beyond what any individual can directly execute.

The professionals who navigate this transition well are those who have invested in leadership capability *before* they needed it at scale. The ones who struggle are those who relied on technical excellence as their primary identity and had nothing else to stand on when the context demanded something different.

The specific trap for high-achievers

The space sector professional profile–technically excellent, internationally mobile, high-aspiration–carries a specific risk. High achievers are particularly

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> susceptible to fixed mindset patterns in the domains where they excel. The person who has always been the smartest in the room is most threatened by a room full of equally smart people. The way forward is not to become less excellent. It is to become genuinely curious about excellence in others.

The Policy/Technical/Commercial Intersection

What distinguishes the most impactful space professionals is not depth in one domain. It is the ability to **translate across the policy, technical, and commercial worlds**. The regulator who speaks engineering. The engineer who understands investor return profiles. The policy analyst who can read a mission manifest.

This translation capacity is fundamentally a network competency. You cannot translate across a boundary you haven't crossed. Which means the most valuable investment in your first five years is not deepening the expertise you already have. It is **deliberately crossing into domains adjacent to your primary training** and developing enough literacy to operate at the boundaries.

Internationalisation Is Not Optional

The space sector workforce spans dozens of nationalities, with professionals operating across EU, US, JAXA, ISRO, and ESA regulatory frameworks. This is not diversity for its own sake. The commercial space sector operates across jurisdictional boundaries that require genuine cross-cultural competency to navigate.

Geert Hofstede's cultural dimensions research identifies consistent differences across cultures in power distance, uncertainty avoidance, individualism, and long-term orientation. These differences show up in how authority is exercised, how disagreement is expressed, how timelines are understood, and how relationships are formed. The space professional who treats these as variations of a single universal human approach will make expensive mistakes. The one who has invested in genuine cross-cultural fluency has a structural advantage.

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CHAPTER NINE

The Five-Year Scaffolding

A year-by-year framework for building leadership capacity that compounds

The frameworks in this guide only have value if they are applied. This chapter translates the principles into a five-year development architecture. It covers the specific practices, disciplines, and investments sequenced for where you are likely to be in your career at each stage.

Important: This is a scaffold, not a prescription. Your specific context will require adaptation. The principle is the compounding effect: small, consistent practices begun early produce dramatically different outcomes than the same practices begun five years later.

YEAR ONE

Foundation & Orientation

- Complete a self-assessment across the three frameworks: Adizes type, mindset audit, Level 5 inventory
- Identify your initial professional network: who are your genuine allies? Who do you need to know?
- Begin the weekly leadership mode audit (management vs. leadership, see Chapter 1)
- Find a mentor who is 10-15 years ahead of you in the specific domain you are entering
- Practise Kolb's cycle: after every significant professional experience, write a 10-minute debrief
- Make one well-crafted introduction per month: connecting two people in your network who should know each other

YEAR TWO

Building Trust Capital

- Move from receiving feedback to actively seeking it–specifically from people who know your blind spots
- Take on one cross-domain project: if you're technical, engage in policy or commercial. If policy, engage in technical
- Develop one deep relationship outside your immediate team; someone senior enough to see you whole
- Begin developing Individualised Consideration: who on your team needs what from

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you specifically?

- Run a Tuckman audit on any team you are part of: what stage are we in? What does this stage require?
- Identify and address one area where you have been operating from a fixed mindset

YEAR THREE

Taking on Real Stakes

- Accept a stretch assignment that requires you to lead something you are not fully qualified for
- Deliberately practise the Four I's with attention to which ones you use least
- Map your professional network structurally: where are you bridging structural holes? Where do you need to?
- Begin investing in someone junior to you, not as a transactional mentoring arrangement but as genuine formation
- Run a psychological safety audit on any team you lead: what does your team not tell you, and why?
- Review the annual debrief log you've been keeping: what patterns emerge across three years?

YEAR FOUR

Building for Multiplied Impact

- Identify the one thing you are uniquely positioned to do that no one else in your network can
- Develop a personal vision articulation. Not a career goal, but a statement of the future you are building toward
- Invest in team-level development: can you build a team that performs at Level 5 standards?
- Expand your cross-cultural competency deliberately by working with a team from a culture genuinely different from yours
- Begin thinking about what you are building that will outlast your direct involvement
- Revisit the Adizes audit: has your dominant type shifted? Has the context changed what the role requires?

YEAR FIVE

Consolidation & Forward Commissioning

- Conduct a full five-year review using the frameworks in this guide as the diagnostic structure

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- Identify the two or three people you have formed in these five years who are ready for greater responsibility
- Commission them: give them a real assignment with real stakes before they feel fully ready
- Document what you have learned in a form that can be given to the next person coming behind you
- Re-examine your network: who are you connected to now who wasn't in your world five years ago?
- Ask: what is the Lord building that I am part of — and what does faithfulness look like from here?

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CHAPTER TEN

The Research Foundation

Peer-reviewed sources and further reading for the serious practitioner

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This guide is built on a body of research accumulated over six decades of organisational psychology and leadership science. What follows is not an exhaustive bibliography — it is a curated list of the most important sources for each domain covered, with brief notes on what each contributes.

Leadership: Foundations

- **Kotter, J.P. (1990).** *A Force for Change: How Leadership Differs from Management.* Free Press. The foundational text on the management/leadership distinction.
- **Bass, B.M., & Avolio, B.J. (1994).** *Improving Organizational Effectiveness Through Transformational Leadership.* Sage. The academic foundation for the Four I's and the Full Range model.
- **Collins, J. (2001).** *Good to Great.* HarperBusiness. The Level 5 Leadership research. Read the original, not the summary.
- **Judge, T.A., & Piccolo, R.F. (2004). Transformational and Transactional Leadership: A Meta-Analytic Test of Their Relative Validity.** *Journal of Applied Psychology*, 89(5), 755–768. The most comprehensive meta-analysis of the Full Range model.

Self-Awareness and Mindset

- **Dweck, C.S. (2006).** *Mindset: The New Psychology of Success.* Random House. Essential. Read it, then give it to someone who needs it.
- **Adizes, I. (1979).** *How to Solve the Mismanagement Crisis.* Adizes Institute. The PAEI framework in full.
- **Eurich, T. (2018). What Self-Awareness Really Is (and How to Cultivate It).** *Harvard Business Review*, January–February 2018. The research on the gap between perceived and actual self-awareness.

Power, Influence, and Persuasion

- **Cialdini, R.B. (1984).** *Influence: The Psychology of Persuasion.* Collins Business. The foundational text. More rigorous than it appears.
- **Fisher, R., & Shapiro, D. (2005).** *Beyond Reason: Using Emotions as You Negotiate.* Viking. The five core concerns framework.

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- **Grant, A. (2013).** *Give and Take.* Weidenfeld & Nicolson. The research on giver vs. taker vs. matcher dynamics in professional networks.

Networks

- **Burt, R.S. (2004). Structural Holes and Good Ideas.** *American Journal of Sociology*, 110(2), 349–399. The technical foundation for the broker/structural hole concept.
- **Casciaro, T., & Lobo, M.S. (2005). Competent Jerks, Lovable Fools, and the Formation of Social Networks.** *Harvard Business Review*, June 2005. The lovable fool vs. competent jerk finding.
- **Ibarra, H., & Hunter, M. (2007). How Leaders Create and Use Networks.** *Harvard Business Review*, January 2007. The three network types: operational, personal, strategic.
- **Gladwell, M. (2000).** *The Tipping Point.* Little, Brown. The Connector/Maven/Salesperson typology. Popular but grounded in real network science.

Teams and Psychological Safety

- **Katzenbach, J.R., & Smith, D.K. (1993). The Discipline of Teams.** *Harvard Business Review*, March–April 1993. The five-element definition of a real team.
- **Tuckman, B.W. (1965). Developmental Sequence in Small Groups.** *Psychological Bulletin*, 63(6), 384–399. The original Forming-Storming-Norming-Performing model.
- **Edmondson, A. (1999). Psychological Safety and Learning Behavior in Work Teams.** *Administrative Science Quarterly*, 44(2), 350–383. The foundational paper. Read before the Google summary.

Adult Learning and Formation

- **Knowles, M.S. (1968). Andragogy, Not Pedagogy.** *Adult Leadership*, 16(10), 350–352. The first articulation of adult learning as distinct from child education.
- **Kolb, D.A. (1984).** *Experiential Learning: Experience as the Source of Learning and Development.* Prentice Hall. The four-stage learning cycle in full.
- **McCall, M.W., Lombardo, M.M., & Morrison, A.M. (1988).** *The Lessons of Experience.* Lexington Books. The 70-20-10 research foundation. Critical for anyone designing their own development.
- **Ericsson, K.A. (2006). The Influence of Experience and Deliberate Practice on the Development of Superior Expert Performance.** *Cambridge Handbook of Expertise and Expert Performance*. The research on

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why failure at the edge of competence is the mechanism of expert development.

Motivation Science

- **Deci, E.L., & Ryan, R.M. (1985).** *Intrinsic Motivation and Self-Determination in Human Behavior.* Plenum. The foundational Self-Determination Theory text.
- **Pink, D.H. (2009).** *Drive: The Surprising Truth About What Motivates Us.* Riverhead. Accessible synthesis of SDT for practitioners.

The space sector is not static, the research is not complete, and–most importantly–you are not finished. Bring your own experience back to these frameworks. Test them in real conditions. Note where they hold and where they break. That's the curriculum.

One final principle, borrowed from the teacher whose methods run through every chapter of this guide: the goal of formation is not to produce people who need you. It is to produce people who can form others and so bring forth love. What you build here is not a career. It is a legacy.

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