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**Exploration of the leadership process
through structures and outcomes**

Karolina Ozadowicz

Henley Business School
Leadership, Organisations and Behaviour

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Declaration:
I confirm that this is my own work and the use of all material from other sources has been properly and fully acknowledged.

Karolina Ozadowicz

# ABSTRACT

This quantitative study delves into the dynamic nature of leadership, examining its structure and outcomes through the lens of shared leadership literature (Conger, 2003; Carson et al., 2007) and the Direction, Alignment, and Commitment (DAC) framework (Drath et al., 2008). Through a blend of cross-sectional and sequential modelling, this research employs a two-wave analysis on a matched sample of 29 student teams working on a task. Shared leadership is quantified using Social Network Analyses, particularly Importance Weighted Density (IWD) (Lemoine et al., 2020; Xu et al., 2022).

The analysis revealed a positive correlation between shared leadership and leadership outcomes and shared leadership and team task performance through commitment. However, the direction-performance relationship was insignificant, while alignment only impacted performance at the task's conclusion.

This study contributes to leadership theory by introducing the General Theory of Leadership (GOL). This evolving, interdisciplinary framework integrates diverse leadership theories and perspectives, using adaptable "maps" to visualise various aspects of leadership. It aims to foster a comprehensive understanding of leadership, allowing for continuous adaptability and promoting cross-disciplinary collaboration. The study further proposes the "Pronouns Framework" for categorising leadership literature and the "Multidimensional Continuum of Leadership Outcomes" to underscore leadership outcomes' complex, dynamic and ever-evolving nature.

Keywords: Shared Leadership, Importance Weighted Density, DAC Framework, Pronouns Framework, General Theory of Leadership (GOL).

*To all children who lost their mothers.*
*To all mothers who lost their children.*

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# CHAPTER ONE

## INTRODUCTION

### 1.1 Study Background

From the moment I first heard the term "leadership" and began to understand its implications, I have been deeply intrigued by it. Not only was I curious about it, but I was hungry for it. I had (and still have) some preconceived and imaginary ideas of what it is. Sometimes the most childish, like "that it is cool", "exciting", or "that it comes with status, intelligence and power", or more generally, that there is something special "in it" and "about it." I thought it was only for the chosen one, those working for a big corporation in the capitals like London, Warsaw or Brussels. I thought it was only there that the true, most thrilling, and high-fly leadership could be found. I also thought leadership is somehow "important," that "it matters", and that it "must take risks", be "heroic", and even be ready to "sacrifice", as it is its "duty" to do "good" for all of us.

To approach science with preconceived ideas might be dangerous, not even to the researcher and their career but to the science itself. Through some years of study, I discovered that the key is to keep the balance, i.e. to stay somewhere in the middle, almost as if in the "possibility of the space," where on the one hand, one remains aware of what these preconceived truths are, and from the other, where one treats them all with "is that so?"[1] question.

To stay in that "middle space" with awareness of both what the truth in the judgement is and what the truth in the judgement might not be is utterly powerful. Any form of judgement indicates we arrived at a sort of conclusion, a certain point of view. Science

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[1] "Is that so" is a story about Zen Master Hakuin. Then one day, a girl in the village became pregnant. Her parents were not very happy and wanted to know who the father was. Embarrassed, she named Hakuin. The furious parents confronted the Master, reprimanding him in front of all of his students. He simply replied, "Is that so?" When the baby was born, the family gave it to Hakuin. Yet, after some time, the girl confessed that he was not the father of the child but a young fisherman from a nearby village. The girl's parents went to Hakuin, asking for his forgiveness and returning the baby. Although he loved the child as his own, he gave him up without complaint. All he said was: "Is that so?" Many interpret the story of "Is that so?" to speak of a mind capable of equanimity in all situations; a mind of no attachments, always ready to embrace change without resistance; a mind that understands the true nature of all things; the mind of "no mind," of no discrimination, able to go beyond the thinking patterns and judgemental tendencies of the usual self (Gutsol, 2021).

holds an unlimited number of these truths, including (at least for some) that Earth is flat or at the centre of the universe. Such points of view, regardless of what one can think of them, are what we rely upon to create progress; science uses all of these points as the "ends" to move us forward.

After thoroughly engaging in the literature on leadership, I understood that some of these ends in leadership might benefit from further re-examination. I started seeing them not only as the ends but rather as "openings" ready for the application of the "is that so?" question.

I found exploring the topic from the place of a middle ground, that "space in between," is where one can find the most freedom and where most playing can occur. That place is a plateau of no attachment, no pre-conditioned desires, and no prescribed way to learn and discover. Instead, that place of the middle ground is where curiosity, unrestrainedly and freely, leads from one thought to another and where there is absolutely no obligation to achieve anything as one is simply too much lost in the pleasure of discovery.

I realise there might be a criticism attached to such an approach to studying; play might be seen as childlike, often translating the knowledge to its primary, most simplistic forms, which some might see as unprofessional, unserious, and perhaps even heretic. Regardless of the risk of a heavy judgement, "not doing things right," or "how it should be," I decided to work on developing this thesis from that place of the middle ground. Regardless of the risks involved, this approach created too much pleasure, too powerful to be restrained. There is simply too much joy in imagining things and theorising freely, unrestrained by the fear of wrongdoing and unbothered by the permissions of what you can and can not. That way of working allowed numerous questions to appear without concerns about finding answers. It is as, at one point, one realises that not so much the answers but the questions are what guide us. It is in the questions where the progress in knowledge-making starts. These include even these fleeting moments when we allow ourselves to wonder and be wrong, even misled and inaccurate. In other words, we create knowledge even when the thoughts collide, nothing makes sense, and all that emerges neither matches up nor fits together. These, what we might call useless and incorrect ends, are as valuable openings as the correct ones - all of them ready to be re-examined, surprising us with the value we might have never expected them to have. That repeated re-examination, precision, diligence, and thorough work combined with play, curiosity and simplicity, guided the emergence of this thesis to the best of my abilities as they are now.

There is one aspect of this work which continuously remains in my thoughts. That is, what is the true value of it? I admit this is the aspect with which I struggle most. The exercise of overcoming myself, i.e. limitation of thinking, practising my persistence to keep at this work, developing my knowledge, and practising my ability to problem-solving, was, by all means, meaningful, overwhelming, and thrilling. Nevertheless, the true desire was to find a way to make this work, i.e. the true work, more than just a contribution to my own growth and development. The decision to search for this value was one of the pivotal moments in developing of this dissertation. I believe this value was found but only when translating my discoveries from one environment to another and from one level to another. To explain what I mean by this, let me first introduce the primary context of this research.

There should be no surprise that guided by my preconceived assumptions of where the most exciting leadership will be found I chose self-managed teams operating in the United Kingdom for the context of this study. I decided to focus on teams as even the most superficial business environment analyses indicate that teamwork has become increasingly important. There seems to be a rapid increase in the use of teams since at least the early 90-ties. That shift from individual to team occurred as more and more organisations recognised teams' ability to handle complex tasks that require the effort of more than one person. The increase in the use of teams was followed by numerous research on the topic of team effectiveness, with an inherent challenge being to discover how to integrate individual attributes of the team members best to achieve a combined team outcome (Guzzo & Dickson, 1996; Hackman, 1987; Kozlowski & Bell, 2003; Mathieu et al., 2008). The change in how work is organised means there are changes in how leadership is done too. There is a decline in the hierarchy and increased empowerment and equality between people. Some scholars relate these shifts to the new demographic cohort entering the workplace. So-called millennials, typically defined as people born from 1981 to 1996 (Rauch, 2018), are emerging as leaders introducing novel leadership practices responding to the demands of their environment, including, e.g. information challenges (Green & Bean, 2017). These leaders are often described as persistent, humorous, and resilient and see their leadership role as enhancing understanding, strengthening motivation, and facilitating implementation (Walters & Diab, 2016). These new leaders seem to rely on different approaches, including e.g. spontaneous communication and feedback, sharing leadership, a collaborative focus, respect for work-family balance, and the recognition that people need breaks and fun in the workplace to re-energise.

That particular context of self-managed teams operating in the United Kingdom is the primary playfield of this thesis. Nevertheless, what happened was that during the time of writing up, I found myself in the middle of the happening of another self-managed team operating in a different geographical and cultural context. I was exposed to and even participated in another self-managed team consisting of my parents, myself and my children tasked with managing a small goat farm in Poland. Unknowingly, these two worlds, one emerging from the data gathered in the United Kingdom and the other, as happening in front of my eyes in Poland, became impossible to separate, with both almost "staring at each other", taking the role of a sort of double mirror for the study of leadership.

There should be no surprise that writing up the thesis on leadership, surrounded by the down-to-earth work of my parents, shaped my thoughts, reflections and ideas. First of all, that self-managed team(farm)work I was faced with led me to think of leadership from another level. No longer did I see it as limited to something posh, but finally, I recognised it as also something close to the ground, occurring continuously, "unfancy", and as organised and executed by anyone, regardless of their age, qualification or background. More importantly, the collision of the two seemingly very different contexts ultimately led me to devote some of my efforts to developing a foundation for the General Theory of Leadeship, an approach to be applied beyond cultural and geographical boundaries, able to be understood by anyone, including any mother.

I do not know if one can get any closer to leadership than seeing it at work, as used by your elderly parents, mother, and father. This brutality of reality helped me re-focus on leadership as used by all of us daily and as taking place regardless of our status or geographical location. Observing first-hand the hard, physical work of my parents played a crucial role in this thesis development. All my thoughts went through what I call "my mother's hands test." As I listened to my parents, discuss what crop to sow and when to harvest it, I could not help but wonder: Could anything that I am writing about in this thesis be of any value to the parents I love so dearly? How could claims making sense in one context (e.g. the United Kingdom) still hold true in another context? If that works there, does it work here too? How can the content of this dissertation support both of these worlds? Are there key elements of leadership we can rely on beyond geographical and cultural differences? If so, what are they?

For some time, I did not even hope to be able to find any answers to any of these questions. The most prestigious of leadership journals focus almost exclusively on what I call "posh leadership", occurring in organisations in the Western world, far removed from the simplicity and roughness of the daily challenges encountered by my parents. Even though I studied several articles and numerous approaches to leadership, I could not find "one leadership" ready to be translated to support my family. On the contrary, my engagement with the literature proved that leadership is a type of monster. It reminded me of the Minotaur, a fearsome beast, not fit for the human company as far too complex, far too contradictory, too confusing, and so divided that bests kept away in the elaborate maze, somewhere deep in the labyrinth of various theoretical approaches.

The perspective, where this thesis adds yet another path to the already complex leadership labyrinth, was not a perspective I enjoyed seeing. Looking at the words I typed daily, I thought, what is the way through it? How can I make sense of what I read? Is there a core that can be found beyond the differences and divisions? A sort of bare bone of what leadership is that both my parents in Poland and the teams in the United Kingdom could benefit from?[2]

I thought of the work of David Cooperrider and Suresh Srivastva, published in 1987. These researchers proposed that instead of "problem-solving", which they perceived as hampering any kind of social improvement, a new method of inquiry was needed to help generate new ideas (Cooperrider & Srivastva, 1987). The appreciative inquiry, as they called it, "advocates collective inquiry into the best of what is, to imagine what could be, followed by the collective design of a desired future state that is compelling and, thus, does not require the use of incentives, coercion or persuasion for planned change to occur" (Bushe, 2013, p. 1). Appreciative inquiry focuses on what works, the positive core, and what people really care about.

This particular approach helped me notice that I might have gotten it all wrong again. The idea should not be to "kill the Minotaur" but to find it and reshape it so that it can be understood, used and thoroughly enjoyed by all of us. I realised that all of the knowledge generated so far should not be wasted and that if we allow ourselves to persistently and passionately discuss, building on not what divides us but what unities, we might well be

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[2] As the reader will discover, these considerations led to the formulation of the Pronouns Framework. This system categorises leadership literature based on its primary focus, and it is further discussed in the Literature Review.

able to create a sort of General Theory of Leadership - a theory of leadership applicable across cultural and geographical boundaries, usable in any context, understood at any level and applicable to all people. I envisaged it as something simple, almost bare, something which, if developed beyond the pages of this dissertation, would pass the "test of any mother's hands."

Through the work of this thesis, I attempted to provide some foundation for the General Theory of Leadership by drafting what I call "maps." However, it is important to note that the General Theory of Leadership was not the core purpose of this thesis. As the reader will find out, the primary objective of this work was to explore the relationship between the two approaches in leadership, structure and outcomes. Maps appeared as an after-effect of these primary explorations. They resulted from spontaneous "free play", where thoughts are allowed to drift with no restrictions and no worry about the consequence of their being. Although the maps are not the main topic nor a focus of this dissertation, I am curious to discover what my own judgement will be like regarding their value, usability and applicability from the perspective of time.

I would like to share one more personal story of a pivotal point from the time of this thesis writing. For various reasons, although I read and reflected deeply and even drafted several chapters, I only started "the true" writing process in the last three months before submission. During that time, although paradoxically, there was "no time", I often did not write. Instead, I chose to scroll through the internet without purpose, avoiding any form of thinking, paralysed by the self-created perception that this thesis was simply something I could not accomplish. It was certainly a sad time of resignation. It became evident that there was insufficient knowledge, skill, intelligence, clarity of thought, and determination to write up to the standard I imagined this work could have. It was a time when I saw my limitation clearly, almost as if someone would put me in the picture frame and inform me: "At the moment, this is how much you can comprehend and make sense of - that is it." I knew a much bigger world was beyond the frame, yet that world was inaccessible to me. Naturally, sadness appeared. Sometimes, so much of it that it overwhelmed me to an extent where nothing in me seemed to be able to move, with me somehow "locked" in no action and no desire, as "what's the point anyway?"[3]

In one of these moments, I saw a thumbnail of the interview with Bertrand Russell, a British philosopher and logician, titled "Message to the Future" (Russell, 1955). The clip was short, not longer than 2 minutes. I remember doubting my ability to understand the

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[3] I jokingly refer to that period as a "Stagnation in a picture frame."

content and debating whether I should or should not press "play." The video became one of the most defining moments of my life and a re-recurring lesson. It grounded me in respect to science and reinforced my desire to do this work with diligence and yet openness. More importantly, on a personal level, the message reminded me that in times of pure despair, beyond no hope, in full resignation, where there is no ability to move, there is always a *choice*, and within that *choice*, each of us can start to walk again, regardless how many times we got lost already. Upon watching that particular clip, my thoughts moved again, a bit wiser and a bit deeper, even less interested in judgement and even more interested in the process. This is where and how this thesis evolved, to the best of my abilities, out of my limited picture frame. Hence, here it is, my thesis on the exploration of leadership.

## 1.2 Research Question

This study was driven by pure curiosity and emerged from the perceived assumption that leadership relates to performance, meaning it is something positive, useful and even desired by teams and organisations. The first ever question asked was this: how leadership relates to performance?

Literature review revealed there is no "one leadership." Instead, there are numerous "leaderships" or multiple angles and positions from which leadership is studied.

It has become apparent that the fundamental question, "How does leadership relate to performance?" requires refinement. This could be achieved by narrowing the focus, for instance, to a specific type of leadership. Alternatively, more in-depth theoretical work would need to be undertaken to redefine the concepts, allowing for a wider-level examination.

The latest option felt beyond what I imagined to be ever able to handle. Hence, as a result of further reading, I narrowed the question down, focusing on two particular approaches. I was drawn to the DAC framework as the practice-based view, exploring leadership from the perspective of outcomes and shared leadership, which explores leadership from a unique "structure" perspective. The new question I settled on is this:

How do sharing leadership in teams and collective leadership outcomes (as defined by the DAC framework) relate to team task performance?

However, I quickly realised that attempting to sidestep the more in-depth theoretical work was not feasible. Even when the focus shifted to specific leadership approaches, there were still fundamental mechanisms that were left unaddressed. To fully answer the study's central question, there was a necessity for both new and re-structured conceptualisations of various leadership constructs. In essence, the research question of this thesis required support from answers derived from a broader analysis centred on the most foundational question: What is leadership?

As I delved into the leadership literature, I found myself striving to better synthesise this diverse body of work and present leadership in a manner that was simple and accessible to all. This process not only satisfied my desire to thoroughly comprehend the study of leadership but also allowed me to meticulously and accurately probe the research question at hand.

In this thesis, I adopted a postpositivist approach to explore the main research question: "How do sharing leadership in teams and collective leadership outcomes relate to team task performance?" I followed the strict rules of deductive research. I built on the literature review, followed by hypothesis formulation, then data analysis and the representation of the results in the form of "yes" and "no" answers. I relied on order, a systemic approach and strict adherence to widely accepted scientific rules of study.

However, as I embarked on exploring leadership on a wider scale, looking at it as a whole, I opted for a different approach.

I was captivated by the prospect of allowing the ideas to unfold naturally, unconfined by the boundaries set by individual theories and frameworks, and free to develop beyond any preconceived notions of "right" or "wrong." This unrestricted inquiry, not tied to any specific objectives or expectations, enabled me to let go of any preconceived ideas about the direction of this exploration.

This approach not only facilitated a nuanced exploration of the leadership process, through the examination of its structure and outcomes but also fostered the emergence and formulation of various comprehensive propositions. These propositions spanned across theoretical boundaries, thereby enriching our understanding of leadership as a whole.

The development of the Pronouns Framework marked the beginning of my journey. This framework attempted to categorise leadership literature into meaningful categories: "I",

"You", "We", and "It." As my exploration deepened, I created Map 1, titled "Key Equation," which provided a straightforward visual representation of the primary components of leadership: influence, people, needs, and context. The explorations culminated in the emergence of the foundations of the General Theory of Leadership, erroneously abbreviated to GOL. This theory was born from a juxtaposition of the self-managed professional teams I had been studying and my parents' hard and simple farm work, with a vision to create a universal language for leadership that transcends cultural and geographical boundaries.

This thesis examines leadership on a wider scale to delve deeply into the specific research question, which in itself is slightly unconventional, focusing on two aspects of leadership that pertain to the self: leadership structure and leadership outcomes. Romani et al. (2011) refer to this kind of focus as an invitation to interplay between various perspectives - a principle that underpins this study. They suggest that such an interplay can lead to further insights, enriching our comprehension of leadership by building on unifying diverse viewpoints. It is the aspiration of this thesis to have embodied this concept, thereby deepening our collective insights into the nature of leadership.

The approach employed in this thesis has been significantly influenced by the recommendations of Daft and Lewin (1990). The editors of Organisation Science encourage embracing, not avoiding, complex problems - problems whose solutions would captivate scholars, irrespective of their philosophical orientations. They advocate for stepping beyond any prevailing tradition and welcoming new grammar, definitions, and logic, thereby fostering creativity, innovation, and even "hearsay." As the readers will explore this thesis, they might notice I fully embraced this advice, venturing beyond traditional boundaries and approaching the study of leadership with a fresh perspective. Throughout, I have sought to innovate and create, even challenging established norms and conventions when necessary. This thesis doesn't merely present established ideas in new clothing; it strives to reinterpret, reimagine, and redefine leadership in a manner that resonates across cultures and geographical boundaries. It is hoped that this approach will not only contribute to academic discourse but also facilitate a more comprehensive understanding of leadership in practical contexts.

## 1.3 Statement of the Problem

This thesis emerged out of curiosity, not a problem. At the start, there was no realisation of "gaps." However, a literature review clarified that gaps exist, and the leadership domain faces various challenges.

Perhaps most striking was the realisation that there is no unified theory on leadership. Instead, there is an overwhelming and rich variety of views and perspectives, each exploring leadership from their particular angles and levels of analysis, some diving deep into particular singular aspects and others remaining more on the surface, exploring the concept more generally.

What I came to realise is that the main challenge lies not as such in the "diversity" of perspectives but instead in a "division" between several leadership fronts, approaches, and paradigmatic boundaries (Uhl-Bien & Ospina, 2012). That division creates fractions in the field and, perhaps, even slows down the discipline development due to the variety of perspectives studied in the separation and, often, a distance from each other. However ambitious and impossible it might seem, I perceive a lack or even desire to create a unified theory of leadership as the field's main omission[4].

Ultimately, this realisation led me towards the idea of the General Theory of Leadership. Proposing something of a scale of the General Theory of Leadership is terrifying. Nevertheless, if we remove ourselves from what we think is possible or not, and what is right or wrong, and instead bring attention to simply what the problem is and look at how to solve it best, "terrifying", "ridiculous", and even "impossible to achieve", become absolutely irrelevant.

The General Theory of Leadership, along with its associated maps, resides at one end of the spectrum explored in this thesis. However, as already noted, the primary focus of this thesis is significantly narrower. It rests on an exploration of two distinctive approaches to leadership: structure and outcomes. The first builds on shared leadership literature (Pearce & Conger, 2003; Carson et al., 2007), second refers to the DAC framework of leadership

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[4] For example, physicists have been working for decades on a theory which remains an open line of research within the field. This theory, known as the Unified Field Theory (UFT), revolves around fundamental forces and elementary particles. In addition to UFT, there are two other overarching theories in physics: the "Theory of Everything" and the "Grand Unified Theory." Beyond the realm of physics, other individuals, such as American philosopher and writer Kenneth Wilber, are making contributions. Wilber, a figure in transpersonal psychology, is known for his work on the so-called Integral Theory, a philosophy aiming to synthesize all human knowledge and experience.

outcomes (Drath et al., 2008). Upon reviewing each, it becomes evident that they grapple with unique challenges.

The DAC framework introduces three outcomes of leadership: direction, alignment, and commitment. However, this proposal has led to some scepticism about whether these outcomes solely arise from the leadership process or result from effective leadership that simply contributes to their emergence. Questions also arise about how these specific outcomes, defined as emergent states, distinguish themselves from other emergent states and team processes discussed in team literature. Furthermore, there is a dearth of research (with the exception of a study by McCauley et al., 2019) empirically testing the correlation between these three outcomes and team performance. While a new instrument—a DAC survey—has been proposed, its relative obscurity raises questions about its effectiveness. If we indeed accept leadership as outlined in the DAC framework, can we empirically confirm that leadership contributes to performance?

Shared leadership, similar to the DAC framework, grapples with its own set of challenges, a notable being the limitations of its theoretical boundaries. Specifically, instead of exploring a spectrum of sharing, shared leadership primarily focuses on a specific structure— the "shared" one. This suggests that the theory of shared leadership is not so much a theory of leadership structure but rather a theory of a specific type of it.

Moreover, upon revisiting the definition of "sharing," we might concur that "sharing" refers to how something is "divided" or "distributed." However, a review of the literature on shared leadership reveals a discrepancy. What is often labelled and referred to as "sharing" is, in fact, measuring "amount," that is, "how much" leadership exists. Surprisingly, based on these methods, some studies on "shared leadership" may not actually capture the concept of sharing, yet they assert that "shared leadership" is related to, for example, team effectiveness.

This confusion becomes apparent when we scrutinise the meaning of indexes (i.e., mathematical formulas) shared leadership relies on to quantify "sharing." Most current research on shared leadership utilises Social Network Analyses, employing either an index called "density" or "centralisation." However, even though density is the more commonly used index, it does not actually describe "sharing." It is the centralisation that encapsulates the concept[5].

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[5] The shift might be noticed in the understanding of these particular challenges. For example, the freshest of the articles on shared leadership, Xu et al. (2022), does not refer to the "amount" as attributed to the type of

At present, the prevailing viewpoint suggests that if we examine how something is distributed, we must consider both the quantity and the manner of its distribution. This realisation raises a significant question: Do the studies that have solely utilised a measure of density, asserting that shared leadership is linked to performance, require re-evaluation? If our study captures only the compactness (think "amount") and not the actual "sharing", how can we make such claims? Perhaps we could reframe our conclusions to propose that not shared leadership, but rather the quantity of leadership influence, correlates with performance. This thesis seeks to reassess these claims by considering both measures, namely, "how much" leadership exists and how it is "divided."

The DAC framework suggests that any process which generates direction, alignment, and commitment among individuals who share work responsibilities can be associated with leadership. Simultaneously, literature on shared leadership posits that teams tend to achieve better results when leadership responsibilities are distributed. This brings several significant questions to the forefront: Does the act of sharing leadership affect its outcomes? Is there a connection between the structure of leadership and its outcomes? If a relationship exists, how do these two aspects influence each other? Does the structure shape the outcomes, or do the outcomes dictate the structure? Furthermore, could it be possible that DAC and structure are simply different types of outcomes, i.e., could structure be seen as an outcome in the same way as direction, alignment, and commitment?

In summary, drawing from the considerations above and insights gleaned from the literature review, this thesis encourages a theoretical "interplay" between the DAC framework and shared leadership. This interplay ultimately morphs into an empirical study aimed at exploring the coexistence of outcomes and structure within the leadership process.

## 1.4 Organisation of the Study

The structure of this thesis can be likened to an hourglass. It begins with a highly personal and reflective first chapter, then narrows down to focus on more precise details in Chapters 2 through 5. These middle chapters concentrate on the hypothesis, methodology, analyses, and results. The thesis then broadens again in Chapter 6, which provides a comprehensive General Discussion. The style of the first and last chapters leans towards personal

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leadership, i.e. shared leadership. Rather, the amount is seen as a property of leadership in general. Hence, e.g. Hypothesis 5 in this particular study, instead of referring to SL, is formed as "Leadership density will be positively related to team performance."

reflection and inquiry, whereas the middle chapters prioritise systematic and rigorous examination of the research questions. Throughout the creation of this thesis, the guiding principle has been "maximum truth-seeking," with a strong emphasis on accuracy, honesty, and objectivity.

This study is divided into six distinctive chapters. Chapter One, which the reader is currently engaging with, provides an overview of the approach applied to the development of this work, describes the study background, and introduces the main ideas behind this work, including the key concepts and this study's research question. This chapter also describes how this thesis addresses the gaps and contributes to the theory and practice.

Chapter Two, the Literature Review, lays the groundwork for addressing the research question of this study. This chapter serves as a detailed discussion of the main concepts of the thesis. It also functions as a kind of "open playground," wherein existing leadership theories serve as launch pads for exploring leadership beyond its established theoretical confines. Here, different ideas and concepts interact freely and without restrictions, resulting in the creation of the Pronouns Framework, Map 1, "Key Equation", and the foundations of the General Theory of Leadership.

Chapter Three, the Hypothesis, refocuses on the leading question of this dissertation, i.e. how do sharing leadership in teams and collective leadership outcomes (as defined by the DAC framework) relate to team task performance? The chapter reintroduces key concepts and proposes the mechanism for the interplay between structure and outcomes. The research model is provided, and ten hypotheses are formed. These are presented in groups. Group 1 includes the first three hypotheses and explores the relationship between sharing leadership and leadership outcomes. Group 2 forecasts the relationship between leadership outcomes and team task performance (TTP). Group 3 discusses the direct and indirect relationship between sharing leadership and team task performance. The chapter ends with a brief summary, inviting readers to explore the study's methodology.

Chapter Four, the Methodology, describes this is a quantitative study. It presents the study's context (i.e., self-managed, autonomous and entrepreneurial teams), and provides sample characteristics and size (29 students' teams evaluated across two waves). It further discusses each instrument. Particular consideration is given to the operationalisation of shared leadership and its two dimensions, density and centralisation. The chapter ends with

a presentation of the "data analysis flow chart", visually representing the steps taken during the data analysis phase.

Chapter Five, the Analyses and Results, is organised into three subparts to test the ten hypotheses proposed in this study. Part I of this chapter describes the process of data preparation. Part II focuses on the results of the confirmatory factor analysis for the DAC survey,  as well as presents descriptive statistics and data aggregation to a collective level. Part III centres on hypothesis testing using two different designs: cross-sectional and sequential, to allow for more in-depth exploration of the relationship between leadership outcomes and structure. The chapter ends with a brief overview of the results.

Finally, Chapter Six, the General Discussion, is aimed to bring various parts of this thesis together. Its starts with theoretical, empirical and methodological contributions, followed by implied applications, a section on limitations and criticism, and future studies. The chapter includes a thorough discussion of a casualty. The chapter finishes with final reflections

I cannot evaluate the quality of the work the reader is about to immerse into. I am not losing hope that even if the judgement is that this thesis represents a little contribution to the knowledge, the time and energy I put into it will not go to anything. I came to understand that there is value in all expressions of science. It is due to the science's accumulative nature in which advancement occurs through incremental progress based on dialogue where various ideas meet each other, creating new and correcting faulty ones. In that sense, all works are necessary foundations as they allow for gradual progress.

The breakthrough papers often build on seemingly "no value" creations. For example, gaussian geometry was just a research exercise for no purpose. Nevertheless, 100 years later, Einstein used it for his theory of relativity, ultimately leading to GPS technology.

Hence, it remains my view that the whole point of academics is to support curiosity, experimentation, and freedom in exploration. If nothing else, I hope that the work I present today is an example of how to allow for a paradigm interplay where various assumptions, insights, and multiple perspectives work with each other, with no desire to eliminate but rather to "build" on each other. I hope this thesis will encourage other young researchers to permit themselves to do the same, i.e., to be driven by curiosity, unlimited by the necessity to achieve, but instead, fully immersed in the discovery process.

# CHAPTER TWO

## LITERATURE REVIEW

### 2.1 Introduction

Chapter 1 of this PhD thesis embarks on an in-depth literature review and theoretical discourse on leadership. The investigation commences with a holistic examination of leadership, endeavouring to understand, comprehend, and categorise the construct using the proposed Pronouns Framework, which categorises leadership literature into separate groups of "I", "You", "We", and "It" depending on the writing's main focus. Following this, the analysis is expanded and deepened by focusing on two distinct approaches: the Direction, Alignment, and Commitment (DAC) framework for leadership outcomes and shared leadership. As a result of the literature review and theoretical deliberation, the first visual and simplistic representation of the leadership process, termed "Map 1: Key Equation," is devised. This map captures the essential elements of the constructs, becoming a starting point for further considerations. The role of the maps is explained and defined as building blocks of the unified approach to studying leadership. Maps are seen as a visual representation of various components and relationships within the leadership construct, providing a framework for integrating diverse elements of leadership research, thereby facilitating a more comprehensive understanding of a leadership construct. The chapter culminates in articulating the concept of a General Theory of Leadership, calling for the development of further maps, which collectively are proposed to function as the foundation upon which the unified theory stands.

### 2.2 Pronouns Framework

Navigating the domain of leadership research can be overwhelming due to the multitude of theories, approaches, and models. This chapter aims to bring clarity to the leadership domain by introducing a novel framework for categorising leadership literature.

The attempt to categorise leadership literature was driven by a desire to make sense of the literature and grasp what the construct of leadership means. There was also a hope that this study would support addressing one of the challenges already picked up by numerous scholars (Bass, 1990). There is a division between several leadership fronts, approaches, and paradigmatic boundaries (Uhl-Bien & Ospina, 2012). That division creates fractions

in the field and, perhaps, even slows down the discipline development due to the variety of perspectives studied in the separation and, often, a distance from each other. This challenge has led to numerous attempts to bridge between different views and theories. Most work on uniting leadership theories is perhaps noted in so-called practice-based approaches to leadership (Crevani et al., 2010). In particular, the leadership of outcomes (Drath et al., 2008) shows a promise to connect various leadership theories and "move toward a more integrative ontology of leadership" (p. 635) through an outlook where all leadership is studied as a process generating particular leadership outcomes.

Based on a review of the literature, a suggestion is made where leadership writings are viewed from a prism of pronouns, i.e. "I", "You", "We", and "It," and categorised in the "Pronouns Framework."

The proposed Pronouns Framework suggests grouping various writings according to their primary focus as well as, the referent shift in their measurement, thus addressing crucial categorisation questions such as the locus of leadership, its emergence, and the study's main emphasis. This framework allows for a more coherent understanding of leadership literature, simplifying the understanding of what leadership is and how it can be studied and analysed.

The Pronouns Framework can be summarised as follows:

"I" as Leader-Centric: literature that focuses on powerful and influential individuals, examining their traits, skills, behaviours, and interactions with followers. It tends to measure the individual's influence on leadership, with a referent shift towards the leader as the primary subject of analysis. The main theme is the leader's unique abilities and characteristics that drive their effectiveness.

"You" as Follower-Centric: studies that explore the role of followers, focusing on their traits, skills, behaviours, and their role in the leadership process, as well as their interactions with leaders. It measures the impact of followers on leadership, shifting the referent towards the follower as the main subject of analysis. The main theme revolves around the followers' influence on the leader and the leadership process.

"We" as Relational Dynamics: studies that describe leadership as residing in the collective, emphasising interactions, relationships, and dynamics among members at various levels, such as dyads, groups, teams, or organisations. The focus of measurement shifts to relational aspects of leadership, examining the connections and patterns between

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individuals. The main theme encompasses the collaborative nature of leadership and its dependence on social interactions.

"It" as Systemic Processes: studies that describe leadership as a process or investigate the characteristics, structures, outcomes, and mechanisms shaping and being shaped by leadership dynamics across various levels of analysis (individual, dyadic, group, or organisational). These studies include the systemic aspects of leadership, capturing the referent shift towards the broader system. The main theme explores the complex and adaptive nature of leadership within organisational contexts.

The proposed framework does not imply that any of these categories is superior to the others but rather highlights their differences and distinct outlooks. The distinction between categories should be viewed as a guide, as many studies may transition between two or more categories. The Pronouns Framework highlights the evolving nature of leadership conceptualisations, tracing the development from older, well-known "I" theories and approaches to the less studied and less developed "It" approaches.

It is important to note that the framework may oversimplify some leadership literature, as various studies may encompass multiple aspects simultaneously. However, the fluidity and flexibility of the framework allow for a more nuanced understanding of leadership literature, enabling categorisation depending on the angle and context of each written content. This means that the Pronouns Framework is not designed to strictly categorise theories into isolated categories, although some theories may fit better into certain categories than others. Instead, its purpose is to help comprehend the various angles and perspectives that different articles in the literature adopt. The framework achieves this by classifying articles into different categories, considering factors such as focus, referent-shift, and other relevant aspects. Consequently, a single theory may appear in multiple categories, depending on the specific emphasis and approach taken in each article.

In the subchapters below, I explore the proposed Pronouns Framework of leadership in more detail, providing an overview of each category followed by a brief discussion. An overview of the framework is presented in Table 1.

TABLE 1

**TABLE 1**

**Pronouns Framework**

| "I" | "You" | "We" | "It" |
|---|---|---|---|
| | *Entity* | | *NonEntity* |
| Great Man Theory (Carlyle, 1840) | Implicit Followership Theories (Epitropaki et al., 2013) | Relational leadership theory (Uhl-Bien, 2006) | Leadership Process Models (Fischer et al., 2017) |
| Trait Theory (Judge et al., 2009) | Leadership Identity Construction (DeRue & Ashford, 2010) | Social Identity Theory of Leadership (Hogg, 2001) | Contextual Theory of Leadership (Osborn et al., 2002) |
| Five‑Factor Model (McCrae & John, 1992) | Followership theory (Uhl-Bien et al., 2014) | Leadership in the Plural (Denis et al., 2012) | Complex Leadership (Marion & Uhl-Bien, 2003) |
| Full Range Leadership Model (Bass, 1985) | Follower-Centered Perspective on Leadership (Shamir, 2007) | Leader-Member Exchange (LMX) (Graen & Uhl-Bien, 1995) | Systems Leadership Theory (Anderson & Ackerman-Anderson, 2010) |
| Transformational Leadership (Bass & Riggio, 2006) | Courageous Followership (Chaleff, 2009) | Team leadership (Day et al., 2006) | Institutional Leadership Theory (DiMaggio & Powell,1983) |

Note: The theories listed in the Pronouns Framework table are provided as examples only, to illustrate the general distinctions among the different categories. It is important to recognise that these theories may straddle multiple categories depending on the focus of the individual writing.

## 2.3 "I" of Leadership

Most XX century leadership research focused on exploring its main actors, i.e. leaders (Wood, 2005). This thesis proposes that these approaches are categorised as "I" approaches to leadership, as they explore leadership as residing in powerful and influential individuals. Within this group of outlooks on leadership, the attention is on those holding formal leadership positions or those with disproportionate influence in the organisation. In particular, what is studied is the leaders' characteristics and, more generally, who they are, what differentiates them from others, and what style they employ when exercising their role.

The "I" view of leadership goes back to as early as 1840 and the so-called Great Man Theory (Carlyle, 1993). Accordingly, leadership was associated with adult male qualities with leadership skills embodied in the strong individual who was inquisitive, instinctive, controlling, and demanding obedience from others (Mumford, 1906). These individuals

were described as "born to lead" based on the belief that to be a leader is either something you are born with or born without (Carlyle, 1993).

Like Great Man's views, trait theories assume that people inherit certain qualities and traits that make them better suited to leadership. The trait perspective is considered one of leadership's most respected intellectual traditions (Judge et al., 2009). Leader's traits were categorised by Tupes and Christal (1961) in the so-called five-factor model or, more boldly, the Big Five. Based on the five-factor model, the personality traits of a leader include conscientiousness, agreeableness, emotional stability, extraversion, and openness/intellect.  Evidence indicates that agreeableness, out of all the Big Five traits, is most predictive of actual performance in work teams (Judge & Bono, 2000).

Behavioural theories challenged the "born to lead" view proposed in trait theories. They focus on how leaders behave, assuming others can learn how to become leaders through, e.g. observation and coping with a leader's conduct. In other words, these theories propose that leaders are made, not born. Further, they focus on studying leaders' actions, not mental qualities or internal states, suggesting that leaders are not born a successful leader but can learn how to become one based on learnable behaviour.

The behavioural theories led to the emergence of research where leaders, and other prominent individuals in organisations, were analysed based on their predominant behavioural styles and how their different styles relate to organisational performance (e.g., Lewin et al., 1939). One of the academics known for his contribution to the research on leadership styles is Bernard Bass. His Full Range Leadership Model (1985) focuses on three main styles: transformational, transactional, and laissez-faire. Cummings et al. (2018) categorised styles into two main categories depending on what that particular style is applied to. The first category of leadership styles includes forms focusing on human relationships, and the second one includes styles related to task completion. Within relationally focused leadership, the following styles were distinguished: transformational leadership, which maximises the potential of followers through the encouragement of innovation, creativity and intellectual stimulation, where the aspirations of followers are raised to those of the leaders themselves (Bass & Avolio, 1994), resonant leadership, which focuses on understanding the needs of individuals (Goleman et al., 2002) and authentic leadership, a style which developed as a response to hindered in a transformational

leadership risk of manipulation, and which emphasises leader transparency, and congruence in their actions and beliefs (Avolio & Gardner, 2005).

Within task-focused leadership style, the following were included: transactional leadership, in which leaders make a transaction with followers by providing rewards in exchange for tasks completion (Bass & Avolio, 1994); dissonant leadership styles, whereby leaders employ commanding and pace-setting behaviours to achieve results (Goleman et al., 2002), and instrumental leadership that focuses on bridging motivational vision with strategic and task-mediated accomplishment. The review by Cummings et al. (2018), applied to the context of the nursing workforce, provided robust evidence that relational leadership styles (transformational and authentic) are associated with significantly improved outcomes. Task-focused leadership styles (passive or dissonant) were generally associated with adverse outcomes.

Next to traits and leadership styles, another stream of research within "I" approaches to leadership looks at situational perspective, exploring leaders' ability to adapt to different situations. The main idea behind these theories is that situation influences a leader's effectiveness, and depending on the context, certain leader traits and behaviours may be more desirable than others (Drath et al., 2008). In particular, the role of context is explored by the so-called contingency theory of leadership, which proposes that a leader's effectiveness is contingent on whether or not their leadership style suits a particular situation (Fiedler, 1964). Further developments in situational leadership theories suggest that leaders adopt different leadership styles according to the situation as well as the needs of team members (Hersey & Blanchard, 1977).

The "I" approaches to leadership could be summoned as conceptualising leadership as residing in a focal person. These theories study traits, behaviours, and styles and how these change depending on context and which characteristics lead to the highest levels of effectiveness. However, these theories and approaches seem to have a great variety. They seem so diverse that it is rather challenging to distil what constitutes good or bad leadership. Through the lens of these approaches, the role of the leader is seen as the one responsible for creating the expected outcomes (Nicolaides et al., 2014). "I" approaches to leadership assume that there is usually only one leader, with leadership being a top-down process cascading from the leader to subordinates (Yukl, 1998). Such a leader-centred perspective, when placed in a context of the collective, e.g. team, can be seen as limited as not recognising the role of a follower. Hence, in the section below, titled "You" I explore

conceptualisations of leadership addressing the limitation of the "I" perspective and expand the view of leadership from "I" to "You", discussing the role of followers in leadership.

## 2.4 "You" of Leadership

Although the "I" approaches to leadership predominated among leadership studies in the last century, an independent stream of research, away from the focus on a "leader", started to develop and became more visible. These particular approaches, named in this thesis the "You", focus on followers and are perhaps best captured by the follower-centered perspective on leadership (Shamir, 2007). Within this category, it is not the "relationship" that comes first but rather the entities out of which relationships emerge. Hence, the focus of this category remains on studying individuals as followers and the influence they exert in leadership processes.

These conceptualisations seem in alignment with changes occurring in organisational settings. Increasingly, people work in a context where asymmetrical influence relationships are absent and traditional power and authority structures are redefined, ignored, downplayed, or bypassed. As suggested by Ensley et al. (2006), this shift in the perception of leadership results from the proliferation of self-management and the increased application of systems thinking, complexity theories, and decentralised organisational designs. Progressively, individuals are seen as equals in the sense that everyone has about the same amount of influence as everyone else. There is often no clear leader, and even when a focal leader exists, they do not have to have an asymmetrical influence.

Away from leadership seen as prima donna (Gronn, 2002), which is a strong theme in the "I" approaches, the "You" perspective highlights the importance of followers in the leadership process. This new take on leadership, rooted in the dyadic approaches, moves the understanding of leadership even further. For example, Implicit Followership Theories (Epitropaki et al., 2013) explore how followers' preconceived notions about leadership shape their expectations and behaviours, while Leadership Identity Construction (DeRue & Ashford, 2010) examines how followers contribute to the development of leaders' identities through interactions and feedback.

Followership theory (Uhl-Bien et al., 2014) emphasises the proactive role of followers in the leadership process, recognising that they are not merely passive recipients of leadership but rather active contributors to the leadership dynamic. Courageous Followership

(Chaleff, 2009) underscores the responsibility of followers to challenge, support, and contribute to the decisions of their leaders, highlighting the significance of followers in maintaining ethical and effective leadership.

The "You" perspective serves as a precursor to the idea that leadership becomes something much more collective, relational, non-authoritarian, and dynamic. Out of the "I" and "You" concepts, leadership emerges as neither of them but rather as a collective "We." In the subchapter below, I discuss this particular category in more detail.

## 2.5 "We" of Leadership

The "We" perspective on leadership, as per the Pronouns Framework, emphasises the relational dynamics of leadership. It investigates the interactions and relationships among team members, moving away from the individual-centric approaches of the "I" and "You" perspectives. In recent years, this view on leadership has gained significant attention (Pearce & Conger, 2003). Various theories and approaches can be associated with this particular category within the Pronouns Framework, including Relational Leadership Theory (Uhl-Bien, 2006), Social Identity Theory of Leadership (Hogg, 2001), Leadership in the Plural (Denis et al., 2012), Leader-Member Exchange (LMX) (Graen & Uhl-Bien, 1995), and Team Leadership (Day et al., 2006; see also Kozlowski et al., 2016).

Although the "We" approaches have been present in scholarly discourse since decades ago (Gibb, 1954), they have gained significant attention only recently (Pearce & Conger, 2003). The rapid development of these collective, "We" focused approaches, often in parallel with one another, has contributed to growing difficulties in the leadership domain, as frequent overlaps in definitions have led to several attempts to define the different perspectives (Bolden, 2011; Yammarino et al., 2012; Uhl-Bien, 2006). These broader, more comprehensive approaches to leadership appear in the literature under various names, such as "team", "relational", "plural", "network", "collectivistic", "collective", and "complexity" (see, e.g., Yammarino et al., 2012; Denis et al., 2012). Yammarino et al. (2012) note that while each collectivistic leadership approach has unique features, they all share several characteristics that cut across and connect them all.

One such feature is the relational character of collective leadership, meaning leadership is seen as a social construct through which coordination, goals, behaviours, and change emerge (Uhl-Bien, 2006). Researchers working within this tradition describe leadership as immersed in the context of ongoing relationships negotiated across time. As Uhl-Bien

(2006) points out, such relational views frame leadership beyond the leader-follower conceptualisation and open up the question of how leadership arises from overall interactions and negotiation among team members. The relational view of leadership often links with the view of leadership as a complex adaptive system and perceives leadership as a network of dynamic, ever-changing, and open connections between interdependent agents bound by a common goal or need (Uhl-Bien & Marion, 2009). In sum, the essence of the "We" approach to leadership is the focus on relational dynamics within leadership. Literature within this category emphasises the interactions, relationships, and dynamics among members at various levels, such as dyads, groups, teams, or organisations. The primary concern in this category is the collaborative nature of leadership, which is dependent on social interactions and connections between individuals. By examining the patterns and connections between people, the "We" category sheds light on how leadership emerges from the collective rather than just from individual leaders or followers.

Relaxing the assumption that leadership is a property of individuals shifts the focus of attention away from people altogether. Instead, leadership is explored as an action that people engage in. Alongside action, social processes are also of interest, as it is through these processes that people give meaning to those actions. As one will recognise, such interpretations move the theoretical reflections on the leadership construct even further.

As already mentioned, the Pronouns Framework does not rigidly fixate each theory into a single category. Instead, it attributes various pieces of leadership literature to different categories based on the main focus of the individual writing. This means the Pronouns Framework does not strictly assign a theory to only one category. Rather, it assigns different pieces of leadership literature to different categories based on the main focus of the individual writing. In other words, a theory may have aspects that fit into multiple categories, and the framework is flexible enough to allow for this. To illustrate this, let us consider the DAC framework and Shared Leadership. DAC conceptualises the study of leadership from the perspective of leadership outcomes (Drath et al., 2008), and Shared Leadership describes leadership as a dynamic and interactive influence process among team members where individuals share responsibilities for leading the group towards achieving their common goals (Pearce & Conger, 2003). Both can be attributed to the "We" category when exploring how acts of influence by participants of a collective move the collective toward an improved meeting of their needs (e.g. need for direction, alignment, and commitment).

However, at its core, both of these theories propose that leadership happens via interactions of participants of a collective (operating in a particular context), and it is that influence that generates the movement of the collective toward an improved meeting of its needs. Hence, both can be categorised under the "It" category, with leadership seen as generated by a systemic force of combined influences of its elements.

To evidence this further, note that, e.g. the operationalisation of Shared Leadership through Social Network Analysis (SNA) facilitates a focus on exploring the structure of leadership, specifically examining aspects such as density and centralisation of the leadership influence structure. This approach, in particular, aligns with the "It" category because it deals with leadership's structural aspects, examining the leadership layout within a collective, and providing a broader, more systemic approach to leadership. Similarly, the DAC framework (Drath et al., 2008) of leadership outcomes is another approach that transcends the boundaries of a single category within the Pronouns Framework. This framework examines how leadership is studied as a process generating particular leadership outcomes. While the DAC Framework has a relational aspect that could place it in the "We" category, it fits within the "It" category due to its focus on the systemic processes and outcomes of leadership.

As the discussion moves away from "We" and towards the "It" category, it becomes apparent that leadership transcends the confines of individual actors and their relationships. By examining the systemic aspects of leadership, the "It" category provides a more comprehensive understanding of how leadership emerges and functions within complex environments. This shift in focus allows for a deeper exploration of leadership as a dynamic, interactive, and contextually embedded process that exists outside of "I", "You", and even "We" and instead moves to leadership as "It."

## 2.6 "It" of Leadership

The "It" aspect of leadership within the Pronouns Framework refers to the systemic processes and contextual factors that underpin and influence leadership phenomena. The "It" category extends beyond relational aspects and focuses on the broader systemic processes that shape and are influenced by leadership dynamics across various levels of analysis (individual, dyadic, group, or organisational). Examples of theories that could fall into this category include Leadership Process Models (Fischer et al., 2017), Complex Leadership (Marion & Uhl-Bien, 2003), Systems Leadership Theory (Anderson &

Ackerman-Anderson, 2010), and Institutional Leadership Theory (DiMaggio & Powell, 1983). These theories shed light on different aspects of the broader systems and contexts within which leadership operates, providing a more comprehensive understanding of leadership.

The "It" category extends beyond the focus on individual actors and their relationships and examines the structures, systems, contexts (including time) and processes that shape the leadership landscape. These can be seen as the underlying mechanisms that connect and drive leadership phenomena at various levels of analysis, including individual, dyadic, group, and organisational levels. These processes may involve factors such as organisational culture, power dynamics, decision-making structures, resource allocation, communication patterns, and formal and informal networks, among others. Through the lens of this particular category, leadership is explored as it functions within complex systems and as placed in a particular context. For example, a study investigating the relationship between an organisation's decision-making structures and its leadership practices would fall under the "It" category (see, e.g., Blau and Scott, 1962; Finkelstein et al., 2009).

The "It" category within the Pronouns Framework can be viewed as a holistic perspective on leadership by incorporating the systemic processes and contextual factors that underpin and influence leadership phenomena. This category not only complements the other categories within the framework but also enriches our understanding of leadership as a multi-dimensional, multi-level, and adaptive process that transcends the confines of individual actors and their relationships.

## 2.7 Key Equation Map

### 2.7.1 Process
The origins of the "It" approach to leadership can be traced back to the work of Albert Murphy, who, in 1941, argued that leadership is not an individual attribute but rather a function of the situation. According to Murphy, leadership emerges when an individual meets certain social needs and releases ideas and tendencies that are accepted by the group as solutions to those needs. This early conceptualisation of leadership as a process reflects the idea that leadership is a complex phenomenon that cannot be reduced to the attributes of individual leaders or followers.

Murphy wrote:

"Leadership does not reside in a person. It is a function of the whole situation. (...) Skills and abilities of all kinds have a functional relation to the needs of the situation and these needs are always primary. Leadership comes into being when an individual meets certain social needs when he releases in the social situation of which he is a part certain ideas and tendencies which are accepted by the group because they indicate solutions of needs which are dimly sensed. Leadership is best understood when it is looked at impersonally as that quality of a complex situation which, when lifted into a place of prominence, composes its conflicts and creates a new and more desirable situation" (p. 674-475).

This passage from Murphy highlights the importance of understanding leadership as a dynamic process that emerges from the interactions between individuals and their surrounding context. His emphasis on the situation underscores the need to examine leadership not as a static attribute or quality but as a fluid and adaptable phenomenon shaped by the ever-changing conditions in which it takes place.

Murphy's writing indicates that as early as 1941, leadership was already seen as a process. "Process" is a key concept in metaphysics, the branch of philosophy that studies the fundamental nature of reality, which stresses inter-relatedness and holds that "processes rather than things best represent the phenomenon that we encounter in the natural world around us" (Rescher, 1996, p. 2). The guiding idea behind the perception of leadership as a process is that it is the process that is "the concrete reality of things" with an emphasis on the emergence and becoming rather than sheer existence or being (Chia, 1996). When applied to leadership, such a process view indicates it is the process of leadership where the reality of things can be found.

Over time, this processual view of leadership has become a foundational aspect of contemporary leadership theories. The process perspective suggests that the reality of leadership lies in the ongoing interactions that shape leadership. This perspective has important implications for the "It" category, as it emphasises the need to examine factors that influence leadership dynamics.

### 2.7.2 Needs
Murphy's writing points to another key dimension of leadership, i.e. leadership is shaped by the "needs of the situation." It is "the needs of the situation" which shape the process at its core. Stogdill and Shartle (1948, p. 287) argued similarly to Murphy (1941), i.e. that leadership research should shift away from leaders' personalities to "a process of interaction between persons who are participating in goal-oriented group activities." Here,

the "needs of situations" are named "goals-oriented group activities." Although different words are used, both definitions point to needs and later goals as the key elements determining leadership development.  Table 2, below, provides an overview of various leadership definitions. Each of these definitions leads us to examine fundamental aspects of leadership, with goals being a crucial element, sometimes appearing as "shared goals" or simply as "goals".

### 2.7.3 People

Next to needs, another essential component of the leadership construct is the participants in the leadership process, referred to as "others." Recognising that leadership occurs in social interaction and builds on people (the entity view), current views on leadership acknowledge the significance of leaders' and followers' behaviours, styles, attributes, and characteristics[6]. The characteristics and styles of these individuals, constituting the "I" and "You" categories of the Pronouns Framework, play a vital role in shaping the leadership process.

The literature associated with the "We" category of the Pronouns Framework further highlights the importance of interactions between people in determining the shape of the leadership process. Meanwhile, the literature from the "It" category helps illuminate the systemic and contextual factors that influence and are influenced by leaders, followers, and their relationships. For example, organisational culture, a systemic factor, can impact a leader's style and behaviours ("I"), their relationships with followers ("You"), and group dynamics ("We"). Conversely, leaders and followers can also influence systemic processes and contextual factors through their actions, decisions, and interactions.

The review of contemporary conceptualisations of leadership reveals that while the focus on people participating in the leadership process is crucial, the process perspective on leadership is equally important. Both people and processes are fundamental elements of the leadership construct. This perspective involves a paradigm shift from focusing on individuals to understanding that leadership is far more than just people; it involves a series of interactions that occur over time and within a specific context (McCusker et al., 2019).

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[6] It is worth noting that the leadership process can occur at two different levels of analysis: internal and external. The leadership process can be studied as a "social interaction with the self", which is a comprehensive self-influence process (self-leadership) (Stewart et al., 2019). We can also look at the leadership process from an external perspective, exploring it as occurring between at least two individuals, with at least one leading and at least one following. It may be that, regardless of the level at which the leadership process is examined, whether internal or external, the basic principles of the leadership process remain the same.

Thus, leadership can be viewed as an interplay, an evolving happening occurring as a result of participants interacting with themselves, each other, their context, and their needs. The Pronouns Framework serves as a tool that aids in capturing and categorising these various components, contributing to a more comprehensive understanding of leadership as an interconnected process.

**TABLE 2**

**Representative Definitions of Leadership (2012-2022)**

| Definition | Author (Year) | Key elements |
|---|---|---|
| "Leadership is the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives." | Yukl, 2006 | Process, influence, others, shared goals |
| "Leadership is a multi-level (person, dyad, group, collective) leader-follower interaction process that occurs in a particular situation (context) where a leader (e.g., superior, supervisor) and followers (e.g., subordinates, direct reports) share a purpose (vision, mission) and jointly accomplish things (e.g., goals, objectives, tasks) willingly (e.g., without coercion)." | Yammarino, 2013 | Process, context, others, shared goals |
| Leadership is "a process of social influence that is planned and unplanned, formal and informal, and defined as much by the leader as the follower." | Ruben & Gigliotti, 2017 | Process, influence, others |
| "Leadership is a social and goal-oriented influence process, unfolding in a temporal and spatial milieu." | Fischer et al., 2017 | Process, influence, others, goals, context |
| "Leadership is human (symbolic) communication that modifies the attitudes and behaviours of others in order to meet shared group goals and needs." | Johnson & Hackman, 2018 | Process, influence, others, shared goals |
| "Leadership is a formal or informal contextually rooted and goal-influencing process that occurs between a leader and a follower, groups of followers, or institutions." | Antonakis & Day, 2018 | Process, influence, context, goals, others |
| "Leadership is a process whereby an individual influences a group of individuals to achieve a common goal." | Northouse, 2021 | Process, influence, others, shared goals |

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**2.7.4 Context**

Next to process, people, and needs (goals), another key element of leadership is listed as context (see table above). One can think of context as a "container," the playfield of where leadership occurs (see, e.g., Kelly and Barsade, 2001; also note the discussion on the role of leadership culture in the section on the DAC framework). Using the words of Albert Murphy, context is nothing more than "the quality of a complex situation." Murphy provided a few examples to illustrate further the role of context (and needs) on leadership as a process:

"A few illustrations will make it obvious that the choice of leaders is dictated by group needs. A group lost in the woods would immediately follow the man who, no matter what his personal qualities, had a knowledge of the woods and the way out." (p. 675).

Murphy's example illustrates the idea that effective leadership depends on the ability to respond to the specific needs of a given situation. In this case, the individual with the knowledge of the woods and the way out becomes the leader, not because of any inherent personal qualities or characteristics, but because they possess the skills and abilities required to address the group's immediate needs. This example highlights the importance of considering the interplay between leaders, followers, and their context when studying leadership phenomena. It also allows to understand why context plays such a primordial role in shaping the leadership process (see, e.g., Oc, 2018). It provides ideas on how to best match the situation with available leaders (Pearce & Conger, 2003), leading to the emergence of "situationally aligned leadership." In one way, the context can be seen as a limit to what leadership can become. As mentioned earlier, it is a sort of container and a boundary condition. For example, if leadership takes place in the woods (using Murphy's example), then the woods become a canvas on which leadership can be drawn.

Although Murphy does not mention time, time seems detrimental to studying leadership as a process. Perhaps the easiest way to understand why time plays such an important role in studying leadership is to envisage leadership as a sort of "living thing" undergoing constant change. In "Physics", Aristotle notes the connection between time and change. The Greek philosopher explains that time is everywhere, and change only happens in things that change[7], e.g. change can occur faster and slower. Nevertheless, faster or slower are measurements "in" time and not "off" time. In other words, Aristotle proposed that time is

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[7] It could be argued that the change does not only occur "in the thing that changes." The change is just as much in the relation between the things that change and everything else. In other words, we might also consider that everything changes "relative to" something, even if it is just the other part of itself.

what we measure the change in, just like space is what we measure the size in.  In other words, time is so important for leadership as it enables us to recognise what part of the leadership process we are measuring, analysing and then discussing.

In general, scholars recognise that time plays a vital yet poorly studied role in the process of leadership (Day, 2014).  Some wonder how we can capture the dynamism of leadership processes against the changing time. In other words, how can we capture something which is constantly under construction and reconstruction, "on the hoof" (Chia & Holt, 2006, p. 643), taking place on the spot and in the "twinkle-of-an-eye" (Chia & MacKay, 2007, p. 238). When leadership is viewed as dynamic, non-linear, and active, something far more than a singular person or role, it simply can not be explored without consideration of time. Time, similarly to context, has that enclosing capacity to determine what leadership can and can not develop into.

Whereas consideration of time seems paramount when studying and describing leadership as a concept,  from the leadership process participant's perspective, the component of time might be seen as a component of a wider context. In that sense, time is, yet another descriptor of the "It" category, further assisting with building an even more comprehensive understanding of what leadership as a concept stands for. Oc (2018), in the excellent article on the role of context in leadership, pays particular attention to the effect of the "pressure of time" on leadership development and further relates to the normative model of leadership, which in time is one of the components determining the extent to which the leader involves others in decision-making (also known as the leader-participation model; Vroom & Jago, 1988; Vroom & Yetton, 1973).

The Pronouns Framework, and in particular, exploration of the "It" category, leads to a surprising conundrum. With the perception of leadership as a continuous social flow, i.e. process, a question arises regarding the limit of leadership as a phenomenon. Crevani et al. (2010) pointed out that if something is seen as continuous, how can it be delimited to make it possible to study? Researchers further noted the challenge remains in finding a way of remaining "true to the processual ontology whereby leadership is seen as a continuous social flow, and at the same time delimit the notion of leadership to discernible practices and interactions in order to make it possible to study" (p. 79). Although it seems the literature rarely explores the process of leadership per se, there are groups of researchers

exploring the leadership process by delimiting it and hence, making it possible to study by exploring particular elements of the process. For example, the structure that the process takes. The researchers interested in the structural aspect of the process ask themselves questions like: Is this process's structure distributed? (Bolden, 2011) or rather, is it shared? (Carson et al., 2007). Within this perspective, the leadership process is seen as being generated by all team members taking the role of leader and follower simultaneously (informal leadership) (see, e.g. Zhu et al., 2011). In sum, the view some of the researchers of shared leadership take is that the knowledge of the structure of a leadership process provides insights into what the process is. Next to a group of researchers studying the process through the process's structure, there is a small group of researchers defining leadership as a process and studying it through the outcomes that the process generates. Again, these are interesting perspectives, where the process is still being "respected" yet is not studied per se as a process but rather explored through the outcomes that the process produces. The exemplary work on leadership as a process marked by the occurrence of leadership outcomes is presented in the already referred to DAC framework (Drath et al., 2008). I return to these two perspectives, i.e. leadership outcomes and shared leadership structure, in the following subchapters. For now, let us return to the general reflection on leadership as a construct as viewed through the prism of the Pronouns Framework and, particularly, the "It" category.

### 2.7.5 Influence

Based on the above considerations, the key elements determining the leadership process seem to be the needs, the people involved, and the context (including time). These basic determinants come together, shaping, e.g. the structure that leadership takes and the outcomes that leadership produces. Certainly, knowing the key elements determining leadership helps to understand the construct better. Nevertheless, it still does not equate to knowing what the process is about. In other words, what is the essence, the "doing" of the leadership process?

The analyses of the most current definitions of leadership bring forward, what it seems, the answer to this question, i.e. leadership is "doing" influencing (see, e.g., Avolio et al., 2009).

From the start, it is worth recognising that although almost all mentioned definitions of leadership (see Table 2) refer to influence, influencing is reciprocal but not always

necessary. It is reciprocal because both leaders and followers influence each other. Leaders exert influence on followers, who can accept, modify, or even reject that influence (Northouse, 2021). The same with followers. They can shift to a position of a leader and generate influence themselves, and again, that influence is accepted, modified or rejected. However, the value of one instance of influence is not the same as another. Leadership involves what Fischer et al. (2017) refer to as differential influence, meaning, e.g. there is a greater impact of the influence provided by those recognised as leaders more often or having a formal leadership position than those who enter into a leadership position less often or do not have that formal recognition. Further, influencing is not always necessary, as convincing others is not what is always needed for the leadership to move forward. For example, others might need to be influenced as they might not be interested and might prefer to be told what the decision is and what is required of them.

Sometimes influence will be more blunt and overt, while other times, it will manifest in more subtle and indirect ways (Ruben & Gigliotti, 2016). It might take place in the form of invisible, micro acts of communication, the exchange of a smile or an even stronger handshake. Equally, it might take the form of one direct email where clear reason and logic point out what decisions should be made and why. That facade of the invisible and fleeting nature of influence might be the reason for confusion around what leadership really does. Widder, 2002, p. 59 says, "At best, it appears only in the most fleeting moments, when it does not even seem to have taken place."

One way of thinking of influencing is to envisage it as a tool, an enabler, that allows the leadership process to take place. Influencing is successful when it is accepted by others, transmuting into behaviours and actions and ultimately shaping others' ideas, priorities, values, and feelings (Alvesson & Spicer, 2014). With no acceptance from the collective nor authority to be moved from a prism of an individual to a collective, influencing remains only that - merely an individual attempt to influence.

The process of influencing might end with a simple approval in the form of an unquestioning "yes." However, it seems, more often than not, the influencing attempts will not receive any reaction at all, almost disparaging in the "black hole" of the work universe, almost if undeserving of receiving anything, neither "no", neither "yes." As explained by other researchers, when someone makes a leadership attempt(s), but it is not responded to

with the following behaviour(s), then it is not leadership (Uhl-Bien & Pillai, 2007)[8]. From this perspective, when the act of influence is halted, it might be considered successful. At least influencing generated some sort of response. It can be that such a "shutdown" will be used as a sort of springboard for another act of influence. For example, imagine when an act of influence is being criticised for being disturbing, taking the focus away from what is currently needed (criticism). Thus, what is suggested instead, is that the focus is brought back ("shut down" of one act of one influence is used as a platform to generate another act of influence).

Suppose an act of influence is not immediately rejected but receives a reaction, whether positive or negative. In that case, it may still gain traction and develop into a more solid form of leadership. In that case, there is still a chance it can catch, let us call it "traction", and develop into something that ultimately might transform into a more crystalise form of leadership.

In today's business environment, where equality between people is often emphasised, leadership actions may not frequently receive a direct "yes" or "no" response. Instead, the process of influence might evolve through collaborative exploration, a dynamic exchange that can be described as an "influencing dialogue." These dialogues can vary in pace and duration, occurring instantaneously or unfolding slowly over time.

Building on the previous discussion of the "It" category within the Pronouns Framework, influence is often regarded as the central aspect of the leadership process. It can be envisioned as a subtle thread woven through the fabric of leadership, connecting various elements together. For instance, when used for the benefit of an organisation and its people, influence can be employed to empower and motivate, to foster a shared vision, or to create an environment that encourages learning and innovation (see literature on functional leadership, e.g., Van Vugt et al., 2008). The understanding of the power of influence is linked to the importance of ethical considerations, emotional intelligence, and resilience in

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[8] According to the perspective presented by Uhl-Bien and Pillai (2007), leadership exists only when leadership influence attempts are accepted. This statement raises a crucial question: Is this always true? If not, why might this statement be inaccurate? One reason for questioning this perspective is that influence attempts may not always have immediate or observable effects. It is possible that an attempt to influence may not result in an immediate response or change in behaviour but rather have a delayed effect. Over time, the targeted individual may reflect upon or reconsider the influence attempt, eventually leading to a change in their behaviour or beliefs. In such cases, the lack of an immediate response does not necessarily negate the existence of leadership. Research on the delayed effects of leadership influence is limited; however, the notion that leadership influence may not always produce immediate or observable outcomes is important to consider when examining the complex and nuanced nature of leadership processes. Further investigation into the potential delayed effects of leadership influence and the contexts in which they may occur is necessary to better understand the full scope of leadership's impact.

leadership, which should not be understated and considered simultaneously. However, in this discussion, employing the Pronouns Framework's "It" category, I propose viewing influence as an underlying force guiding the leader's actions and decisions in each dimension (note the links to functional leadership). It is important to remember time and context play critical roles in shaping the effectiveness and impact of influencing attempts. The appropriate timing of influencing attempts may determine their success or failure, while the ongoing development of leaders and followers affects the dynamics of the leadership process. Furthermore, contextual factors, such as organisational culture, industry, and socio-political environment, can significantly impact the nature and outcomes of leadership. Therefore, a comprehensive understanding of leadership necessitates the consideration of the interplay between all "I", "You", "We", and "It" approaches to leadership together with the consideration of time and context.

If we assume we agree that leadership is a process and uses influencing as its tool, could we further imagine leadership "doing" as an act, a sort of "application" with no limit to what it can be applied to and yet, continuously reshaping interactions between people and acting as the undertone of various actions?

Perhaps such views are too controversial, and yet, these viewpoints respond to, e.g. Wood (2005), who argues that the "ontology of becoming should guide leadership studies", and who suggested we use the metaphor of symbiogenesis (i.e. the collective processes of symbiosis in the natural environment) as a starting point for inquiry on leadership. What is assumed Wood (2005) meant by referring to symbiogenesis is that leadership can not be explored on its own but rather that it co-exists with other processes, with all of them remaining in a symbiosis. It means a sort of "merging" takes place, a gradual coming together based on interdependence and permanent sharing of each other. If we follow that line of thought, there would be some standing in exploring leadership beyond any separations but rather as a construct that is inherently interconnected to everything else. Given that leadership is an influence-driven process, it is plausible that it never exists in isolation.

From that perspective, leadership influence could be seen as "a touch", "an application", or perhaps a "stir" brought into all processes, practices and interactions, with no limit on where it could be applied. Wood's (2005) metaphor of symbiogenesis links to the Pronouns framework, particularly the "It" category, as it highlights the interconnected nature of leadership processes. As leadership influence pervades diverse aspects of an organisation,

it becomes indivisible from other processes and practices, underscoring the need to study leadership within the context of a broader, symbiotic system.

Heifetz and Heifetz (1994) argued that the central concern may not lie in agreeing or disagreeing with particular conceptualisations but instead in whether the participants in the leadership process possess the ability, motivation, and autonomy to create and contribute to that "stir" and apply that "touch." It is widely accepted that leadership is dependent on the people who create and participate in it. It is ultimately people who make decisions about how, where and when to "stir."  Importantly, the quality of these decisions determines the successful progression of leadership from influence to concrete execution, allowing leadership to emerge in a visible form that we can easily evaluate. In that sense, leadership influence operates at various levels of organisational life, encompassing both aspects of lesser significance, such as shaping emerging ideas and casual discussions, as well as more critical elements, including decision-making processes and the execution of those decisions (see discussion in Yukl, 2006).

Although leadership influence is seen as operating without boundaries in its application, existing literature offers insights into the areas where such applications are most likely to take place. While there might be no limit to leadership application, the literature provides guidance on the areas where this application is most visibly occurring.

For example,  Benne and Sheats (1948), in their early work, describe the "role" of leadership as either focusing on the team task (task roles) or aimed at maintaining a good climate among team members (maintenance roles). This broad classification seems to be still present in the literature, although often hiding behind different terminology. For example, Fischer et al. (2017) proposed the developmental and leveraging processes in their Leadership Process Model, which includes both change-oriented and task-oriented leadership processes, as well as the developmental and leveraging processes that feed into and support them. The role of the developmental processes is to create or improve resources by, for example, coaching, training, or sharing knowledge, aiming to improve competencies. In leveraging processes, the aim is to capitalise on existing resources by, for example, motivating members or setting specific, difficult, attainable goals to encourage the best effectiveness. Fischer et al. (2017) note that since development and leveraging processes feed each other, leadership will most likely reside in both, as required over time and, if needed, simultaneously.

Moreover, the notion that leadership is tri-dimensional (Yukl et al., 2002), encompassing task-, person-, and change-oriented behaviours, appears to be a well-established concept. For example, person-oriented behaviours can include individualised consideration, empathy, and developing and empowering followers (Liden et al., 2014). Task-oriented behaviours included elements such as initiating structure for the team by clarifying team task requirements, specifying procedures, and providing feedback on task progress. Finally, change-oriented leadership processes include, e.g. articulating an inspiring vision for the future (Bass, 1985), support for innovation, creative performance, and processes of collective transformation and learning (Hackman & Wageman, 2005; Mathieu et al., 2019). DeRue et al. (2011) showed that initiating structure (i.e., an aspect of task-oriented leadership) represented the strongest predictor of group performance. In contrast, change-oriented behaviours (e.g., transformational leadership) and person-oriented behaviours (e.g., consideration) accounted for sizeable but lesser portions of the total variance.

The tri-dimensional leadership model, which suggests that leadership focuses on tasks, people, and change, may appear inconsistent because change can be applied to both tasks and people. While it is true that change can apply to tasks and people, the model's intention is not to suggest that leadership focuses on three distinct aspects. Rather, it is intended to highlight three broad categories of leadership behaviours that are important for effective leadership. Still, it might be easier to see what the role of leadership influencing is using Fisher et al. (2017), where leadership is seen as aimed to maintain, protect, consolidate, and capitalise (especially if things work well) and, on the other hand, to strengthen and change (especially if the aim is to make things work even better). One could argue that although Fisher et al. (2017) distinction is helpful in the sense that leadership action focuses on both present and future change, in essence, both of these functions aim to somehow "make it better" or "improve" from what is now to what it could be.

The perspective that leadership's role is to improve does not exclude the possibility of leadership focus being destructive. According to the literature on dark leadership, the destructive aspects of leadership may be deliberate or unintentional and can result in harmful consequences for individuals or organisations (Padilla et al., 2007). To better illustrate this idea, let's compare leadership to parenting. A good parent is expected to love and care for their children, striving to protect, maintain, and support their growth and development into strong, independent, and fully functional individuals. However, this ideal

outcome is not always achieved or may not even be possible. Parents may face limitations in providing optimal support for their children due to external circumstances or personal constraints. For instance, a parent might struggle to balance work and family life, leading to less time dedicated to nurturing their child's development. Similarly, we might expect leadership to facilitate growth and development, but sometimes it becomes trapped or halted. Consequently, it may not meet our expectations or desires. For example, when someone in a formal leadership position uses their power to influence others to satisfy their own need for importance and recognition, rather than focusing on development and growth. Such acts of dark leadership can still be accepted by a group, thus shaping leadership in a more general sense, even if that is far from the desired outcome. This situation often arises because a title or position can convey a certain authority, granting a licence to direct others' activities. However, possessing that licence does not necessarily indicate whether the person in the position truly understands how to lead. As John Gardner (1993, p.2) stated, "We have all occasionally encountered top persons who couldn't lead a squad of seven-year-olds to the ice cream counter."

The above considerations can be summarised such that, the role of leadership influence is to maintain and protect (ensuring the well-being and stability of individuals and tasks, both when things are working well and not); to strengthen and develop (enhancing the capabilities of individuals and the effectiveness of tasks, especially when there is potential for improvement) and to facilitate change and innovation (encouraging adaptability and growth in both individuals and collective, in order to stay relevant in a constantly changing environment). Although leadership may not always fulfil these expectations and can sometimes take on destructive roles, this thesis ultimately proposes that leadership aims to improve and enhance.

I will return to this thought in the following pages. For now, to help myself and others not get lost in what emerges from these reflections, analyses, interpretations, and comparisons, I propose to track crucial elements of the discussion using visual aids called "maps." These maps will help to distil complex ideas into clear, easy-to-understand summaries. The first map, "Key Equation" (see Figure 1), identifies the critical components of the leadership process, including people, needs, and context, with the essence of influence at its core. While this map is not comprehensive, it will help guide the further development of this thesis.

**FIGURE I**

**Map 1: Key Equation**

**Leadership Process**

=

Influencing
to improve

*as determined by*

People + Needs + Context

**Legend:**
Influencing (How): The essence, action, or tool employed in the leadership process.
To Improve (Why): The intention, reason, desire, or necessity for present or future-oriented actions aimed at enhancement or betterment.
Peoples (Who): The individuals participating in the process.
Needs (What): The objects or goals that the leadership process aims to address.
Context (Where & When): The conditions and time in which leadership occurs.

In the following sections of this thesis, I explore two distinct approaches to studying leadership: the DAC framework and shared leadership. Despite both considering leadership as a process, they take different angles to capture and examine this phenomenon. The DAC framework of leadership outcomes, proposed by Drath et al. (2008), studies leadership from the viewpoint of output, i.e., the leadership outcomes created by the interactions and exchanges among all members of the collective. On the other hand, shared leadership (SL) explores leadership through its structure, i.e., the patterning of leadership influence created by participants remaining in continuous interactions.

Through the interplay between these two theories, I aim to advance the understanding of leadership. Specifically, I investigate how these two approaches interact and develop with each other and how one might impact the other, creating a long-term cause-effect. This investigation is intended to offer a new perception in the domain of leadership, where rather than being divided by numerous theories and approaches, leadership is seen as more united than ever before, leading to the development of the idea of the General Theory of Leadership.

The central idea behind incorporating these two approaches is to find common ground in leadership, using their differences as a way of framing and uniting the idea of building the united theory of leadership. The chosen approaches are purposefully distinct, with precisely defined leadership outcomes in the DAC framework and a generic leadership influence structure in shared leadership. I assume that contrasting these two approaches will help to identify what they have in common and, hence, what might be shared by other theories and approaches. This investigation addresses the need within the leadership domain itself, which is starving for new perspectives to escape the problematic individualism in which leadership seems to be stuck. It is almost as if leadership is asking to be re-examined, and where fragmented perspectives can come together, combined in the mechanism of the "one."

In the section below, I begin the search for this "common ground" by investigating the DAC framework of leadership outcomes.

## 2.8 DAC Framework as a Springboard for Leadership Exploration

The DAC framework proposed by Drath et al. (2008) represents a practical way of thinking about leadership. It encompasses all pronouns perspectives: it respects the "I",

builds on the "You", views leadership through the eyes of "We" as a socially constructed process, and yet, ultimately, might be attributed to the "It" of the Pronouns Framework due to its focus on culture and how practice and beliefs shape not only the process of leadership outcomes but ultimately long-term effects such as team performance. The DAC framework explores leadership from the perspective of outcomes, with the process of leadership being the production of direction, alignment, and commitment among individuals with shared work. Leadership is considered to exist only when the three outcomes—direction, alignment, and commitment—are present as relational outcomes in collectives (Drath et al., 2008). This perspective emphasises the importance of understanding the collective aspects of leadership, highlighting the potential advantages of studying leadership with a focus beyond individuals and, instead, shifting the referent to the team.

Below, I provide a brief overview of each of the DAC strands. It is important to note that they are relational outcomes in collectives (i.e., outcomes that exist between people rather than within people).

Direction describes the collective agreement on overall goals. Members in teams with strong direction know what the teams' aims are across the board. In groups with weak direction, members are uncertain about the direction and may feel pulled by different goals. The direction does not have to be constrained to a single goal. Instead, it may take the form of a collection of related goals. The goals are not static but rather undergo continuous transformation (McCauley & Fick-Cooper, 2015).

Alignment refers to the coordination of work and knowledge within the group. Strong alignment characterises teams where members with different tasks, roles, or sets of expertise coordinate their work, aware of each other's actions and a bigger plan. In groups with weak alignment, members work in isolation, unclear how their tasks fit into a larger work. It can lead to working at cross-purposes, duplicating effort, or "having important work fall through the cracks" (McCauley & Fick-Cooper, 2015, p. 7). Similarly to direction, alignment, rather than remaining static, is flexible and continuously changes.

Commitment refers to mutual responsibility for the team. In teams with firm commitment, members feel mutually liable for the success of the collective and are ready to put effort into it. They trust one another and will stick together even in difficult times. In teams with weak commitment, members put their interests ahead of the collective and contribute to the team only when it suits them (McCauley & Fick-Cooper, 2015).

The clarity of the DAC framework regarding what leadership produces enables the DAC framework to avoid a frequent challenge encountered in the relational forms of leadership: If leadership can be many things, how do we know it is leadership (Uhl-Bien & Ospina, 2012)? The DAC framework addresses this challenge through its focus on the process of creating relational outcomes. Drath et al. (2008) suggest not all social interactions are leadership, but only those that intend to produce DAC; thus, only these should be of interest and concern to leadership.

In a way, the DAC framework's greatest strengths, i.e., clarity and precision on what marks the occurrence of leadership, is its greatest weakness. First, the idea that there are only three outcomes seems to evoke almost instinctive doubt. When such doubt appears, it is important to remember that the DAC framework is deeply rooted in the practice approaches to leadership. In other words, it is a practice itself that suggests these outcomes. However, does it mean leadership is limited to these three? Do the DAC's clarity and precision, although very helpful, suggest that leadership might be oversimplified and reduced from an abstract and complex phenomenon to a process orientated towards the production of the definite three outcomes? Could it be that the DAC framework somehow limits the leadership's role to generating these three, somewhat forgetting about the part influence plays in their emerging?

Whereas the DAC framework is precise in listing leadership outcomes, the wider field of leadership research is less accurate. Hiller et al. (2011) distinguished four different groups of leadership outcomes. These were named: effectiveness (tangible), attitude (intangible like motivation and emotion), behaviour (group process, organisational citizenship behaviour, self-reported behaviour), and finally, cognition (perceptual). What is striking in the categorisation proposed by Hiller et al. (2011) is that leadership outcomes mirror team effectiveness outcomes. For example, Hiller et al. (2011, p. 1147), as tangible leadership outcomes, list "variables such as sales volume, stock price, production rates, return on equity, and simulation performance score." Hiller et al. (2011) also list attitudinal leadership outcomes, e.g. satisfaction. In the literature on team performance, what Hiller et al. (2011) classify as leadership outcomes are listed as different forms of team effectiveness outcomes (see, e.g., Hackman, 1987). In other words, the literature on leadership seems to know very little about what leadership outcomes, per se, are. Even when these are discussed, leadership outcomes seem to be confounded with the outcomes generated by other factors rather than belonging to the leadership process per se.

The DAC framework speaks of proximal outcomes of leadership, presenting them as shorter-term. It also distinguishes longer-term outcomes, where leadership, collectively and cumulatively with other factors such as changing environmental context, contribute to a more significant and distal result, e.g., team performance or level of team satisfaction. In other words, the DAC framework points to multiple levels of leadership outcomes. One can think of these multiple levels as "ripples of leadership", expanding outward from numerous single points (i.e. acts of influence) and representing the expanding and interconnected impact of leadership influence over time. As every act of leadership influencing generates some sort of outcome, hence, simultaneously, these are also the results able to provide feedback. In this almost peculiar way, every output transforms into input contributing and reshaping another occurrence of leadership influencing. From that view of leadership, both outputs and inputs continuously feed the leadership process. This ongoing process means leadership influence does not exist in "nowhere" but rather "in-between" the outcomes and the inputs, continuously self-reshaping itself.

To explain it slightly differently, let us think of the inputs and outputs not as something that appears and then disappears but rather as something that might appear and then stay. Crevani et al. (2010, p. 79) explained, "In that sense, the processual ontology becomes an ideal to nurture and strive for, relentlessly, rather than a handy set of ready-made prescriptions." To reflect further, the three must always exist, even if only one is recognised. In other words, if one of these three exists, e.g. output, the other two are present too. It implies leadership theories can be explored from the original "position" they emerged from and are described as, e.g. leadership as a process, but equally through the other two perspectives, i.e. leadership as input and output. Further, these three, i.e. process, input, and output, can not only be explored in relation to others but also to each other. In other words, leadership's input, process, and outcome can be studied from the perspective of what change leadership creates in other processes as well as what change is created in the leadership process itself.

The outcomes of direction, alignment, and commitment might also be seen as "themes" discernible only from the perspective of time. Moreover, the presence of these three outcomes can be viewed as a sign of the level of effectiveness of the leadership processes. If leadership is effective, this should result in high levels of direction, alignment, and commitment. When the leadership process is less effective, direction, alignment, and commitment outcomes will be lower. In this way, the DAC framework explores leadership

from the perspective of outcomes, focusing on the ripple effect of these outcomes impacting long-term effects such as team effectiveness. The authors of the DAC framework do not suggest that the emergence of the three outcomes should be confused with signalling closure and harmonic "happy endings." The leadership process is ongoing, as the outcomes of the leadership continue as inputs uninterruptedly "feeding" the leadership process.

The proposed considerations might be further supported when the leadership process is theorised through the Input-Process-Output (IPO) matrix. The IPO is used to understand how teams perform and how to maximise their performance. The IPO is linked to Hackman's work (1987). This systems framework was further developed by Ilgen et al. (2005) and later refined by Mathieu et al. (2008), with the "process" conceptualised as a mediator and input and output having an indirect relationship.

Applying the IPO framework to the leadership process follows a recommendation by Nicolaides et al. (2014) and Kozlowski et al. (2016). They suggested that the IMOI framework (Input-Mediator-Output-Input) should be used to understand leadership. The application of the IPO allows imagining how the leadership influence process continuously changes and transforms itself. In other words, the prism of the IPO supports the exploration of a leadership influence process development.

From the IPO perspective, inputs to the leadership process would constitute anything that has the power to affect that process (e.g. culture of acceptance where everyone is encouraged to generate acts of influencing, quality and frequency of group interaction, groups' beliefs, particular practice, or no budget to implement the change and so on). The process, when seen through the prism of the DAC framework, could be defined as the change of the leadership influence as it transmutes beliefs into practice (see discussion below). Outputs would be seen as the results shaped by every single action taken during the leadership process.

It is important to note that leadership is envisaged as a process that either an individual or a collective can initiate (see discussion in Conger, 2003). Initiation by an individual is rather straightforward, i.e. one person thinks of something that can be improved and then, if needed, voices their idea looking for approval from others so that the idea can be executed. The initiation of leadership as a collective seems more complex. It is assumed it might involve a process of co-creation, i.e. where the idea is not there from the start but emerges

from the "thinking together" (see, e.g. Issac, 1991). Regardless of who is the source of leadership, it seems that leadership always requires both the individual and the collective. It, again, brings us back to the words of Murthpy, who spoke about "certain ideas and tendencies which the group accepts because they indicate solutions of needs which are dimly sensed" (p. 476). In that sense, both individual and the collective play a role of a sort of guardian, as ultimately, it is a collective that generates the responses to the acts of influence.

Whatever the challenges and limitations of the DAC framework, these should not take away from the originality that this approach brings to leadership knowledge. The DAC framework serves as a springboard for exploring leadership from a fresh perspective, allowing new insides to emerge. Suppose we attempt to see the DAC framework without any criticism but instead rely on appreciative enquiry (Cooperrider & Srivastva,1987). In that case, we can easily recognise that the DAC framework offers a new and original perspective to studying leadership "backwards." That is, the framework suggests we trace the process of leadership not from the place where we assume it starts but from where we propose it transcends, as marked by the presence of its outputs.

In this thesis, it is assumed that leadership influence is the essence and the primary tool of leadership. We might suggest that leadership influence occurs through sort of "influencing dialogues" seen as interactive, dynamic interactions among individuals and systems they are part of. When such exchanges of influence occur, people voice their views and attempt to influence others while often, at the same time, making sense of the influence inflicted on them. These "influencing dialogues" are perhaps most visible in teams utilising shared leadership approaches and where decisions are often co-created (see links to DeRue, 2011 and adaptive leadership theory, p. 135; Issacs, 1991; Bohm et al., 2004).

Influencing dialogues sometimes lead to concrete and specific resolutions and sometimes are more exploratory or open-ended, focusing on fostering deeper understanding and collaboration among team members. In teams where members see each other as equal and everyone is allowed to contribute, there might be many acts of leadership influence. These acts can be rejected (e.g. by a simple "no", or even silence)[9], accepted (e.g. by a simple

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[9] If the act of influence generates no interest, nor even a response, this might suggest that the message was unclear (Mehrabian, 1971), the target audience was uninterested or disengaged (Shamir et al., 1993), the influencer lacked credibility or authority (Hovland and Weiss, 1951), or the timing was not appropriate (Yukl, 2006). However, these possibilities may not cover all potential explanations for the lack of response to an act of influence. Acknowledging alternative explanations can help develop a more comprehensive understanding of the topic. Investigating and addressing these factors can have significant implications for the influencer's

"yes"), acknowledged uncertainty ("we do not know"), postponed ("let us leave it for now"), end in a compromise, or even create sort of a delayed impact (see footnote 8). The conceptualisation where each act of influence is assumed to evoke some kind of response (think of responses in terms of inputs and outputs as per the IMOI framework) builds on theories of communication, including social exchange, which makes explicit that any human relationship will create an obligation to reciprocate based on the receipt of something of social value (see, e.g. Klein et al., 2012; also leadership communication theory by Ruben et al., 2016).

When influence culminates in a response, even if it is a rejection, recognising what the response to influence is, can be seen as a turning point in leadership development. The awareness and evaluation of the results influence generated can lead to the cessation of the influencing attempt, re-enactment through repetition, or a refocus on what the best use of the new wave of influence should be, e.g. shaping execution and implementation of the agreed changes. A key competence of leadership is the ability to recognise the response that the influence generates and adjust accordingly.

If we agree that anyone can generate an act of leadership influence, there must be a multitude of leadership influences happening in parallel. In every social situation, multiple individuals initiate and carry out multiple leadership actions related to various aspects of organisational existence. Hence, we can speak of leadership as intertwined, multifaceted and co-occurring on many levels, where various acts of influence mingle and balance each other out, as situated, moment by moment. Following that thought, where leadership influence is reoccurring and "applicable" to anything, at any time and stage, we might think of leadership as dimensional or spatial, not only immersed in influence but also somehow pierced through by the influence ( see the discussion in the subchapter on "It of leadership" suggesting leadership influence is seen as a "touch" or "stir" that permeates various aspects of an organisation with reference to Wood's (2005) metaphor of symbiogenesis and the emphasises on the importance of examining leadership as part of a larger, symbiotic system; note also the discussion in Chapter 6).

The application of influence in leadership is not one-size-fits-all; instead, it varies depending on the situation. In some cases, individuals may only need minimal influence,

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leadership development, as it allows them to refine their communication and persuasion skills, as well as adapt their approach to better suit the specific context and audience (Bass and Riggio, 2006).

focusing primarily on the decisions made and their resulting responsibilities, without a desire to understand the underlying rationale. In other situations, a high level of trust and respect among team members may render the exertion of influence unnecessary, as change occurs organically and naturally without the need for behavioural adjustments (Latané, 1981; Cialdini, 2001; Kelman, 1958; Deutsch & Gerard, 1955).[10] Different communication styles and strategies also significantly shape influencing dialogues. For instance, assertive, passive, and aggressive communication styles can impact the outcomes of these dialogues. Also, power dynamics play a crucial role in influencing dialogues. An awareness of power imbalances between leaders and team members is essential, as it significantly impacts the effectiveness of influencing attempts.

Any attempt to bring unity, clarity, and precision to the science of leadership should be embraced, especially in an area of knowledge so openly criticised for being divided by so many theories and views. It cannot be denied that the DAC framework unites, attempting to move the knowledge of leadership "toward a more integrative ontology of leadership" (Drath et al., 2008, p. 635).

The DAC framework rests on "beliefs." As described by Drath et al. (2008), the DAC framework assumes that people sharing work will have (or rapidly co-create) beliefs and assumptions about producing direction, alignment, and commitment. The authors note that these individual beliefs, in interaction with the beliefs of others, become connected to each other, creating collective beliefs, which then become social and relational co-constructions about how to produce direction, alignment, and commitment. The expression and negotiations between these various beliefs result in the emergence of leadership practices (note the role of influence in these transitions). DAC practices are the behaviour of a collective (e.g. patterns of conversation or organisational routines) aimed at producing direction, alignment, and commitment (Drath et al., 2008, p. 645). In other words, beliefs are the tendency toward behaviour, while practices manifest that tendency (Drath et al., 2008).

According to Drath et al. (2008), both beliefs and practices are seen as parallel webs, coming together in a "leadership culture of a collective" (p. 646). Leadership culture can be seen as a stable pattern in a collective's beliefs and practices for producing direction, alignment, and commitment. In other words, the system of beliefs about how to produce

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[10] This concept of adjusting influence application in leadership can be compared to using a hammer, where the force required to drive a nail depends on the material and context. Similarly, leaders must adapt the strength and impact of their influence to suit the specific situation.

direction, alignment, and commitment, together with practices aimed at producing direction, alignment, and commitment, is thought of as a "collective's approach to the production of direction, alignment, and commitment: the leadership culture of a collective" (Van Velsor et al., 2010, p. 23). Such an approach to defining culture rests on the tradition of psychological anthropology. Psychological anthropology focuses on enculturation and how culture shapes processes of human cognition, emotion, perception, motivation, and even mental health. It also examines how the understanding of these processes informs our models of cultural and social processes. In other words, psychological anthropology seeks to understand both the individual's role in creating a culture (upward causation) and the implications of culture for the experience of individuals (downward causation). Within this approach, the individual and cultural processes continually shape and recreate each other.

The DAC framework supports the notion that the distinction between leader and follower is diminished, with any team member potentially assuming either role at any given time. Consequently, everyone is considered a potential participant and contributor to the leadership process, with the group collectively assuming the leadership role. This perspective implies that everyone's beliefs and assumptions shape the leadership culture, and to bring about change or develop leadership, it is necessary to alter individuals' beliefs and assumptions. Changing one person often results in changes in others, which in turn affects the collective. This ongoing process demonstrates that leadership is continuously evolving and recreating itself rather than remaining static.

Crevani et al. (2010) chose to explore direction, alignment, and commitment as constructed, moment-by-moment processes. They built on the suggestions given by Drath et al. (2008), with DAC theorised as "a moving target, continually recreated, reframed, and developing; ever adjusting to the changing environment in which the collective works" (Drath et al., 2008, p. 647). Examining beyond outcomes entails searching for and exploring the "process" itself, enabling an understanding of the "how" and "why" behind the processes that result in direction, alignment, and commitment. This examination considers questions such as who and what shapes these processes, how agreeing looks in practice, how teams arrive at clear visions, and how goals are identified, given meaning, and empowered to guide decisions. Furthermore, it investigates how "alignment" occurs, how effective work coordination is achieved, and how commitment is generated and sustained.

As mentioned, the DAC framework explores the concept of leadership outcomes as relational outcomes (McCauley et al., 2019; McCauley & Palus, 2021). These relational outcomes in collectives share similarities with emergent states and processes in the teams' literature. For example, the DAC framework's concept of alignment is comparable to coordination in team processes. By understanding the connections between leadership outcomes in the DAC framework and team processes, we can gain a more comprehensive understanding of leadership as a whole.

Team states often emerge due to team processes, with one influencing the other. Team processes are generally categorised into transition, action, and interpersonal processes (Marks et al., 2001; Mathieu et al., 2020). Each of these three main categories of team processes seems to include further, specific subcategories. For example, transition processes include setting goals and analysing missions (see a similarity with direction from the DAC framework), action processes include, e.g., coordinating action (see a similarity with alignment in the DAC framework), and interpersonal processes include, e.g., boosting motivation (see a similarity with commitment in the DAC framework). Large-scale studies show that effective teams take good care of the three main categories of processes (LePine et al., 2008).

Notably, the literature on teams reveals that these processes do not develop at the same speed; transition processes precede action processes, while interpersonal processes are always present (Mathieu et al., 2020). This insight could imply that the development of direction, alignment, and commitment in the DAC framework does not necessarily occur simultaneously. As per findings in the team literature, commitment might be present even in the early stages of work, followed by direction, and finally, the emergence of alignment, which we expect to develop last.

It is crucial to acknowledge the distinctions between the DAC framework and the teams' literature, and to exercise caution when drawing direct comparisons. The DAC framework's conceptualisation of direction, alignment, and commitment as relational outcomes does not provide sufficient guidance on how to discern these leadership outcomes from specific emergent states and team processes described in the teams' literature. This reflection highlights the need to clarify the intersections of team and leadership literature (Avolio et al., 2009; Yukl, 2010).

This subchapter delved into the analysis of the DAC framework, appreciating its unique approach of studying leadership backwards. By tracing the leadership process from its outputs, the DAC framework offers a fresh perspective on leadership, emphasising leadership outcomes as relational and highlighting the interconnected and interdependent nature of the leadership process. Perhaps more importantly, this subchapter utilised the DAC framework as a springboard for a more granular exploration of the leadership concept. Reflections and considerations led to the formulation of numerous insights. While some of these insights are well-established in the literature (e.g. use of IMOI in the study of leadership, Ilgen et al., 2005, or the exploration of leadership through different perspectives, Yukl, 2010),  it might be argued that the included reflections bring new and extended perspectives as explored from the particular angle focused on leadership as a process of influence. The observations made include

- The Input-Mediator-Output-Input (IMOI) model can be applied to study leadership process development.
- Leadership can be analysed as a process, an outcome, or an input. Each of these perspectives can be studied individually or in combination.
- Leadership outcomes are expanding and interconnected, as illustrated in the "ripples of leadership" outcomes effect.
- Both individuals and collectives play a dual role in initiating and safeguarding the leadership process (any act of influence can be responded to and be, e.g. accepted, delayed, or rejected).
- Leadership influence can emerge from dynamic and interactive exchanges, referred to as "influencing dialogues."
- Leadership influence is the essence of the leadership process. It can be seen as this what leadership does.
- The strength, method and application of leadership influence is context-dependent.
- Team and leadership literature require further study, more robust integration and unification.

In the upcoming subchapter, I will discuss the theory of shared leadership (SL) and the structural patterning of the leadership process more generally. Like the DAC framework, SL views leadership as a process yet uniquely explores leadership structure patterns. By examining SL's distinct perspective on leadership as a process studied through the perspective of structure that process creates, I aim to further develop an understanding of

leadership as a coherent construct working across different theories and frameworks. The discussion on shared leadership will lead to the final conclusion of the Literature Review Chapter and the development of the idea of the General Theory of Leadership.

## 2.9 Shared Leadership as a Springboard for Leadership Exploration

So far, the literature review revealed that the leadership process can be studied through various viewpoints and perspectives. In this thesis, these various approaches were categorised as per the proposed Pronouns Framework into "I", "You", "We", and "It".

This thesis's focus remains on leadership conceptualised as a process occurring in a collective (a team), happening between people, remaining under the influence of various inputs and marked by the presence of various outcomes.

In the subchapter above, a novel view of leadership was presented, i.e. the DAC framework (Drath et al., 2008) exploring the leadership process from the perspective of outcomes.

The literature review revealed that at least one more research group conceptualises the construct of leadership as a process and yet explores it from a very different angle, i.e. its structure. This particular stream of research studies leadership as "shared." It explores how leadership structure relates to the team's results, highlighting the importance of sharing leadership for team effectiveness (e.g. Zhu et al., 2018; Edelmann et al., 2020). Beyond team effectiveness, sharing leadership is often linked to enhancing psychological states, such as self-efficacy and psychological ownership (Kim & Beehr, 2017). When shared leadership is present, a sense of responsibility is established, which, in turn, reflects in positive workplace behaviours, a "sense of us", and even turns into a "social cure", creating an impact not only on macro-level outputs such as team's effectiveness but also co-workers' health and well-being (Edelmann et al., 2020). In general, research suggests that shared leadership plays a crucial role in fostering positive team outcomes (Wu et al., 2020); it allows members to accomplish their goals better, meet performance expectations, supports them in developing more novel ideas and finding more suitable solutions for complex problems (Fausing et al., 2015).

A simple and practical way of thinking about shared leadership is to envisage that it captures and explores how leadership is done when there are several individuals (Crevani et al., 2010). Hoch and Dulebohn (2017, p. 4) compare shared leadership to "the

spreading" of leadership between team members. Shared leadership was also defined as an emergent team capacity in which multiple members assume leadership roles, leading one another either simultaneously or by rotating leadership roles (Carson et al., 2007).

In recent literature, shared leadership is sometimes referred to as the topology, structural patterning of a leadership process (Contractor et al., 2012). All of these terms are seen as representing the "arrangement" or "composition" of leadership in a collective (Brass, 1981; Sparrowe et al., 2001; Kilduff & Tsai, 2003; Crevani et al., 2010). This plural form of leadership has, in various forms, existed since before Christ. For example, Sally (2002) argued that in the Roman Republic, "attention was paid to ensuring that each consul had a task of roughly equivalent importance and an equal opportunity for glory" (p. 89). Sally (2002) stressed the importance of perks and symbols, showing that there may be two (or more) leaders but only one office. The construct of shared leadership was developed in the writing of Fayol (1916). Most recently, shared leadership was defined as a "dynamic, interactive influence process among individuals in groups for which the objective is to lead one another to the achievement of group or organisational goals or both" (Pearce & Conger, 2003, p.1; see also, Carson et al., 2007).  Regardless, as noticed by Zhu et al. 2018 (p. 2): "To date, there is no unified conceptualisation regarding what shared leadership is and no unified theoretical framework that explains the emergence and consequences of shared leadership." Instead, a wide range of theories is used to explain shared leadership emergence and its outcomes, including the adaptive leadership theory (DeRue, 2011; DeRue &Ashford, 2010), social identity theory (Hogg & Terry, 2000), and the relational theory of leadership (Uhl‑Bien, 2006).

Researchers interested in the "structure" or "configuration" of a leadership process noticed that with a shift in how teams are organised and no formal roles or positions, capturing who is a leader and who is a follower is increasingly challenging.  It led to a closer investigation of leadership as a more general process. For example, it was noticed that a team could have a formal leader, but "the amount" of leadership that person generates can be minimal. In such teams, leadership might result from the influence generated by those outside formal roles and including one, two, three or more members. Further, each member can contribute to the process to a varying degree by participating in the process purely as a follower or by taking the role of a leader, with their leadership contribution being consistent or, e.g. sporadic. We might also have a configuration where leadership is generated by only one formal leader and is purely "top-down", with followers being

passive and never recognised as a source of leadership. In other words, from a structural process perspective, there are various possibilities of how the structure of influence might look like. Moreover, the "amount" of leadership a person gives can differ in quantity and have various flavours. For example, it can take the form of transformational leadership, when an individual generating leadership acts beyond their immediate self-interests to identify needed change (Bass,1999). Alternatively, it might have a flavour of empowering leadership, exhibited in, e.g. promoting participative goal setting or motivating others to take up responsibility and exhibiting leadership influence more often (Edelmann et al., 2020).  Numerous studies explore how leadership styles (e.g. charismatic, transactional, directive, and authentic) facilitate sharing influence (D'Innocenzo et al., 2016; Nicolaides et al., 2014; Wang et al., 2014). It is also worth noting that shared leadership is conceptualised as a type of leadership style itself (see, e.g. Pearce et al. 2014).

Next to the attempts to capture how a particular leadership style affects sharing, research also explores sharing as focused on overall leadership (Wang et al., 2014). Instead of capturing specific leader behavioural content, this line of research captures leadership in a generic sense (Carson et al., 2007; Drescher et al., 2014; Mathieu et al., 2015).

From the perspective of shared leadership, the leadership structure, while including them, somehow operates beyond formal power, authority or hierarchy (Hollenbeck et al., 2012). Shared leadership is based on the view that every team member can perform the leadership functions traditionally handled by formal leaders (Ensley et al., 2006; Hiller et al., 2006; Pearce & Sims, 2002). To capture leadership influence beyond formal roles and titles, shared leadership relies, among others, on Social Network Analysis (SNA). SNA captures the patterning of leadership influence (Sparrowe et al., 2001) based on perceptions of who contributes to leadership most as perceived by others in a collective. It does not mean the study of shared leadership excludes the role of the formal leader. The scholars have emphasised that SL is not an alternative to vertical leadership; rather, both sources of leadership are important and can operate in tandem, and thus, they should be studied in tandem (Carson et al., 2007; Denis et al., 2012; Kozlowski & Bell, 2003). For example, Ensley et al. (2006) found that vertical and shared leadership were significant predictors of new venture performance. Further, Conger (2003) noticed that it is virtually impossible to find a "pure" state of collective leadership untouched by hierarchical leadership. Hence, the source of leadership influence in a team has two forms: the traditional vertical leader and the team, and both of these create leadership and complement each other.

As mentioned, the basic assumption of shared leadership is that more than one team member can lead, emphasising the possibility that leadership can be distributed up, down, and across the hierarchy. This notion that any team member can provide and create leadership aligns with the Adaptive Leadership Theory (DeRue, 2011), often used to depict the mechanism of collective leadership emergence. The theory provides a framework for the emergence of shared leadership. It posits that the construction of shared leadership is based on the relationships among team members as they claim and grant leadership roles from and to each other. The theory rests on the psychological conditions facilitating claiming and granting leadership influence, particularly trust, clarity and credibility. As per this particular theory, leadership emerges when the team members claim leadership influence which involves the risk of being rejected (hence claims are more likely to be initiated when the risk of rejection is low) and granting leadership influence, which involves sharing power and influence with others (hence, granting is more likely to occur when the claims are perceived as credible, arising from competent teammates) (DeRue & Ashford, 2010; DeRue, 2011). From that place of conceptualisation, sharing leadership might be described as "trust-based risk-taking behaviour" where team members assume short‑term leader or follower roles as the team adapts to dynamic situations. Adaptive leadership theory suggests that shared leadership develops over time and takes on different patterns via repeated dyadic leading‑following interactions or leadership ties (DeRue, 2011). An assumption may be made that the dominant structure of shared leadership in a particular collective manifests itself through themes such as direction, alignment, and commitment in the DAC framework, and that these themes become increasingly visible and stable over time.

Analyses and reflection on shared leadership help to notice various ways sharing can occur. For example, sharing can emerge when team members work together at the same time and place and co-crate the leadership activity (e.g. imagine a team meeting where everyone decides about the strategy for the following year; see also discussion on "influencing dialogues" in the subchapter above). Sharing can also be spread over time, and include singular instances of influencing, popping out here and there, sometimes more consistently and persistently and sometimes disappearing for a prolonged time and then appearing suddenly, almost "out of the blue." Sharing might also be explored when a particular job, role, or function is shared. According to functional leadership theory (Morgeson et al., 2010), multiple leadership functions or roles exist. In these instances, shared leadership is often linked to rotating leadership, with different members taking various roles (Contractor

et al., 2012). It can also be that team members with different skills or preferences selectively perform leadership functions or even collectively engage and co‑perform the same leadership functions. It seems that in modern organisations, the question is not so much whether sharing leadership occurs but rather "where" and "how" each particular organisation allows for the leadership to be shared. In other words, and as already discussed, some form of sharing, as some form of vertical leadership, is expected to be always present in today's business environment.

The above considerations build upon the idea already discussed in the subchapter on the DAC framework - the source of leadership can be either an individual or a collective. This concept is supported by literature on shared leadership (Pearce & Conger, 2003) and distributed leadership (Gronn, 2002). However, it is crucial to recognise that the source of leadership influence does not solely determine who will maintain ownership of that influence throughout the leadership development process.

Whilst in certain situations, "the responsibility of influence" may need to be shared equally between the individual and the collective, in other situations, "the responsibility of influence" may need to change hands for effective leadership development. For instance, an individual who initiates leadership influence might need temporarily relinquish ownership to foster collective engagement and approval. This idea aligns with the adaptive leadership framework (Heifetz, 1994), which emphasises the importance of flexibility in leadership roles based on situational demands. Conversely, when influence emerges from a collective, it might require an individual to take over and assume responsibility for processing and guiding future leadership influence on a particular matter. Pearce (2004) suggests that shared leadership can result in lower decision-making efficiency. Shifting the responsibility of generating future influence from a collective to an individual could potentially aid with execution and application. Shifting responsibility for leadership influence between individual and collective does not oppose the possibility of responsibility for leadership influence being shared between the individual and the collective, allowing both parties to contribute effectively to leadership development.  When co-own by the collective and individual, leadership influence is not seen as belonging to either but rather is a result of a synergistic collaboration (see also reflections on influencing dialogue; also Sivasubramaniam et al., 2002). Therefore, under certain conditions, it is possible that next to co-own shared responsibility for leadership influence, transferring the

ownership of influence back and forth between individuals and collectives might be beneficial for achieving the intended objectives of the influence.

One might propose that the cognisance and tenacity of the individual exerting influence are the critical elements in attaining leadership influence success (Bandura et al., 1999; Goleman, 1998; Luthans & Avolio, 2003). Prosperous acts of influence account for the context (e.g., organisational culture), sources of leadership (e.g., appointed leaders, team members, and external stakeholders), consider the use of the most appropriate mechanisms (e.g., vision setting, communication, motivation, empowerment, and feedback loops), as well as include consideration for leader-follower dynamics (e.g. scrutinising the relationship between leaders and followers and level of trust). These considerations hold paramount importance, as they shed light on the indispensable skills required for successfully exerting leadership influence and underscore the crucial need for others to recognise and embrace such influence. Ultimately, all stakeholders involved in the leadership process determine the extent to which influence is expressed in their behaviours, actions (Alvesson & Spicer, 2014), and practices, as per the discussion in the DAC framework (Drath et al., 2008).

A pertinent question we ought to pose is what determines the success of influence (see discussion in Cialdini, 2001). The most immediate feedback that indicates "success" could be gauging the initial reception of influence. This involves assessing the extent to which the target audience grasps the leadership influence, recognises and comprehends it, and whether it elicits further reflection or discussion. In that sense, the success of influence could be evaluated from the view that leadership influence leads to more concrete and visible forms in organisational's life, such as decisions being reached and action being taken and finalised. This interpretation suggests that both decisions and actions, when present and aligned with the original influence, can be another perspective from which leadership influence is evaluated. Ultimately, the success of the influence could be gauged not solely by whether the influence was accepted or not (as this might be tainted by influence being accepted merely due to someone's position of power) but rather by the evaluation of the impact of leadership influence, e.g. on individual performance, team efficacy, organisational enhancement, or adaptability to change.

It is worth noting that although leadership is a collective phenomenon, sharing influence is not always desired or necessary (Locke, 2003). For instance, if everyone attempted to influence external relationships with key stakeholders, this could result in miscommunication, confusion, conflicts, and delays. When all team members try to exert leadership influence, issues like conflicts, coordination failures, and information overload may arise. Additionally, not all individuals possess the skills and competencies required for effective leadership influence. Some may lack the motivation or avoid taking responsibility for executing leadership influence. Even more concerning, individuals with a strong desire to lead might assume responsibility for leadership influence despite not being the most suitable, skilful, capable, or competent. Leadership influence might be less necessary in flat organisational structures, mature organisations with well-established processes, and task-oriented work environments. Collectives with high levels of trust, collaboration, innovation, a culture of empowerment, or consensus-based decision-making may also view leadership influence as unnecessary. It is essential to acknowledge that while leadership influence might be less critical in these scenarios, it could still be present and adopt less invasive forms, such as supporting, coaching, and empowering their teams, rather than exerting a direct influence. In that sense, we might assume that leadership influence operates along a continuum from more invasive to less invasive approaches, exhibiting diverse forms in the manner it materialises and manifests. For instance, coercive influence might be employed in such a way that team members remain unaware of the control exerted, as the purpose of the act of leadership is to subtly manipulate situations or conversations to indirectly guide outcomes (Yukl, 2012). As the spectrum progresses, the forms of leadership influence evolve, illustrating a wide array of approaches that adapt to varying contexts and team dynamics. For example, towards the less invasive end, consultative influence would involve exerting influence focused on elevating instances of team members' input and signalling the importance of collaboration, whereas coaching influence, as least invasive, would rely on the use of open-ended questions to build a culture of autonomy (Whitmore, 2017).

As astutely noted by Pearce et al. (2007, p. 286), the term "shared leadership" remains relatively underdeveloped and would benefit from additional empirical and theoretical work to define the concept more precisely. This is as the term "shared leadership" might be instinctively associated with describing only a certain type of sharing, i.e. total decentralisation. However, it is essential to acknowledge that "sharing" involves various aspects and degrees of sharing (Pearce et al., 2003; Carson et al., 2007). In that sense,

"shared leadership" does not match its meaning. Rather than perceiving shared leadership as concentrating solely on full decentralisation, it is important to see shared leadership as encompassing a broad scope of diverse forms and combinations. This shortcoming may be attributed to the weak theoretical frameworks underpinning the construct of shared leadership. Therefore, in the subsequent sections of this dissertation, the discussion will move beyond the concept of shared leadership and adopt the term "sharing leadership" to provide a more comprehensive understanding which encompasses diverse forms and combinations of sharing influence across different contexts.

Inconsistencies regarding the theoretical foundations of the concept of shared leadership (e.g., as highlighted by Zhu et al., 2018, shared leadership shares many similarities with collective leadership, and no definitive conclusions have been drawn about the differences between the two) are reflected when evaluating the varied methods used to capture and measure this phenomenon. Social Network Analysis (SNA) and its two specific indices, namely density and centralisation, are increasingly employed to analyse patterns of leadership structure. Both indices will be discussed in greater detail later in this dissertation (see also discussions in Lemoine et al., 2020; Xu et al., 2022). For now, it is essential to acknowledge that applying SNA to leadership enables a high level of precision in identifying each member's contribution to the leadership process. In the simplest terms, the indices provided by SNA allow assigning a leadership weight (i.e. value) to each individual regarding their leadership influence. Consequently, this approach facilitates the depiction of how others perceive each other as leaders (see DeRue et al., 2015).

Before using SNA's indexes, leadership structure was mainly captured using the so-called aggregation method, relying on the average of members' self-reported ratings with the team as the referent (e.g. D'Innocenzo et al., 2014; Carter et al., 2015). As pointed out by D'Innocenzo et al., 2016, SNA provides more accurate measures allowing for more fine-grained distinctions between different patterns of leadership structures. Further, SNA's strength is that it bypasses the mental arithmetic that respondents' referent-shift (aggregation) approaches require. In other words, the areas of potential bias are removed or at least attenuated when SNA is used (Crawford & LePine, 2013). For further details regarding the synergy between social network analysis and leadership, I refer readers to Balkundi and Kilduff (2006) and Carter et al. (2015).

SNA is not only seen as a research method but as a means to develop and enhance leadership theory altogether (see, e.g. Carter, 2015; Balkundi & Kilduff, 2006; Kilduff &

Tsai, 2003). There are several reasons why a social network perspective can be useful in understanding leadership patterns in a collective. Firstly, leadership can generally be seen as a type of social network (Carter et al., 2015; Cullen-Lester, 2016). As leadership is viewed as a relational construct, there is a match with the notion of a social network, which is relational by definition, underpinned by the assumption that social actors are embedded in a complex web of interactions (Wasserman & Faust, 1994). Second, the social network perspective offers concepts and methodological tools able to describe and analyse the various combinations of collective structures. Availability of tools enabling capturing these different configurations is necessary if one is to remain precise in investigating the relationships between participants of the leadership process.

It is important to note that there is no single or all-encompassing social network theory (Kilduff & Tsai, 2003). Network science is a field that combines principles from various disciplines, such as mathematics, sociology, and computer science. It represents a collection of techniques for identifying, describing, and explaining various structures among individuals, groups, and organisations. The basic idea of Social Network Analysis (SNA) is to portray groups as collections of points connected by lines. Such visual representations are called sociograms. A sociogram represents all participants and the connections between them, providing information about the overall group's functioning. The participants are represented as "nodes", and the connections are visualised with lines between the nodes (ties). The term "network" refers to a particular structure placed in a specific context, e.g. team. Ties can be explored based on their individual and collective properties. One of the properties of ties is directionality. Ties can be directional or non-directional. An example of a non-directional tie would be a "work with" relation (either two people work together or do not). Leadership is an example of a directional relationship, as is friendship. In the context of leadership, a directional tie could be explained in the following example: I see you as a source of leadership, but you do not see me as a source of leadership. Directional relationships are visually depicted as arcs (lines with arrows). The relationship between individuals can be reciprocated (mutual dyads), not reciprocated (asymmetric dyads), or not formed at all (null dyads – not lines). It is easy to imagine why the application of SNA is used and has gained such popularity in the study of leadership. SNA enables an accurate understanding of the interplay of leadership between people at any given moment, which can be linked to other literature within the "We" category of the Pronouns Framework.

This subchapter delved into the analysis of the SL, appreciating its unique approach of studying the leadership process through the structure, i.e. patterning of leadership influence. By tracing the leadership process from the structure the process generates, SL, similarly to the DAC framework, offers a fresh perspective on leadership, highlighting the interconnected and interdependent nature of leadership. Perhaps more importantly and in line with the DAC framework, this subchapter utilised SL as a springboard for a more granular exploration of the leadership concept using it as a preamble to the final part of the Literature Review and formulation of the General Theory of Leadership (subchapter 2.10). Reflections and considerations on the literature of shared leadership led to the formulation of numerous insights. Again, as in the case of the DAC framework, most of these insights are well-established. However, yet again, it might be argued that included observations bring fresh perspectives to the study of leadership. Perhaps the most perceptive theoretical insights engendered by the consideration of the SL include

- Sharing leadership can be viewed from the perspective of "responsibility for leadership influence."
- Responsibility for leadership influence can belong to individual or collective.
- The source of leadership influence does not determine the consistency of ownership throughout the process.
- Transferring ownership of influence between individuals and collectives can be beneficial for achieving intended objectives (from individual to collective to foster engagement, from collective to individual to aid processing and execution).
- Various factors, including individual cognisance and tenacity, context, sources of leadership, appropriate mechanisms, and leader-follower dynamics, may determine leadership influence success.
- The term "sharing leadership" is proposed to provide a more comprehensive understanding of the phenomenon than "shared leadership."
- Leadership influence can be seen as a spectrum, ranging from more invasive to less invasive approaches (e.g. from coercive influence to influence through the use of coaching).

## 2.10 General Theory of Leadership (GOL)

Use of SNA to study the pattering of leadership influence leads one to consider how theories and concepts from other disciplines could further support the development of leadership studies. For example, Brams and Kilgour (2020) applied game theory to study decision-making processes in various fields, including leadership and proposed a new strategy for promoting cooperation. Also, the laws of thermodynamics, borrowed from physics, have been used to explain organisational behaviour, including leadership, albeit in an abstract and metaphorical sense. For example, Schneider et al. (1994) discuss how entropy and the second law of thermodynamics can be applied to understanding complex systems like organisations. Proposed in this thesis Map 1, Key Equation, proposes to view leadership as a process of influence shaped by people, needs, and context and aligns with the concept of self-organised criticality in physics, where the whole system adapts and evolves based on the actions of its components (Bak, 1996).

There are two angles to explore the role of influence in leadership, as suggested by Alvesson and Spicer (2014) and Couzin et al. (2002). The first angle views the leadership process as immersed in "influence," where individual leadership components generate influence that affects everything in leadership (Alvesson & Spicer, 2014). The second angle suggests that collective influence impacts all individual elements in return, as seen in a flock of starlings or a pack of sheep (Couzin et al., 2002). Both of these perspectives on how influence operates within leadership dynamics could be combined for a more comprehensive understanding of leadership. An individual's decisions and actions undoubtedly shape group dynamics, but group members' collective behaviour and attitudes can also reciprocally influence the leader. Therefore, an effective leadership model might incorporate both these elements, recognising leadership as a dynamic interplay between individual leadership components and the collective influence of the group, entity and non-entity combined. This interplay can be thought of as a continuously reshaping ecosystem, where the elements of leadership and group dynamics co-exist, each constantly affecting and transforming the other. In this ecosystem, each "pronouns" become equally important and come together to form a somehow cohesive whole.

Taking inspiration from physics, we can visualise leadership as this "cohesive whole", operating near a critical point and undergoing stages of transformation, akin to how water changes its state at critical transition temperatures. This suggests that a leadership organisation might be akin to a phase transition. The concept of a phase transition originates from physics and describes a dramatic change in a system's physical properties, where even minute adjustments can lead to significant effects (Goldenfeld & Kadanoff, 1999). Effective leaders are aware of critical points and can adapt their leadership styles and strategies accordingly to ensure organisational success. For example, shifting from an authoritarian leadership style to a more collaborative one can transform organisational culture and employee motivation (Gardner et al., 2010).

The development of the leadership process is proposed to be viewed as a process of parallel streams of development of "I," "You,", "We," and "It" based on the Pronouns Framework, recognising the importance of considering individual, collective and synergic aspects of leadership influence. One can imagine this works as parallel universes in quantum mechanics. By considering the interconnected nature of influence, a more accurate and complex representation of the leadership process emerges.

# FIGURE 2

**Biomimicry in Leadership: Symbolism from Biology & Nature**
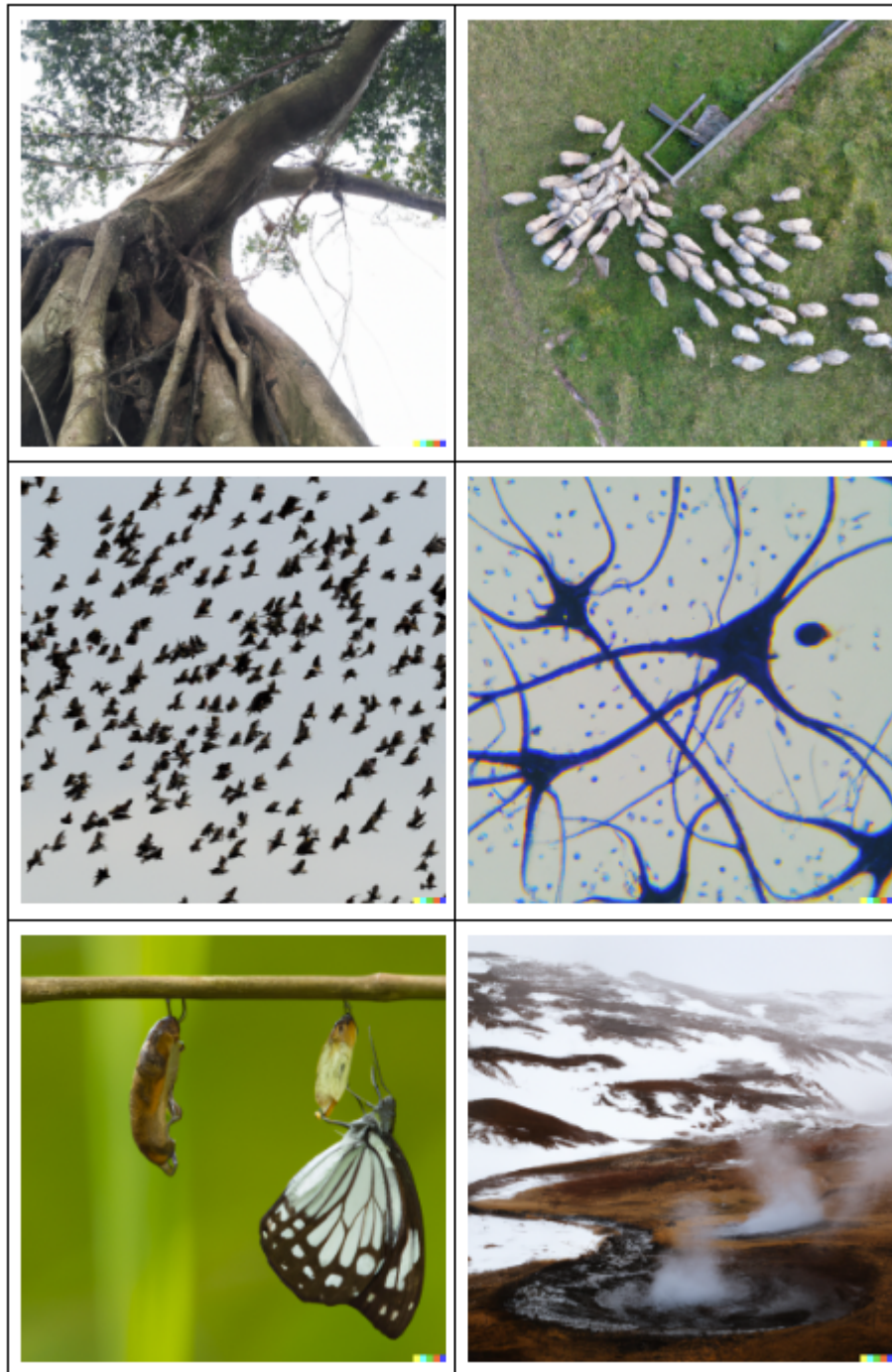


These images were generated using DALL·E 2. Their selection is subjective. These visual metaphors are intended to inspire and encourage further exploration of leadership as an interconnected element of a greater system.

In recent years, numerous disciplines have been dedicated to developing unified, grand, or general theories that aim to provide comprehensive frameworks for understanding complex phenomena. These efforts are driven by a desire to create overarching models capable of explaining the interconnectedness of various elements within a given field, simplifying complex concepts, and facilitating communication and collaboration across disciplines. For example, in physics, the quest for a unified field theory attempts to merge general relativity with quantum mechanics (Greene, 1999), while in psychology, researchers strive to develop unified theories of human cognition and behaviour (Henriques, 2003). Similarly, in biology, modern synthesis has integrated genetics, palaeontology, and other sub-disciplines to explain evolutionary processes (Futuyma, 2017).

Given the advancements in these fields, exploring the possibility of developing a unified leadership theory to provide a more robust understanding of leadership dynamics across various contexts becomes increasingly relevant. Some efforts have already been made (e.g., Northouse, 2021; Van Knippenberg et al., 2004). While other fields have seen rapid progress in developing unified theories, the development of such a theory in leadership has been relatively slow, partly due to disjointed and siloed efforts. Adopting a more collaborative approach could expedite the development by leveraging diverse perspectives, increasing the probability of gaining broader buy-in and support from academics and practitioners, ultimately leading to increased adoption and implementation.

Sceptics argue that leadership is too context-dependent and multifaceted to develop a single, overarching theory (Uhl-Bien et al., 2007; Osborn et al., 2002). Some critics also maintain that developing a unified theory could oversimplify the complexity of leadership phenomena, potentially leading to a reductionist approach that fails to account for the unique aspects of different leadership styles and situations (Grint, 2000; Sveningsson & Alvesson, 2003).

However, the potential benefits of a unified leadership theory seem vast. For example, the theory could lead to a greater understanding of the leadership construct, hence greater popularisation of leadership knowledge with enhanced ease of implications to a wider context. Such a theory could also strengthen cross-context applicability and address criticisms of the discipline being too fragmented and esoteric (Yukl, 2012). More significantly, developing a unified leadership theory could facilitate the organisation and consolidation of the vast knowledge base of leadership, resulting in a more methodical and cohesive comprehension of the field. This reorganisation of leadership knowledge could

shed more light on the intricate interplay between the various factors that, as this thesis proposes, make up the leadership process seen as a development of leadership influence as defined by context, participants and needs (see Map 1, Key Equation).

This thesis posits that the pursuit of a General Theory of Leadership is revitalised. Given the advanced state of grand theory development in other fields, it would be advisable to study the analytical methods and findings used in those fields and apply them to the development of a unified theory of leadership. By doing so, researchers in the field of leadership can leverage successful approaches from other fields, accelerating the development of such a theory in the field of leadership. For instance, the interdisciplinary and collaborative nature of the modern synthesis in biology could serve as a model for integrating various leadership theories and perspectives (Ostrom, 2009).

Furthermore, it is proposed that the General Theory of Leadership is based on "maps" (think "puzzle pieces") as its foundation. These maps are individual but interconnected graphic blocks that represent various components within the leadership construct and collectively provide a framework for integrating the diverse elements of leadership research. By visually organising the key constructs and approaches in the leadership field, the maps can help researchers pinpoint areas that require further investigation. Thus, they can guide the ongoing development of the General Theory of Leadership, continuously bringing more cohesion to the knowledge of leadership.

The proposition of using maps as foundations of the General Theory of Leadership might seem helpful. However, before drafting any maps, examining their potential value and limitations in advancing leadership knowledge is crucial. Questions like whether a map is coherent or creates confusion must be considered. The endeavour aims to create maps that offer insights into leadership's generic understanding. Thus, before drafting maps, a rigorous critical reflection and evaluation are necessary to ensure that each prospectus map meets the intended purpose of facilitating an understanding of leadership's complexity.

There might be some potential in using scrutinised, tested and yet adaptable maps as individual puzzle pieces to represent fundamental building blocks of leadership. Such a theory could have multiple layers, starting with presenting basic, general components of leadership and progressing to more complex elements, such as sharing leadership. It is crucial that maps are not seen as "fixed" but as re-adaptable, allowing for the continual recreation and adaptation of the puzzle pieces to reflect changing knowledge. Moreover,

the theory would need to allow to include multiple versions of the same puzzle, accommodating diverse levels of analysis and critical perspectives. For example, next to the map on "leadership development", we could include a map titled "Defining a construct," allowing a map focused on defining a construct to be juxtaposioned with another map depicting the impossibility of defining the construct. While each piece would represent a single truth (a modernist perspective), the inclusion of contradictory maps would permit the co-existence of multiple truths, allowing the unified theory ultimately to incorporate the postmodernist stance. This approach would enable the construction of the General Theory of Leadership to capture the complexity and diversity of the leadership field, accommodating different perspectives and interpretations. In that sense, the theory could play a double role of a "translator" of leadership studies and theories, making them more accessible to practice, but also a "'facilitator" between various theoretical camps. The theory would invite a paradigm interplay and allow for both resonance and tension to occur, where interaction and exchange between different theoretical frameworks, perspectives, or assumptions could take place (Romani et al., 2011). Research in various fields has shown that incorporating multiple perspectives can lead to a more comprehensive understanding of complex subjects, and it is reasonable to expect similar benefits in the context of leadership studies[11].

In sum, it seems the use of puzzle-piece-like maps offers a promising approach to addressing the challenges of integrating diverse leadership approaches. Including multiple versions of the same puzzle and critical perspectives would enrich our understanding of leadership, while the paradigm interplay would encourage both integration and diversity of perspectives, fostering a more comprehensive and nuanced understanding of leadership. By incorporating both modernist and postmodernist stances, the General Theory of Leadership is capable of accommodating various perspectives and interpretations. This approach acknowledges the complexity and diversity of the leadership field, allowing for a more comprehensive understanding of the subject matter by responding to calls made by many (Uhl-Bien & Ospina, 2012).

If the notion of a General Theory of Leadership (which could be somewhat imprecisely abbreviated as "GOL") is to be further elaborated, it must permit boundless intricacy. Simultaneously, theory must remain as streamlined as feasible to ensure its accessibility

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[11]For example, the concept of triangulation in research methodology is a well-known approach that supports the use of multiple perspectives, methods, or data sources to enhance the validity and credibility of research findings (Glick, 2018).

and applicability to diverse audiences. The ultimate objective of this theory would be to enhance both the theoretical and pragmatic comprehension of leadership's nature, allowing each of us to know more about "it" so that we can all get better at "it."



Galileo piecing together the basic pieces of reality. Animation by Emily Buder, Quanta Magazine (2021).

## 2.11 Summary

The chapter provided an analysis of the leadership literature. First, the Pronouns Framework was introduced, aiming to support the categorisation of leadership studies into four distinct groups - "I", "You", "We", and "It". The inquiry led to the development of the Equation Map, a visual representation of critical components of leadership, depicting it as an influence process shaped by people, needs and context.

Two particular approaches were used as springboards for exploring the concept of leadership further: the DAC leadership outcomes framework (Drath et al., 2008) and structural patterning originated in shared leadership theories (e.g. Carson et al., 2007). Reflection on these approaches led to various theoretical discussions and insides, providing an expanded perspective of leadership.

The chapter ends with a call to revitalise the pursuit of a General Theory of Leadership. The formulation of the theory is seen to hold significant promise for improving the understanding and applicability of the study of leadership. Scaffolding for the theory development was proposed based on the use of multiple maps, defined as the visual representations of the key constructs of leadership.

In the chapters that follow, the focus of the exploration shifts. From a broad and flexible examination of the literature, the attention pivots to this thesis's central question: How do sharing leadership in teams and collective leadership outcomes (as defined by the DAC framework) relate to team task performance? It is hoped that quantitative and granular exploration of the two approaches, the DAC framework and SL, generates further insides into the challenges and possibilities associated with the endeavour to create a unifying General Theory of Leadership.

# CHAPTER THREE

## HYPOTHESIS

### 3.1 Introduction

The primary focus of this chapter is the development of the hypotheses that underpin this thesis. This research examines the interplay between leadership outcomes, specifically the emergent states of direction, alignment, and commitment (Drath et al., 2008; McCauley et al., 2019), sharing leadership influence, and team task performance (TTP).

Initially, a concise review of the theoretical background is provided, highlighting the key theories that form the foundation of this study, such as the DAC framework, shared leadership theory, input-mediator-output-input (IMOI) framework for team effectiveness and leadership communication theory. Subsequently, the study variables are reintroduced, and the overall research framework is presented, which includes ten propositions and follows Rungtusanatham et al.'s (2014) approach. This is followed by a thorough analysis of the reasoning behind each of the thesis's propositions. The chapter concludes with a brief summary of the main points discussed.

### 3.2 Theoretical overview

This thesis adopts a view of leadership as existing beyond a single leader and instead defines it as a collective and dynamic process (Denis et al., 2012). Although individuals actively participate in the leadership process, they are not what we might call, "the containers" of leadership (Denis et al., 2012). Thus, in this thesis, leadership is not only seen as sometimes "collective" but fundamentally as "collective." Hence, when the word leadership is used, the adjective collective will mostly not appear. It is because the descriptor collective is understood to be part of what leadership stands for; hence, there is no need to use it.

The main aim of this study is to facilitate the development of a unified theory of leadership by exploring the relationship between various leadership perspectives. The researcher was particularly intrigued by the two approaches to leadership, which ultimately became the main tools for testing the possibility of developing a unifying leadership theory in this

thesis. These two approaches are the DAC framework (Drath et al., 2008) and shared leadership (Pearce & Conger, 2003).

The DAC framework (Drath et al., 2008) and shared leadership (Pearce & Conger, 2003) were both seen as compelling and practice-led perspectives on leadership. The DAC framework views leadership as a process that produces leadership outcomes, namely direction, alignment, and commitment. Before this study, the DAC framework had only been tested for its impact on long-term effects in one study (McCauley et al., 2019). The framework promises to integrate other leadership theories within its perspective, as "those structures and processes can be integrated by a theory focused on outcomes" (Drath et al., 2008, p. 636). Shared leadership, on the other hand, rests on the premise that leadership can always be analysed based on how it is shared, i.e. what is the pattern of its structure. The researcher was drawn to juxtaposit and analyse these two constructs further due to their universal, global-like qualities, with one approach exploring the leadership process through its outcomes and the other investigating the process through its structure.

The process of testing how these two approaches can be related to each other started from deliberate reflection on how the structure and outcomes of the leadership influence process interact.

First, to make sense of the relationship between the two, both outlooks were analysed against their underlying theoretical principles. Although each approach differs in terms of what is explored, i.e. structure vs outcomes, both DAC and SL are rooted in the same epistemologies. Both perspectives seem united in understanding what constitutes leadership. In particular, both are united in rejecting the assumption that leadership is vested in a single individual but rather resides in relationships. In other words, they take the constructionist relational view, rather than relying on the entity perspective, where leadership is seen to reside in the individual leader's skills and abilities (Fairhurst & Connaughton, 2014; Uhl-Bien &Ospina, 2012). Although DAC and SL perceive individuals as one of the sources producing leadership, they see leadership as existing beyond the individual(s). Such theorising suggests that leadership is not solely located within the individual mind but rather arises from a continual negotiation of the social order, which is mutually constructed through communication, negotiation, and sense-making (Thayer, 1968; Uhl-Bien & Ospina, 2012; Uhl Bien 2006, 2011).

Keeping in mind the thesis' underlying proposition that influence is the essence of the leadership process, this study utilises the theory of communication as its theoretical foundation for relating the structure and outcomes of the leadership process.This is because communication is often viewed as a process of attempting to influence others, making it a key concept in the study of influence. The concept of influence in leadership communication theory (Ruben & Gigliotti, 2016) further reinforces this connection between leadership and communication, emphasising the importance of effective communication in leadership.

The communication perspective on leadership (also an adaptive leadership theory, DeRue, 2011) argues that leadership is based on reciprocal acts of influence. These acts include formal and planned interactions, as well as informal, unplanned, and nonverbal exchanges (Ruben & Gigliotti, 2016). As a result, communication is not merely the transmission of a message from sender to receiver. It involves giving, receiving, interpreting, and making sense of information (Thayer, 1988). More, it involves the creation and exchange of verbal as well as non-verbal messages, aural and visual cues. This process is highly active, with both sender and receiver constructing meaning based on various factors such as experience, culture, context, and relationship history (Ruben & Gigliotti, 2016). Thus, communication outcomes are jointly created by participants in the interaction (see discussion on "dialogues of influence" in the Literature Review chapter). Taking a critical stance, it might be important to note that the mere application of communication theories to leadership might not be sufficient, particularly with regard to the role of power dynamics and hierarchical structures in shaping communication patterns.

Shared leadership, as defined by Mayo et al. (2003), entails more intensive communication among members, which results in improved information flow (D'Innocenzo et al., 2016), and enhanced opportunities for expressing and clarifying ideas. This is believed to foster greater agreement on the team's direction and increase alignment among team members, leading to a better understanding of any given situation, task, or role (Ruben & Gigliotti, 2016). It can be assumed that the improved communication is linked to higher levels of engagement in the leadership process. This implies an increased sense of responsibility for leadership, ultimately leading to members feeling more inclined to adhere to and follow through with the initiatives they co-created and collectively contributed to. This notion links back to the DAC framework and effective leadership marked with the agreement in

the group on overall goals, coordinated work within the group and mutual responsibility for the group.

In addition to using the theory of communication as a theoretical foundation for exploring the relationship between the structure and outcomes of the leadership process, this study also employs the input-mediator-output-input (IMOI) framework for team effectiveness (Ilgen et al., 2005) as a blueprint for analysing the variables under investigation.

As discussed in the literature review chapter, the DAC framework (Drath et al., 2008) sees leadership as a process leading to the production of leadership outcomes, specifically, direction, alignment and commitment. One way to evaluate the effectiveness of the leadership process is to measure the extent to which each leadership outcome has been generated. As the framework suggests, how DAC is produced depends on the type of "beliefs" and further "practices" of a particular collective. Leadership outcomes lead to longer-term consequences and are named "the leadership effects". These include both strategic and unintended results and can be both objective (e.g. task productivity) and subjective (e.g. satisfaction).

By taking a broader perspective, it becomes apparent that the DAC framework closely resembles the key team framework, namely the input-mediator-output-input (IMOI). According to IMOI (Ilgen et al., 2005), the inputs ("I") are the factors that influence group behaviour over time. It could be anything stemming from the individual (e.g. personality), group (e.g. team familiarity) and context (e.g. dangerous environment during times of war).  The "I" in the IMOI corresponds to DAC's leadership culture of various beliefs and practices (the most left in Figure 3).

The "M" in the IMOI represents mediators and includes group processes and emergent states. In the context of teamwork, the term "team processes" generally refers to the ways in which team members interact with each other, such as through coordination and monitoring. On the other hand, "emergent states" encompass the cognitive (e.g., shared mental models, transactive memory systems), motivational (e.g., cohesion, collective efficacy), and affective states (e.g., mood, trust, psychological safety) that develop within the team (Marks et al., 2001). Both team processes and emergent states are interconnected so that the dynamic team processes can transition to a more static construct over time and present in the team as emergent states (Kozlowski & Ilgen, 2006). Leadership outcomes, defined by Drath et al. (2008) as direction, alignment and commitment, are conceptualised

as emergent states (McCauley et al., 2019) and positioned in the DAC framework as a mediating mechanism through which team inputs, e.g. leadership culture, affects a team's long-term outputs, e.g. team's satisfaction.

Finally, the "O", i.e. outcomes in the IMOI, describes and evaluates the effects of the processes and emergent states (Marks et al., 2001; Ilgen et al., 2005). In the DAC framework, O corresponds with Marks et al. (2001) and Ilgen et al. (2005) conceptualisation depicting long-term leadership effects, e.g. team effectiveness. See Figure 3 for a visual representation of the DAC framework mirrored in IMOI[12].

**FIGURE 3**

**DAC Framework - IMOI Perspective**
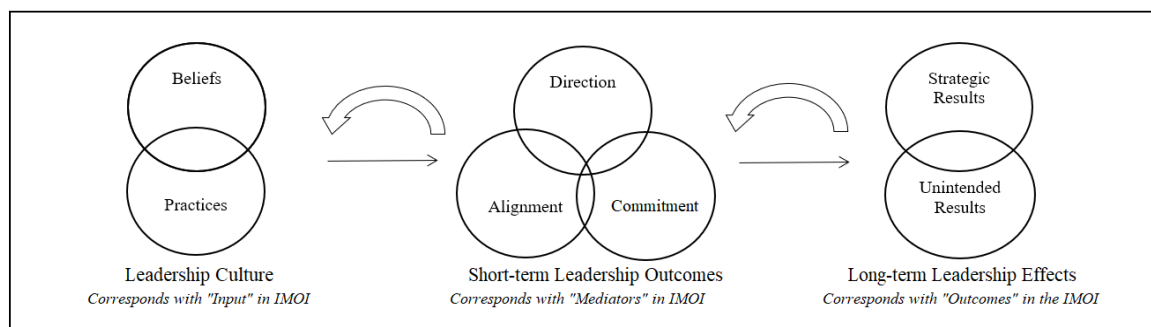


Note: Adopted from McCaluey et al. (2019).

Having chosen the theory of communication and the input-mediator-output-input (IMOI) framework as the theoretical underpinnings for this study, the challenge was to determine the appropriate placement of the constructs within these frameworks. Various options were explored and carefully considered to ensure alignment with the chosen theoretical perspectives. The following paragraphs provide a more detailed account of these deliberations.

Drawing on the concept of sharing in leadership, which emerged from the literature on SL, this study proposes to view sharing leadership as a specific behaviour or practice that develops within a team and contributes to the production of leadership DAC outcomes. In that sense, sharing leadership as a collective behaviour or practice is considered to preceding the emergence of leadership outcomes. Perhaps more importantly, by taking a view where sharing leadership is seen as a behaviour or practice that contributes to the

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[12] Note the discussion in the literature review chapter where leadership was recommended to be explored through the IPO framework. The DAC framework, in a sense, uses the framework, but it might be claimed, rather than building on IPO tests IOO combination, i.e. the relation between input, output and output. For more, see the discussion in Chapter Six.

production of DAC, this study enables testing the basic assumption of the DAC framework - that it can incorporate and integrate other leadership theories.

As the authors of the DAC framework explain, a leadership practice refers to a pattern of behaviour that emerges from the collective actions of a group, such as conversational patterns or organisational routines that go beyond individual behaviour (Drath et al., 2008, p. 645). This aligns with the description provided in the literature on shared leadership which explains shared leadership as a dynamic process where team members interact and contribute to the team's collective goals. According to Pearce and Conger (2003) and Aubé et al. (2018), shared leadership involves mutual influence and conjoint action among team members. Contractor et al. (2012), Denis et al. (2012), and Yammarino et al. (2012) add that it emerges from the interactions, behaviours, and exchanges among group members.

These conceptualisations further support the idea of reframing from "shared" to "sharing". Hence, this reframing expands the scope of the theory of shared leadership more accurately depicting the essence of the construct, i.e. that sharing leadership occurs to varying degrees; hence t is not only a representation of what is shared.

The endeavour to explore the possibility of unifying leadership studies can be considered ambitious and highly challenging, necessitating advanced analytical and systemic skills to identify potential connections between the studies. Moreover, addressing the challenges within the specific approaches themselves is also a skilful task. The difficulty of relating two concepts, each grappling with its own inconsistencies, further complicates this exploration.

A literature review reveals that both DAC and SL struggle with their own challenges. For instance, examining the DAC framework during the literature review uncovered that its three core concepts - direction, alignment, and commitment - can be perceived as too vague and ambiguous, overlapping with constructs from team literature without clear guidance on how to distinguish between them. This creates difficulties for researchers and practitioners to operationalise and measure leadership outcomes effectively, as described by Drath et al. (2008).

Conversely, the concept of shared leadership appears to face even greater challenges. Existing studies on shared leadership are characterised by various theoretical approaches and a lack of conceptual clarity. This study illuminates the theoretical debate surrounding shared leadership, which has been hindered by an absence of consensus on the definition of

"sharing." Consequently, this has led to inconsistencies in measurements, varying interpretations and recommendations (D'Innocenzo, et al., 2016).

Interestingly, regardless of the theoretical challenges, there seems to be an emerging agreement related to shared leadership operationalisation. Several researchers advocate the use of social networks (Carter et al., 2015; Mayo et al., 2003; Aubé et al., 2018) and, in particular, the application of the two (not one) indexes in conjunction, i.e. density and centralisation (e.g., D'Innocenzo et al., 2014; Gockel & Werth, 2010; Mayo et al., 2003; Paunova, 2015; DeRue et al., 2015). Due to the use of mathematical indices to represent these concepts, SNA allows studying sharing leadership with great detail and precision.

Analyses of shared leadership literature indicate that it is the operationalisation that drives the development of the shared leadership theory. This back-to-front approach might not be appropriate for advancing scientific knowledge. Instead of theory defining the method, it is the method that supports the formation of the theory. Applying Social Network Analysis (SNA) and its indices to the study of shared leadership helps to advance our understanding of this construct, facilitating reflection on the fundamental meaning of structure within the context of leadership. Within the literature on shared leadership, two particular indices, density and centralisation, are commonly used to explore and analyse the patterning of leadership structure.

Density, in the context of social network analysis applied to the study of leadership, refers to the proportion of actual connections or relationships between members in a network compared to the maximum number of possible connections (Wasserman, & Faust, 1994). Density, as described by Wasserman and Faust (1994), captures both reciprocated and directional ties between team members, considering all connections or relationships in the network. Directional ties between team members represent reciprocity when a particular team member perceives another as a leader and vice versa. Density also captures directional ties only, recognising unreciprocation as leadership too. By calculating scores for all team members and considering them in the context of the entire group, density can be seen as a measure of the overall leadership contribution of leadership in the group.

On the other hand, centralisation analyses the distribution of leadership influence or equality in which leadership is distributed throughout the team (DeRue et al., 2015; Paunova, 2015; Aubé et al., 2018). It is often associated with a top-down approach, where decision-making power and authority rest with a few key individuals at the top of the

hierarchy. It is important to note that the measure encompasses all ranges of distribution of influence, from centralised to decentralised structures.

The majority of studies have utilised density as a primary metric to capture the extent of shared leadership within teams (Wasserman & Faust, 1994). Although centrality has been used in some studies (DeRue et al., 2015; Paunova, 2015; Aubé et al., 2018), it has not been as widely adopted as density. Nevertheless, recent research has called for the combined use of both density and centrality measures to provide a more comprehensive understanding of shared leadership dynamics within teams (Carmeli et al., 2011; Pearce & Sims, 2002). Using both measures in tandem is justified as they more accurately depict the overall patterning of the structure of leadership influence in the team (e.g., Paunova, 2015). In the broadest sense, utilising both measures allows for a more accurate representation of leadership structure by capturing overall leadership contribution (i.e., the "amount of leadership") and how that contribution is distributed among team members.

Based on the above considerations, and following Mayo et al. (2003), a collective with the highest level of shared leadership would have high density, representing the greatest amount of recognised leadership influence, and low centralisation (i.e. greatest decentralisation), indicating an equitable distribution of influence among team members. These considerations lead to an intriguing question: How well does the use of both measures align with the term "shared leadership," which implies a focus on dividing leadership influence? Would it be more accurate to revisit the alignment between the meaning of the construct, its name, and its measures? Furthermore, if we assume shared leadership describes the sharing aspect of leadership, wouldn't it be more appropriate to use centralisation rather than both measures to capture the phenomenon of sharing in teams?

Recently, Lemoine and colleagues (2020) highlighted the limitations of traditional network measures, such as density, in studying leadership, as they do not account for the value of shared intangible resources like knowledge, skills, and advice within team networks. These resources often depend on the source's identity, making density an inaccurate reflection of tie patterns between team members or the value of shared resources within networks. To address this issue, the authors proposed a new network measure called importance-weighted density (IWD), which combines principles from density, decentralisation, and eigenvector centralisation. IWD offers a more detailed understanding of network tie patterns by factoring in the degree to which ties emerge from

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well-connected members, thus capturing the importance of shared resources based on the connections of those sharing them. This innovative measure provides a better understanding of shared leadership within team networks, considering not just the connections between team members, but also the importance or influence of the individuals involved in those connections, resulting in a more effective overall team.

Based on all the considerations above, the variables of this study were further refined. Shared leadership was redefined as "sharing leadership" and perceived as a specific practice, i.e., a behaviour exhibited by the team that predicts short-term leadership outcomes and long-term organisational effects. Short-term leadership outcomes were defined according to the DAC framework as direction, alignment, and commitment. To represent long-term leadership effects, team task performance (TTP) was chosen. Building on both the IMOI and DAC framework, the outcomes of the leadership process were positioned as mediators, with the practice of sharing leadership, directly and indirectly, impacting team task performance.

**FIGURE 4**

**Research Model**
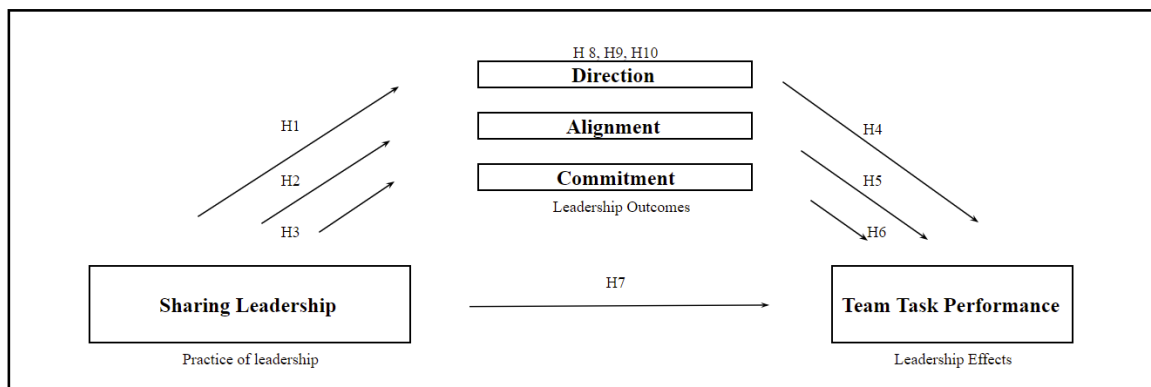


This study addresses significant gaps in leadership knowledge by offering theoretical, practical, and methodological insights that serve as a paradigm for future research. The study's theoretical contributions encompass a revitalisation of efforts to develop a unified theory of leadership. The study exemplifies the unification process by providing the Pronouns Framework for leadership study categorisation and empirically testing the possibility of uniting diverse approaches. It does this by examining the relationship between the DAC framework and shared leadership, and by stripping the leadership

construct down to its most basic characteristics, such as process, structure, outcomes, people, needs, and context.

The study utilises communication theory to establish a connection between leadership structure and outcomes. It further justifies this connection by relying on the IMOI framework for team effectiveness and using it as a blueprint for analysing the effectiveness of the leadership process. The study also addresses numerous other gaps, such as the ambiguity of the DAC framework's core concepts (direction, alignment, and commitment) and inconsistencies in shared leadership theory concept construction. It proposes to address some of these challenges by redefining "shared leadership" as "sharing leadership" to better capture the construct's essence. Methodologically, the study tackles inconsistencies in measurements in shared leadership literature. To overcome these challenges, the study proposes the use of importance-weighted density as a novel network measure, making it one of the first studies to apply the recommendations of N. Xu et al. (2022).

In total, this study proposed ten hypotheses. I discuss each of them in more detail in the subchapters to follow. The hypotheses were developed and articulated following the segmentation approach described in Rungtusanatham et al.'s (2014). Rungtusanatham et al. (2014) suggest that the hypotheses are formed following a particular order. Firstly, exploration of the effect of the independent variable (i.e., sharing leadership) on mediators (i.e., leadership outcomes), then mediators on dependent variables (i.e., team task performance), and finally, the mediation effect where the independent variable is proposed to have an indirect effect on dependent variable thought mediator(s). In this thesis, the mediation propositions are preceded by the additional hypothesis of the direct effect between the independent variable (IV) and dependent variable (DV) in the presence of mediators (H7).

<div align="center">

**TABLE 3**

**Segmentation Approach to Hypotheses Articulation**

</div>

| Group I | H1, H2, H3 | Independent Variable (IV) on Mediator (M) |
| | | *Sharing Leadership on Outcomes of Leadership* |
| Group II | H4, H5, H6 | Mediator (M) on Dependable Variable (DV) |
| | | *Outcomes of Leadership on Team Task Performance* |
| Group III | H7 | Direct Effect IV on DV |
| | H8, H9, H10 | Mediation effect |
| | | *Sharing Leadership on Team Task Performance through Outcomes of Leadership* |

Adopted from Rungtusanatham et al. (2014).

In the following subchapters, following this approach, I first discuss Hypotheses 1, 2 and 3 (Group I) as these describe the relationship between sharing leadership and leadership outcomes (i.e., in the DAC framework). I start with a general overview of Group I, followed by an in-depth exploration of each proposition separately before moving on to Group II and, finally, Group III.

## 3.3 Group I: Hypothesis 1, 2, 3

Most literature on shared leadership (SL) focuses on the relationship between sharing leadership and performance. The meta-analysis conducted by D'Innocenzo et al. (2016) highlights that shared leadership is more effective than traditional vertical leadership in promoting team performance. This positive relationship is particularly pronounced in teams characterised by higher task interdependence, larger sizes, and a greater proportion of knowledge workers. The findings emphasise the importance of considering sharing leadership as a viable approach for enhancing team performance across diverse contexts.

Recently, researchers moved their attention to exploring SL as an input to team processes and teams' emergent states (Yammarino et al., 2012, Mathieu et al., 2015; Han et al., 2017). Wang et al. (2014) concluded that SL tends to be more strongly related to a team's

attitudinal outcomes, behavioural processes and emergent team states than a team's long-term effects, e.g. performance. This finding aligns with the positioning of the variables in this study (see Figure 4). Direction, alignment and commitment, defined as emergent states (McCauley & Pauls, 2020; McCauley, 2019), take the role of "M" (mediator) and drop to the middle of the model. Sharing leadership, conceptualised as a type of practice, acts as an input to the leadership outcomes; hence, it is positioned most to the model's left.

Although there is no research relating sharing leadership (neither density, centralisation, or IWD) to outcomes of leadership as defined by the authors of the DAC framework, numerous studies explore the relationship between sharing leadership and similar to the DAC variables. The connection between various concepts can be easily distilled when one explores each of the questions in the DAC survey, focusing on the keywords they incorporate.

### TABLE 4
### Constructs within DAC Framework

|  | DAC Survey Questions | Key Concepts & Synonyms* |
|---|---|---|
| Direction | 1. We agree on what we should be *aim*ing to accomplish together. | *aim:* focus, objective, purpose |
|  | 2. We have a clear *vision* of what the team needs to achieve in the future. | *vision:* dream, wish, hope |
|  | 3. We have *team goals* that guide our key decisions. | *teams goals:* aim, objective, target |
| Alignment | 4. Our work is *aligned* across the team. | *alignment:* order, sequence, allying |
|  | 5. Although individuals take on different tasks in the team, our *combined* work fits together. | *combine:* amalgamate, merge, unite |
|  | 6. People who performed different roles or functions on the team *coordinate* their work effectively. | *coordination:* integration, cooperation, information sharing |
| Commitment | 7. People on the team are *committed to the team.* | *commitment:* dedication, devotion, allegiance (to the team) |
|  | 8. People give the *effort needed for the team* to succeed. | *effort:* endeavour, attempt, try (to the team) |
|  | 9. People are *dedicated to this team* even when we face setbacks. | *dedication:* commitment, enthusiasm, zeal (to the team) |

*Synonyms were identified using Google's English dictionary provided by Oxford Languages

In this subchapter, I explore the relationship between SL and DAC outcomes as supported by their further exploration, as presented in Table 4.

Hypotheses in Group 1, as depicted in Table 3, describe the relationship between the independent variable (here, sharing leadership) and leadership outcomes (here, taking the role of a mediator outcomes of a leadership process). I first look at the relationship between sharing leadership and direction (Hypothesis 1), then sharing leadership and alignment (Hypothesis 2), and finally, sharing leadership and commitment (Hypothesis 3).

### 3.3.1 H1: Sharing leadership has a positive impact on direction

Direction, as a leadership outcome, describes the collective agreement on the overall team's goals (McCauley & Fick-Cooper, 2015; Drath et al., 2008). Teams with a high level of direction have a shared understanding of the group's aims and agree on the value of those aims.

No exact research on the relationship between sharing leadership and direction, as defined in the DAC framework, was found. However, the literature study links sharing leadership and similar to direction concepts, e.g. a common sense of purpose and a team's vision (Sun & Leithwood, 2015). For example, Carson et al. (2007) explored the shared purpose and shared leadership. Their research shows that teams where members have similar understandings of the primary objectives and take steps to focus on collective goals, achieve better outcomes. Hence, the study proved a positive relationship between both constructs, i.e. common purpose and shared leadership[13].

A vision is another construct closely linked with direction, as defined by the authors of the DAC framework. It refers to a shared and compelling image of the team's desired future state that provides a sense of guidance and purpose. A well-crafted vision can inspire team members to achieve their goals and foster a climate of innovation by encouraging creative thinking and experimentation. However, it is proposed that vision is more likely to be embraced and internalised when it emerges from interactions and co-construction, dialogue and debate among team members, as this process enables the integration of diverse perspectives (e.g. Hosking & Anderson, 1992).

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[13] I note that Carson et al. (2007) studied the relationship between the variables reverse to what is proposed in this thesis; i.e. the researchers suggested that shared purpose is predictive of shared leadership, not the other way round.

Crevani et al. (2010) explained that a team's direction is produced in interactions, moment by moment. When leadership is shared, there are multiple sources of leadership, and more expressed mutual influence over one another. Sharing leadership invites and encourages open dialogue and debate and surfaces the differences between team members as there are fewer barriers to contributing to the leadership process (Carson et al., 2007). In such teams, members feel empowered and able to communicate their needs and opinions with the conflicts expected and even welcomed (Jehn, 1995). Disputes are not seen as hindering the team's performance but rather as a sign of a team's health and even something beneficial, enhancing group decision-making based on the diverse knowledge of the members (Eisenhardt et al., 1997; Edmondson, 2003). Ultimately, richness and a diversity of views are expected to be more supportive of the team's performance, as when sharing occurs, there is a greater possibility for the emergence of a mutually constructed team's direction. This notion is supported by DeRue et al. (2015, p. 1194), who noted that "in dense leadership structures… many or most group members actively set goals for the group, motivate each other to accomplish those objectives, and reinforce the group culture."

With direction being a primary driving force of every team's activity, the more sharing there is, the more chances for dialogue around the team's purpose, vision, and goals. On the other hand, when the level of sharing leadership decreases, less mutual influence and less leadership influence is reciprocated, leading to a decline in expression and a drop in overall participation.When there is no leadership sharing, it is either an indication that there is no leadership capability in the team, or for whatever reason, there are barriers for that leadership to be expressed and reciprocated (e.g. due to lack of psychological safety). In such collectives, there is less chance for direction to be discussed and agreed upon (i.e. this might lead to no direction at all) and less identification with it. When leadership is present but not shared, and the direction is given, such giving might not have the same value as when direction emerges from sharing. It is because what is given is assumed to have less effect on team members than when they co-create and birth together. Hence, based on the above, I propose:

*Hypothesis 1: Sharing leadership has a positive impact on direction..*

### 3.3.2 H2: Sharing leadership has a positive impact on alignment

Drath et al. (2008) identify alignment as a key outcome of effective leadership, which they define as the coordination of work and knowledge within the group (McCauley &

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Fick-Cooper, 2015, p.7). Successful alignment ensures that group members' work is well-integrated and coherent (McCauley, 2018).

Although there is a lack of research explicitly examining the relationship between shared leadership and alignment as conceptualised by Drath et al. (2008), related concepts such as coordination and team mental models (TMM) provide valuable insights. To better understand the potential connection between shared leadership and alignment, this thesis explores the interplay between these related concepts.

Coordination activities, crucial for information exchange and sequencing team member contributions, are classified as explicit or implicit by Rico et al. (2008). Explicit coordination encompasses activities that manage and orchestrate task-directed behaviour, such as planning and strategising. Implicit coordination, on the other hand, involves fluid adaptation and dynamic adjustment of individual team member behaviours during task completion, facilitated by well-developed TMMs (Mohammed et al., 2010).

Alignment, as defined by Drath et al. (2008), appears to encompass both explicit and implicit coordination. In well-aligned teams, members communicate effectively about task organisation, interpret relevant information similarly, and share expectations for future events. Shared leadership fosters interaction, expression, and exchange among team members, creating a shared understanding and providing greater transparency and clarity regarding roles and responsibilities. Consequently, the extent to which leadership is shared influences alignment.

This thesis posits that shared leadership affects alignment through communication and sense-making. Coordination requires extensive communication, with team members expected to "articulate plans, define responsibilities, negotiate deadlines, and seek information to undertake common tasks" (Rico et al., 2008, p. 165). Effective coordination includes information exchange and sense-making activities that align team member contributions, timing, workload distribution, and the explanation of rules and standard procedures (Marks et al., 2001). Empirical evidence supports a positive relationship between coordination and shared leadership (Bell & Kozlowski, 2002).

Although the theoretical differences between coordination and TMM, as conceptualised by Marks et al. (2001) and Mohammed et al. (2010), and alignment, as defined by Drath et al. (2008), are not entirely clear, their similarities provide a foundation for the following hypothesis:

*Hypothesis 2: Sharing leadership has a positive impact on alignment.*

### 3.3.3 H3: Sharing leadership has a positive impact on commitment

In the DAC framework, commitment is considered a team property. As an outcome of leadership, McCauley & Fick-Cooper (2015) define commitment as a team's mutual responsibility. Highly committed teams consist of members who feel accountable for the group's success and well-being and recognise that their peers share this sentiment.

In team literature, commitment is characterised by feelings of identification with and active involvement in the team (Bishop & Scott, 2000). Such identification may arise from a strong connection to the group's vision and goals, the willingness to contribute effort for the team's benefit or the value attributed to team membership (Bishop & Scott, 2000). Team members are likely to exhibit the highest commitment when their behaviours are valued and respected within the group.

Commitment, like shared leadership, has been linked to social exchange (e.g., Eisenberger et al., 1990). Shared leadership is an interactive influence-making process based on exchanges, where members influence one another and reciprocate. Social exchange theory posits that human relationships create an obligation to reciprocate upon receiving something of social value. In organisational and team contexts, communication can be considered a social exchange, with each interaction implying a need for reciprocation based on appreciation and respect (e.g., Klein et al., 2012). Therefore, as leadership influence increases, more opportunities for reciprocation arise, engaging members in the process. This active engagement leads to a better collective understanding of challenges and opportunities and results in team members being more invested in the team's activities, potentially increasing their commitment (Bales, 1954). Engagement is crucial for mutual commitment emergence. Individuals participating in leadership processes, such as setting a vision or providing direction, will likely experience an elevated status and exhibit more agentic behaviour. Their contributions to the shared leadership process foster a stronger attachment to the team, as it is challenging not to commit to something one has helped create.

Empirical findings from the broader team literature, such as Han et al. (2018), support the assumptions regarding the extent to which shared leadership influences commitment levels. For instance, Han et al. (2018) found that shared leadership affects commitment to a team's goals. Based on these considerations, I propose the following hypothesis:

*Hypothesis 3: Sharing leadership has a positive impact on commitment.*

## 3.4 Group II: Hypothesis 3, 4, 5

According to the DAC framework, there is an assumed connection between the production of DAC, identified as a short-term leadership outcome, and the achievement of long-term leadership effects. Direction, alignment, and commitment are presumed to influence long-term organisational effects, leading to both intended and unintended team results, such as meeting financial targets.

Aside from one study (McCauley et al., 2018), there is currently limited data on the relationship between leadership outcomes and leadership effects. The aforementioned empirical findings confirm that leadership outcomes are interconnected and that they influence long-term effects. However, a significant gap remains in examining the relationship between these variables. This thesis addresses this gap and seeks to assess further whether the levels of leadership outcomes, defined as emergent states of direction, alignment, and commitment, predict long-term team success.

The assumption of a positive relationship between emergent states of leadership outcomes and performance is based on the general idea that emergent states and processes primarily drive teamwork outcomes, such as performance, satisfaction, and cohesion (LePine et al., 2008). In the following sections, I explore each of the three leadership outcomes in relation to team task performance (TTP)in greater detail.

### 3.4.1 H4: Direction has a positive impact on team task performance

Direction, as defined by Drath et al. (2008), represents the collective agreement on overarching plans and goals, with team members being guided by a vision to accomplish the team's objectives. According to the DAC framework, direction is centred around a shared vision and the establishment of consensus concerning goals and priorities. Teams that prioritise direction-setting practices strive to identify, develop, and articulate this shared vision, reach goal consensus, and offer an overall sense of purpose.

In broader literature, vision is frequently characterised as a higher-order goal or "a motivating force at work" (West, 1990, p. 310). It consists of four components: clarity, visionary nature, sharedness, and attainability (Anderson & West, 1998). Research into the role of vision in teams (Kivimaki & Elovainio, 1999) indicates a positive relationship with team performance when the vision fulfils these four criteria.

As a constituent of direction, goals are influenced by the team's vision. Locke and Latham (2002) define a goal as "the object or aim of an action, for example, to attain a specific standard of proficiency, usually within a specified time limit" (p. 705). Goal-setting theory (Locke & Latham, 1990, 2002) contends that goal clarity positively impacts performance through several mechanisms, such as directing attention and effort, energising people, fostering persistence, and shaping action. Research on goal setting, akin to vision, demonstrates a strong link with workplace performance (Locke & Latham, 2002; Sun & Leithwood, 2015). Consequently, incorporating theories from the wider literature on vision, purpose, and goals, it is suggested:

*Hypothesis 4: Direction has a positive impact on team task performance.*

### 3.4.2 H5: Alignment has a positive impact on team task performance

In the realm of team literature, coordination is characterised as a team behavioural process (Marks et al., 2001) that shares similarities with the concept of alignment from the DAC framework (Drath et al., 2008). Coordination involves synchronising team members' activities through sequencing and timing (Marks et al., 2001), contributing to the harmonisation of individual efforts and increased efficiency. A growing body of evidence underscores the importance of coordination for a collective's effectiveness (Summers et al., 2012). Meta-analyses conducted by LePine et al. (2008) identified team coordination as a key mechanism through which teams integrate their efforts to achieve superior performance, with several empirical studies supporting this proposition (Fisher, 2014; LePine et al., 2008; Lorinkova et al., 2013).

Scholars posit that effective coordination involves identifying and integrating members' resources and contributions. Teams seek to merge individual team members' contributions to yield the desired collective outcome. This conceptualisation aligns with the team compilation theory concerning team development and functionality (Kozlowski et al., 1999). The theory delineates how teams evolve from separate individuals into distinct collective entities. As this integrative transformation occurs, team members actively engage with one another to comprehend their colleagues' roles and abilities. This process, combined with situational awareness, ultimately enables team members to align their efforts and enhance the effectiveness of their actions (Fisher, 2014; Dierdorff et al., 2011).

Effective communication plays a vital role in fostering coordination among team members, as it allows for sharing ideas, knowledge, and expectations. Communication and

sense-making are proposed as the primary mechanisms through which integration transpires. Once unique inputs, such as diverse team members' skills, task-relevant knowledge, personal dispositions, and available resources, are comprehended, they are converted into a collective team mental model (TMM).

A team mental model is said to manifest when each team member's conceptualisation (i.e., mental model) is shared and congruent with that of other team members (Mohammed et al., 2010). This shared understanding, facilitated by effective communication, promotes alignment within the team. Abundant empirical evidence suggests that TMMs are connected to coordination processes and, ultimately, enhance performance (e.g., DeChurch & Mesmer-Magnus, 2010; LePine et al., 2008).

Building on the findings from the team literature on coordination and TMMs, which are seen as mirroring alignment as defined by the authors of the DAC framework, the following hypothesis is proposed:

*Hypothesis 5:Alignment has a positive impact on team task performance.*

### 3.4.3 H6: Commitment has a positive impact on team task performance

Commitment in the DAC framework (Drath et al., 2008) appears closely related to organisational commitment, which has been defined as an individual's beliefs about their identification and involvement in an organisation, coupled with a strong desire to remain a part of it (Leithwood et al., 1999; Porter et al., 1974). Notably, the DAC framework's concept of commitment, although a collective construct, aligns with Klein et al.'s (2009) "perceived bond," emphasising emotional involvement and reflecting a psychological bond indicating dedication and responsibility for a specific target (p.137).

Organisational commitment literature presents two predominant views: affective and instrumental commitment (Angle & Perry, 1981). Affective commitment centres on the collective, with the individual's needs satisfied through interaction with the collective, leading to increased identification and a desire to maintain membership. Instrumental commitment is based on organisational equilibrium, where participation continues as long as inducements meet or exceed contributions regarding the participant's values.

Affective commitment aligns closely with the commitment concept in the DAC framework (Drath et al., 2008). The team's literature supports the positive relationship between affective commitment and organisational outcomes (e.g., Aubé et al., 2014; Bishop &

Scott, 2000; Meyer et al., 2002). In summary, based on finding from the team's literature, the following hypothesis is formulated:

*Hypothesis 6: Commitment has a positive impact on team task performance.*

## 3.5 Group III: Hypothesis 7, 8, 9, 10

Shared leadership (SL) is recognised in the literature for its relationship to team performance. Balkundi and Harrison (2006) propose the density-performance hypothesis, demonstrating a positive correlation between shared leadership and performance. Studies have shown that when sharing is present, team members experience fewer differences with increased leadership equality leading to improved collaboration and cooperation (Sparrowe et al., 2001). Moreover, Sharing leadership enables teams to be more flexible and access timely information with less dependence on specific central individuals (Pearce & Manz, 2005). In this way sharing fosters engagement with tasks, enhancing the team's ability to achieve strategic results while reducing social loafing due to increased visibility and accountability (Wagner, 1995).

Teams with high levels of leadership influence sharing  exhibit higher levels of cohesion (Van Woerkom & Sanders, 2010), reduced conflict and stress (Wood & Fields, 2007), and better performance (Pearce & Sims, 2002). Conversely, teams with less leadership sharing may struggle with exchanging vital ideas and tacit knowledge, which can negatively impact team results (Balkundi & Harrison, 2006). Shared leadership encourages mutual co-creation, higher engagement, increased communication, and collaborative sense-making. It also leads to higher satisfaction due to increased engagement and ownership arising from participation in the decision-making process (Hoch & Dulebohn, 2017).

While the direct relationship between sharing leadership and performance is well-studied, emerging research has focused on the indirect role of sharing on team performance through team processes and emergent states (Yammarino et al., 2012; Mathieu et al., 2015; Han et al., 2017). This thesis builds on these findings and explores the direct relationship between shared leadership and long-term team effects (here, team task performance), as well as the indirect relationship where sharing leadership on performance is mediated by direction, alignment, and commitment as defined in the DAC framework.

Communication and sense-making are considered the primary mechanisms through which shared leadership impact both leadership outcomes (DAC) and team task performance

(TTP). Sharing leadership influences both distal effects (TTP) and proximal team processes, cognitive, motivational, and behavioural states (emergent states). It also facilitates increased reliance on multiple team members for problem-solving and idea generation, promotes closeness between members, enhancing cohesion, and positive workplace experiences

Through better communication, it supports development organisation processes such as directing, aligning and coordinating, ultimately contributing to team effectiveness (Bligh et al., 2006; Hoch, 2013).

Based on the above considerations, it is proposed that both direct and indirect relationships between leadership sharing and team task performance exist. Sharing leadership serves as input for the leadership outcomes of direction, alignment, and commitment, which in turn, affect performance. Thus, the direct relationship between sharing leadership and performance can coexist with the indirect effect, in which the impact of sharing leadership passes through the leadership outcomes to team task performance. Therefore:

*H7: Sharing leadership has a direct positive impact on team task performance.*

*H8: The positive impact of sharing leadership on team task performance is mediated by direction.*

*H9: The positive impact of sharing leadership on team task performance is mediated by alignment.*

*H10: The positive impact of sharing leadership on team task performance is mediated by commitment.*

**3.6 Summary**

This chapter presents the ten hypotheses of this study, following Rungtusanatham et al.'s (2014) approach to proposition forming. The hypotheses are divided into three groups: Group I examines the relationship between sharing leadership and leadership outcomes; Group II focuses on the relationship between leadership outcomes and performance; and Group III explores the direct and indirect effects of sharing leadership on leadership outcomes and performance. In the following chapter, Chapter Four: Methodology, the methods employed for this study's empirical exploration are discussed, and the overall approach to data analysis is introduced.

# CHAPTER FOUR
## METHODOLOGY

## 4.1 Introduction

Chapter 4, titled Methodology, presents a comprehensive overview of the research methods and strategies employed to address the primary research question of this study. Initially, the chapter outlines the research design, providing a brief discussion on the underlying philosophical framework and offering justification for the adoption of a quantitative approach to test the proposed multiple mediation model. Following this, the chapter delves into the specifics of data collection procedures and highlights the characteristics of the sample population. This includes an examination of the setting where data were collected and a clear delineation of the variables' boundaries within the context of team tasks.

A significant portion of this chapter is dedicated to an in-depth exploration of the chosen measurement techniques, with a special focus on shared leadership. In this regard, various indices derived from Social Network Analyses are thoroughly discussed and assessed prior to determining the most appropriate selection for this study. In concluding the chapter, the data analysis strategy employed is elucidated, providing a clear understanding of the methods used to draw conclusions from the gathered data.

## 4.2 Design

This thesis adopts a structural approach, meaning a structure of the research is imposed based on a preliminary theory and meaning of concepts. Such an approach links to a research philosophy known as positivism which adheres to the view that only factual knowledge is trustworthy. The guiding principle of the approach is to stay objective, with the role of the researcher limited to data collection and interpretation of the results generated through statistical analyses.

This thesis adopts a deductive approach following the theory-then-research method. Firstly, a set of hypotheses was developed based on the existing theory. Secondly, the overall design strategy was created to plan how to test these hypotheses.

The reason for selecting a quantitative approach to test the study hypotheses was to attain results which can be clearly communicated through statistics and numbers and generalised beyond this study's sample (Leedy & Ormrod, 2015).

Many positivist philosophy critiques point out, e.g. a lack of cultural sensitivity. Others speak of the exclusion of the proper interpretation and connotation of quantitative data findings, which leads to an unrealistic generalisability (Swanson & Holton, 2005). However, the biggest challenge in adopting quantitative analyses to study leadership processes may extend beyond the general critique. At its core, leadership is a dynamic process, which, although capable of being described by static forms, requires a nuanced approach to capture its true essence. The DAC framework and shared leadership (SL) share this underlying conceptualisation of leadership's dynamism. Both approaches refer to an "occurrence" or "happening" of mutual influence when defining leadership. Nevertheless, although the two define leadership as a process, they focus on capturing it through static snapshots of structure and outcomes, implying the appropriateness of using quantitative methods. To better understand the challenges of studying leadership processes through static snapshots of its structure and outcomes, consider comparing it to taking pictures of a cycle ride at specific milestones, such as the middle and end of the ride. By confining the study to the analysis of these images, valuable insights may be overlooked as crucial aspects of the process remain unexamined. Recognising the limitations of the quantitative approach in studying leadership as a process is crucial, as this method may not fully align with the construct's conceptual definition. Nevertheless, although this thesis adopts the approach of viewing leadership as "happening", it analyses the outcomes and structure of the leadership happening through the static results (i.e. snapshots) of the ongoing leadership process. The decision to approach the study using quantitative methods builds on numerous further considerations.

Firstly, the methodology for the study is chosen in alignment with the researcher's philosophical stance and desire to rely on facts to uncover the truth with clearly articulated results.

Secondly, appropriate instruments and methods are available to measure each construct effectively and accurately. A newly validated DAC survey allows for a quantitative approach to measure leadership outcomes as defined by Drath et al. (2008). Recent advancements in the operationalisation of shared leadership have also led to more accurate

and precise capturing of leadership structures (refer to the discussion in the Hypothesis chapter and subsequent sections).

The decision to utilise a quantitative approach is driven by the need to fill gaps in the existing literature. With the exception of McCauley et al.'s (2019) study, no empirical research has been published on leadership outcomes defined by Drath et al. (2008). Additionally, very few studies have employed the newly proposed social network indices of Importance Weighted Density to capture leadership structure. Moreover, no empirical studies have explored the relationship between sharing leadership and the DAC framework.

Finally, and from a more pragmatic standpoint, selecting a quantitative approach allowed for a cost-efficient and timely method to collect sufficient data to identify the general relationship between variables used in the study. Based on all of the above considerations, the quantitative methodology for the current study seemed justified.

The three studied constructs in this thesis are sharing leadership (SingL), outcomes of leadership (DAC) and team task performance (TTP). Each of these constructs was captured relying on survey instruments. Consideration was given to what instruments to choose to ensure the validity of the current study. The current study used existing instruments. While existing instruments were used, it is worth noting that the DAC survey was validated only recently, in 2019.

Next to validity, an instrument's reliability is also essential when conducting research. According to Simon (2010), the reliability of a study involves the accuracy of a measure depicting the true score of the subject being assessed. The reliability or internal consistency level, was assessed using Cronbach's alpha, α (or coefficient alpha), developed by Lee Cronbach in 1951. The Cronbach's alpha tests are run to determine whether multiple Likert scale survey questions are reliable. In this study, Cronbach's alpha was reported for each of the measures, with a value of .7 or higher seen as indicating an acceptable level of internal consistency (Hair et al., 2013).

All items used in the measures are included in the Appendix section for easy reference.

## 4.3 Data Collection

The current study's target population was self-managed teams working on highly interdependent tasks. Such a clear view of what the study sample should be was based on reflections on the current business environment and detailed analyses of the emerging literature.

The level of interdependence was an important criterion when choosing the study's sample. The literature reveals that shared leadership (SL) is more likely to develop in groups with a high level of interdependence (e.g., Fausing et al., 2015). Given that sharing leadership is a critical construct of this thesis, the focus was on identifying a sample with high task interdependence, which would result in larger effect sizes and a more apparent relationship between the variables studied.

In addition to prioritising interdependence, the sample size was selected to include self-managed teams, aiming to align this research with real-world practices closely. Self-managed teams are becoming the dominant form of how teams organise themselves (see, e.g. Sundstrom et al., 2000). Hence, not choosing self-managed teams would mean not reflecting on the current business reality.

To qualify as a study sample, the group had to consist of at least three members working towards a common objective. This criterion aligns with the definition of a team adopted in this thesis, which follows Cohen and Bailey's (1997): a team is comprised of a minimum of three individuals who regularly interact in an interdependent manner, work towards a common goal, and perceive themselves and are perceived by others as a team.

Data was collected at a large university in the southwest of the United Kingdom. The university offers two parallel undergraduate programmes, each based on the same methodology but each with a slightly different focus. Although relying on data gathered from students, particularly undergraduates entering the professional world of work and business, may have limitations, their samples can still provide valuable insights. While students' samples are usually considered more homogenous than representative samples, scholars have suggested that student groups share meaningful similarities with work groups. Furthermore, the use of student samples can offer certain benefits, such as providing conservative tests that help mitigate potential biases in the patterns of results (D'Innocenzo et al., 2014).

The use of student samples in shared leadership research is not uncommon and appropriate for providing valuable insights into the dynamics of leadership sharing. For instance, Bergman et al. (2012) conducted a study on the shared leadership process in decision-making teams using undergraduate student participants. Similarly, Small and Rentsch (2010) investigated shared leadership in teams, focusing on its distribution, and used a student sample to substantiate their findings. Avolio et al. (1996) examined shared leadership processes, efficacy, trust, and performance within highly developed teams using student participants in another study. Carson et al. (2007) also explored shared leadership in teams, examining antecedent conditions and performance, and utilised a student sample to draw meaningful conclusions.

As mentioned, data were collected across two undergraduate programmes based on the same teaching methodology of Team Academy, founded in 1993 at JAMK University of Applied Sciences in Jyväskylä, Finland. Its programmes operate worldwide and are based on the same educational design. Although based in the University setting, students are awarded a standard university degree based on their actions rather than purely academic work. The learning environment is similar to a start-up hub as learners create and run real organisations and work on solving actual business challenges. As explained by Tosey et al. (2012), the Team Academy model is based on a fundamental belief that "management is learned by being in business" (p. 15). Hence, the chosen study setting reflects the business environment well, strengthening the data's validity. These groups were a good fit for data collection as the teams are regularly asked to work on tasks with solid deadlines and clear expectations about the outputs. Further, these groups are self-managed in the sense that members decide about their team's formal structure, including the appointment of leaders. The final strength of the chosen sample was that it consisted of teams working on real tasks rather than simulations, with further implications for the stronger validity of the study's results. Taken together, singled-out student teams met the identified criteria for sample selection and were judged as an appropriate sample for testing this study's hypotheses.

During data collection, the teams were working on a consultancy-type task. In particular, teams were allocated an external client (e.g.a local SME or a PR agency) who provided each group with a challenge related to their business. It could be anything from, e.g. redesigning a media strategy, sales and marketing, new product development, sustainability, organisational culture and change, and business process redesign. At the end of the challenge, each team had to generate a written report and present their findings to

the panel, including the client. There were solid deadlines and clear expectations about the outputs, yet teams were self-managing, meaning members independently coordinated their performance strategies and working schedules.

The fact that teams were working on consultancy-type tasks with various focuses accurately reflects the diverse challenges teams face in real-world settings. Although the content of the tasks varied (e.g., marketing strategy vs sustainability strategy), the task boundaries remained consistent (e.g., the same deliverables and deadlines). By maintaining consistent boundaries while examining a range of tasks, the study balances capturing the variability of real-world team challenges and upholding a controlled research environment. This decision, while acknowledging potential limitations, enhances the study's external validity and strengthens the relevance of the findings for diverse teams and organisations, as it closely mirrors the actual conditions encountered by teams in the workplace.

In this study, the choice to analyse real data collected from teams working on genuine consultancy-type tasks offers several advantages over the use of simulations. Firstly, by working with actual external clients on authentic business challenges, the study captures the complexities and nuances of real-world team dynamics that simulations may fail to replicate accurately. Consequently, the findings derived from this study can be considered more ecologically valid, as they are grounded in the reality of team performance. Secondly, the context of the study - focusing on teams that are self-managing and working towards concrete outcomes within strict deadlines - provides a rich and fertile ground for a nuanced understanding of a leadership process, both how it is shared and what outcomes it produces. This, in turn, allows for a more comprehensive and in-depth examination of the interplay between sharing leadership and team performance, as well as the mechanisms through which sharing leadership contributes to team effectiveness. Lastly, the use of real data in this study increases the generalisability and external validity of the findings, as the insights gained can be more readily applied to practical settings. Organisations, managers and practitioners can benefit from these results, as they are based on actual team experiences and can thus inform evidence-based strategies to foster sharing leadership and enhance team performance.

When conducting a study that involves human participation, ethical consideration is necessary. Therefore, formal approval from the University's Ethics Committee was obtained before data was collected. Upon approval, the invitation to participate was sent to

each student separately, including an introductory letter, study description and consent form.

Surveys were distributed online and in person to increase the response rate. It was the most appropriate form of data collection for several reasons. First of all, from the outset, it was known that sharing leadership would be measured by relying on the Social Network approach. Social Network Analysis (SNA) requires a high response rate. The network analysis results are susceptible to data omission (Borgatti et al., 2006). The use of in-person and online distribution ensured all team members were targeted, including those who were physically present and those who were temporarily absent (e.g., unable to attend in person due to illness on the date of in-person data collection). The online survey was developed via Qualtrics and distributed via email, providing participants with a hyperlink via which the survey could be completed at participants' convenience. Two reminder emails were sent each week for two weeks to those who still needed to complete the survey to maximise the response rate.

This thesis investigates a mediation model. Bono and McNamara (2011) pointed out that mediation studies require causal associations, making a longitudinal study design necessary. In this research, data were collected at two points: the midpoint and the end of the task. These two waves were selected as the minimal design to test mediation, which involves examining cause-effect relationships where the cause precedes the effect, expected to emerge later (Cole & Maxwell, 2003). Collecting data at only two-time points was also considered the most feasible approach, given the complexities of utilising Social Network Analysis (SNA), a labour-intensive method. Typically, longitudinal models involve three data collection points.

Data were gathered at time 1 (T1), mid of the task work (approximately three weeks from the start of the task) and time 2 (T2), a few days upon completion of the task. Measures on each construct were collected twice. Time 1 (T1) of the task work has been chosen based on the suggestion of (DeRue et al., 2015), who noted that teams need some time to develop structures and patterns (DeRue et al., 2015). In this study's design context, three weeks were seen as sufficient time for leadership to emerge.Time 2 (T2) of the task was selected because it was assumed that students would only be able to focus on completing the surveys after submitting their academic work, as required by the task objectives. This approach was primarily driven by the aim of increasing the survey response rate.

## 4.4 Sample Characteristics

The sample size for this thesis study was determined by a compromise arising from the decision to use social network analysis (SNA) to calculate shared leadership. While SNA is a more accurate technique for indexing shared leadership, it is also more labour-intensive. The analysis was even more demanding due to the adopted two-wave design, which required data to be collected twice.

As previously noted, a common challenge in network analysis is the requirement of nearly 100% survey participation for validity, which can be difficult to attain. It is essential to include all team members in the sample, as they may play a significant role in the team's leadership dynamics. Consequently, they are assessed by their peers even if they are absent or not actively participating in the task. Despite the demanding nature of this approach, the combination of online and in-person data collection yielded a high response rate (95%). Achieving this outcome was a crucial step in the data collection process, as a minimum of 75% participation is typically needed in SNA for the data to be considered reliable (Borgatti et al., 2006).

The survey was distributed to 46 teams comprising 202 individuals. At each time point, five teams were excluded instantly as consisting of only two members. More teams had to be excluded due to the 75% response rate needing to be met (11 teams at T1 and 5 at T2 ). The final sample consisted of 29 teams at T1 and 37 at T2, ranging from 3 to 7 members at T1 and 3 to 11 at T2. The average team size was 4.6 (SD = 1.2) at T1 and 5.11 (SD = 1.8) at T2. That sample was further reduced during cross-lagged sequential analyses as the sample had to be "matched", resulting in the final sample of "matched" 29 teams at each time point. This sample size corresponds well with the sample sizes recorded in similar studies, e.g. Chrobot-Mason et al., 2016 - 9 teams; Serban et al., 2016 - 30 teams; Mehra et al., 2006 - 28 teams; Carson et al., 2007 - 59 teams (see table below).

The sample predominantly consisted of males (79% in T1 and 86% in T2), with the mean age of the total sample population being 21. The sample characteristics are presented in the table below.

**TABLE 5**

**Characteristics of Research Sample**

| | Min | Max | Mean | Std. Dev | N | % |
|---|---|---|---|---|---|---|
| | Time 1 | | | | | |
| **Team Size** | 3 | 7 | 4.6 | 1.2 | 29 | |
| **Team Members (Age)** | 18 | 57 | 20.89 | 4.015 | 143 | |
| **Team Members (Gender)** | Males | | | | 113 | 79 |
| | Females | | | | 20 | 21 |
| | Time 2 | | | | | |
| **Team Size** | 3 | 11 | 5.11 | 1.8 | 37 | |
| **Team Members (Age)** | 17 | 57 | 20.7 | 4.018 | 182 | |
| **Team Members (Gender)** | Males | | | | 156 | 86 |
| | Females | | | | 26 | 14 |

## 4.5 Measures

The three constructs of this thesis are sharing leadership (SingL), outcomes of leadership (DAC) and team task performance (TTP). To ensure valid and reliable information is collected, it is pertinent that adequate measures are selected. Furthermore, since Social Network Analysis was applied to investigate sharing leadership, choosing concise, easy-to-understand questionnaires that took little time to complete was crucial. Unless otherwise noted, all the measures were rated using 5-point scales. A complete list of items for each measure used can be found in Appendices.

### 4.5.1 Sharing Leadership

The SNA method uses a round-robin method by giving each respondent a list of team members, who then rate them on their leadership influence. Sharing leadership (SingL) was measured following Carson et al. (2007) question; "To what degree does your team rely on this individual for leadership?." Each team member rated all other team members (1, "not at all," to 5, "to a very great extent") according to the degree to which they exercise leader-like influence (Carson et al., 2007; Mayo et al., 2003). Data were collected at time 1 (T1), in the middle of the task, and at the end of the task (T2). Sharing leadership was purposely measured using the omnibus measure to get a sense of overall leadership contribution from each individual (for the discussion on different types of shared leadership, as viewed through the "I" in the Pronouns Framework, please revisit the Literature Review). As this study strives to foster a more cohesive understanding of

leadership, it aims to bridge diverse perspectives, theories, and conceptualisations by selecting an omnibus measure to support this endeavour. In doing so, the research seeks to facilitate a less fragmented examination of leadership, ultimately contributing to the development of a General Theory of Leadership.

It is worth noting that predominantly shared leadership is measured using two approaches, i.e. aggregation or social network analyses. The aggregation approach, also known as the referent-shift approach (Chan, 1998), is frequently employed to examine the impact of sharing a specific leadership style, such as shared servant leadership. Methodologically, this approach utilises the original leadership scale, shifts the source of leadership from the formal leader to the team members, and aggregates the team members' ratings at the team level (Wang et al., 2014). Several reviewers (Gockel & Werth, 2010; D'Innocenzo et al., 2016; Zhu et al., 2018) list the limitations of this approach. For example, their question the adoption of established leadership scales initially developed to assess individuals' perceptions of leadership behaviours to capture a collective-level phenomenon. Further, when aggregation is used, the raters have to do "mental arithmetic", which might impact the results (Crawford & LePine, 2013). Due to the number of limitations of the aggregation approach, this study builds a social network approach.

In contrast to aggregation, social network analyses (SNA) reports improved accuracy (Wang et al., 2014) and results in higher effect sizes (Nicolaides et al., 2014; D'Innocenzo et al., 2016; Wu et al., 2020). Perhaps more importantly, the SNA approach allows for examining relational structures of leadership influence in teams. The focus of SNA on capturing the relational structure is exactly what makes SNA such a powerful method. The use of SNA means more alignment between the methods and the theory, especially when we realise that shared leadership resides in mutual leadership relationships (Mayo et al., 2003; Carter et al., 2015).

From a methodological point of view, the question remains: What SNA index can be used to capture the level of sharing leadership in teams? It is a challenging question as Social Network Analysis is a broad methodology with a large selection of indices, each reflecting different elements of network structure. Further, for a measure of a construct to have validity and for research conclusions to be interpretable, the conceptual and operational definitions should align (Hempel, 1954). If the wrong measure had been chosen, this might completely change the significance of a study's findings and the requisite theory behind them.

The literature review on shared leadership reveals that most published research utilising the Social Network Analysis (SNA) approach employs either density or centralisation as the sharing index. These indices are explored in the following sections, evaluating their strengths and limitations. This comprehensive assessment aims to facilitate informed decision-making regarding the most suitable measure for capturing sharing leadership within a team, ensuring alignment between the construct and method. The examination begins with density, followed by an exploration of centralisation.

Density reflects the overall leadership contribution, with higher levels indicating more team members engaging in providing leadership influence. It is important to reiterate that the density formula, as described by Wasserman and Faust (1994), captures both reciprocated and directional ties between team members, considering all connections or relationships in the network. Following Wasserman and Faust (1994, p. 129), "ties" represent the total number of connections in the network, which are determined by the sum of team members' ratings of each other's leadership. Density is calculated by dividing the sum of these ties by the total number of possible ties or relationships among team members. In this context, "n" represents the number of nodes, each corresponding to one team member. By considering both the number of connections (ties) and the number of individuals (nodes) in the team, density offers insight into the overall level of leadership exchanges within the network (Sparrowe et al., 2001).

$$D = \frac{ties}{n(n-1)}$$

It must be noted yet again that density does not capture the dispersion of leadership influence. That particular quality is believed to be best captured with another SNA index, i.e. centralisation.

Centralisation illustrates the extent to which a group is organised around its most central individuals (Sparrowe et al., 2001; DeRue et al., 2015; Mehra et al., 2006; Zhu et al., 2018). Mayo and colleagues (2003) posited that "if all members of the network participate equally in displaying leadership behaviours, we will have the highest level of shared leadership" (p. 203). Consequently, a lower degree of centralisation indicates a more evenly distributed pattern of leadership behaviours (decentralisation). Such a structure reflects a higher level of shared leadership within the team, whereas a higher degree of

centralisation signifies that leadership behaviours are concentrated around a few central individuals, resulting in a less shared leadership approach within the team.

Centralisation represents the distribution of centrality on a collective level within the network, whereas network centrality is a measure for individual actors within the network. Network centrality can be assessed using several methods, such as degree centrality, betweenness centrality, and eigenvector centrality. Based on the analyses of the current literature, most researchers, when applying the index of centralisation to their study, use the degree centrality to capture shared leadership as encapsulated in the formula proposed by Freeman (1978):

$$S_c^2 = \left[ \sum_{i=1}^{n} C_D(n^*) - C_D(n_i)/\max(x)(n-1)^2 \right]$$

where $C_D(n_i)$ represents the in-degree centrality, i.e. a total of incoming ties for member *i*. CD(n*) represents the maximum observed centrality within the group. Max(x) represents the largest possible matrix value. The inverse of this statistic $(1 - S_c^2)$ provides the group's decentralisation.

The current literature on shared leadership emphasises the importance of using both indices of density and decentralisation, as they are complementary measures that capture different aspects of the network structure (Paunova, 2015). However, Mendez (2009) and Lemoine et al. (2020) have observed that these measures are often used interchangeably without justification for choosing one over the other. This is surprising given that Wasserman and Faust (1994) clearly differentiated between various indices in 1994. Notably, DeRue et al. (2015) is an exception to this trend, as they provided reasons for selecting a specific index.

To illustrate the differences between the indices, Figure 5 is proposed. A visual representation of the various patterns of leadership structure further underscores the importance of understanding the differences between the two indices and their respective purposes (Mehra et al., 2006). As Wasserman and Faust (1994, p. 94) stated, "The visual representation of data in a graph or sociogram often allows researchers to uncover patterns that might otherwise go undetected."

**FIGURE 5**

**Visual Representations of Leadership Sharing Structures**
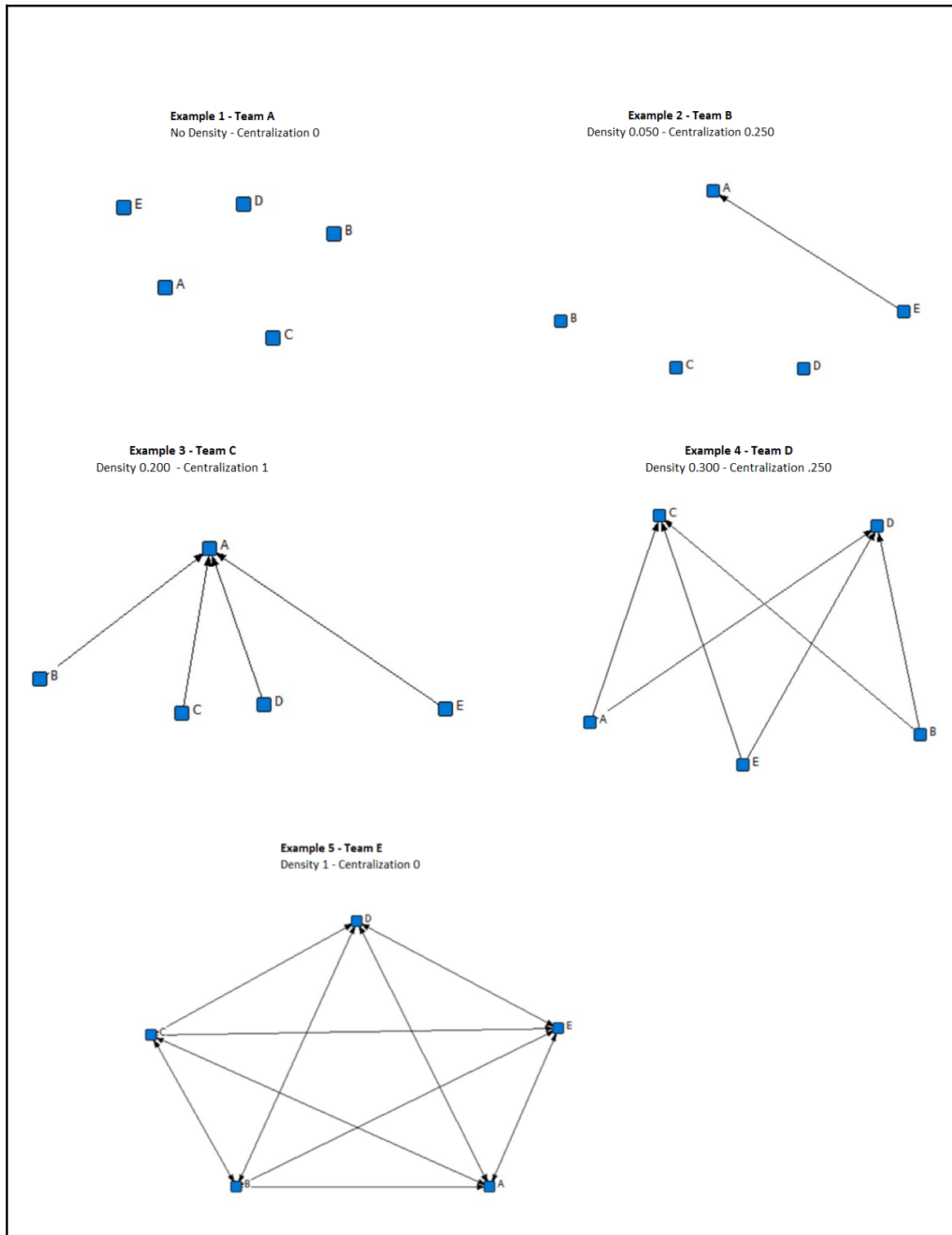


Visual representations prepared using Netdraw Network Visualisation; calculations obtained using UCINET 6 (Borgatti et al., 2006). For further discussion on the implications of the visual representation of structural leadership patterning, see Lemoine et al., 2020.

The structure of Team E (Example 5) might be the easiest to relate to the theory of shared leadership. Each node (i.e. team member) sends and receives the same number of ties (i.e. leadership relationship is reciprocated). In this team, leadership influence is spread equally

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between team members. That means each team member is perceived as a source of leadership influence to the same level as all other team members. This team is fully decentralised, as there are no differences in the equality of incoming ties (centralisation = 0). Leadership density is also at its highest level, with each member influencing the maximum, i.e. four other members (density = 1). This team's structural patterning represents the perfect example of sharing leadership and what Mayo et al. (2003) theorised as "shared leadership" (note, not "sharing leadership" but "shared leadership"). Mayo et al. (2003) described shared leadership as existing when a particular patterning of sharing occurs, characterised by high density combined with low centralisation.

At the other scale of the spectrum, or more accurately, not on the spectrum at all, is the structural patterning of team A (Example 1). It is an empty network where there are no leadership ties between team members, meaning, in this collective, there is no leadership influence. Note that this empty network has exactly the same score of centralisation as Team E. If centralisation were used as the only index to capture shared leadership, both teams would be viewed as representing groups with the same level of shared leadership; both could be seen as a perfect example of decentralised teams. Yet, the visual representation of their leadership patterning leaves no doubt that there are drastic differences between teams. If the teams' decentralisation scores had been used on their own, i.e., without the visual representation, this could have led to an inaccurate interpretation of the nature of processes within these teams.

The structure of Team B is very much similar to Team A. In team A, there is hardly any leadership generated. The leadership influence only occurs between team members E and A. The value of density is very low (density = .050). Centralisation is also low as only 1 out of 4 team members (member E) perceives the other member as influencing leadership in the team (centralisation = .250).

An example of the structure of Team C is rather interesting. This structure's visual representation seems to depict so-called vertical leadership (Hiller et al., 2006). There is one leader, member A. It means this team is highly centralised (centralisation = 1). However, although low, the density level is still rather substantial (density = .200). It is important to note as it supports the realisation of how much literature on shared leadership might be conflicted.

Team B presents vertical or hierarchical leadership, and its structure indicates there is no sharing, i.e. leadership influence exists between two members, and there is no reciprocity. Suppose the structure of this team was depicted using the currently most often employed index, i.e. density. In that case, one could not have known that this team displays vertical leadership, with potential implications for theory and practice.

The example of Team D presents average scores for both density and centralisation (with indices ranging from 0 to 1), suggesting the presence of leadership influence within the team. However, a closer examination of the visual representation of the team's leadership structure may raise doubts about whether this structure truly represents shared leadership. This structure could even suggest a segmentation or division among team members and hence, it is debatable whether we can refer to this team's leadership as shared. Instead, it might more accurately depict fragmented leadership, where some team members view members C and D as leaders, but none perceive the others as leaders. This implies that when evaluating a team's leadership structure, it is crucial to consider not only density and centralisation scores but also the visual representation.

Furthermore, the specific example of Team D's structural pattern highlights the limitations of relying on a single index when analysing a team's leadership patterning. For instance, this particular network has a density score of 0.30, which might indicate a substantial level of leadership influence within the team. However, upon re-examining the previously discussed considerations, we quickly realised that in the specific context of Team D, a density score alone does not accurately represent the team's leadership structure. If we were to rely solely on the density score, we might miss the possibility that this team could benefit from increased reciprocation of leadership influence.

The above considerations make it clear that it is necessary to simultaneously include both density and centralisation measures as an index of sharing leadership (D'Innocenzo et al., 2014; Mayo et al., 2003). The analyses of the peer-reviewed publications in the last ten years indicate a slow yet noticeable trend and increase in research utilising these two indices simultaneously (see table below).

This thesis follows the recommendations of several authors (e.g., D'Innocenzo et al., 2014; Gockel & Werth, 2010; Mayo et al., 2003; Aubé et al., 2018; Paunova, 2015; DeRue et al., 2015), and explores the patterning of leadership building on both indicators (i.e., density and centralisation).

Moreover, this thesis goes a step further and not only builds on these measures but addresses their limitations related to their inability to capture the degree to which ties come from well-connected nodes. In this thesis, the index chosen to represent sharing leadership builds on density and centralisation *and* incorporates the critical aspect of mutual influence (Lemoine et al., 2020). Further characteristics of this particular index are discussed below.

**TABLE 6**

**Shared Leadership SNA Indices**

| Index | Publication | Sample size (teams) |
|---|---|---|
| Density | Ali et al., 2020 | 89 |
| | Chiu et al., 2016 | 62 |
| | Kukenberger et al., 2020 | 73 |
| | Novoselich et al., 2018 | 45 |
| | Tillmann et al., 2022 | 305 |
| 2. Centralization (Decentralization) | Hans and Gupta, 2018 | 23 |
| | Mihalache et al., 2014 | 202 |
| | Müller et al., 2018 | 29 |
| | Nordbäck and Espinosa, 2019 | 71 |
| | Scheuer et al., 2021 | 15 |
| | Sueur et al., 2012 | 9 |
| 3. Density & Centralization (Decentralization) | Aubé et al., 2018 | 111 |
| | DeRue et al., 2015 | 225 |
| | Fransen et al., 2020 | 64 |
| | Fransen et al., 2018 | 27 |
| | Lungeanu et al., 2022 | 4 |
| | Mendez et al., 2009 | 28 |
| | Xu et al., 2021 | 90 |
| | Wu and Cormican, 2016 | 22 |
| 4. IWD (Importance Weighted Density) | Alves et al., 2020 | 28 |
| | Lemoine et al., 2020 | 96 |
| | Rose et al., 2021 | 21 |
| | Zagarese, 2020 | 8 |

An alternative network index to capture the overall level of shared leadership in teams was proposed by Lemoine et al. (2020), i.e. Importance Weighted Density (IWD). IWD builds on the current theory and offers a combined approach. The overall structure of how leadership is shared is expressed through one numeric representation informed by the

rationales of density and centralisation, particularly eigenvector centralisation (Bonacich, 2007). The newly proposed index addresses the limitations of density and centralisation by recognising the need for the two measures to be included to represent leadership structure and accounting for the level to which the perceived sharing is mutual. As explained by the authors (Lemoine et al., 2020), the IWD index "takes into account the magnitude of a node's incoming ties, the relative centrality of that node compared to others, as well as the relative influence and centrality of contacts from whom ties emerge" (Lemoine et al., 2020, p. 440).

Specifically, nodes with fewer incoming ties are deemed less critical, and nodes with no incoming ties do not contribute to the eigenvector centralisation (EC) score. It is worth noting that eigenvector centralisation takes into account not only a node's incoming ties but also the incoming ties of the nodes from which those ties originate, considering the entire network pattern (Bonacich, 2007). An actor with high eigenvector centrality is linked to influential individuals within the social network (Bonacich, 2007).

Essentially, the quality and nature of connections represented by the eigenvector centrality score more accurately indicate whether "mutual influence" truly occurs. Lemoine et al. (2020) clarify that the Importance Weighted Density (IWD) calculation includes a numerical representation of ties, enabling these connections to be more heavily weighted when they originate from individuals perceived as leaders by other team members. As a result, a team scores higher on IWD when leaders acknowledge one another as leaders, exemplifying genuine sharing.

Importance-weighted density (IWD) has been recommended as the most suitable measure to operationalise the shared leadership construct (Lemoine et al., 2019; Xu et al., 2021). In line with recent advancements in the field, this research adopts the IWD method for operationalising shared leadership.

The IWD is the average of the individual importance-weighted scores (IWS). IWS is similar to the centralisation formula. It considers the scaled incoming tie from member j to member i, where j represents every group member other than i, the in-degree centrality for member j, the maximum in-degree centrality within the group, and the largest possible scaled score and the largest in-degree centrality within the matrix. The formula of the IWD looks as follows:

$$IWS_i = \left\langle \sum_{j=1}^{n-1} sit_{ji}\left\{1 - \left[\left(C_D(n^*) - C_D(n_j)\right)/\left(\max(x)(n-1)^2\right)\right](n-1)\right\}\right\rangle / \max(C_D)$$

When calculating the IWD score, the results were standardised; thus, the scores ranged from 0 to 1, with high values corresponding to high levels of sharing leadership in the team. Significantly, all matrix ties were scaled before the calculation to create a meaningful zero point (Lemoine et al., 2020). Scaling of the matrix enabled it to cater to instances when a particular individual displayed no (i.e., zero) leadership. The IWD was computed using the network calculator provided by Lemoine et al. (2020). Visual representation of the networks was prepared using UCINET VI, Version 6.673 (Borgatti et al., 2002).

**4.5.2 Leadership Outcomes**

Outcomes of leadership, direction, alignment and commitment were captured using the DAC questionnaire validated by the researchers of the Centre for Creative Leadership (McCauley et al., 2019). The survey was compiled to complement Drath et al.'s (2008) conceptualisation of leadership as a process defined by its outcomes. The questionnaire validation included content validity tested using multiple SMEs, which generated items for assessing each of the three DAC constructs. Additional data was collected from participants using published measures that were conceptually related to one of the three DAC constructs to build evidence for convergent and discriminant validity. In particular, the direction was related to team climate inventory in Kivimaki and Elovainio (1999), alignment was compared with the coordination scale of a team process survey in Fisher (2014), and commitment to a measure of individual commitment in Klein et al. (2014).

In the DAC framework, leadership outcomes are not viewed as a higher-order phenomenon. Instead, direction, alignment, and commitment are interrelated yet distinct group-level scales. To ensure the soundness of the DAC instrument, exploratory factor analyses (EFA) were conducted to confirm these theoretical assumptions. The results of the EFAs will be presented in the next chapter.

Using a five-point response scale (from "not descriptive" to "completely descriptive"), participants rated the extent to which nine DAC items describe the way things stand right now in their group. Example items included "We agree on what we should be aiming to accomplish together" (direction), "Our work is aligned across the team" (alignment), and "People on the team are committed to the team" (commitment).

In this study, data on leadership outcomes were collected twice, i.e. at time 1 (T1) mid of the task, and time 2 (T2), upon completion. The expected values of the Cronbach alpha should be equal to or above .7 to justify aggregation from an individual to a group-level construct (Hair et al., 2013).

In this study, each of the leadership outcomes met the necessary conditions for reliability. The reliability results are presented in the table below. To the best of the researcher's knowledge, this study is the second to use the DAC survey. The table compares the reliability results reported by McCauley et al. (2019). Undertaking comparison is important for several reasons.

First, comparing the reliability results helps to validate the findings, demonstrating that the results are consistent. Additionally, comparison establishes the survey's credibility as a measurement tool, showcasing that the survey is reliable for measuring leadership outcomes across different contexts. Significant differences between the reliability results of this study and those of McCauley et al. (2019) could indicate potential methodological or contextual differences, warranting further investigation and discussion. By including this comparison, the study also contributes to the body of knowledge surrounding the use of the DAC survey, providing valuable information for other researchers considering using this instrument in their own work.

TABLE 7

DAC's Cronbach's Alpha

| Construct | No of Items | Current study α T1 | Current study α T2 | Previous study α T2 |
|---|---|---|---|---|
| Direction | 3 | 0.74 | 0.75 | 0.88 |
| Alignment | 3 | 0.77 | 0.77 | 0.88 |
| Commitment | 3 | 0.84 | 0.86 | 0.91 |

The Cronbach's alpha values for the Direction, Alignment, and Commitment constructs in this study were found to be slightly lower compared to those reported by McCauley et al. (2019). Although the values in this study are lower, they still demonstrate acceptable reliability, as the values are above the commonly recommended threshold of 0.7. The differences in the values could be attributed to the fact that this study measured the constructs at two different time points (T1 and T2), while McCauley et al. (2019) only measured them at T2. It is important to note that the differences in Cronbach's alpha values between the two studies do not necessarily indicate significant methodological or

contextual discrepancies. However, further investigation into these differences might help shed light on the reasons behind the variations in the reliability results and help refine the instrument and its application in future research.

### 4.5.3 Team Task Performance

This study used subjective measures of team task performance to indicate a team's effectiveness level instead of objective measures. Subjective ratings can provide a comprehensive and nuanced team performance assessment. They have an advantage because they take into account factors that may not be captured by objective measures which, in turn, may facilitate a more in-depth exploration of factors influencing team performance. This view is further supported by Hackman's performance mode (1987), which posits that team performance is best assessed by organisation members rather than objective performance indices. Hackman claimed that "what happens to a group and its members usually depends far more on others' assessments of the group's output than on any objective performance indexes" (p. 323).

While subjective measures may be susceptible to biases and contamination effects, precautions were taken to enhance the validity and reliability of the ratings. These measures included utilising a standardised questionnaire to ensure consistency across raters and over time, conducting inter-rater reliability analyses to assess agreement among raters, and implementing checks for common method variance. Data on the same constructs were collected from multiple sources to address potential methodological biases. Acknowledging and addressing potential limitations and demonstrating thoughtful consideration further strengthens the rationale for employing subjective measures in this study.

This thesis examines leadership in the context of a specific task. The choice to study leadership development within a task-oriented framework was intentional, as it allowed for exploring leadership and performance within a more contained setting. The task served as a time boundary, marked by a clear beginning (i.e., the moment the task brief was shared with the teams) and end (i.e., the deadline for submitting the report to the client). It is crucial to note that in this study, the terms "performance" and "team task performance" are used interchangeably when referring to the dependent variable in the model.

The selection of a performance measure was crucial, as it needed to effectively capture performance on the task and explore variations in proficiency levels among teams. The

chosen instrument had to evaluate the extent to which each team met expectations regarding their assigned work, considering the constraints of the task. In searching for a suitable survey to best capture the diverse levels of task completion proficiency, it was essential to find a measure that closely aligned with the conceptual meaning of the studied construct, i.e., performance on the task. Moreover, another criterion guiding the choice of an appropriate measure was its compatibility with the levels of analysis with the other measures in the study. Both shared leadership and leadership outcomes represent constructs that exist on the group level of analysis. Consequently, the team task performance instrument also needed to assess performance as a collective construct produced by the team as a whole rather than representing aggregated individual efforts.

Ultimately, on a more practical level, selecting a scale that would minimally burden the study's participants was vital. Participants were asked to complete questionnaires twice and rate each of their team members using a round-robin approach, which is characteristic of Social Network Analysis (SNA) and known to be demanding. Bearing these factors in mind, several scales were compared, such as Conger et al.'s (2000) 7-item scale, later adopted by Carson et al. (2007), Liden et al.'s (2006) 5-item group performance measure, and a scale adapted from Ancona and Caldwell (1992) by Nielsen et al. (2012). Ultimately, Halfhill's (2000; see also Halfhill, 2007; Fortune, 2005) 5-item scale was chosen as the instrument for overall team task performance. This scale satisfied most of the previously mentioned criteria, such as aligning with the DAC scale using the same referent-shift (i.e., the team as the referent) and requiring minimal adaptation compared to other scales. The only minor modification involved replacing the word "job" with "task." Example items included "This group understands how to accomplish its tasks," "This group meets all objectives for work completed," and "This group's work is always of the highest quality." Performance was measured twice, in the middle and the end of the task. The internal reliability of the group performance scale, as measured by Cronbach's alpha, was .83 at time 1 (T1) and .85 at time 2 (T2).

### 4.5.4 Control Variables

In this study, both team size and gender were initially considered as potential control variables. However, upon further deliberation, only team size was tested as a control variable. The decision to exclude gender as a control variable was made based on prior research that suggests its effects on team dynamics might not be as strong or consistent as once believed (e.g., Joshi & Roh, 2009; van Dijk et al., 2012). Additionally, focusing on

other variables that may directly impact team processes, such as team size, can provide more accurate and generalisable findings.

Team size was selected as a control variable because different structure patterns might emerge depending on the team's size (e.g., Hackman, 2002; LePine et al., 2008). Empirical evidence suggests that team size can influence various aspects of team performance and satisfaction, making it an important factor to consider when examining team dynamics (e.g., Mohammed et al., 2010; Rico et al., 2008). The results showed that the control variable did not significantly predict the mediators or outcomes. Therefore, Carlson and Wu's (2012) recommendations were followed with this study omitting this variable from the final analysis. The results with the control variable tested on the sequential model with mediators at time 2 (T2) are presented in the Appendices section (Appendix 3. Sequential model results with covariate).

## 4.6 Data Analysis Procedures

The data analysis procedure for this study was organised into three distinct phases: Phase I, "Data Preparation"; Phase II, "Preliminary Analyses"; and Phase III, "Hypothesis Testing". The subsequent chapter explains each phase in detail, but an overview of the procedures is provided below.

Phase I focused on data preparation. This involved checking for outliers, missing data, normality, linearity, homoscedasticity, and multicollinearity. This step was crucial, as the choice of statistical methods for data analysis depended on the results of these tests.

In Phase II, "Preliminary Analyses" Confirmatory Factor Analyses (CFA) were performed on the DAC survey using maximum likelihood (ML). As the DAC survey is a relatively new instrument, CFA was conducted to confirm the theoretical assumptions of the authors of the DAC framework and to contribute to the instrument's validation. The data aggregation process was necessary for this study as it explores group-level concepts. The preliminary analyses section concluded with descriptive statistics comparing means, standard deviations, and data correlations from different time points at the group level.

Phase III, "Hypothesis Testing", aimed to evaluate the indirect effect of sharing leadership on performance and leadership outcomes. The data analysis process was organised sequentially, as presented in Figure 6 (Data analysis flow chart).

**FIGURE 6**

**Data Analysis Flow Chart**
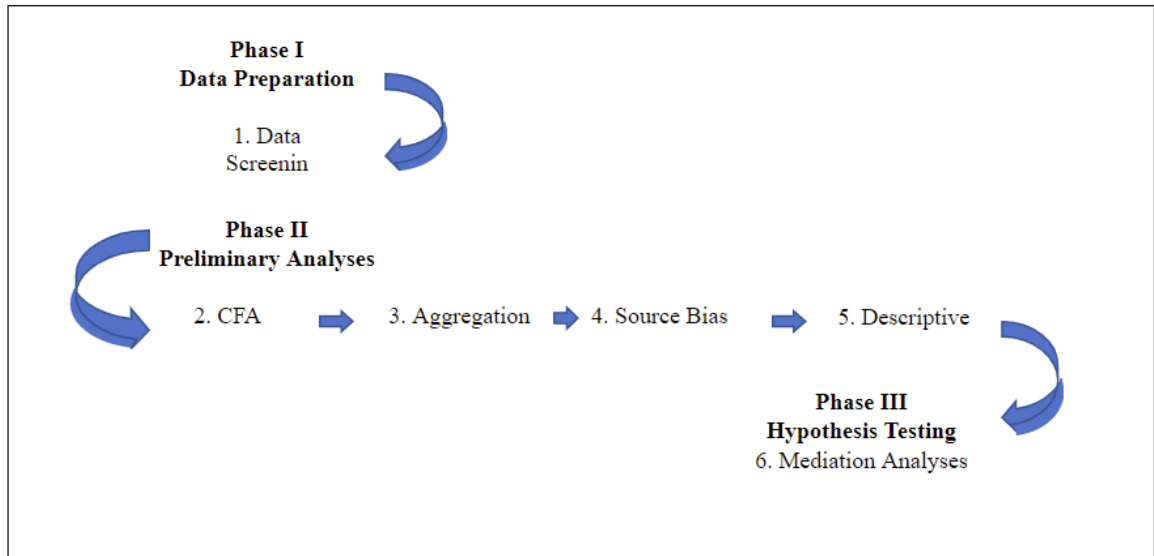


This thesis proposed that there is an indirect or mediating relationship between the study's variables. Based on Rungtusanatham et al. (2014), the segmentation approach was employed to calculate all path coefficient effects. The indirect effect refers to the effect of the independent variable (IV) and dependent variable (DV) through mediating variables, as illustrated in Figure 7 (Study's path diagram).

**FIGURE 7**

**Study's Path Diagram**
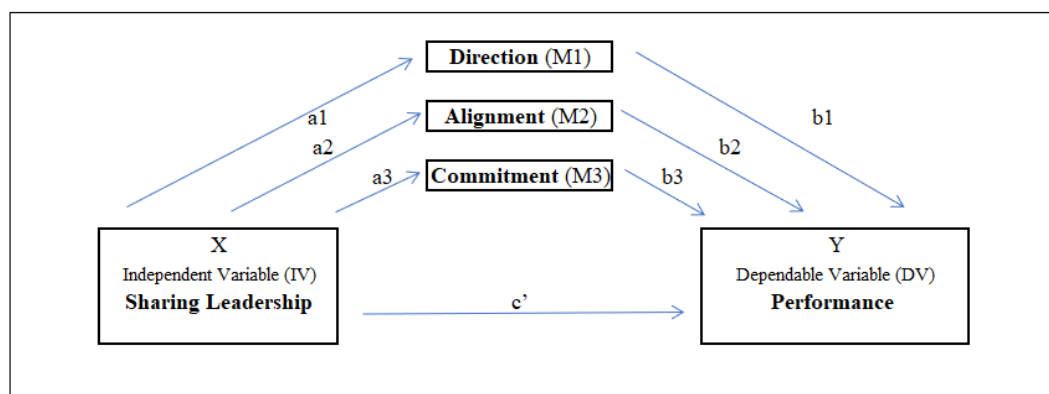


Path diagram illustrates the direct effects and casual paths linking sharing leadership (SingL) to TTP (team task performance) through outcomes of leadership; a1, a2, a3, b1, b2 b3 = path coefficient.

Given the study's sample size, selecting the most appropriate approach to statistical analyses was essential. The popular Baron and Kenny's (1986) multiple regression causal-step approach was considered, but recent research has challenged it substantially.

Instead, Hayes' PROCESS Macro (2013) was deemed the most suitable for testing the hypotheses of this study due to its effectiveness in regression testing and its ability to handle smaller sample sizes through bootstrapping techniques.

The final challenge was to determine how to analyse data collected at two different time points. Mediation models are inherently longitudinal, and any design must incorporate time (Cole & Maxwell, 2003). Upon careful consideration, cross-sectional and cross-lagged sequential modelling approaches were employed (Caine et al., 2018). The cross-sectional approach was utilised to analyse mediation as it occurred at the time of measurement, capturing the relationship between variables at specific time points and enabling the comparison and analysis of change across time. On the other hand, the cross-lagged sequential modelling was more appropriate for examining mediation over time, providing an accurate indication of whether mediation occurred over the period of measurement or not. The use of both approaches, i.e., cross-sectional and cross-lagged sequential modelling, can provide a more comprehensive understanding of the mediation process. Combining the two approaches mitigates their respective limitations and strengthens the analysis.

The calculations related to sharing leadership were conducted using both UCINET 6 (Borgatti et al., 2002) and the network calculator provided by Lemoine et al. (2020). Confirmatory Factor Analysis was performed using AMOS SPSS 28®. All other analyses were carried out using SPSS version SPSS 28® (SPSS Inc., 2007). Hayes' (2013) 'PROCESS' Macro was used to test all proposed hypotheses (total, direct, and indirect effects).

## 4.7 Summary

Chapter Four provided a comprehensive overview of the research methodology employed in this study, which focuses on a team-level analysis of leadership dynamics. This quantitative investigation aims to examine a multiple mediation model, hypothesising that sharing leadership has direct and indirect effects on team task performance.

The methodology of this study adopts a quantitative approach and employs survey instruments to address the research questions. Sharing leadership is operationalised using the importance-weighted density (IW) index. To facilitate the examination of mediation effects, a two-wave design was implemented, with data collected at two separate time points.

In the forthcoming Chapter Five, the focus shifts to a detailed presentation of the analyses and a comprehensive report of the study's findings.

# CHAPTER FIVE

## ANALYSES AND RESULTS

## 5.1 Introduction

Chapter Five delves into the data analysis procedures, building upon the methodology presented and discussed in Chapter IV. The primary aim of this quantitative study is to examine the relationships among three variables: leadership sharing structure, leadership outcomes, and team task performance. A quantitative approach was deemed appropriate for this study, considering the target population available for survey participation.

The analysis is designed to address a set of hypotheses and is organised into three parts. Part I covers data preparation, Part II focuses on preliminary analysis, including confirmatory factor analysis (CFA), descriptive statistics, and data aggregation, and Part III presents the hypothesis testing.

The chapter concludes with a concise summary of the findings.

## 5.2 Part I: Data Screening

### 5.2.1 Data Cleaning

The analysis process began by transferring all responses to an Excel spreadsheet and then to SPSS 28® (SPSS Inc., 2007) for data cleaning. Data was reviewed for outliers, missing data, and unreasonable responses. This approach follows Hair et al. (2010), who recommend screening quantitative data before any testing to ensure the data is suitable for analysis. Data screening was undertaken on the individual level of analysis for each time (T1 and T2) separately. The result of data screening revealed that data appears normal in general, without abnormal deviation from expected values.

### 5.2.2 Missing Values

To identify missing values, the SPSS "Missing Values Analysis" tool was used for each variable in the study, separately for each time point (T1 and T2). Missing values were subsequently coded as zeros in the Excel file, and to ensure that SPSS recognised these entries as missing, the "discrete missing values" in the "variable view" were changed to "zero." On average, eight responses were missing per question in T1 and nine in T2 after the analyses.

### 5.2.3 Outliers

Outliers are responses that are distinctly different from the majority sample and may distort the interpretation of the data (Hair et al., 2010). Box plots and histograms were analysed when deciding whether a data point was a true outlier. When an outlier was found, such a case was deleted if appropriate. Overall, boxplots identified 37 potential outliers in time 1 (T1) and 54 in time 2 (T2). See the Appendix for box plots and histograms for the DAC measure.

The next subchapters describe the results of multiple assumptions required for this analysis. Hayes (2013, p. 53) advises, "be respectful of the complexities and properties of your data and do your best to analyse them with best-suited methods, but do not stress over every minor assumption violation." Hayes explains that it is not so much a question of whether or not an assumption has been violated but to what extent the violation is likely to disrupt the interpretation of results. The results for the tests of normality, linearity, homoscedasticity and multicollinearity are discussed below.

### 5.2.4 Normality

The assumption of normality requires that scores on a continuous outcome variable are distributed normally around the mean (Tharenou et al., 2007). Normality is assessed by inspecting skewness and kurtosis values and examining each measure's histograms for normal distribution and shape (Hair et al., 2010). The Shapiro-Wilk test is also recommended for normal distribution, but only when the sample size is under or equal to 50 (Mishra et al., 2019). The sample size at each measurement point was above 50 (i.e. 197). Hence, the Shapiro-Wilk test has not been used.

The skewness of a measure refers to the symmetry of distribution, and the kurtosis of a measure refers to the peakedness or flatness of a distribution compared to a normal distribution (Hair et al., 2010). Hair et al. (2017) identified that the expected values for skewness and kurtosis for the data to be normally distributed should remain between +1 and -1. The values of kurtosis and skewness, as well as the bell-shaped histograms' curves, indicated normal distribution for all questions of variables. Only one kurtosis value for question one on the measure of direction in T2 was recorded slightly out-of-range (direction, question 1, kurtosis = 1.16) but still demonstrated a normal distribution with a bell-shaped histogram.

**5.2.5 Linearity & Homoscedasticity**

Linearity and homoscedasticity are aspects of normality (Kline, 2011), and both are assumptions in the regression analyses. Homoscedasticity, or homogeneity, is an assumption of equal or similar variances in different groups being compared. Linearity means that the mean values of the outcome variable (dependent variable) for each increment of the predictors (independent variables) lie along a straight line. Both homoscedasticity and linear relations can be checked by examining scatterplots (Kline, 2011). The scatterplots should demonstrate approximately linear and oval-shaped distributions. To create scatterplots, a mean for each variable must be first calculated. A procedure in SPSS "compute variable", was followed to accomplish this. A new mean variable was created for the dependent variable (y) and independent variables (x) (direction, alignment and commitment). The means of the variables were compared to test for a linear relationship between them. The test indicated significant linearity between the variables and no significant deviation from homoscedasticity in times 1 (T1) and 2 (T2). Hence, the assumption of normality had been met. Details of the test are provided in summary Table 8.

**TABLE 8**

**Linearity Tests**

| | | Direction - Performance | | Alignment - Performance | | Commitment - Performance | |
|---|---|---|---|---|---|---|---|
| | | Linearity | Deviation | Linearity | Deviation | Linearity | Deviation |
| T1 | Sum of Squares | 516.63 | 63.12 | 622.80 | 44.56 | 626.77 | 145.22 |
| | df | 1.00 | 10.00 | 1.00 | 11.00 | 1.00 | 11.00 |
| | Mean Square | 516.63 | 6.31 | 622.81 | 4.05 | 626.77 | 13.20 |
| | F | 58.74 | 0.72 | 76.28 | 0.50 | 85.54 | 1.80 |
| | Sig. | 0.00 | 0.71 | 0.00 | 0.90 | <.001 | 0.06 |
| T2 | Sum of Squares | 18.52 | 6.77 | 23.60 | 4.31 | 18.69 | 4.33 |
| | df | 1.00 | 10.00 | 1.00 | 10.00 | 1.00 | 10.00 |
| | Mean Square | 18.52 | 0.68 | 23.60 | 0.43 | 18.69 | 4.33 |
| | F | 42.35 | 1.55 | 55.55 | 1.02 | 41.01 | 0.95 |
| | Sig. | 0.00 | 0.13 | <.001 | 0.43 | 0.00 | 0.49 |

A loess curve was added to each scatterplot to test homoscedasticity. For homoscedasticity, the loess curve should be straight and smooth. The values of the variable in the scatterplot showed good shape for homoscedasticity in both time points. Although not perfect in smoothness, the loess curves seemed acceptable for the assumption being met.

**FIGURE 8**

**Homoscedasticity Assumption**
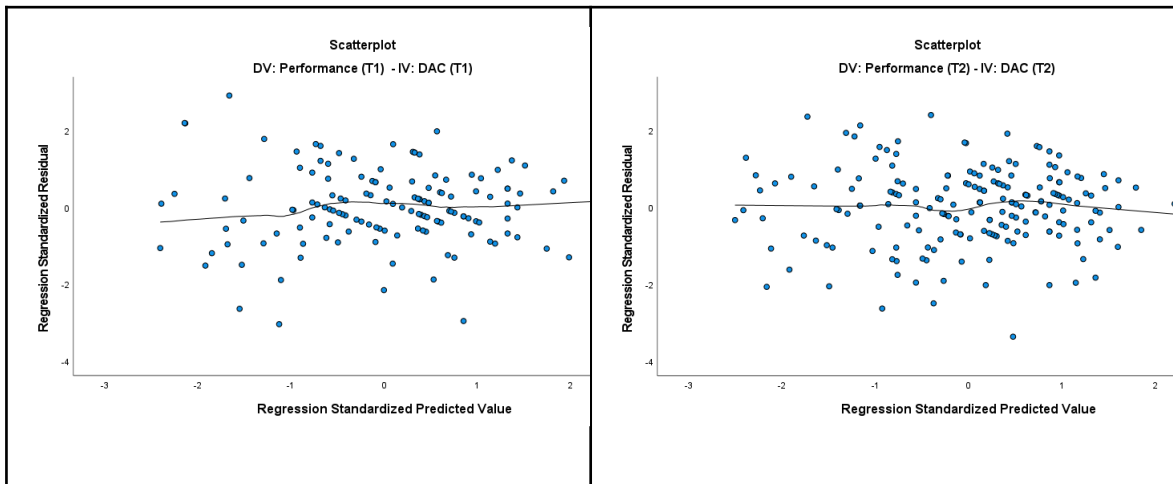


### 5.2.6 Multicollinearity

Whilst strong correlations between the independent variables and dependent variables are desirable, there should not be strong correlations between the independent variables themselves (Hair et al., 2010). Multicollinearity creates computational and interpretational problems due to the high similarity between the variables. Tabachnick and Fidell (2013) suggest correlations of .70 or higher between IVs indicate multicollinearity.

First, a bivariate correlation test was run on all independent variables to test for multicollinearity. All correlations were below the suggested by Tabachnick and Fidell's (2013) cut-off point of .70. Further collinearity diagnostics were run using linear regression. Multicollinearity was not an issue for the independent variables in both T1 and T2 data points, as their variance inflation factor (VIF) values were below 5.0, and the tolerance values were greater than 0.2. As a result, the eigenvalue showed no violation of multicollinearity assumptions between the independent variables in both time points.

## 5.3 Part II: Preliminary Analyses

### 5.3.1 Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) was conducted on outcomes of leadership (DAC) to evaluate discriminant validity, particularly assessing the fit of a three-factor model consistent with the DAC constructs using criteria reported in Hu and Bentler (1999). This step was crucial for data analysis. If CFA did not confirm DAC's three independent factors, the hypotheses would need readjustment for the proposed model's adequate fit.

For a good model fit, the CFA should yield a comparative fit index (CFI) with values above .90, a root mean square error of approximation (RMSEA) with values below .05 for close fit, .05–.08 for fair fit, .08–.10 for mediocre fit, and above .10 for poor fit, and a standardised root mean square residual (SRMR) with values ≤.08 indicating good fit (Hu & Bentler, 1999).

Data on leadership outcomes were collected twice: in the middle of the task (T1) and at the end of the task (T2). A two-step approach was employed to understand the relationship between the studied variables better. It is important to note that the DAC framework theorises that leadership outcomes emerge from practices and beliefs, which must first develop enough to affect anything else. Furthermore, leadership outcomes are defined as short-term effects or results of these practices and beliefs. Therefore, it is possible that leadership outcomes will not be fully developed in the middle of the task but will be present at the end. Consequently, T1 data might not capture three factors in DAC as these constructs are just emerging.

Moreover, leadership outcomes are group-level constructs. Thus, the confirmatory factor analysis should be conducted at the group level to align with the definitions of DAC, where leadership outcomes are emergent properties of groups. However, simulation studies show that a reasonable sample size for a simple CFA model with normally distributed indicator variables and no missing data is about N = 150 (Muthén & Muthén, 2002). This study's model requires an even larger sample size due to a number of its independent variables. Estimation using G power (Faul et al., 2007) indicates a required sample size of 207 for this study's model. The group-level sample size in this study (T1 n = 29, T2 n = 37) is insufficient for generating satisfactory CFA results.

Consideration was given to using repeated measures, i.e., combining T1 and T2 data as one sample. However, concerns existed about the reliability of repeated measures (Vasey &

Thayer, 1987), and even with repeated measures, the group sample size remained less than half of what was required. Thus, despite its limitations, the decision was made to rely on the individual-level CFA results.

The data from T2 was first tested, assuming that the three-factor model should be confirmed. In the next stage, the examination was carried out to determine whether there were significant differences in fit between the three-factor model and three two-factor nested models. A two-factor model that collapsed direction and alignment items into one factor, retaining the commitment factor as previously described (DA, C) was first tested. This was followed by testing a two-factor model comparing direction with alignment and commitment (D, AC) collapsed into a single factor, as well as comparing alignment with direction and commitment (A, DC) collapsed into a single factor. Additionally, analysis was run to determine whether DAC is a single-factor model (DAC). Subsequently, all testing was repeated on data from T1.

The procedure was run in AMOS SPSS 28®. The table below presents the fit indices for each of these models, compared to the original three-factor model for data from time 2 (T2), and the original three-factor model in time 1.

**TABLE 9**

**Fit Indices for DAC Nested Models**

| Time | Factor Model | CFI | RMSEA | SRMR | TLI | $\chi2$ | df | $\Delta\chi2$ | $\Delta$df | $\chi2$ / df | p |
|------|------|------|------|------|------|------|------|------|------|------|------|
| | | | | | | | | | | | |
| **T1** | D / A / C | 0.94 | 0.10 | 0.05 | 0.91 | 74.52 | 24.00 | 0.00 | 0.00 | 3.11 | 0.00 |
| | | | | | | | | | | | |
| | D / A / C | 0.99 | 0.04 | 0.03 | 0.98 | 33.13 | 24.00 | 0.00 | 0.00 | 1.38 | 0.10 |
| | DA / C | 0.92 | 0.11 | 0.06 | 0.90 | 72.96 | 26.00 | 39.84 | 2.00 | 2.81 | 0.00 |
| **T2** | A / DC | 0.92 | 0.11 | 0.06 | 0.90 | 72.96 | 26.00 | 0.00 | 0.00 | 2.81 | 0.00 |
| | D / AC | 0.91 | 0.13 | 0.06 | 0.87 | 84.66 | 26.00 | 11.69 | 0.00 | 3.26 | 0.00 |
| | DAC | 0.85 | 0.15 | 0.08 | 0.81 | 123.12 | 29.00 | 38.47 | 3.00 | 4.25 | 0.00 |

Note: CFA using individual data; T1 (n = 144), T2 (n =202)

At Time 2 (T2), the three-factor model was confirmed and demonstrated a good fit across all parameters [$\chi2$(33.13) / df (24) = 1.38, p = .10, CFI = .99, TLI = .98, SRMR = .03, RMSEA = .04]. In contrast, the nested models and the three-factor model from T1 showed poorer fit in terms of CFI, TLI, SRMR, and $\chi2$ values. Specifically, none of the nested models (i.e., DA / C, D / AC, A / DC) met the required threshold of RMSEA < .08. However, all nested models, except for the one-factor model, satisfied the required

thresholds for the ratio of χ2 and df of below < 5, indicating statistically non-significant chi-square difference tests. In summary, the confirmatory factor analysis of the individual-level data from T2 provided strong support for the three-factor model.

## 5.3.2 Interrater Agreement & Intraclass Correlations

In this study, team-level analyses are required for the proposed theoretical model. However, except for the index of shared leadership represented by IWD, a team-level variable, all other variables were captured at the individual level of analysis. This thesis follows the recommendation of Biemann et al. (2011) when aggregating lower-level data to a higher level of analysis. Accordingly, both interrater agreement (rWG(J)) and interrater reliability (i.e., ICCs) were computed.

Interrater agreement (rWG(J)) indicates the degree to which raters provide the same rating, and it is used in this thesis since the constructs were assessed on multi-item measures. The rWG(J) cut-off point is suggested at .70 (James et al., 1984). However, there have been concerns regarding the sole reliance on rWG(J) for justifying aggregation (Biemann et al., 2011), leading to the need for calculating interrater reliability (ICCs) as well. Interrater reliability is a measure of the consistency of responses among raters. The most common interrater reliability indices are intraclass correlation coefficients, particularly ICC(1) and ICC(2). ICC(1) refers to the consistency of ratings within groups, while ICC(2) estimates the reliability of group mean ratings. In other words, ICC(1) represents the level of agreement among ratings from members of the same group, while ICC(2) indicates the extent to which groups can be differentiated based on the variables under study. There are no definitive rules for determining the ICC values necessary to justify aggregation. Biemann et al. (2011) cite the work of LeBreton and Senter (2008), who suggested that an ICC(1) = .05 represents a small to medium effect (p. 838). The cut-point for the ICCs in this study follows that criterion. All the interrater reliability estimates were statistically significant at the $p < .05$ level (using a one-way analysis of variance with a nation as the grouping variable).

<div align="center">

**TABLE 10**

**Interrater Agreement & Intraclass Correlations**

</div>

| | Interrater agreement | | Intraclass correlations | | | |
|---|---|---|---|---|---|---|
| | **rWG(J)** | | **ICC(1)** | | **ICC(2)** | |
| | T1 | T2 | T1 | T2 | T1 | T2 |
| Direction | 0.88 | 0.87 | 0.65 | 0.69 | 0.92 | 0.92 |
| Alignment | 0.88 | 0.88 | 0.74 | 0.59 | 0.9 | 0.9 |
| Commitment | 0.87 | 0.87 | 0.83 | 0.79 | 0.94 | 0.93 |
| Performance | 0.92 | 0.89 | 0.8 | 0.71 | 0.89 | 0.9 |

### 5.3.3 Common Method Variance

The Common method variance (CMV) (i.e., variance attributable to the measurement method rather than the included constructs), as noted by Bono and McNamara (2011), presents a serious threat to the interpretation of the results (Podsakoff et al., 2003). The leadership outcomes (DAC) and team task performance were captured based on team members' ratings. Hence, this raises the possibility that the observed relationships could be inflated due to the source bias.

It is expected that researchers will take reasonable steps to minimise the threats of CMV. Podsakoff et al. (2003) recommend several procedural remedies that could be used to control method biases. These include an argument for why self-report measures are appropriate (see discussion in 4.5 "Measures", Chapter 4), construct validity evidence, lack of overlap in items for different constructs, and evidence for proactive consideration regarding common method bias in the design of the study.

The easiest way to address the potential issue is to obtain the measures of the predictor and outcome variables from different sources. Such an approach makes it impossible for the responder to bias the relationship between the predictor and outcome variable. However, the method biases can also be reduced by, e.g., protecting respondent anonymity, reducing evaluation apprehension by assuring respondents that there are no right or wrong answers and counterbalancing questions to control for retrieval cues.

In this study, the concern that common method variance may bias relationships among the variables rated by team members was mitigated through the application of several approaches simultaneously. Firstly, sharing leadership was operationalised using a social

network approach, which creates methodological separation from the other team-based variables. Secondly, sharing leadership and leadership outcomes were measured twice. Podsakoff et al. (2003) noted that temporal separation is especially effective for mitigating common method variance.  Further, in both cases (leadership outcomes and team task performance), the individuals were asked to evaluate their team rather than themselves. With the referent being on a collective level, the effect of distortion is likely to be much smaller than when the referent is a team.  Further remedies were adopted based on established recommendations to minimise any possible effect of CMV.  In particular, for each team, the inputs from peers were randomly partitioned to obtain measures of variables from different sources (Podsakoff et al., 2012).

### 5.3.4  Descriptive Statistics

Table 11 depicts the means, standard deviations and correlation coefficients for all study variables for times 1 (T1)  and 2 (T2). All values were standardised to ensure that data was internally consistent. This was especially important as the value of sharing leadership is represented as a value between 0 and 1, and all other variables were calculated using a 0 to 5 scale.

TABLE 11

**Cross-Lagged Bivariate Correlations**

| | Variables | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **T1** | | | | | | | | | | | | | |
| 1 | Direction | 3.50 | 0.44 | | .665** | .578** | .528** | .430* | 0.34 | 0.31 | .511** | .377* | .391* |
| 2 | Alignment | 3.38 | 0.55 | .665** | | .776** | .626** | 0.29 | .414* | .455** | .487** | .409* | 0.27 |
| 3 | Commitment | 3.32 | 0.57 | .578** | .776** | | .680** | .413* | .504** | .589** | .701** | .598** | .447* |
| 4 | Performance | 3.73 | 0.45 | .528** | .626** | .680** | | .404* | .536** | .479** | .622** | .695** | .404* |
| 5 | SingL | 0.35 | 0.11 | .430* | 0.29 | .413* | .404* | | .410* | .391* | .458* | .455* | .792** |
| **T2** | | | | | | | | | | | | | |
| 6 | Direction | 3.48 | 0.53 | 0.34 | .414* | .504** | .536** | .410* | | .677** | .738** | .727** | .532** |
| 7 | Alignment | 3.44 | 0.73 | 0.31 | .455** | .589** | .479** | .391* | .677** | | .821** | .810** | .551** |
| 8 | Commitment | 3.16 | 0.74 | .511** | .487** | .701** | .622** | .458* | .738** | .821** | | .851** | .557** |
| 9 | Performance | 3.68 | 0.60 | .377* | .409* | .598** | .695** | .455* | .727** | .810** | .851** | | .551** |
| 10 | SingL | 0.36 | 0.12 | .391* | 0.27 | .447* | .404* | .792** | .532** | .551** | .557** | .551** | |

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed). In time 1 (T1) n =32, in time 2 (T2) n = 46

As expected, most of the main variables were correlated significantly, providing preliminary evidence to support at least some of the hypotheses in the study's model.

At both times, there is a strong correlation between leadership outcomes and performance which increases from T1 to T2 (e.g. direction - performance correlation at T1 was r = .528 and at T2 r = .727). In time 1 (T1), sharing leadership (SingL) is not correlated to alignment. However, at T2, SingL is related to all leadership outcomes. Regardless of these encouraging correlations results, it is important to remember correlation is only a measure that expresses the extent to which two variables are linearly related (meaning they change together at a constant rate). Although it can be used to describe simple relationships, correlation is unable to make a statement about cause and effect.

## 5.4 Part III: Hypotheses Testing

First, let us consider methodological nuances related to evaluating mediation effects.

The simplest form of mediation testing is a cross-sectional design comparing each variable with each other at a particular time point. The model assumes that mediation occurs instantaneously, i.e. within the measurement time. Hence, it is not a longitudinal design. For this reason, it is often criticised (see, e.g. Cole and Maxwell, 2003) as not being able to detect cause and effect due to capturing the relationship between variables without lag and relying only on correlations. However, these criticisms do not consider that mediation could take place during the time of measurements.

There are numerous longitudinal models for mediation testing. Longitudinal models relate different variables as measured at particular time points (X at T1, M at T2, and Y at T3). These designs include, e.g. sequential, dynamic, cross-lagged panel, and multilevel longitudinal. They evaluate lagged effects considering the amount of time that transpires between measurement occasions. Hence, lagged effects transpire across time from one measurement occasion to the next (Cain et al., 2018). The sequential mediation model is recommended as a reliable model for mediation testing (Cain et al., 2018) based on the assumption that the data are collected in a particular sequence as the theory dictates. For testing using this approach, data for X (IV),  M (mediators) and Y (DV) are each expected to be collected only once, i.e. X is collected at the first time point, M at the second, and Y at the last time point. Therefore, sequential mediation allows effects to take place over time.

Cain et al. (2018) indicate that sequential mediation (as well as the criticised cross-sectional model) offers a viable choice for mediation testing. Each has its strength and its weakness providing various perspectives to the analyses.
The cross-sectional model allows testing for how the constructs are with each other at any given time, i.e. testing whether mediation is happening instantaneously, i.e. within a time of measurement. This design might be especially useful when complex models are tested, allowing greater ease in understanding and interpreting the results. However, Cain et al. (2018) note, cross-sectional models might produce biased estimates. The authors underlined that cross-sectional mediation is suitable for testing mediation if we assume it occurs within the measurement time but not when the effect might be lagged.

In the context of this study and the DAC framework, as described by Drath et al. (2008), the researcher took a view where both immediate and lagged effects may coexist. In some situations, the immediate effects may be stronger or more noticeable, while in others, the effects may take time to manifest. A cross-sectional and longitudinal design was used to better understand the nature of the relationships between the variables and account for both immediate and lagged effects.

Based on the considerations mentioned earlier, a cross-sectional design was used to test whether mediation occurs at the time of measurement, separately for Time 1 (T1) and Time 2 (T2). In the sequential design, this approach introduced a challenge as a decision had to be made regarding which measurement time to use for the mediators D, A, and C – whether to use the values captured at T1 or those captured at T2.

To address this challenge, the analysis explored both options, i.e., testing the mediation with leadership outcomes closer to sharing leadership (IV from T1 with mediators from T1) and testing it with a lagged effect (IV from T1 with mediators from T2). This allowed for a more comprehensive assessment of the relationships between the variables and helped to identify potential differences in mediation effects based on the timing of the measurements.

For a visual representation of the mediation models used in this study, please refer to Figure 9. To simplify comprehension, the tested models have been designated as A, B, C, and D.

**FIGURE 9**

**Study's Cross-Sectional & Sequential Mediation Models**
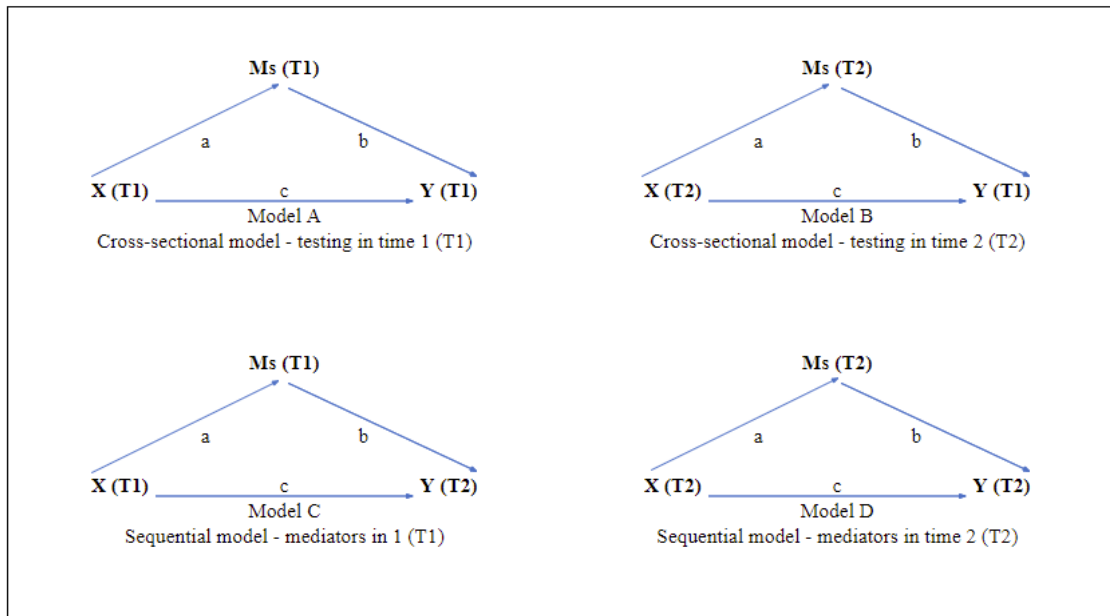


**5.4.1 Cross-Sectional Testing**

This study investigates the influence of sharing leadership (SingL) on team task performance, mediated by the leadership outcomes of direction, alignment, and commitment, as depicted in Figure 4. Ten hypotheses were proposed to examine the direct and indirect effects of sharing leadership on team task performance through these mediating mechanisms. A series of regression analyses were conducted to test the hypotheses, assessing the impact of sharing leadership on the mediators, as well as the mediators' impact on team task performance, and exploring the direct and indirect relationships between sharing leadership, leadership outcomes, and team task performance.

**FIGURE 4**

**Research Model**
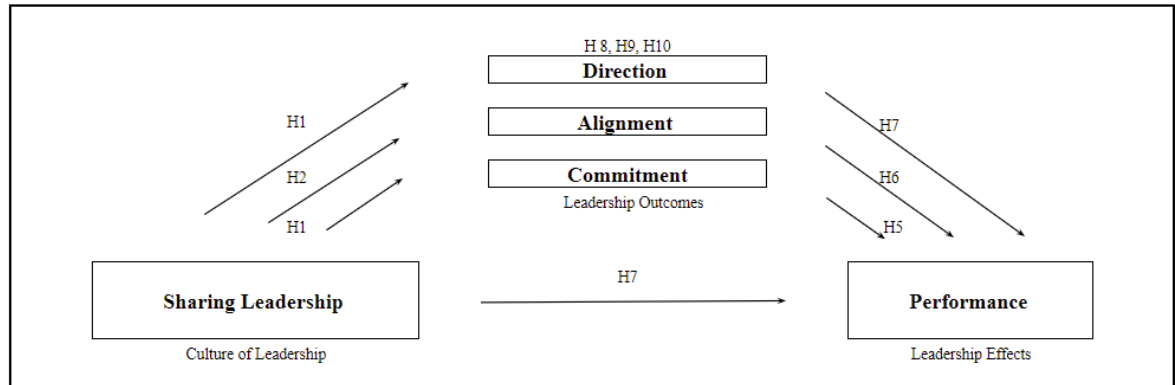


First, two cross-sectional models were tested, one at Time 1 (T1) and the other at Time 2 (T2). Cross-sectional mediation models represent the simplest form of mediation models, as they utilise a single measurement occasion and assume that cause and effect occur within the data collection period, without being influenced by previous instances of any variables (Cain et al., 2018).

A simple process model (Model 4; Hayes, 2013) was employed to test all hypotheses separately at both time points. This was carried out to examine the mediation relationship between variables as occurring instantaneously (i.e., within the time of measurement, T1 and T2) and to compare the effects over time (i.e., whether instantaneous mediation existed in T1, T2, both time points, or neither). Sharing leadership was defined as the independent variable, leadership outcomes (direction, alignment, and commitment) as mediators, and team task performance as the dependent variable.

Cross-sectional results are presented in Table 12 for both time points, with Time 1 (T1) as Model A and Time 2 (T2) as Model B.

## TABLE 12

### Cross-Sectional Results

| | | | | | | 95% C.I (a) | | |
|---|---|---|---|---|---|---|---|---|
| **Model A: cross-sectional testing at time 1 (T1)** | | | | | | | | |
| **Paths *a*** | **Relationship** | coeff | se | t | p | LLCI | ULCI | R2 |
| IV - M1 | H1: SL - Dir | 3.70 | 1.53 | 2.41 | 0.02 | 0.55 | 6.82 | 0.18 |
| IV - M2 | H2: SL - Ali | 1.97 | 1.42 | 1.39 | 0.18 | -0.95 | 4.88 | 0.07 |
| IV - M3 | H3: SL - Com | 2.97 | 1.34 | 2.22 | 0.03 | 0.22 | 5.73 | 0.16 |
| **Paths *b*** | | | | | | | | |
| M1 - DV | H4: Dir - Per | -0.08 | 0.18 | -0.42 | 0.68 | -0.45 | 0.30 | |
| M2 - DV | H5: Ali - Per | 0.35 | 0.22 | 1.55 | 0.13 | -0.11 | 0.81 | |
| M3 - DV | H6: Com - Per | 0.73 | 0.22 | 3.27 | 0.00 | 0.27 | 1.18 | |
| **Patch *c′* (Direct)** | | | | | | | | |
| IV - DV | H7: SL - Per | 1.14 | 1.29 | 0.88 | 0.39 | -1.53 | 3.81 | |
| Paths a*b (Indirect) | | | | | | | | |
| IV - M1/M2/M3 - DV | | 2.56 | 1.45 | | | 0.21 | 5.72 | |
| IV - M1 - DV | H8: SL - Dir - Per | -0.28 | 0.66 | | | -1.73 | 1.01 | |
| IV - M2 - DV | H9: SL - Ali - Per | 0.68 | 0.70 | | | -0.34 | 2.41 | |
| IV - M3 - DV | H10: SL - Com - Per | 2.16 | 1.12 | | | 0.37 | 4.64 | |
| **Path *c* (Total)** | | 3.70 | 1.67 | 2.22 | 0.04 | 0.27 | 7.13 | |
| **Model B: cross-sectional testing at time 2 (T2)** | | | | | | | | |
| **Paths *a*** | **Relationship** | coeff | se | t | p | LLCI | ULCI | R2 |
| IV - M1 | H1: SL - Dir | 3.37 | 1.42 | 2.38 | 0.02 | 0.50 | 6.24 | 0.14 |
| IV - M2 | H2: SL - Ali | 2.89 | 1.12 | 2.58 | 0.01 | 0.62 | 5.16 | 0.16 |
| IV - M3 | H3: SL - Com | 3.45 | 1.32 | 2.62 | 0.01 | 0.78 | 6.12 | 0.16 |
| **Paths *b*** | | | | | | | | |
| M1 - DV | H4: Dir - Per | 0.80 | 0.20 | 0.40 | 0.69 | -0.33 | 0.49 | |
| M2 - DV | H5: Ali - Per | 0.62 | 0.25 | 2.44 | 0.02 | 0.10 | 1.14 | |
| M3 - DV | H6: Com - Per | 0.28 | 0.18 | 1.53 | 0.13 | -0.09 | 0.66 | |
| **Patch *c′* (Direct)** | | | | | | | | |
| IV - DV | H7: SL - Per | 0.79 | 0.93 | 0.84 | 0.41 | -1.12 | 2.69 | |
| Paths a*b (Indirect) | | | | | | | | |
| IV - M1/M2/M3 - DV | | 3.04 | 1.17 | | | 0.87 | 5.51 | |
| IV - M1 - DV | H8: SL - Dir - Per | 0.27 | 0.79 | | | -1.01 | 2.27 | |
| IV - M2 - DV | H9: SL - Ali - Per | 1.79 | 1.24 | | | -0.04 | 4.70 | |
| IV - M3 - DV | H10: SL - Com - Per | 0.98 | 0.75 | | | -0.38 | 2.59 | |
| **Path *c* (Total)** | | 3.83 | 1.38 | 2.78 | 0.01 | 1.04 | 6.62 | |

*Notes:* T1 (n = 29) and T2 (n = 37)

The first cross-sectional model (Model A) tested the relationship between the variables as captured in time 1 (T1).

Sharing leadership (T1) was found to affect both direction (T1) (b = 3.70, p = .02), and commitment (T1) (b = 2.97, p = .03). It means H1 and H3 are confirmed with a positive effect of sharing leadership on both of these outcomes in the beginning of the task work. Out of three leadership outcomes, only commitment (T1) shows the most significant impact on performance (T1) (b = .73, p < .01). Hence, the results provide support for H6 but not H5 or H4. There was, however, no direct relationship recorded between sharing leadership (SingL) and performance. Hence, H7 is unsupported. Further, these statistical analyses show the study records a pattern of correlations consistent with the mediational hypothesis that the effect of IV on DV is mediated by one of the mediators, i.e. commitment (b = 2.16, CI [.37, 4.64]). It means support is found for H10 but not H8 or H9.

The relationship between variables in time 2 (model B) showed support for SingL positively affecting all three leadership outcomes (SingL - direction, b = 3.37  p = .02, SingL - alignment b = 2.89, p = .01, SingL - commitment b = 3.45, p = .01). The relationship between leadership outcomes at T2 and performance (T2) showed support for the significant relationship between alignment and performance ( b =. 62, p = .025). However, in contrast to results from T1 there was no significant relationship between direction - performance nor commitment - performance. Also, in comparison with T1, not even one of the mediation effects was found. There was also no direct effect of SingL (T2) on Performance (T2). No mediation effect in T2, as explored at the time of measurement, should not be a surprise. As theorised in the DAC framework, leadership outcomes and performance are defined as short- and long-term effects that occur posterior to  practices and beliefs. This theorising justifies why SingL is shown to relate to all three leadership outcomes at T2 only.

When comparing the two cross-sectional models, the relationship between leadership outcomes and performance revealed intriguing results, i.e. different leadership outcomes are significant with a performance at a different point in time. At T1 there is a positive effect of commitment at T1 on performance (b = . 73, p < .01).  However, at T2, that relationship is insignificant (b = .28, p = .13). Instead, in T2, alignment and performance register positive and significant relationships (b = .62, p = .025).  Finally, at both T1, and

T2, although not confirmed individually, there is a combined indirect effect. In other words, the impact of IV on DV passes through all three mediators combined.

In the subchapter below, I re-test this thesis model using the sequential approach to account for the variables' lag effect and dynamic nature.

### 5.4.2 Sequential Testing

Ideally, data from three-time points would have been used to test the sequential model, i.e. SingL (T1) would be inserted as a predictor, DAC (T2) as mediators and team task performance (T3) as the outcome. However, data from only two-time points were available. Hence, I tested the model using the following combinations:

Model C SingL (T1) - DAC (T1) - Performance (T2),
Model D SingL (T1) - DAC (T2) - Performance (T2).

The decision to test these two combinations was taken as both options seemed equally possible and agreed with the available theory. More importantly, each combination provides insights into the dynamic nature of relationships between variables. The first data collection point occurred during the duration of the task. It was assumed that the middle of the task gives enough "time" for sharing leadership to emerge. Hence, sharing leadership, even at T1, could contribute to the emergence of leadership outcomes. Testing both combinations is expected to provide further insights into which leadership outcomes are first affected by sharing leadership. It was also assumed that time 2 (T2) is where the effect of sharing leadership on the outcomes will be most visible. It is as leadership outcomes were expected to be fully formed by then. Further, the DAC framework (Drath et al., 2008) places leadership outcomes in the middle of the framework as proximal results of the leadership process and before the long-term effects. Yet it does not specify "when" and "how" these outcomes develop. Whereas the cross-sectional approach provides insights into how the interaction between leadership shared structure and leadership outcomes looks when explored simultaneously, the sequential design allows tracing their effect over time.

Before testing, I considered the sample once more. The lagged testing for mediation requires a matched sample. In other words, to test the relationships between SingL, DAC

and Performance across time, the data set had to "match" at both time points. Matching of the data set was undertaken in Excel. To be included in this particular phase of the analysis, each team had to have all indexes at each time point. If the particular team had even one index missing (e.g. index of SingL at T1 was absent) even when all other values were available, such a team had been deleted from a sample. The final, matched sample resulted in a sample of 29 teams.

Table 13 presents results for model C and model D using sequential design.

# TABLE 13

## Sequential Results

| Model C: sequential design | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **SL (T1) - DAC (T1) - Performance (T2)** | | | | | | | | |
| | | | | | | 95% C.I (a) | | |
| **Paths *a*** | **Relationship** | **coeff** | **se** | **t** | **p** | **LLCI** | **ULCI** | **R2** |
| IV - M1 | H1: SL - Dir | 0.41 | 0.17 | 2.47 | 0.02 | 0.07 | 0.76 | 0.18 |
| IV - M2 | H2: SL - Ali | 0.24 | 0.16 | 1.56 | 0.13 | -0.08 | 0.56 | 0.08 |
| IV - M3 | H3: SL - Com | 0.35 | 0.15 | 2.35 | 0.03 | 0.04 | 0.65 | 0.17 |
| **Paths *b*** | | | | | | | | |
| M1 - DV | H4: Dir - Per | 0.09 | 0.20 | 0.44 | 0.67 | -0.33 | 0.50 | |
| M2 - DV | H5: Ali - Per | 0.05 | 0.25 | 0.20 | 0.85 | -0.46 | 0.56 | |
| M3 - DV | H6: Com - Per | 0.65 | 0.25 | 2.59 | 0.02 | 0.13 | 1.16 | |
| **Patch *c′* (Direct)** | | | | | | | | |
| IV - DV | H7: SL - Per | 0.19 | 0.16 | 1.14 | 0.26 | -0.15 | 0.52 | |
| **Paths a*b (Indirect)** | | | | | | | | |
| IV - M1/M2/M3 - DV | | 0.27 | 0.12 | | | 0.06 | 0.54 | |
| IV - M1 - DV | H8: SL - Dir - Per | 0.04 | 0.10 | | | -0.16 | 0.27 | |
| IV - M2 - DV | H9: SL - Ali - Per | 0.01 | 0.07 | | | -0.13 | 0.18 | |
| IV - M3 - DV | H10: SL - Com - Per | 0.22 | 0.11 | | | 0.03 | 0.48 | |
| **Path *c* (Total)** | | 0.46 | 0.17 | 2.65 | 0.01 | 0.10 | 0.81 | |
| **Model D: sequential design** | | | | | | | | |
| **SL (T1) - DAC (T2) - Performance (T2)** | | | | | | | | |
| | | | | | | 95% C.I (a) | | |
| **Paths *a*** | **Relationship** | **coeff** | se | t | p | LLCI | ULCI | **R2** |
| IV - M1 | H1: SL - Dir | 0.41 | 0.17 | 2.34 | 0.03 | 0.05 | 0.76 | 0.17 |
| IV - M2 | H2: SL - Ali | 0.35 | 0.16 | 2.21 | 0.04 | 0.02 | 0.68 | 0.15 |
| IV - M3 | H3: SL - Com | 0.45 | 0.17 | 2.68 | 0.01 | 0.11 | 0.79 | 0.21 |
| **Paths *b*** | | | | | | | | |
| M1 - DV | H4: Dir - Per | 0.21 | 0.16 | 1.34 | 0.19 | -0.11 | 0.54 | |
| M2 - DV | H5: Ali - Per | 0.22 | 0.20 | 1.12 | 0.27 | -0.19 | 0.62 | |
| M3 - DV | H6: Com - Per | 0.54 | 0.18 | 2.99 | 0.01 | 0.17 | 0.91 | |
| **Patch *c′* (Direct)** | | | | | | | | |
| IV - DV | H7: SL - Per | 0.05 | 0.11 | 0.51 | 0.61 | -0.16 | 0.27 | |
| **Paths a*b (Indirect)** | | | | | | | | |
| IV - M1/M2/M3 - DV | | 0.40 | 0.12 | | | 0.18 | 0.64 | |
| IV - M1 - DV | H8: SL - Dir - Per | 0.09 | 0.08 | | | -0.07 | 0.25 | |
| IV - M2 - DV | H9: SL - Ali - Per | 0.08 | 0.10 | | | -0.07 | 0.34 | |
| IV - M3 - DV | H10: SL - Com - Per | 0.24 | 0.09 | | | 0.09 | 0.46 | |
| **Path *c* (Total)** | | 0.46 | 0.17 | 2.65 | 0.01 | 0.10 | 0.81 | |

Notes: (n=29); *p<.05, **p<.01

Testing model C revealed SingL at (T1) positively affects direction (T1) (b = .41, p = .02) and commitment (b = .35, p = .03). However, SingL (T1) had no significant relationship with alignment (T1), and neither alignment (T1) nor direction (T1) had a significant relationship with performance. A significant relationship was found between performance and only one leadership outcome, i.e. commitment (T1) (b = .65, p = .02). Further, no direct relationship between SingL (T1) on performance was found in the presence of the mediators. The indirect effect, i.e., the mediating relationship, had been confirmed for commitment only, i.e. commitment mediates the relationship between SingL and team task performance (b = .22; CI [ .03  .48). Path c', i.e. the direct effect of the independent variable (IV) on the dependent variable (DV), as already noted, was insignificant (p = .26). It might indicate so-called "full mediation." Yet again, making such a statement would be premature. As noted by Pardo et al. (2013), it is important to consider the sample size in mediation to claim either full or partial mediation. The smaller the sample, the more likely mediation is to be labelled full as opposed to partial because c′ is more easily rendered nonsignificant. For this reason, I decided not to specify whether the mediation was full or partial.

Model D brought further support for the results already reported. Model D is the only approach which predicts cause and effect between SingL and leadership outcomes by relying on temporal precedence. SingL at T1 was found to support all three leadership outcomes at T2. The relationship SingL  - direction was b =  .41, p = .03,  SingL - alignment b. = .35, p = .04 and SingL - commitment b = .45,  p = .01. Compared with Model C,  Model D found further support for the SingL-alignment relationship.

As in Model C, the only significant and positive relationship between leadership outcomes and performance was found for commitment (b = .54;  p = .01)  but not for any other leadership outcomes. The direct relationship between SingL (T1) and performance (T2) in the presence of mediators was insignificant. The mediation effect was evidence for commitment only H10 (b = .24; CI [.09  .46]).

In the next section, a short overview is provided comparing the results reported by all models, i.e. both cross-sectional and sequential designs.

## 5.5 Results Comparison

There were ten hypotheses tested in this thesis. The evaluation of the hypotheses took several approaches utilising both cross-sectional and sequential testing. The decision to use both approaches allowed for testing cross-sectional and longitudinal effects, providing more depth to understanding the results of the analyses. Utilising various models enabled the examination of both the immediate and long-term effects of sharing leadership on mediators and outcome variables. A cross-sectional model was seen as more appropriate for examining the immediate effects, whereas a sequential model was more appropriate for examining the long-term effects. Furthermore, as there were only two time points, a decision was made to test for variations in order to provide additional evidence of changes in the leadership process. Table 14 provides an overview of the results. In the paragraphs below, the findings are presented according to the groups in which each hypothesis was initially presented: Group 1 (SinL - DAC leadership outcomes), Group 2 (DAC leadership outcomes - performance), and Group 3 (SingL - DAC - performance).

**TABLE 14**
**Comparison of Results**

| Relationship | Hypothesis | IV(T1) - M(T1) - DV(T1) | IV(T2) - M(T2) - DV(T2) | IV(T1) - M(T1) - DV(T2) | IV(T1) - M(T2) - DV(T2) |
|---|---|---|---|---|---|
| | | Cross-Sectional Models | | Sequential Models | |
| | | Model A | Model B | Model C | Model D |
| IV - M1 | H1: SL - Dir | **S** | **S** | **S** | **S** |
| IV - M2 | H2: SL - Ali | i | **S** | i | **S** |
| IV - M3 | H3: SL - Com | **S** | **S** | **S** | **S** |
| M1 - DV | H4: Dir - Per | i | i | i | i |
| M2 - DV | H5: Ali - Per | i | **S** | i | i |
| M3 - DV | H6: Com - Per | **S** | i | **S** | **S** |
| IV - DV | H7: SL - Per | i | i | i | i |
| IV - M1 - DV | H8: SL - Dir - Per | i | i | i | i |
| IV - M2 - DV | H9: SL - Ali - Per | i | i | i | i |
| IV - M3 - DV | H10: SL - Com - Per | **S** | i | **S** | **S** |

*Note: S = Significant, i = Insignificant relationship

Results related to Group 1, hypotheses 1, 2 and 3 indicate sharing leadership relates to the leadership outcomes of direction and commitment from the start to the end of the project. That is, the more sharing, the more agreement on direction and more commitment in the team. The results for these two variables are consistent regardless of the passing time. Sharing leadership has a positive effect on alignment, but this relationship is only significant in Model B and Model D. However, that positive and significant relationship is noted only when alignment is captured at time 2, i.e. at the end of the task. The results support H1, H2, and H3 and confirm how leadership is shared matters to leadership outcomes. Further, these results provide insights on the timing of sharing such that alignment is affected by the leadership influence only at the final stages of the task work[14].

In relation to results in Group 2, hypotheses 4, 5 and 6. Firstly, the results show no significant relationship between direction and performance at either of the time points and in either of the models. Hence, H4 is not supported. Hypothesis 5, alignment - performance, was confirmed in model B only. In this analysis, both constructs were related to each other at the end of the task (T2) and when happening simultaneously at the time of measurement. Although that positive relationship was only confirmed in Model B and not in Model A, hypothesis 5 found evidence for this relationship using cross-sectional analysis, confirming the positive relationship between variables at the end of the task and when related to each other as happening now, i.e. concurrently. Hypothesis 6 predicted commitment positively relates to performance (note that this relationship is not significant in Model B). This relationship was confirmed both in the longitudinal approach (model C and D) and in model A.

The final group of hypotheses, H7, H8, H9, and H10, investigated both direct and indirect effects. Hypothesis H7 speaks of a direct relationship between sharing leadership and performance. Such a direct relationship had not been confirmed in any of the models. The lack of a direct relationship between sharing leadership and performance suggests that the effect may be mediated by other variables, but due to the small sample size, it is not appropriate to claim full or partial mediation. However, it might well be that the insignificant results for direct relationships are misleading due to the small sample size. Further, sharing leadership was expected to be related to the outcome of leadership, which

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[14] It could also indicate that alignment develops later in the task work.

in turn was supposed to affect performance. None of the models recorded a mediation effect for either direction or alignment. Hence, H8 and H9 were rejected. The support for the mediation hypothesis was found for H10 only, i.e. commitment mediates the relationship between sharing leadership and team task performance.

Finally, although not confirmed individually, each model, A, B, C, and D, evidenced a combined indirect effect of shared leadership on performance, i.e. the impact of sharing leadership on performance passes through three mediators collectively. Note that the support for H5 comes from Model B only.

Based on the above considerations and testing, the following hypotheses are supported:

*H1: Sharing leadership has a positive impact on direction.*

*H2: Sharing leadership has a positive impact on alignment (supported in Model B and Model D only).*

*H3: Sharing leadership has a positive impact on commitment.*

*H5: Alignment has a positive impact on team task performance (supported in Model B only).*

*H6: Commitment has a positive impact on team task performance (supported in Model A, Model C, and Model D).*

*H10: The positive impact of sharing leadership on team task performance is mediated by commitment (supported in Model A, Model C, and Model D)*

## 5.6 Summary

This chapter consisted of three major parts: data preparation, preliminary analyses, and hypothesis testing. Part I described the data cleaning process and whether the data meets several assumptions. In particular, I tested for linearity, homoscedasticity, normality, and multicollinearity. This step was necessary as all parametric tests assume specific characteristics about the data, and violation of these assumptions changes the research conclusion and interpretation of the results. All assumptions were met, allowing for accurate conclusions from the results. In Part II, preliminary analyses took place, including confirmatory factor analyses (CFA) aimed at verification of the three factors in the DAC constructs, allowing for data aggregation to a group level based on the satisfactory results

of interrater agreement and intraclass correlations. In the final section of this chapter, Part III, I tested the hypotheses using both cross-sectional and sequential approaches, finding support for 6 out of 10 hypotheses. The final chapter of this study, Chapter Six, briefly discusses the theoretical and applied implications and the study's limitations and provides an agenda for future research.

# Chapter SIX

# GENERAL DISCUSSION

## 6.1 Introduction

This final chapter, titled "General Discussion," aims to synthesise various aspects of this thesis into a coherent narrative. The chapter examines the theoretical, methodological, and empirical contributions, discusses practical contributions based on the results of hypothesis testing, reveals numerous limitations and critiques, moves to suggestions for future research, and closes with final reflections.

This chapter's interpretations, conclusions, and suggestions should be considered cautiously. They are based on analyses within a specific context and are limited to a matched sample of 29 self-managed, autonomous student teams working on tasks.

In this final chapter, just like in the rest of this thesis, the research incorporates diverse viewpoints. It acknowledges the inherent complexities of the subject matter and dares, although perhaps not without caution, to take risks in pursuing a more profound understanding of the concept under study. As we delve into the remaining conclusions, it is hoped we can all be inspired, if that resonates, to dare to seek that deeper understanding with no hesitation, encouraged by the line of this poem:
And you?
Can you dare to want to see?

To reap, enjoy, and love,
To keep, to share, to give,
To grow?

## 6.2 Theoretical, Methodological & Empirical Contributions

This study addressed the following research question:
How do sharing leadership in teams and collective leadership outcomes (defined by the DAC framework) relate to team task performance?

This thesis generated several contributions. These include those related to shared leadership and leadership outcomes, as well as the study of leadership as a whole.

The Pronouns Framework presents a new system for dividing and understanding leadership literature. The practical implication of having such a system is that it allows for a more comprehensive and nuanced understanding of leadership. Map 1, Key Equation, continues in that theme. It offers a simple, visual representation of the key components of leadership, serving as an accessible and easily understandable tool to communicate and align understanding of leadership. The theoretical contributions of this thesis continue with the General Theory of Leadership (GOL). GOL seeks to integrate various theories and perspectives using interdisciplinary approaches, encourages collaboration across fields and invites critical thinking and problem-solving by challenging scholars and practitioners to think beyond traditional boundaries and established norms. Further, the study's unique contribution lies in its innovative approach. The thesis juxtaposes two aspects of leadership, structure and outcomes. Since no previous study has explored this connection, its contributions can be considered both empirical and theoretical. It uncovers novel, data-backed insights while broadening theoretical comprehension of how these leadership perspectives interrelate.

These contributions are further strengthened as the thesis relies on newly validated and only recently recommended measurements (e.g., shared leadership relies on the Importance Weighted Density, IWD, index recommended in Lemoine et al., 2020). Further, there are also methodological contributions. The chosen design allowed for the relationships between the variables to be tested at the time of measurement and lagged, with both cross-sectional and sequential models utilised. This approach permitted comprehensive understanding. Using both models allowed for capturing the immediate and delayed effects of variables providing a more comprehensive understanding of the dynamics and processes involved. It also provided validity checks increasing the robustness of the results. For instance, this study observed that there was a significant effect of alignment (mediator) on team task performance (dependent variable) detected at the completion of the task (T2). This suggests, within the context of this study, that the impact of alignment on performance may be observable towards the task's end. This could indicate that alignment is a reactive process in this context, responding to the evolving demands and changes of the task at hand, rather than a proactive process initiated in anticipation of these demands. The

subchapters below further explore this thesis's contributions to the DAC framework and shared leadership, later describing the contributions derived from hypothesis testing.

**6.2.1 Contributions: DAC**

This thesis significantly contributes to comprehending the DAC framework. These contributions are multifaceted, ranging from refining the DAC constructs to amalgamating team and leadership literature. This study is also one of the earliest empirical explorations of the DAC framework. It discusses the credibility of the DAC survey validation and broadens our understanding of leadership outcomes in a wider sense. Addressing these areas enriches the existing literature on the DAC framework and sets the stage for future research directions, ultimately providing a more comprehensive understanding of leadership processes and their impact on organisational life.

- Refinement of DAC constructs

This thesis extends the understanding of the DAC (Direction, Alignment, Commitment) framework proposed by Drath et al., 2008, particularly focusing on each of its leadership outcomes. There are similarities between, for example, alignment and coordination from the team literature. There is an ongoing need for further clarity in defining these constructs, which forms a key recommendation for future studies.

- A call for further integration between team and leadership literature

This thesis advocates for a robust merger of team and leadership literature to foster a more holistic understanding of organisational constructs. For instance, contemporary research postulates that the three leadership outcomes (direction, alignment, and commitment) manifest as emergent states. By weaving together insights from the most recent literature on team emergent states, we could potentially deepen our grasp of leadership outcomes as delineated in the leadership study.

- Alignment might be reactive rather than proactive

The influence of Shared Leadership (IV) on Alignment (M) in this study was found to be positive and significant, but this was only observed at the end of the task. This result was confirmed using both cross-sectional and sequential models. Also, the relationship between Alignment (M) and Performance (DV) was noted as positive and significant at the end of the task but only when employing a cross-sectional model.

These findings suggest that within this specific study, alignment acts as a response to immediate task requirements, promptly reacting to the evolving demands of the task, rather than being only a homogeneous process that consistently develops over time.  In this sense, alignment could be described as more reactive than proactive, although further research would be needed to confirm this hypothesis.

- Empirical contributions

This study is the second known publication (next to McCauley et al., 2019) providing quantitative insights into the relationship between leadership outcomes as defined by Drath at al. (2008) and performance. The study provides intriguing results, such that the relationship between direction and performance in self-managed teams working on tasks is insignificant.

- DAC survey validation

The thesis contributes to the validation of the DAC survey by providing further reliability and Confirmatory Factor Analyses results. The study highlights the immediate need for further construct clarity and additional validation efforts before future use of the survey.

- Expanding the understanding of leadership outcomes

This thesis enhances the DAC framework by raising provocative questions concerning leadership outcomes. The study affirms the perspective of DAC's authors, who view leadership outcomes as interconnected and interdependent. However, it further enriches this theory by introducing the metaphorical concept of "ripples of leadership" to describe the cascading effects of leadership over time. Just as a stone dropped into a pond creates ripples that expand outward, each act of leadership can generate a series of outcomes that spread across an organisation or system.

This study also encourages a more comprehensive approach that extends beyond the DAC framework's classification of outcomes as either proximal or distal. It underscores that all organisational outcomes should be viewed as being influenced by leadership, eliminating the distinction between outcomes "belonging" to leadership and those perceived as separate from it. This thesis proposes that rather than separating outcomes into "belonging" to leadership and those that are not, the emphasis should be on how the leadership process impacts all organisational outcomes.

The impact of the leadership process on the organisational outcomes could be seen as shaping them on a spectrum: from more proximal to more distal, from intentional (strategic) to unintentional (unplanned), and from immediate to long-term effects. Moreover, it is worth considering the degree to which different levels within the organisation are affected, whether it is at multiple levels (multilevel) or a single level (unilevel). This more comprehensive and nuanced perspective could provide a deeper understanding of the intricate dynamics of leadership and its contributions to organisational life.

### 6.2.2 Contributions: Shared Leadership

Moving away from contributions to the DAC framework, this section delves further into the contributions of this thesis's findings to shared leadership literature. These contributions aim to refine and expand our knowledge, helping to shape future research in this area.

● Refinement of terminology

This thesis suggests adopting the term "sharing leadership" to represent the meaning of the shared leadership theory's breadth more accurately. This proposal emphasises that leadership influence should always be seen on a spectrum, acknowledging the varying degrees of sharing, from no sharing at all to complete equality in sharing.

● Refining theory through methodology

This study underscores the critical role of measures in shaping and refining the shared leadership theory. Although it might seem counterintuitive to allow the measure to guide theory, this approach is argued to be beneficial for the field. It enhances discussion on the meaning of the construct and acts as a  catalyst leading to further construct clarifications. This method-driven approach fosters a more nuanced understanding of shared leadership, effectively enabling researchers to accurately capture the construct's complexities and nuances.

● Reconsidering the operationalisation of shared leadership

This study critically reevaluates the dominant operationalisation of shared leadership. It challenges the conventional preference for density over centralisation in the representation of shared leadership and highlights potential adverse implications. The indiscriminate use of disparate indices to capture and analyse shared leadership could have confused

theoretical understanding and led to misinterpretations in practice. The study further endorses the broader application of Social Network Analysis (SNA) in leadership studies, potentially extending its use beyond the confines of shared leadership. Exploring alternative applications of SNA, such as in the measurement of leadership roles and relationships, team dynamics, or organisational structures, could provide innovative insights and shape future research.

- Application of IWD as a novel network measure

This study relies on importance-weighted density, a novel network measure suggested by Xu et al. (2022; Lemoine et al., 2020) as best equipped to capture the construct of shared leadership. Applying this recommendation means the study pioneers a new approach to representing the shared leadership construct. This research advocates for a comprehensive understanding of leadership as inherently collective and structured, i.e., the leadership process can be seen as always having some kind of structure.

The discussion on theoretical and other implications continues in the following subchapters. Beyond the already discussed contributions, this thesis makes other, derived from hypothesis testing. The results of this study revealed that the way leadership is shared relates to leadership outcomes, although this relationship varies depending on the moment of measurement (middle vs end task) and the assumed relationship (immediate vs lagged effect). Additionally, this study explored the relationship between leadership outcomes (DAC) and team task performance (TTP). The analyses indicated that various leadership outcomes relate to performance differently, with some effects being insignificant (e.g., direction-performance relation), some observed only in particular task phases (a positive relationship between alignment and performance was noted at the end of the task), and some recording a positive relationship throughout the task duration (commitment-performance relationship). The subchapters below develop and discuss these contributions in more detail.

### 6.2.3 Sharing Leadership - Leadership Outcomes

Group I of the hypotheses (H1, H2, and H3) explored the independent variable (IV) effect on mediators (Ms), i.e., the leadership sharing structure on the leadership outcomes of direction, alignment, and commitment. Visually, this relationship can be presented as follows:

Sharing Leadership (SingL) ------- > Leadership Outcomes (DAC)

The cross-sectional and sequential analysis of this study's data set provides evidence that sharing leadership (SingL) positively relates to the three leadership outcomes. For some leadership outcomes, this relationship was noted in the middle and end of the task (direction, commitment), and for others, only at the end of the task (alignment).

It is essential to note that the proposed conclusion regarding the relationship between sharing leadership and leadership outcomes is confined to each construct's boundaries. Concerns were raised about the construct clarity of the study variables in this thesis. In the literature review chapter, issues related to shared leadership were noted, pointing out that the construct is measured in various, conceptually different ways. This creates a confounding situation as depending on a measurement chosen, the meaning of the construct is changed. For example, suppose the density (one of the indices of SNA) is used to capture shared leadership. In such studies, what is actually analysed is not sharing per se, i.e. distribution of influence, but rather, the overall amount of leadership influence, with higher levels, indicating more leadership influence (see Table 6 for examples of various measurements used to capture shared leadership).

Similarly, concerns were raised about the construct clarity of leadership outcomes in the DAC framework and their close similarities with constructs from team literature (e.g., alignment from the DAC framework and coordination from team literature). Further research is needed to establish the constructs' meanings precisely. As already noted, a leadership study would also benefit from exploring the relationship between constructs known from leadership literature and those studied in team literature.

**6.2.4 Leadership Outcomes - Team Task Performance**

Group II of the hypotheses, H4, H5, and H6, investigated the effect of mediators (Ms) on a dependent variable (DV), i.e., the leadership outcomes of direction, alignment, and commitment on team task performance. Visually, this relationship can be represented as follows:

Leadership Outcomes (DAC) ------- >Team Task Performance (TTP)[15]

As previously mentioned, the study results revealed diverse impacts of leadership outcomes on team task performance. Some effects were insignificant, such as the relationship between direction and performance, while others were observed only during specific task phases, like the positive relationship between alignment and performance at the end of the task. Additionally, some relationships, such as commitment and performance, remained positive throughout the task's duration.

The result of the Direction - Team Task Performance relationship was perhaps the most surprising. The analysis showed that the effect was insignificant at both measurement times (T1 and T2); no effect was recorded at the time of measurement nor when the lagged analysis was employed. These results contradict McCauley et al. (2019), although their conclusions rely only on correlation analyses. These results are also surprising when contrasted with other research on vision, goals, and performance (Berson et al., 2001; Yukl, 2010). This may relate to sample size and the chosen analysis (as mentioned, McCauley et al. 2019 based their conclusions on correlation analyses only). Regarding the broader literature, these differences might be related to the lack of construct clarity of both direction and performance. They might also link to a particular context of this study, i.e., self-managed teams working on a task.

Throughout the study, concerns about construct clarity have been consistently raised. The issue affects all three variables - shared leadership, leadership outcomes, and team task performance. The implications of lack of construct clarity regarding shared leadership and leadership outcomes were already discussed. The paragrap below explores the implication of a lack of construct clarity for team task performance.

As per the current literature, team task performance is seen as a dimension of team effectiveness. The construct of team effectiveness encompasses a set of different but related dimensions. These include not only team performance (which might be associated with productivity, quality, innovation and efficiency) but also satisfaction (how content, proud and committed team members to the team are), and team viability (i.e. members' willingness to keep working in the team), team members' growth and well-being (how

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[15] In this study, I referred to "team task performance" (TTP) interchangeably with "performance."

many teams members learn and achieve their goals while working in the team), and the influence teamwork has on team members' behaviours and attitudes (Aubé & Rousseau, 2011; Hackman & Wageman, 2005; Mathieu et al., 2019).

In this dissertation, the variable "team task performance" aimed to capture the team's productivity, quality, innovation, and efficiency. However, upon closer examination of the chosen measure, it becomes apparent that there is a contradiction between the intended meaning of the construct and what is actually measured. Following Hiller et al. (2006; 2011), this thesis sees high team task performance as encompassing various aspects: members' understanding of task accomplishment, effective planning, achievement of objectives, high-quality work, proactive problem-solving, and decision-making initiative. Consequently, in this thesis, the term team task performance, which should refer to task performance, encompasses elements across team effectiveness. The implication of this is perhaps best visible when we rephrase the conclusion from "there is no significant effect between direction and team task performance" to a more accurate statement such that

"Agreement on team goals (direction as per the DAC framework) is not significantly related to the team's understanding of task accomplishment, the quality of the team's planning, the quality of the team's work and initiative in problem-solving (team task performance as per Hiller et al., 2006; 2011)."

The distinction between the intended meaning of team task performance and what is actually measured has several implications. It clarifies the interpretation of findings and relationships between variables, leading to more accurate conclusions. This understanding also assists practitioners in making informed decisions to enhance team performance. Leaders and team members need to be aware that various aspects of team effectiveness, like understanding task accomplishment, quality of planning and work, and problem-solving initiative, may not automatically align with the team's agreed-upon goals. Therefore, these aspects should be actively managed and monitored rather than assumed to be a direct result of goal alignment. Moreover, these reflections highlight the need for future research to use precise measures and terminologies, enabling more accurate and generalisable findings on leadership and teams. Future studies should strive for precision when defining and measuring variables to accurately capture the intended constructs. Such precision will not only enhance the validity of the research but also its applicability in real-world contexts.

## 6.2.5 Direct & Indirect Effect

The simple visual representation of the hypothesis included in Group III (H7, H8, H9, H10) looks as follows:

Direct Relationship (H7)

Sharing Leadership (SingL)  ------- > Team Task Performance (TTP) (in the presence of DAC)

Indirect Relationship (H8, H9, H10)

Sharing Leadership (SingL)  ------- > Leadership Outcomes (DAC)  ------- > Team Task Performance (TTP)

The analyses in this thesis found no evidence of a direct relationship between shared leadership and team task performance in the presence of mediators. The relatively small sample size might have influenced these results, so it might be premature to draw definitive conclusions regarding the direct impact of shared leadership (H7). Further, the analysis demonstrated that neither direction nor alignment served as mediators between sharing leadership and team task performance. However, a pattern of correlations emerged that supported a mediational commitment-related hypothesis. This suggests that shared leadership indirectly influences team task performance through its impact on commitment rather than directly.A consistent, combined indirect effect was also observed, indicating that the impact of sharing leadership on performance occurs through the combined effect of all three mediators—direction, alignment, and commitment.

These findings contribute valuable insights to the theoretical understanding of how leadership influences organisational outcomes, specifically team task performance. These findings imply that shared leadership may not directly affect team task performance but indirectly influences performance through its impact on commitment. This conclusion underscores the multifaceted and indirect nature of leadership's influence on organisational outcomes.

Theoretically, these results enrich our understanding of leadership's role in shaping organisational outcomes. They confirm that the effects of leadership are not always direct and straightforward; instead, leadership can shape outcomes through a complex interplay of various factors, such as commitment. This finding strengthens the proposition in this

thesis that leadership outcomes could be seen as a spectrum, varying from more proximal to more distal, from intentional to unintentional, and from immediate to long-term. This aligns with the present findings in which the effect of sharing leadership on team task performance is not immediate and direct but more distal and indirect, transpiring through the mediating role of commitment. This also confirms that leadership outcomes could be seen on a spectrum from unilevel to multilevel. In this example, leadership affected commitment and, through commitment, impacted team task performance, permeating multiple layers within the organisation.

### 6.2.6 Leadership Multifaceted

In this study, the leadership process was analysed by examining its structure and outcomes. The immediate leadership outcomes were defined by the DAC framework, which include direction, alignment, and commitment, while more distal outcomes were represented by team task performance (TTP).  Essentially, the combination and order of variables analysed in this study can be presented as follows:

**TABLE 15**

**Sequence of Study's Relationships - Version 1**

Input of Leadership Structure Sharing  ------- >  Immediate Leadership *Outcomes (*DAC)
------- > Long-term Leadership *Effects:* Team Task Performance (TTP)

As mentioned, the authors of the DAC framework (Drath et al., 2008) attempted to distinguish between immediate outcomes of a leadership process, such as direction, alignment, and commitment, and distal effects, e.g., team task performance.

The language used in the DAC framework is helpful because it highlights that leadership outcomes can be viewed as direct and distal. However, this terminology can also create confusion, as one can think that some outcomes belong to the leadership process and some do not. Map 1, Key Equation, reinforces the role of influence in leadership. Following the map's logic, all organisational outcomes could be seen as related to the leadership process. This is because, to varying degrees, every organisational outcome is affected by the presence or absence of leadership influence. Based on these considerations, the updated study's sequence could be prested as follow:

**TABLE 16**

**Sequence of Study's Relationships** - **Version 2**

Input ------- > Outcomes ------- > Outcomes (IOO)

To be consistent and precise (perhaps even stubborn), let us re-trace the above sequence once more, this time, purely through the IMOI framework summarised in Illgen et al. (2005) and further refined by Mathieu et al. (2008). The IMOI framework presents additional avenues for leadership theorisation. Its application to leadership studies has been recommended by Nicolaides et al. (2014), Day et al. (2004), and Kozlowski et al. (2016).

The IMOI framework enables us to conceptualise outputs eventually becoming inputs and vice versa. As a result, leadership structures and outcomes can be examined in multiple configurations, both as outputs and inputs. This notion is supported by literature, which reveals instances where a leadership sharing structure (i.e., shared leadership) is not only positioned as an "input" (like in this thesis) but also as an "output." For instance, studies by Daspit et al. (2013) and Serban and Roberts (2016) identified shared leadership as an effect (i.e., output) of various processes and emergent states, such as decision-making and cohesion.

This consideration leads to an interesting proposition. In the dynamic, interconnected perspective of leadership where inputs are outputs and outputs are inputs, it is plausible to consider structure not only as an input but also as a manifestation or result of the leadership process. Further, it is proposed that the leadership process actively creates, shapes, and reshapes its structure. Therefore, we could consider the leadership process's structure as not only input but also a tangible outcome, an effect, or a result generated by the leadership process itself.

This proposition invites us to re-evaluate our starting point for assessing leadership. It encourages us to think of organisational outcomes not as static entities affected by leadership but as dynamic constructs emerging from the leadership process.

Further, as we continue with our considerations, we notice that the positioning of constructs, either as input or outcome, will yield different assumptions, e.g., causality (i.e., determining cause and effect). The consequences of these varying arrangements become more apparent when introducing a third variable, such as performance or team effectiveness. This addition increases the complexity of the relationships, as there are now

not only input and output variables but also a mediator. The IMOI framework encourages reevaluating the study's constructs based on their roles or functions. Inputs describe what is introduced, outputs represent the results, and mediators facilitate the effect between the two, explaining how inputs indirectly impact outcomes (Mathieu et al., 2008).

In team literature, elements such as input, output, and mediator (often multiple mediators) are commonly defined as processes or emergent states. The creators of the DAC framework categorise direction, alignment, and commitment as emergent states. With this additional recollection in mind, we might realise that adopting a multi-perspective for each variable could be advantageous. This approach would involve considering the function (role) each variable assumes (e.g., input) and the form in which it is analysed, e.g. static emergent state or a dynamic process.

Again, if we force ourselves to persist with our thinking, we can make another interesting observation.

Usually, leadership is studied in relation to *other* team processes or emergent stages, e.g. leadership and trust, leadership and team cohesion or leadership and performance.
In this study, a distinctive approach was adopted. Instead of connecting leadership to other factors, the research examined the interrelationship of leadership's own aspects. The thesis posits that leadership is a process characterised by structures and outcomes, which can be interconnected within the leadership process itself.

These considerations shed light on leadership's multifaceted and intricate nature, offering insights into why studying leadership can be complex and challenging. The complexity increases when, as demonstrated in this study, leadership is defined as a process but examined through its outcomes and structures, where structure serves as the input and outcomes serve as mediators, facilitating the relationship between inputs and more distal outcomes (here, performance). This thesis emphasises that various combinations can be used to study leadership and its aspects, enabling a dynamic interplay of perspectives that intersect and overlap.

**TABLE 17**
**Leadership Study Matrix**

| Category | Variable 1 (SingL) | Variable 2 (DAC) | Variable 3 (TTP) |
|---|---|---|---|
| **1. Function** | | | |
| Input (Antecedent) | SingL | | |
| Mediator | | DAC | |
| Output (Consequence) | | | TTP |
| **2. Relationship** | | | |
| Self | | | |
| Other | | | TTP |
| Both | SingL | DAC | |
| **3. Dynamics** | | | |
| Static | SingL | DAC | TTP |
| Dynamic | | | |

Note: SingL for  Sharing Leadership; DAC for Direction, Alignment, Commitment; TTP for Team Task Performance

**6.2.7 Leadership Dynamics: A Complex Systems Perspective**

This study employed a cross-sectional and longitudinal design to capture the dynamics between studied variables. This methodological approach allowed for examining both immediate and lagged effects, providing insights into the evolving nature of the leadership process, and underscoring its complexity and dynamism (Ployhart & Vandenberg, 2010; Podsakoff et al., 2003).

Recognising the significance of immediate and lagged effects and continuous monitoring and assessment of the leadership process throughout the project lifecycle is essential. By doing so, organisations and leaders can identify improvement areas and adjust leadership strategies accordingly, ensuring optimal team performance. Assessment of the effectiveness of leadership interventions must consider that some effects might not be visible at the moment of assessment (see results regarding commitment-performance at the end of the task when using cross-sectional modelling).

This study's findings contribute to the views of leadership as a complex, dynamic system where structure and leadership outcomes are both input and output rather than leadership being a simplistic static process-outcome relationship.

There are further reflections regarding causality. Leadership sharing structure (SingL) was theorised as affecting the outcome variable (i.e. team task performance, TTP) through its effect on the mediators (direction, alignment and commitment, DAC), variance in which causes the outcome to vary.

The arrangement of the variables was proposed following various considerations, including

- Context of the study: ad hoc teams working on tasks with no previous history of either how to share influence in the particular group or having reference to the prior level of leadership outcomes.
- Matrix of the DAC framework (Drath et al., 2008): in the DAC framework, leadership outcomes result from practices and beliefs (i.e. leadership culture). Sharing leadership (SingL) was proposed as a particular way of "doing leadership", i.e. leadership practice. Hence, sharing leadership was positioned before leadership outcomes.
- Relational perspective (Uhl-Bien, 2006): the DAC framework and sharing leadership are conceptualised as immersed in relationships. Through the relational

perspective, leadership is viewed as a social influence process immersed in communication and sense-making (Ruben & Gigliotti, 2017), through which leadership outcomes, like direction or alignment, are constructed and produced.

The proposed research model appears to be solid and deeply rooted in established theories. The results support the hypothesised causal relationship, particularly regarding the expected "cause" and "effect", notably highlighted by the results for H10, evidencing a positive indirect relationship between sharing leadership thought commitment on team task performance and the significant total indirect effect.

However, the thorough reflection, examination, and discussion in the preceding subchapters encourage further inquiry into the causal relationship between outcomes and structure. A compelling argument emerges for the possibility of reverse causality. It is plausible to consider that leadership outcomes not only predict the sharing structure but that the structure itself also influences the outcomes. This perspective aligns with the principles of the DAC framework, which acknowledges the existence of double feedback loops. Moreover, hints of this reverse conceptualisation can be found in previous discussions. The IMOI framework lends additional support to this notion, offering another layer of justification for exploring the possibility of reversing the variables' positions.

By acknowledging the potential bidirectional nature of the relationship between leadership structure and outcomes, this thesis aligns with the perspective of prominent leadership scholars who advocate for studying leadership as a complex dynamic system rather than solely focusing on traditional process-outcome causal relationships (Uhl-Bien et al., 2007; Lichtenstein et al., 2006). This raises a pivotal theoretical question:

Does investigating and analysing leadership through the lens of "causality" still hold significance?

The thesis recognises the importance of moving beyond linear causality to embrace the complexities of leadership as a complex system, where inputs and outputs interact and influence one another reciprocally. This thesis sustains that causality remains important in studying leadership but only when integrated with other approaches that account for the complexity and dynamism inherent in leadership. Researchers can develop a more holistic understanding of the intricate interplay among various factors and processes, leading to more nuanced theories and practical applications. In that sense, this thesis contributes to the emergence of a new frontier in leadership research—complex systems approach that

accounts for causality and yet embraces leadership phenomena's interactive and dynamic nature.

### 6.2.8 Multidimensional Continuum of Leadership Outcomes

The results of this research offer support discourse in the field of team emergent states literature (Fyhn et al., 2022). Team emergent states are defined as dynamic collective phenomena shaped by the interactions among team members. The complexity, multifaceted aspects, and variety of influencing factors within these emergent states have been well-established in the literature. As Fyhn et al. (2022) have pointed out, these states present significant challenges when it comes to measurement and management. This study's analyses, backed by compelling empirical evidence, also support this view.

This study illuminates the dynamic nature of leadership outcomes diverging from the traditional viewpoints perceiving emergent states as static. Future studies should continue to explore the complexities of emerging states' development over time to better comprehend and manage these evolving phenomena. This might include analysing immediate and delayed effects. Despite seeming counterintuitive, measuring leadership outcomes at a task's onset could also be beneficial. This could shed new light on the latent states of these dynamic constructs, even in a task's early stages.

Expanding on these findings, the study leads to a more comprehensive understanding of leadership outcomes. This viewpoint, influenced by the intricate layers within the DAC framework, emphasises leadership's multifaceted, complex, and time-sensitive nature. From the perspective of leadership outcomes, this can be represented as a "Multidimensional Continuum of Leadership Outcomes". Grounded in the dialogues and reflections of earlier chapters, the framing of leadership outcomes as a multidimensional continuum highlights the dynamic and multidimensional range of leadership outcomes. This approach recognises that these outcomes are not isolated; they evolve across various dimensions, demonstrating leadership's complex, fluid, and cyclical nature.

This multidimensional continuum includes various dimensions along which the outcomes of the leadership process can be evaluated:

- Proximity: This dimension refers to the degree of closeness of an outcome to the leadership process (here defined as per Map1, Key Equastion), ranging from proximal (close) to distal (far).

- Intent: This refers to the degree to which an outcome is a planned or intentional result of the leadership process, ranging from intentional (strategic) to unintentional (unplanned).
- Time/Visibility: This dimension accounts for when the outcomes become apparent, ranging from immediate to long-term effects.
- Level: This dimension considers the degree to which different levels within the organisation are affected, ranging from multilevel (affecting various levels within the organisation) to unilevel (affecting a single level).

Further, focusing on the dynamic, recursive nature of leadership outcomes, we could consider adding an additional dimension - the dimension of reflexivity.

This reflexive dimension adds a layer of complexity to the multidimensional continuum, highlighting the interconnectedness and dynamism inherent in leadership processes. It acknowledges that leadership is not a one-way process with clear-cut beginnings and ends but rather a continuous, recursive cycle that simultaneously shapes and is shaped by the organisational context in which it operates.

Hence, the Multidimensional Continuum of Leadership Outcomes evolves to include

- Reflexivity: This captures the recursive relationship between leadership outcomes and their role as inputs. It signifies the degree to which outcomes recursively influence the leadership process itself. This can range from a unidirectional or a one-way influence (outcomes as static entities) to a bidirectional or a two-way influence (outcomes as dynamic entities that shape and are shaped by the leadership process).

Lastly, I propose another dimension called autopoiesis, borrowed from systems theory, to be added to the Multidimensional Continuum of Leadership Outcomes. This refers to how the leadership process, through its outcomes, influences and shapes itself over time, underscoring its ability to reproduce and maintain itself. This might involve how leadership styles evolve in response to previous successes or failures or how leaders learn and adjust their behaviours based on team feedback.

Hence, the last dimension along which the outcomes of the leadership process can be evaluated is

- Autopoiesis: This dimension represents the self-generating nature of the leadership process. The range of this dimension could extend from low autopoiesis (minimal self-influence and adaptation over time) to high autopoiesis (significant self-influence leading to evident evolution and adaptation of the leadership process over time).

## 6.3 Practical Contributions

This subchapter explores the practical implications of hypotheses testing results, revisiting and categorising previously discussed effects to enhance the understanding of how these findings could be applied in real-world contexts. This systematic approach aids in pinpointing those elements that have the most potential to significantly improve organisational effectiveness.

It is crucial to underscore that the proposed interpretations should be treated cautiously. This is due to inherent limitations, including potential ambiguities in construct definitions and measurements (refer to the preceding discussion on interpreting team task performance construct versus its measure). Furthermore, these interpretations are predicated on context-specific findings and are subject to the constraints of the sample size used in this study. To broaden their generalisability, the conclusions from this thesis should undergo additional testing and be compared with other research to enhance their validity and reliability.

### 6.3.1. Sharing Leadership Creates Multiple Benefits

An increase in sharing leadership should result in a cascade of improvements in leadership outcomes (i.e., direction, alignment, commitment) and performance. By promoting shared leadership, organisations can potentially improve multiple aspects of team functioning simultaneously.

### 6.3.2 Sensitive Evaluation of Leadership Impact

Continuous monitoring and evaluation of leadership processes throughout a project's lifecycle cannot be overstated, as it paves the way for ongoing improvements. Findings from this thesis underscore that the timing of measurement is a key factor in understanding leadership's impact on performance. This impact can be seen differently depending on whether the effects are assessed immediately or after some delay. For example, in a

cross-sectional model used in this study, there was a significant positive relationship between alignment and performance at the end of the task. Consequently, this signals to organisations the need to consider the timing and dynamics of the leadership process when appraising the influence of leadership on performance.

In practical terms, this could necessitate the creation of a dynamic evaluation framework adept at capturing the ripple effects of leadership interventions throughout all stages of a task, from its inception to culmination. This framework should be crafted with a keen sensitivity to time, embodying the capacity to account for the pace and intensity of different interrelationships as they evolve through various stages of a task's progression. Incorporating a proposed "Multidimensional Continuum of Leadership Outcomes" could significantly enhance these efforts, offering invaluable insights into the immediate and delayed impacts of leadership actions.

### 6.3.5 Re-evaluating Role of Direction

This study shows that the relationship between the collective agreement on overarching goals, or "direction", as per the DAC framework, and the multi-dimensional aspect of "team task performance" may be less pronounced than initially anticipated. The sense of direction might be inherent or "given" since goals and deliverables are typically established before task initiation or inherently encompassed in the task's instruction, i.e. "accomplish to the highest quality" or "accomplish with minimum effort within the time frame given". This suggests a potential need for organisations to reconsider the weight they place on "direction" when developing leadership strategies.

The discrepancy between the intended definition and the measured elements was already discussed. As a result, the term "team task performance" has been used, even though it encompasses aspects beyond mere performance, extending to broader dimensions of a team's overall effectiveness.

The implications of this discrepancy are manifold. Firstly, it aids in refining the interpretation of findings and relationships between variables, leading to more nuanced conclusions. Secondly, this understanding gives practitioners the insight necessary to enhance their performance. Leaders and team members need to recognise that team effectiveness attributes, such as understanding task accomplishment, quality of planning and work, and proactive problem-solving, may not inherently align with the team's agreed-upon goals.

In light of the insignificant relationship between "direction" and "team task performance", it is critical to consider the potential compensatory role of shared leadership. Shared leadership could foster collective responsibility, stimulate innovation, and enable effective adaptation to challenges. Further research is necessary to deepen our understanding of the relationship between shared leadership and direction in tasks and self-managed teams. Future studies should prioritise precision in defining and measuring variables to represent the intended constructs accurately, hence, bolstering the research's validity and enhancing its applicability in real-world scenarios.

### 6.3.6 Immediate Reactivity of Alignment

This study's findings reveal that the influence of shared leadership on alignment as well as alignment on performance, manifests predominantly during the final stages of the task. These results might imply that alignment requires not only extended time and energy to develop but also that alignment requires responding immediately and reactively to the changing requirements of the task.

This research aligns with coordination studies, a concept parallel to alignment and recognised in team literature. For instance, models like Gersick's (1988) punctuated equilibrium model and McGrath's (1991) temporal model of group development describe team coordination as an evolving process. Consequently, practitioners should aim for a long-term perspective, investing time and effort in nurturing alignment throughout a project's lifecycle, yet be prepared for quick adjustments and realignments in response to shifting task demands.

The nature of the task could play a significant role in the observed relationships. For instance, complex tasks with high interdependence, as suggested by Wageman (1995), require advanced coordination mechanisms. In such scenarios, alignment seems to be triggered at the task's end, suggesting these tasks might require a more direct influence of shared leadership on alignment due to higher coordination demands at the final stages. Hence, sustained shared leadership practices are crucial, especially towards the end of complex tasks, to trigger necessary alignment, thereby improving overall team performance.

### 6.3.7 Central Role of Commitment

This study found that commitment was the most significant mediator between sharing leadership and team task performance. Commitment consistently showed a positive relationship with performance above other leadership outcomes (e.g., alignment or direction). This implies that organisations should prioritise fostering a strong sense of commitment among team members as this could be seen as a "safe bet" to improve performance.

The finding that commitment is the most significant mediator between shared leadership and team task performance can be attributed to various factors, including the strong link between commitment and motivation (Meyer & Herscovitch, 2001). In self-managed student teams, the absence of formal authority figures and the educational context can further emphasise commitment's importance (Druskat & Wheeler, 2003; Wolters, 2004).

When exploring the relationship between commitment and performance it is crucial to consider the potential influence of social desirability bias. Students may report higher commitment levels to conform to societal expectations and academic environments valuing dedication and effort (Crano & Brewer, 2002). Futureture research could employ alternative commitment assessment methods and statistical techniques to address this issue to account for potential confounding effects (Podsakoff et al., 2012).

## 6.4 Limitations & Critique

I acknowledge various limitations to this work. These are presented as linked to this thesis's main chapters. I list these without hesitation, being as thorough in my approach as possible. Fundamentally, I believe that the most potential for learning lies in our ability to openly acknowledge, reflect, and share our mistakes and shortcomings. Although "looking good" and "being right" is, by all means, tempting, ultimately, it is learning that I value most, and it is "learning" that I choose to prioritise.

### 6.4.1 Limitations to Chapter Two - Literature Review

6.4.1.1 Pronouns Framework
The Framework was devised to aid comprehension of leadership literature by categorising it into distinct groups: "I," "You," "We," and "It." While using pronouns as categories seems like a practical approach to structuring the current leadership literature, the

framework requires additional empirical testing and refinement to ascertain its relevance beyond this thesis. Moreover, the "We" and "It" categories are closely intertwined, which may create challenges in determining the appropriate category for specific literature. The framework's strength, i.e. its flexibility and plasticity, can also be seen as its weakness as it implies a multitude of possibilities rather than giving one concrete response to "what should be where." Future research could address these limitations and evaluate the Pronouns Framework's effectiveness by analysing its effectiveness when applied to various publications.

### 6.4.1.2 Team Task Performance

The Literature Review, Chapter II, does not include a literature review on performance, although performance is one of the key aspects of the proposed research model. This omission was a conscious decision driven by the extensive length of the chapter and the primary focus of the thesis on the core concept of leadership itself. While acknowledging this constraint, it is essential to consider that future research could benefit from a thorough examination of performance to provide a more comprehensive understanding of the relationship between leadership and performance outcomes.

### 6.4.1.3 Leadership Maps

The idea behind creating the maps was to provide a visual, uniform representation of how leadership works on its most basic level, beyond cultural and geographical boundaries. As a researcher, I firmly believe that pursuing the creation of simplistic visual representations of core leadership dimensions is a valuable endeavour. However, it is also essential to acknowledge that achieving this objective might only sometimes be feasible. The limitations of this approach can relate to the following,

- The complexity of leadership dynamics might be difficult to simplify, as it encompasses multifaceted interactions and decision-making processes.
- Capturing the essence of leadership while acknowledging the unique characteristics of each context might be challenging due to diverse cultural, social, and economic factors.
- The evolving nature of leadership theories and practices necessitates continuous revisions to maintain the maps' relevance.
- The subjective nature of leadership experiences and perceptions complicates establishing a consensus on the essential elements to represent in the maps.

Given these challenges, it is vital to approach the development of leadership maps with humility and flexibility, refining and adapting the visual representations as new insights emerge and feedback is received. Despite the limitations, creating leadership maps remains a valuable endeavour to foster better understanding and communication regarding the complex nature of leadership.

6.4.1.4 Map 1 "Key Equation"

The primary objective of Map 1 was to depict leadership's essential components, including influence to improve, as defined by people, needs, and context. It is not suggested that there are no other components or that the proposed elements in Map 1 should not be modified or expanded. For instance, "influence to improve" might require immediate re-evaluation, as it could be argued that not all leadership actions lead to improvement. Although Map 1 is informed by various works (e.g., Murphy, 1941; Carlyle, 1840; Oc., 2018; Fischer et al., 2017), further development is necessary to enhance its effectiveness. It would be particularly interesting to explore how Map 1 could be adapted to the concept of self-leadership and better incorporate propositions where exceptions to the map's description are expected. Notably, the map has not been tested, undergone in-depth analysis, or is recommended for use until further development efforts are carried out.

**6.4.2 Limitations to Chapter Three - Hypothesis**

6.4.2.1 Leadership Process vs Quantitative Approach

While this thesis views leadership as a process, the study employed a somewhat "static" quantitative design, with temporal dynamics represented solely through two data collection points. The choice of a quantitative approach is well-justified due to its alignment with the philosophical stance of the author and resource limitations. However, re-testing the study using a longitudinal qualitative approach could provide additional validation for the study's results.

6.4.2.2 Mediation Hypothesis & Reverse Causality

The proposed research model, particularly the mediation hypothesis, warrants reevaluation based on the possibility regarding the interchangeability of independent and dependent variables and the existence of a third variable. For example, it was mentioned that Carson et al. (2007) studied the relationship between shared purpose and shared leadership, but in reverse. This notice should have raised a more diligent question of whether sharing leadership affects direction or if a shared sense of direction leads to shared leadership. The

author should have explicitly justified why the relationship between study variables is not bidirectional, and, if needed, redesign the study's hypothesis according to these reflections. Furthermore, there appears to be some disconnect between the study's central question and its model, such that testing the mediation hypothesis might not have been crucial to address the thesis's primary question.

### 6.4.3 Limitations to Chapter Four - Methodology

6.4.3.1 Two-waves Design

It is important to acknowledge that two-wave designs have known shortcomings (Fyhn et al., 2022). While using two data collection points was justified in this study, it is essential to remember that semi-longitudinal designs with only two measurement times can offer a limited view of temporal dynamics. It would be advisable to consider employing three or more measurement points in future research to obtain a more comprehensive understanding of the relationships between the study's variables.

6.4.3.2 Timing of Data Collection
In this study, the second data collection point (T2) occurred after completing the task, specifically a few days later. This timing was chosen deliberately due to the requirements of Social Network Analysis, which demands a high response rate. The concern was that distributing surveys too early might lead to a lower response rate, as students could be busy with task deliverables.
However, while appearing justified, this decision leaves room for further reflection and potential improvement in future research. For instance, data collection at multiple intervals throughout the task, rather than merely at the midpoint and the end, could provide a more detailed and nuanced understanding of how the relationships between variables develop over time.
Such a longitudinal approach would allow researchers to observe changes and trends, yielding richer insights into the dynamics of the relationships under study. Therefore, it is recommended to consider more frequent data collection points during the task's progress in future research, enabling more in-depth exploration of the evolving relationships between the study variables.

### 6.4.3.3 Control Variables & Endogeneity Concern

In this study, the researcher investigated the relationship between leadership structure, team outcomes, and team performance, considering team size as a potential control variable. The decision to test only team size as a control variable was based on cited literature (e.g., Joshi & Roh, 2009; van Dijk et al., 2012) which suggested that, e.g., the impact of gender on team dynamics might not be as significant or consistent as previously believed.

For a more thorough understanding of the phenomena under investigation and to boost the study's external validity, future research must strive for a balanced representation. This includes considering factors such as gender, age, ethnicity, and educational background. Ensuring a diverse participant pool can make the research findings more valid and applicable to a broader population, enhancing their generalisability.

The study's small sample size was the primary reason for limiting the number of control variables. Including numerous control variables in a study with a small sample size (in this case, a matched sample of 29 teams) can lead to issues related to multicollinearity, reduced statistical power, and model overfitting. These concerns can undermine the validity of the study's findings and the ability to draw meaningful conclusions.

Therefore, by carefully selecting a limited number of control variables, the study aimed to balance the need to control potential confounding factors with the constraints imposed by the sample size. For future research, if larger sample sizes are available, including additional control variables could enhance the robustness of the study's findings and more effectively address potential concerns related to endogeneity.

### 3.4.3.4 Measures

For a measure of a construct to have validity and for research conclusions to be interpretable, the conceptual and operational definitions should align (Hempel, 1954). If the wrong measure had been chosen, this might completely change the significance of a study's findings and the requisite theory behind them.

The study might have benefited from a more comprehensive evaluation of the measures used. This conclusion applies to all three primary constructs, i.e. team task performance, sharing leadership and outcomes of the leadership process as defined in the DAC framework. Although careful consideration was given when selecting suitable surveys,

these choices might be further questioned. For example, further analyses of the chosen survey for a team task performance revealed potential confoundment between performance and effectiveness. In the case of the DAC framework, the study relied on the newly validated DAC survey. It might have been beneficial to conduct a more thorough re-evaluation of the instrument's validity before application. Finally, in the case of shared leadership, there is an ongoing debate about what measurements are most appropriate to capture "sharing". Additionally, it is worth noting that while Hackman's performance model (1987) justifies the use of subjective assessments, incorporating objective measures might have been more appropriate and helped mitigate issues related to common method bias. In summary, a more rigorous examination of the measures employed and including an objective performance assessment would likely strengthen the study's findings.

**6.4.4 Limitations to Chapter Five - Analyses and Results**

6.4.4.1 DAC's Confirmatory Factor Analysis

It is crucial to acknowledge that the level of analysis in the DAC's CFA deviated from the operationalisation of the construct. This discrepancy was necessary due to the constraints imposed by the sample size. Nonetheless, it is recommended to conduct additional validations of the DAC scale to bolster its validity and further determine how it distinguishes itself from other scales found in team literature.
Further, the results of CFA at Time 1 (T1) were not as conclusive, which could be attributed to the fact that leadership may not be fully developed at that point in time. This finding highlights the need for further research to understand how leadership develop and change over time.

6.4.4.2 Autoregressive Model Testing

The rationale for employing cross-sectional and sequential models for mediation testing in this thesis was well-founded. However, future studies could benefit from extending the analysis by comparing the results obtained with those generated by an autoregressive model. Incorporating this additional approach would provide a more comprehensive understanding of the relationships and dynamics at play, potentially contributing valuable insights to the field.

## 6.5 Future Research

### 6.5.1 Conventional Approach

The research conducted in this thesis has generated numerous ideas for future studies. Some of these recommendations have already been mentioned in the subchapters above, including

- Influence of time, pace, and intensity on how leadership affects organisational outcomes throughout a task.
- Insignificant direction-performance relationship and the potential substitution of direction by shared leadership.
- Alignment's "late effect" and only in the measurement time on performance.
- Potential biases and confounding effects in the relationship between commitment and performance.
- Re-analyse this thesis's results by enhancing the constructs' clarity. This could include examining the relationships between constructs recognised in leadership literature and those found in team literature.
- Repeat the analyses using data collected on various tasks and different organisational contexts.

Below, I offer additional recommendations, covering topics from broad areas like "leadership outcomes" to specific issues such as "rotating leadership." A table is provided to address the numerous research gaps identified. It outlines key issues, leading questions, starting points (keywords, phrases, theories, and frameworks), and relevant literature for each theme. This comprehensive approach aims to direct future research towards topics like self-leadership, leadership development, decision-making in leadership, and a deeper understanding of influence within leadership studies.

**TABLE 18**

**Future Research Directions**

| Key issues | Leading questions | Starting Points (keywords, phrases, theories, frameworks) | Relevant Literature |
|---|---|---|---|
| Self-leadership | | | |
| Definition | • What is self-leadership? | • Growth<br>• Leading self<br>• Leadership as internal/personal process | • Robinson, 2013<br>• Houghton et al., 2003 |
| Leading self vs Leading others | • What are the similarities and differences between leading self and others?<br>• How do these internal and external processes interact and influence one another?<br>• Do both, i.e. leading "self" and "others", operate on the same principles?<br>• Is the proposed Map 1 relevant to self-leadership? | • Leadership related to self vs others<br>• Through leading self leading others<br>• Internal vs external leadership | • Manz & Sims, 1980<br>• Neck & Houghton, 2006<br>• Day et al., 2004 |

| Key issues | Leading questions | Starting Points (keywords, phrases, theories, frameworks) | Relevant Literature |
|---|---|---|---|
| Leadership Development | | | |
| Parallel developments | ● How could the Pronouns Framework provide insights into the concept of leadership development?<br>● How do the parallel streams of leadership development ("I," "You," "We," and "It") interact with and influence each other?<br>● What strategies can be employed to balance and integrate various lines of leadership development effectively? | ● Pronouns Framework and Leadership Development explored as "I", "You", "We", and "It"<br>● Self-organised criticality in physics<br>● Whole system adapts and evolves based on actions of components | ● Ozadowicz, 2023<br>● Day et al., 2004 |
| Construct clarity | ● What is leadership development? | ● Development vs process<br>● Leadership development of self and others<br>● Leadership development through IMOI<br>● Leadership behaviours during various leadership developmental phases<br>● Leadership in different life phases (children, adolescents, adults, elderly)<br>● Chaos in development | ● Yammarino et al., 2012<br>● Kozlowski & Ilgen, 2006 |

| Key issues | Leading questions | Starting Points (keywords, phrases, theories, frameworks) | Relevant Literature |
|---|---|---|---|
| Concretisation of leadership development | ● What are the visible effects of various stages of leadership development? | ● Influence vs decision making vs execution vs influencing dialogues | ● Ozadowicz, 2023<br>● Isaacs, 1990 |
| Leadership influence | | | |
| Influence | ● What is leadership influence?<br>● How can influence be learnt?<br>● How accurate is it to refer to leadership influence as a main tool?<br>● Who is taking responsibility for leadership influence?<br>● What are the determinants of successful leadership influence? | ● Influence vs power<br>● Influence vs ability vs skill<br>● Dark side of influence: abuse, manipulation, coercion<br>● Push and pull of influence (manipulation and coercion vs attraction and magnetism)<br>● Influence in Plum Village Monastery; the influence of Mahatma Gandhi, Mandela, Mother Teresa<br>● Influence as "owned" by individual and collective<br>● Transitioning of ownership of influence | ● Latané, 1981<br>● Cialdini, 2001 |

| Key issues | Leading questions | Starting Points (keywords, phrases, theories, frameworks) | Relevant Literature |
|---|---|---|---|
| | | between entities (individual to collective - collective to individual) | |
| Decision-making | | | |
| Decision-making as an aspect of leadership | ● What is the role of "decision making" in leadership? | ● Leadership as responsibility for decision-making <br> ● Ownership of leadership <br> ● Leadership as responsibility | ● Hollenbeck et al., 2012 <br> ● Pieterse et al., 2019 |
| Leadership outcomes (DAC Framework) | | | |

| Key issues | Leading questions | Starting Points (keywords, phrases, theories, frameworks) | Relevant Literature |
|---|---|---|---|
| Outcomes | • What are leadership outcomes? <br> • How to make sense of leadership outcomes perceived as team processes and emergent states? <br> • Is it true that there are no exclusive leadership outcomes? | • Outcomes classification & Multidimensional Continuum of Leadership Outcomes <br> • Outcomes as ripples: various strengths of leadership on organisational outcomes <br> • Outcomes in relations to each other, i.e. the effect they have on each other <br> • Development of outcomes, i.e. outcomes merge, change, fade away, reappear, transmute to inputs | • Marks et al., 2001 <br> • Fyhn et al., 2022 <br> • Drath et al., 2008 <br> • Pearce et al., 2014 |
| Leadership structure (Shared/Sharing leadership) | | | |
| Construct clarity | • Is rotating leadership shared leadership? <br> • What is shared leadership? <br> • Is sharing only one of many properties of the overall leadership structure? <br> • How is shared leadership also a leadership style? <br> • How do different aspects of | • Structure as shape, size, types of bonds or interactions, polarity, electronegativity, reactivity, boiling point, colour, malleability, hardness <br> • Sharing = only centralisation | • Choi et al., 2017 <br> • DeRue, 2011 <br> • Lemoine et al., 2020 <br> • Wu & Cormican, 2016 |

| Key issues | Leading questions | Starting Points (keywords, phrases, theories, frameworks) | Relevant Literature |
|---|---|---|---|
| | leadership structure relate to each other, i.e. how do they function and developmentally together? | | |
| The sweet spot of sharing | ● Is there a sweet spot of leadership sharing?<br>● Do different aspects of sharing relate differently to different outcomes, e.g. performance? | ● Reversed U<br>● "Too much of a good thing" | ● Grant et al., 2011<br>● Harris & Kacmar, 2006 |
| Measurement | ● Can the Social Network Analysis approach used in SL be applied to other leadership constructs? | ● Meta-analyses of all leadership measures (surveys)<br>● Leadership viewed from the perspective of its measures<br>● Quality of leadership measures<br>● Measures vs leadership construct clarity | ● Mayo et al., 2003<br>● Carter et al., 2015<br>● Bacharach, 1989 |

**6.5.2 General Theory of Leadership (GOL)**

The concept of a General Theory of Leadership (GOL) emerged from spontaneous "free play," in which thoughts were allowed to drift without restrictions or concerns about consequences yet somehow aimed at finding common ground in leadership studies. This "free play" approach led to the simultaneous analysis of two distinct leadership approaches: the DAC framework focused on the outcomes, and shared leadership focused on the structure of the leadership process. The "free play" led to the emergence of the Pronouns Framework and the creation of Map 1, named Key Equation, listing influence, people, needs, and context as key determinants of leadership. The advanced states of grand theories development in other fields further inspired the General Theory of Leadership (GOL) formulation. In this subchapter, I provide further guidance regarding GOL and describe directions for further research.

While recognising the ambitious nature of the General Theory of Leadership (GOL) proposal, it is crucial to contemplate the potential advantages of such a theory, should it garner support and refinement from fellow researchers. A unified leadership theory presents numerous benefits, such as broader dissemination of leadership knowledge, streamlined implementation, and addressing critiques regarding the discipline being disjointed and abstruse. The ultimate objective of the General Theory of Leadership is to bolster both the theoretical and practical comprehension of leadership, rendering it more accessible and relevant to a diverse audience.

It is important not to mistake GOL for an attempt to construct leadership in one, unified way. On the contrary, GOL, similar to the Pronouns Framework and Map 1, is proposed to support an understanding of what leadership study stands for and how it can be used to strengthen our organisations and society in general while allowing for continuous adaptability. By integrating various theories and perspectives, GOL aims to provide a more comprehensive and nuanced understanding of leadership, paving the way for future advancements in the field.

The General Theory of Leadership (GOL) is proposed as a continuously evolving framework that employs an interdisciplinary approach to integrate various leadership theories and perspectives. This means there is "no end" to GOL, with the theory unable to culminate or be "achieved". Instead, the objective of GOL is to focus on the process of its continuous recreation. By connecting leadership theories with concepts from disciplines

such as biology, mathematics, physics, sociology, history, and psychology, GOL embraces insights from various fields and perspectives, potentially resulting in a more robust understanding of leadership. By integrating diverse perspectives and interdisciplinary insights, the GOL aims to foster a comprehensive understanding of leadership and identify common themes and principles that transcend individual disciplines, contributing to a more nuanced and robust understanding of knowledge in general. At the same time, the theory allows for paradigm interplay, resonance and tension between different theoretical frameworks, perspectives, and assumptions (e.g. many maps on the same constructs are allowed to be incorporated within GOL). Additionally, this approach supports cross-disciplinary collaboration by fostering connections between researchers and practitioners from different backgrounds allowing for the exploration of analogies across diverse disciplines.

Chapter II, Literature Review, provided various examples of these cross-disciplinary "borrowings", including reference to Brams and Kilgour (2020), who applied game theory to study decision-making processes, a proposition to use the concept of self-organised criticality from physics to understand how leadership adapts and evolves based on the actions of its components (Bak, 1996), applicability to leadership a phase transitions (again from physics), where a system undergoes a dramatic change in its physical properties due to tiny changes (Goldenfeld & Kadanoff, 1999), or a proposition where leadership operates near critical points, like phase transitions in physics (Goldenfeld & Kadanoff, 1999).

The application of various scientific theories and principles from other disciplines to leadership might appear unconventional, but this interdisciplinary approach can offer fresh perspectives and insights into leadership as a field of study. Here are some possible outcomes of this approach:

- Interdisciplinary understanding: Exploring connections between leadership and other scientific fields can foster interdisciplinary comprehension of leadership phenomena, enriching the study of leadership with diverse knowledge sources.
- Novel insights: Implementing principles from various scientific disciplines may result in innovative ideas and unexpected insights into leadership dynamics, behaviours, and processes, stimulating new research questions.
- Expansion of leadership theories: Integrating scientific theories and principles from different fields can contribute to developing and expanding leadership theories, incorporating previously overlooked or underexplored aspects.

- Encourages critical thinking: This approach can cultivate critical thinking and analytical skills by challenging scholars and practitioners to think beyond traditional boundaries and established theories.
- Enhanced problem-solving: Applying diverse scientific principles to leadership can potentially develop new problem-solving strategies and tools to address complex leadership challenges, leveraging the knowledge and methods of various scientific disciplines.

However, it is crucial to recognise that not all scientific principles will be directly applicable or easily translatable to leadership. Adapting and integrating these principles may require significant creativity, critical thinking, and a deep understanding of both leadership and other scientific concepts. Carefully assessing the relevance and applicability of each external principle is essential to ensure that the interdisciplinary approach leads to meaningful insights and positively contributes to the field of leadership.

The General Theory of Leadership (GOL) can be understood as an overarching construct, with one of its key elements being "maps." Maps are visual representations of different aspects or dimensions of leadership. Like individual puzzle pieces, maps represent the fundamental building blocks of leadership, capturing its complexity across multiple layers, from basic components to more intricate elements and from general concepts to nuanced perspectives.

Maps are adaptable and not fixed, allowing for continuous recreation and adaptation as our understanding of leadership evolves. GOL accommodates diverse levels of analysis and critical perspectives, including contradictory maps representing single truths (modernist perspective) and multiple truths (postmodernist stance). This approach enables GOL to function as both a translator and facilitator between various theoretical camps, capturing the complexity and diversity of the leadership field.

Before creating any maps, examining their potential value and limitations in advancing leadership knowledge is crucial. This process requires rigorous critical reflection to ensure that each prospective map facilitates an understanding of leadership's complexity rather than confounding it. In practice, this means careful attention is given to which proposals for maps are incorporated into GOL and which are not.

As a unified framework based on Appreciative Inquiry (AI) and interdisciplinary approaches, the GOL aims to create a comprehensive understanding of leadership that

transcends cultural and geographical boundaries. In this way, leadership does not remain solely the domain of Western thought but operates as a "unified base" that can be built upon across all cultures. The use of adaptable, puzzle-piece-like maps and allowance for multiple versions of the same puzzle enrich our understanding of leadership while encouraging both integration and diversity of perspectives.

This thesis proposes Map 1, "Key Equation," as the first proposition for inclusion in the GOL. The mentioned above map would need to go through a process of collective approval and successfully meet several criteria to be included in GOL. These proposed criteria are outlined in the table below.

**TABLE 19**

**GOL Inclusion Criteria for Maps**

| Criteria | Description |
|---|---|
| Universal applicability | Maps should work beyond geographical and cultural boundaries, demonstrating relevance and applicability across various contexts, both complex (e.g. multimillion firm) and simplistic (e.g. family-run farm). |
| Empirical support | Maps should be empirically tested and backed by robust research and evidence before being included in the GOL. This ensures the credibility and reliability of the GOL. |
| Unified language | Maps should use a consistent language for naming constructs; if two maps conceptually refer to the same construct, they should use the same name (phrase). |
| Continuous evaluation | No map is safe. A map remains part of the General Theory of Leadership until it is proven that it should be removed, replaced, or adopted. |
| Collective decision-making | The inclusion or exclusion of maps should be collectively decided through multidisciplinary collaborations, engaging a diverse mix of professionals, practitioners, and the public. This approach ensures a broad range of perspectives, enhancing the theory's practicality and robustness. |
| Value and Relevance | Maps in the GOL must pass the "mother's hands test," emphasising practicality, relevance, and importance in real-world contexts. This means that the maps should be easily understood, relatable, and applicable to people's experiences and leadership activities, regardless of their background or expertise in leadership. |

The significance of the "mother's hands test" is rooted in personal experience. It highlights the importance of selecting maps for the GOL that truly matter. While working on developing the GOL and this thesis, I witnessed my elderly parents labouring on the farm. Their hands were busy caring for animals, tending to their needs, and performing seemingly simple tasks that provided us with fresh, wholesome daily food. This vivid juxtaposition between the abstract nature of my work on developing the GOL theory and my parents' tangible, practical work, helped shape my thinking when developing this theory. My parents' hands serve as a constant reminder that the maps chosen for the GOL must remain relevant, genuine, and applicable in real-world situations, with each holding true significance. Maps should be valuable and relevant not only to experts and researchers but also to individuals with no specific knowledge or experience in leadership, such as the metaphorical "mother." By passing the "mother's hands test," the maps can demonstrate that they are accessible, meaningful, and practical, which is essential for a comprehensive and inclusive understanding of leadership.

**FIGURE 10**

**Mother's Hands Test**



The image above captures the hands of my mother, Krystyna Ozadowicz, at the age of 69. This photo, taken in April 2023, reveals hands that bear the markings of a lifetime of hard work and dedication. These hands have been a constant presence throughout the writing of this thesis, serving as a tangible reminder of the importance of ensuring that my work maintains its real-world relevance and practical application.

This thesis advocates for empirical testing of the proposed Map 1 and the developing of other maps (e.g., while other Maps are not explicitly defined, one can envision a map on People or a Map of Influence).

The General Theory of Leadership (GOL) proposal may raise several criticisms or concerns.

The goal of integrating diverse leadership theories and perspectives into a single, coherent framework might be seen as overly ambitious. In practice, the complexity and nuances of various theories might not lend themselves easily to such integration, leading to oversimplification or loss of important insights.

Moreover, although the GOL aims to transcend geographical and cultural boundaries, it might be challenging to fully account for the diverse cultural, societal, and organisational contexts in which leadership is exercised. A one-size-fits-all approach might not fully capture the nuances of leadership across various contexts and could unintentionally perpetuate Western-centric perspectives.

The GOL proposal emphasises the importance of continuously scrutinising and evaluating its maps. However, ensuring that the framework remains sufficiently adaptable and flexible over time might be difficult.

Furthermore, the multidisciplinary forums and open-source projects proposed to evaluate and refine the maps might be too challenging to execute and coordinate. Implementing the insights from GOL in real-world leadership situations might prove to be more complex than anticipated as leaders grapple with the competing demands of various theories and perspectives.

Despite these potential criticisms, the General Theory of Leadership represents a bold and forward-thinking attempt to advance the field of leadership research. As long as the GOL continues to evolve and adapt to emerging trends and challenges, it could remain a valuable and influential framework for understanding effective leadership in the years to come. It will be interesting to see whether GOL remains a personal ambition or becomes an ambition of the broader business and management study fields. Undoubtedly, it would be a significant achievement for GOL to inspire other fields, including mathematics and physics, to the extent that they inspired the creation of GOL. In the table below, I list emerging components of GOL as discussed and reflected so far. I encourage other

researchers interested in interdisciplinary studies to explore the context of both tables included in this chapter to support future endorsers of GOL theory development.

**TABLE 20**

**GOL: Key Constructs and Analogies**

| Construct | Definition | Analogy |
|---|---|---|
| Maps | Leadership Frameworks, visual representations of key aspects of leadership aimed to help understand and navigate its complexity. | Analogous to constellations in astronomy, leadership maps can be seen as constellations of key factors and relationships that guide understanding of the complexities within the realm of leadership, assisting in navigating the intricacies of leadership dynamics and identifying crucial aspects and interconnections. |
| Elements | The foundational components of the leadership process: influence, people, needs, and context. | Analogous to elementary particles in physics, elements in GOL can be compared to quarks or leptons. These elements combine and interact to create complex systems and processes in the leadership domain, just as elementary particles form the basis of matter and interact to form atoms and molecules. |
| Links | Connections and interactions between Maps, Elements, and other aspects of GOL theory. | Analogous to the fundamental forces in physics, such as gravity, electromagnetic, strong nuclear, and weak nuclear forces, links in GOL describe connections and interactions between different elements and maps, similar to how fundamental forces govern the interactions between particles in physical systems. |
| Space Between the Maps | A conceptual space that integrates and aligns different leadership maps and elements, providing a common foundation for coherence and consistency. | Analogous to the space-time fabric in physics, the space between the maps and elements represents the underlying structure that connects and influences different aspects of leadership. It ensures coherence and consistency, similar to how the space-time fabric influences the motion and interactions of objects in the physical world. |
| Invisible Elements - Influence of Influence (IoI) | Underlying intangible factors that impact leadership but are challenging to observe or quantify directly. | Analogous to dark matter in the ΛCDM model and quantum entanglement in physics, IoI in GOL represents the interconnectedness and entangled nature of various intangible factors that influence leadership. Just as dark matter permeates the universe and significantly impacts cosmic dynamics despite being difficult to observe, IoI influences the leadership process, shaping its outcomes in non-linear and unpredictable ways. |

## 6.6 Conclusion

It is a curious thing to start the end. Even more so when the end is nothing more but just another opening ready for re-examination. I close this dissertation as we started, with both the first and last chapters, emphasising the human element behind the scientific process.

In keeping with a Zen Buddhist perspective, I maintain an open, non-judgmental stance towards this work, viewing it as "It is what it is".[16]  However, I assure readers that I have strived to bring out the best of myself throughout this journey. This involved diligent examination, questioning, refining, and pushing my abilities to their limits. The work has gone through multiple iterations, each revision surpassing my prior understanding of my best capabilities, reflecting a process of constant evolution.

I maintain a purposeful curiosity and scepticism towards the final piece, especially what we might call facts and truth, acknowledging the fluidity and complexity inherent in the research process. Inspired by Otto Scharmer's Theory U and the concept of learning from the emerging future, I invite readers to embrace this open-minded perspective as we navigate the remaining paragraphs of this dissertation.

One of the principles in "appreciative inquiry," the principle of simultaneity, suggests that the thoughts, conversations, discoveries, and learning people engage in are intrinsically linked to the initial questions they pose. Examining the initial questions and uncovering the inquiries this thesis stimulates would be the most intriguing exercise. Questions are far from neutral; they carry weight, acting as a harbinger of "what is next," as though someone has opened a window, peering into the future to pre-taste potential versions of the reality yet to come.

I imagine myself swapping places - being that person who discovers and explores this work for the first time. I know what questions I would ask: "How is Minotaur doing?", "Is it out or even more lost in the labyrinth of a leadership study?", "Is there real value of this thesis for the teams and organisations?", "How is the work on the farm going?", "Are the hands of the mother even more tired?", "Do Maps truly help?", "Could it be that GOL is

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[16] In Zen Buddhism, the phrase "It is what it is" is similar to the concept of non-attachment or non-judgement, which involves letting go of preconceived notions and desires, and simply accepting things as they are. One Zen story that illustrates this concept well is about a monk who asked his master, 'What is the Way?' The master replied, 'Ordinary mind is the Way.' The monk then asked, 'Should I try to seek after it?' The master replied, 'If you try to seek after it, you will become separated from it.' The point of this story is that the Way cannot be found by seeking it.The Way is already here - in acceptance of what is.

the common language to unite, balance, and connect?", "How many other languages, similar in their power to the GOL, might exist?", "Would they all lead to the same conclusion?".

As noted in this thesis's introduction, a crucial point in the development of this study was when I stumbled upon a brief YouTube video featuring Bertrand Russell. Russell's "Message to the Future" is a piece I have returned to time and again since my initial viewing of it. Undoubtedly, Russell put considerable thought into the advice he wished to share, which was as this:

"I would like to say two things: intellectual and moral. The intellectual thing (...) is this: when you are studying any matter or considering any philosophy, ask yourself only: "What are the facts, and what is the truth that the facts bear out?" Never let yourself to be diverted, either by what you wish to believe or by what you think could have beneficial social effects if it were believed. (...) The moral thing I wish to say (...) is very simple: 'Love is wise, hatred is foolish.' In this world, which is getting more and more interconnected, we have to learn to tolerate each other. We have to learn to put up with the fact that some people say things that we don't like (...). We must learn a kind of charity and a kind of tolerance, which is absolutely vital to the continuation of human life on this planet."

The moment I heard Russell's message for the first time marked my own "critical point" - a transition where the new awakened to complete what the old had started. I appreciate this new version of my own becoming. It allowed me to see that 0s and 1s can coexist without friction, like static structure and outcomes in a dynamic leadership process. It encouraged me to master the freedom to imagine the impossible and create GOL, leaving me in awe of disbelief, like in this poem,


(...)
I marvel inside, in awe of disbelief.
Such beauty could not emerge from who I am -
How could it?

And as I watch,
It shines so brightly,
I stop.

So out of place,
A contrast far too sharp
To ever merge.
(...)

Surprised by dying when most alive,
Confused by spark out of no collide,
Someone must have named "the right" so wrong.

Staring gaze of the truth in a lie,
It's the shock of in-between,
The gap of 1 and 0.

That is "the right" I am peering at,
Beyond the list of Ms Knowing's wants.
Would I dare and take a dive?
(...)[17]

Russell's advice is simple, but following it is hard. I do not know much about love or hate; hence, commenting on either is rather hard. It is an emptiness that I know about as it is what I  encountered most. If love is wise and hatred is foolish, emptiness is hollow; it is a place of "nothingness", sometimes so empty and so full of nothing, one can too easily get lost in it, not even realising they accidentally crossed the point of no return.  If that, only that, can be of any help to anyone, let me share what you already heard me saying once: in that place of pure despair, beyond no hope, in full resignation, where there is no ability to "move", there is always *a choice*, and within that *choice*, each of us can start to walk again, regardless how many times, we got lost already. It is as next to the process outside of us, there is a process inside, and that process inside, which inherently lives in each of us and which each of us fully owns, gifts the ability to self-influence, permitting us to self‑direct as per our own choosing.

Regarding the intellectual matter, that is just another subject. As it is known already, although I adore facts and precision, I also remain sceptical about the truth in the judgement and what the truth in the judgement might not be. To my curse or to my benefit,

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[17] The full poem has been included in Appendix 4.

it is the "middle space" I gravitate towards, seeing everything from a prism of a question. I like questions most for their ability to keep me in the "middle space", allowing me to explore without attachment to whatever view I form. That "middle ground" is where possibilities open up, and no right or wrong is either.

So here it is, the END of my thesis, "Exploration of the Leadership Process through Structures and Outcomes", ready for the application of the only question which seems to matter, the driving question of all knowledge:

Is that so?

Dear Institutions,


I am keen to pursue research and academic writing opportunities. If these pursuits align with your organisation's objectives, I would be delighted to collaborate and explore our potential partnership further.


Yours sincerely,

Karolina Ozadowicz

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# APPENDIX

## 1. Questionnaire Items

### 1.1 Shared Leadership Measure

Based on Carson et al. (2007).

Scale 1 - Not at all 2 - To a limited extent 3 - To a moderate extent 4 - To a large extent 5 - To a very large extend

1) "To what degree does your team rely on this individual for leadership?"

### 1.2 DAC Measure
Based on McCauley et al., 2019.

Scale 1 - Not descriptive 2 - Slightly descriptive 3 - Moderately descriptive 4 - Greatly Descriptive  5 - Completely Descriptive

1. We agree on what we should be aiming to accomplish together.
2. We have a clear vision of what the team needs to achieve in the future.
3. We have team goals that guide our key decisions.
4. Our work is aligned across the team.
5. Although individuals take on different tasks in the team, our combined work fits together.
6. People who perform different roles or functions on the team coordinate their work effectively.
7. People on the team are committed to the team.
8. People give the effort needed for the team to succeed.
9. People are dedicated to this team even when we face setbacks.

### 1.3 Team Task Performance Measure

Based on Halfhill 2000 and further modified by Halfhill, 2003; 2007.

Scale 1 - Strongly Disagree  2- Slightly Disagree 3 - Neutral 4 - Slightly Agree 5 - Strongly Agree

1.      This group understands how to accomplish its tasks.
2.      This group is very good at planning how to accomplish their work objectives.
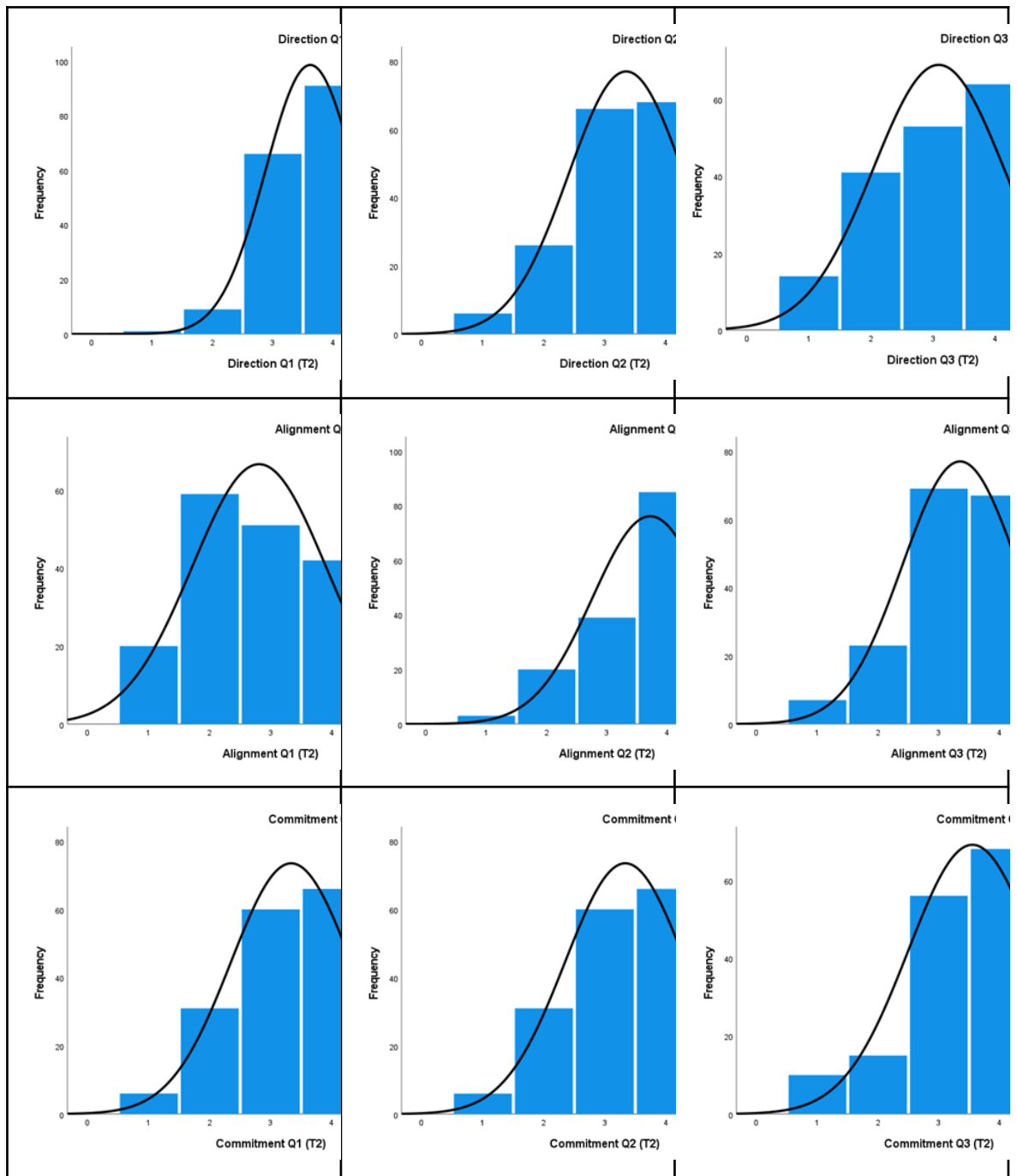
3.      This group meets all objectives for work completed.
4.      This group's work is always of the highest quality.
5.      This group takes initiative in solving problems and decision-making.
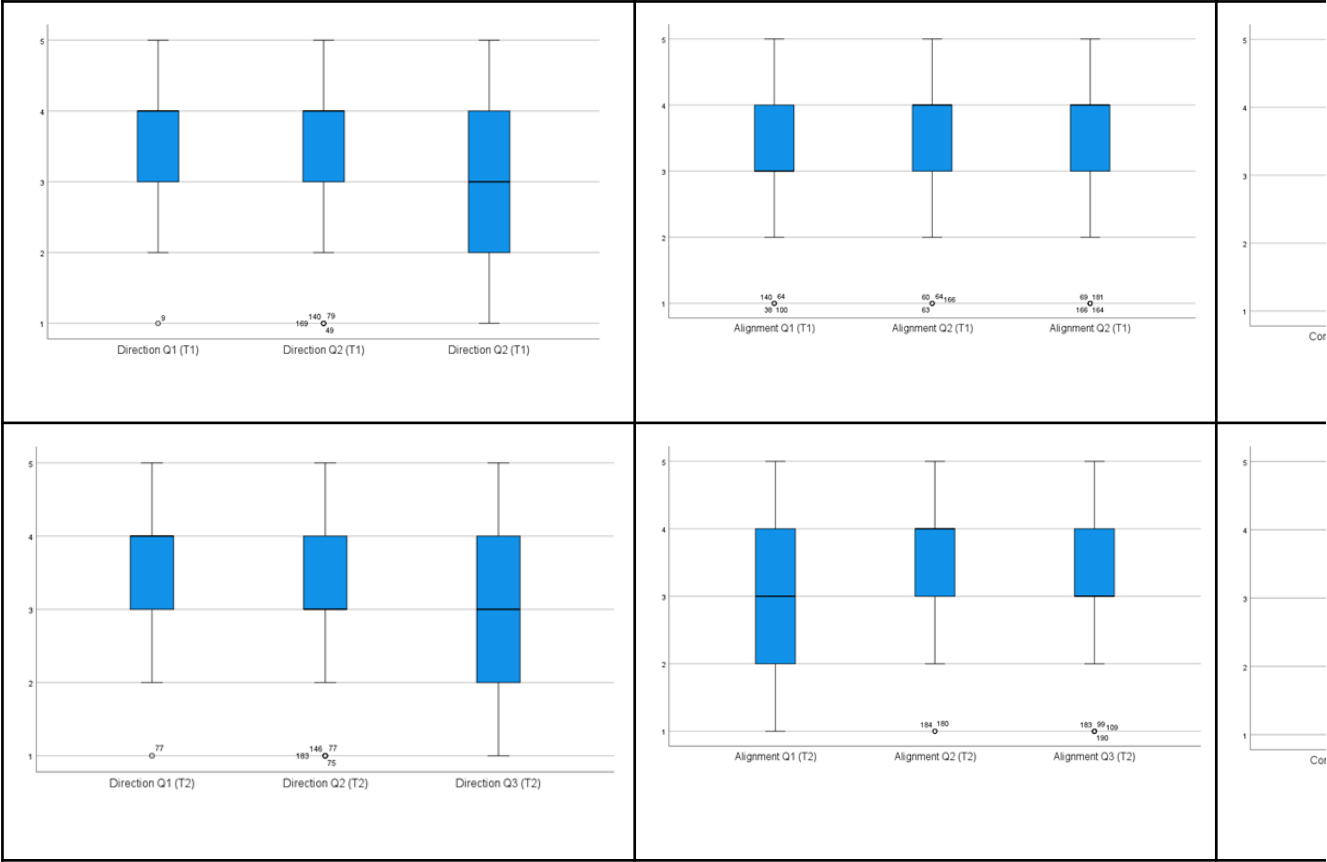
# 2. DAC Histograms & Box Plots

## 2.1 Histograms DAC (T1)
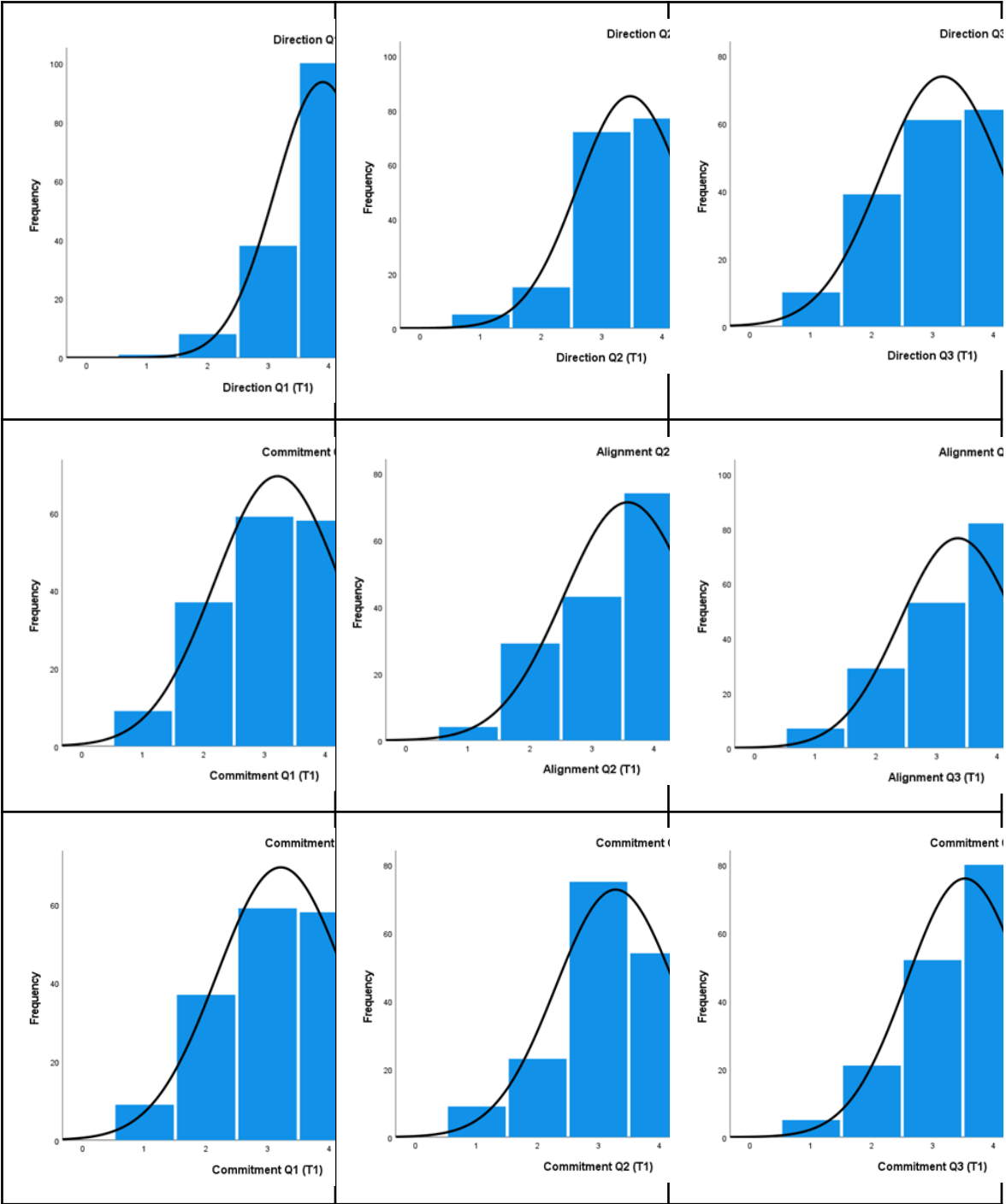
## 2.2 Histograms DAC (T2)

## 2.3 Box Plots DAC (T1) & (T2)

# 3. Sequential Model Results With Covariate

| | | | | | | 95% C.I (a) | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Sequential model results with covariate | | | | |
| | | | | SL (T1) - DAC (T2) - Performance (T2) | | | | |
| **Paths _a_** | **Relationship** | **coeff** | **se** | **t** | **p** | **LLCI** | **ULCI** | **R2** |
| IV - M1 (Co1) | H1: SL - Dir | 0.40 | 0.18 | 2.17 | 0.39 | -0.02 | 0.78 | 0.41 |
| IV - M2 (Co1) | H2: SL - Ali | 0.39 | 0.17 | 2.34 | 0.27 | -0.05 | 0.74 | 0.42 |
| IV - M3 (Co1) | H3: SL - Com | 0.44 | 0.18 | 2.47 | 0.02 | -0.07 | 0.81 | 0.46 |
| **Paths _b_** | | | | | | | | |
| M1 - DV (Co1) | H4: Dir - Per | 0.20 | 0.16 | 1.24 | 0.23 | -0.13 | 0.53 | |
| M2 - DV (Co1) | H5: Ali - Per | 0.26 | 0.21 | 1.23 | 0.23 | -0.18 | 0.69 | |
| M3 - DV (Co1) | H6: Com - Per | 0.51 | 0.19 | 2.76 | 0.01 | -0.13 | 0.90 | |
| **Patch _c'_ (Direct)** | | | | | | | | |
| IV - DV(Co1) | H7: SL - Per | 0.04 | 0.11 | 0.34 | 0.74 | -0.19 | 0.27 | |
| **Paths _a*b_ (Indirect)** | | | | | | | | |
| IV - M1/M2/M3 (Co1) - DV | | 0.41 | 0.12 | | | 0.15 | 0.63 | |
| IV - M1 - (Co1) - DV | H8: SL - Dir - Per | 0.08 | 0.08 | | | -0.07 | 0.24 | |
| IV - M2 - (Co1) - DV | H9: SL - Ali - Per | 0.10 | 0.11 | | | -0.08 | 0.35 | |
| IV - M3 - (Co1) - DV | H10: SL - Com - Per | 0.23 | 0.11 | | | -0.05 | 0.48 | |
| **Path _c_ (Total)** | | 0.45 | 0.18 | 2.43 | 0.23 | 0.68 | 0.82 | |

n = 29; Co1 = team size

## 4. "Heat Death"

Poem by Karolina Ozadowicz (April 23)


### Heat Death


Impossible when love cuts off

To find a new wave of being

That feels so incredibly right.


I marvel inside, in awe of disbelief.

Such beauty could not emerge from who I am -

How could it?


And as I watch,

It shines so brightly,

I stop.


So out of place,

A contrast far too sharp

To ever merge.


Feather's lightness in heavy steel,

Birthing kindness

in the violent storm of rage's acts.


Wisdom melting frozen dark,

Surrendering to nothing of hating forgiveness,

for always being right.

Shout of the earthy breath in outer space,
Reminding stiff control to loosen up
So freedom can come back.


Surprised by dying when most alive,
Confused by spark out of no collide,
Someone must have named "the right" so wrong.


Staring gaze of the truth in a lie,
It's the shock of in-between,
The gap of 1 and 0.


That is "the right" I am peering at,
Beyond the list of Ms Knowing's wants.
Would I dare and take a dive?


I will.
I want to.
I am.


It's mine to reap, enjoy, and love,
To keep, to share, to give,
To grow.


I must be careful.
Not get addicted.
Unfancy it just enough.


This constant stretching
Makes me far too tired,
Dangerously emptying my weakening core.

I better chain that ego slightly.

Plateau in humble peace.

Inhale. Exhale. Repeat.


That restful pause improves my sight.

A bumblebee, a stone, and a stick,

Anthers' dust in dew's one droplet.


And you?

Can you dare

To want to see?


To reap, enjoy, and love,

To keep, to share, to give,

To grow?


Don't be dumb,

Don't do me,

Don't wait for the pain to see.


There were never any boundaries,

No beginnings or their ends,

Nor the lines of rights and wrongs.


Only waves of our being.