PRIVATE INSTITUTION
"KYIV SCHOOL OF ECONOMICS UNIVERSITY"

MASTER'S THESIS

Social-Psychological Factors of Responsibility Distribution and Cognitive Load in Cross-Functional Collaborative Structures

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For the degree of: Master of Arts
in the field of study: C4 Psychology
Educational Programme "Social Psychology"

Kyiv - 2026

CONTENTS

ABSTRACT

Research investigates the social-psychological factors influencing the link between responsibility distribution and cognitive load within cross-functional collaborative project teams. Adopting a sequential explanatory mixed-methods approach, this study combines a quantitative survey phase with qualitative semi-structured interviews. Findings indicate that felt accountability is the strongest predictor of team outcomes independent of formal responsibility structures, and that cognitive load is driven by role clarity (the alignment between formal and actual responsibility) rather than distribution type alone. This study proposes two conceptual models: an explanatory model linking responsibility distribution to team outcomes through felt accountability, and a prescriptive model outlining the conditions for optimal responsibility balance.

Keywords: responsibility distribution, cognitive load, cross-functional teams, accountability, role clarity, social-psychological factors, organizational psychology.

INTRODUCTION

Modern organizations with strong matrix structures and cross-functional collaboration find themselves facing greater project complexity and multiplicity of roles. Members of teams routinely juggle multiple concurrent projects in which they can simultaneously assume distinct roles; not only that, many operate outside of formal employment contracts as advisers or outside specialists. The transition from stable hierarchical arrangements to dynamic, boundary-crossing collaborative systems has aggravated the challenge of sharing responsibility and it has imposed added cognitive and social-psychological challenges on individuals and teams. Research in the area of teams traces a historical and cultural tradition in the field of organization and social psychology.

There is extensive literature on group formation and development (Tuckman, 1965), categorizing member roles and their impact on group processes (Benne & Sheats, 1948), influencing team climate and performance through leadership styles (Lewin et al., 1939), as well as motivational losses in groups due to diffusion of responsibility, for example social loafing (Latané et al., 1979; Karau & Williams, 1993). Effective teamwork models (Hackman, 2002; Katzenbach & Smith, 1993) have emphasized structural and process factors facilitating collective performance. However, the underpinning of such contributions have been largely set within traditional organizational contexts marked by stable pecking order, single project assignment, and well defined lines of responsibility of the actors. Early investigations to address coordination problems in integrated organizations, such as matrix designs (bringing functional and project forms together in a matrix type scheme) (Galbraith, 1971), and differentiation/integration tension in multi-line organizations (Lawrence & Lorsch, 1967), were also early attempts.

Recent investigations built on these foundations explicitly of boundary-spanning activities in cross-functional teams (Ancona & Caldwell, 1992), the rise and mechanisms of multi-team configurations (Mathieu et al., 2001) and the impact of multiple team membership on one's and team members' performance (O'Leary et al., 2011). These studies have also addressed how employees are increasingly in concurrent roles across multiple projects, oftentimes under more fluid arrangements with advisors and nonspecialist personnel.

Despite this extensive body of work on group dynamics, roles, motivation, and cross-functional structures, the social-psychological and socio-cognitive mechanisms that determine the optimal balance between responsibility distribution, cognitive load,

and team efficiency remain insufficiently explored. Given that most adults spend a significant portion of their waking hours in work settings, understanding these factors is particularly important. As organizational psychology constitutes a substantial and integral part of broader social psychology, addressing this gap contributes not only to organizational scholarship but also to the wider understanding of human behavior in interdependent social contexts. This constitutes the core scientific problem of the present study: social-psychological factors linking responsibility distribution and cognitive load in conditions of increasing cross-functionality, role multiplicity, and interdependence.

This constitutes **the core scientific problem** of the present study: the understudied social-psychological factors linking responsibility distribution and cognitive load in conditions of increasing cross-functionality, role multiplicity, and interdependence.

To address this problem, the present study is guided by the following **research question**: how do social-psychological factors influence the relationship between responsibility distribution and cognitive load in cross-functional collaborative project teams?

This central question is further explored through three **sub-questions**:

1. To what extent do social-psychological factors correlate with the level of responsibility distribution and experienced cognitive load in cross-functional project teams?
2. How does the distribution of responsibility (balanced versus imbalanced) relate to self-reported cognitive load and perceived team efficiency?
3. What do team members perceive as the optimal balance between individual and collective responsibility that minimizes cognitive overload while supporting effective team performance?

The object of the study is the social-psychological interaction among participants in cross-functional collaborative project teams.

The subject of the study is the social-psychological and socio-cognitive factors of the interrelationship between responsibility distribution, cognitive load, and team efficiency in project teams.

The aim of the study is to identify the social-psychological and socio-cognitive factors that determine the interrelationship between responsibility distribution, cognitive load, and team efficiency in cross-functional collaborative project teams, and to determine the optimal balance of these factors for stable and effective team interaction.

Tasks of the study:

1. To analyze theoretical sources and identify the social-psychological and socio-cognitive factors that influence responsibility distribution and cognitive load in project teams.
2. To empirically investigate the interrelationship between responsibility distribution, cognitive load, and team efficiency in cross-functional collaborative project teams.
3. To develop a conceptual model of the optimal balance of responsibility distribution aimed at enhancing the efficiency of project teams while minimizing cognitive overload.

Hypotheses of the study:

- H_1 — a more balanced distribution of responsibility is associated with lower cognitive load in cross-functional project teams.
- H_2 — a more balanced distribution of responsibility is associated with higher team efficiency in cross-functional project teams.
- H_3 — lower cognitive load is associated with higher team efficiency in cross-functional project teams.

Research design of the study:

the study adopts an explanatory sequential mixed-methods design (Creswell & Plano Clark, 2018). This design involves two distinct stages: first, the collection and analysis of quantitative data, followed by the collection and analysis of qualitative data to explain and deepen the understanding of the quantitative results. The study will involve approximately 100 participants in total.

The research will be implemented in the following stages:

1. coordination with project teams and piloting the questionnaire;
2. administering surveys to all team members and collecting objective team performance indicators;
3. conducting semi-structured interviews with managers;
4. statistical processing of quantitative data, thematic analysis of qualitative data, and integration of results;
5. construction and narrative description of a socio-psychological model of balanced responsibility distribution in the context of cross-functional project teams.

This sequential approach was chosen because it allows for the initial identification of statistical relationships followed by a deeper explanation of the

underlying social-psychological and socio-cognitive processes operating in cross-functional collaborative project teams.

The practical significance of this study lies in its potential to provide project managers and organizations with a socio-psychological model for balanced responsibility distribution that can reduce cognitive overload, prevent burnout, and improve team efficiency in cross-functional collaborative project teams, thereby contributing to better team well-being and more sustainable project performance.

CHAPTER 1. SCOPE OF THE THEORY

1. The Social Psychology of Group Dynamics and Individual Action

The following sections examine how group context influences individual behaviour, motivation, and perceived obligation in the following sections. The review is divided into three subsections. The first, Responsibility Distribution in Groups, traces the development of research on group influence on individual performance — from early studies of social facilitation through diffusion of responsibility, social loafing, and the motivational losses associated with collective action. The second one, Accountability and Perceived Responsibility, moves from structural accounts of responsibility distribution to the subjective experience of accountability, including individuals' perception and internalization of their obligations within team settings. The third section (How the Distribution of Responsibility Affects Motivation and Behavior) synthesizes the material reviewed in the preceding subsections into a coherent theoretical account of the mechanisms through which responsibility distribution shapes individual motivation and behavior in cross-functional project teams.

1.1. Responsibility distribution in groups

Social psychology has long pondered this question: How does one behave differently in the presence of others? Existing research in this vein has moved away from studying basic performance effects among co-acting groups, and toward more structured studies of how structuring collective tasks impacts individual motivation, effort and perceived obligation. This passage traces that journey, beginning with early studies of the influence of groups on individual performance, and then moving forward to more recent analyses of the distribution of responsibility in organizational contexts.

The earliest experimental investigation of group influence on individual performance dates back to Triplett (1898) a psychologist at Indiana University, who is often credited with conducting the first laboratory experiment in social psychology. In his experiment, Triplett arranged for 40 children to play a game that involved turning a small fishing reel as quickly as possible. He found that most children worked significantly faster when performing the task in the presence of another child than when working alone. This pioneering study laid the foundation for the concept of social facilitation — the tendency for the presence of others to enhance individual performance on simple or well-learned tasks.

In his seminal theoretical paper *Social Facilitation* (Zajonc, 1965), Robert B. Zajonc proposed a unifying explanation for the apparently contradictory effects of others' presence on individual performance. Observing that the presence of an audience sometimes enhanced and sometimes impaired performance. American social psychologist argued that the mere presence of others increases an individual's level of arousal or drive, which in turn enhances the emission of dominant responses — the most probable, well-learned, or strongly activated reactions in each situation. Consequently, when dominant responses are correct, the presence of others facilitates performance. This framework established that the effect of social presence is not uniform but conditional — a finding that reframed the question from whether others influence performance to under what conditions they do so, and in which direction.

Yet not all research confirmed that the presence of others diminishes individual effort. Williams and Karau (1991) , American social psychologists, demonstrated the phenomenon of social compensation, whereby individuals increase their effort on collective tasks when they expect their co-workers to perform poorly.

In three experiments using an idea-generation task, participants working collectively generated significantly more uses for a knife than those working co-actively, but only when they anticipated low effort or low ability from co-workers and perceived the task as meaningful. When the task was framed as low in meaningfulness, this compensatory increase disappeared. Thus, the presence of others does not always reduce motivation. Under specific conditions of expected co-worker underperformance and high task meaningfulness, it can actually enhance individual effort, counteracting the classic social loafing effect (Williams & Karau, 1991).

Among the phenomena examined in the social psychology of groups, the distribution of responsibility is particularly relevant to the present study. It directly shapes how individuals perceive their obligations and how effort is allocated across team members. The distribution of responsibility within groups has been a central topic in social psychology since the late 1960s. Two social psychologists, John M. Darley, then at New York University, and Bibb Latané at Columbia University, were among the first to study responsibility distribution experimentally. In their 1968 study, they demonstrated the phenomenon of diffusion of responsibility, showing that individuals are significantly less likely to intervene in an emergency when they believe that other bystanders are present, as the sense of personal accountability becomes diluted among the group members.

Building on this foundation, social psychologist Bibb Latané and associate professor of psychology John M. Darley (1969) further developed the theory in their

influential paper titled *Bystander 'Apathy'*. The authors deliberately placed the word "apathy" in quotation marks to challenge the widespread public explanation heavily promoted by the press following the highly publicized murder of Kitty Genovese in 1964.

In the media and public discourse, the inaction of numerous witnesses was commonly attributed to moral indifference, dehumanization, or societal alienation. Instead, they proposed a more nuanced social-psychological account, introducing the concepts of pluralistic ignorance and group inhibition of bystander intervention. Through a series of experiments, they demonstrated that the passive behavior of others not only leads to the diffusion of responsibility, but also actively inhibits intervention through the mechanism of pluralistic ignorance, causing individuals to reinterpret the situation as non-serious and thereby suppressing helping behavior. These foundational works established that responsibility distribution in groups is not merely a matter of individual character, but a dynamic process shaped by the social context and the perceived reactions of others.

A few years later, Latané, Williams, and Harkins (1979) extended this line of research beyond emergency situations to everyday group performance. In their classic paper *Many Hands Make Light the Work: the Causes and Consequences of Social Loafing*, they replicated Ringelmann's findings (1913) and demonstrated that the decrement in performance is due not only to coordination losses but also to a genuine reduction in individual effort. They termed this reduction social loafing — *"a decrease in individual effort due to the social presence of other persons"* (Latané et al., 1979, p. 822). Their experiments showed that as group size increases, the per-person output decreases in a non-linear fashion.

Building on the findings of Ringelmann (1913) and Latané, Williams, and Harkins (1979), who demonstrated that individuals exert significantly less effort when working collectively than when working alone, Steiner (1972) offered a theoretical framework to explain why this occurs. In his influential book *Group Process and Productivity*, he proposed a fundamental distinction between a group's potential productivity, understood as the sum of individual members' maximum capabilities, and its actual productivity. He argued that the gap between these two arises from two types of losses: coordination losses, which occur when members fail to synchronize their efforts effectively; and motivation losses, which occur when members are unwilling to contribute fully to the collective effort.

The economic roots of this motivational problem were traced by Princeton University economist Mancur Olson (1965), who argued that when collective benefits

are shared regardless of individual contribution, rational members have an incentive to minimize their own effort. Building on this, Professor of Psychology at Michigan State University Norbert L. Kerr (1983) identified two distinct mechanisms through which such motivation losses arise in small groups: the free-rider effect, whereby individuals reduce effort when they perceive their contribution as dispensable; and the sucker effect, whereby individuals reduce effort to avoid being exploited by a free-riding partner. Both dynamics remain relevant in organizational settings where team members are paid professionals and individual contributions are difficult to identify.

The studies reviewed in this section suggest that external presence does not consistently impact individual performance. Whether it is positive or negative for performance varies with task type, the size of the group, and how the individual perceives their participation in the group. Social facilitation (Triplett, 1898; Zajonc, 1965), social compensation (Williams & Karau, 1991), diffusion of responsibility (Darley & Latané, 1968), social loafing (Latané, Williams, & Harkins, 1979), and the free-rider and sucker effects (Kerr, 1983) provide individual mechanisms as to how group setting constrains individual motivation and effort. These mechanisms as a whole show that, when responsibility is shared among team members, as is typically the case in cross-functional project teams, some disengage, others compensate, meaning that the feeling of individual accountability changes depending on the degree of assignment and perception of personal responsibility itself. These dynamics serve as an empirical background of the current study and are explored from cognitive load and team efficiency perspectives in the next chapters.

1.2. Accountability and perceived responsibility

The mechanisms explained in the above section can be used to outline what occurs during personal obligation diminishment in collective situations. But they very much regard responsibility as something structural that depends on whether the number of individuals and nature of the task require responsibility or not. This section builds on this point of view by inquiring about how people experience responsibility subjectively. Hence, accountability and perceived responsibility are not simply related constructs, but can be understood as discrete analytical modalities to analyse the distribution of responsibility dynamics.

Hall, Frink & Buckley (2015), professors and researchers in the fields of management and organizational behavior, in their extensive review of felt

accountability literature, highlight that accountability occurs in the perceptual process. Adaptations of Tetlock's (1985, 1992) social contingency model and Schlenker et al.'s (1994) triangle model of responsibility show that felt accountability is a psychological state, not just an organizational structure. When people see a perceived personal responsibility, they tend to participate in more effortful cognitive processing, self-critiquing thinking and proactive coordination — processes that tend to mitigate the free-riding and sucker effects found in social-dilemma research. In such situations where the role of formal responsibility tends to be more complex with roles of multiple people involved and being involved in more than one project at once, felt accountability becomes especially critical to cross-functional project teams. Hall et al. (2015) observe its effects are not all positive. Higher accountability allows for improved individual work, team coordination, and more accurate measurement of performance; high or poorly designed accountability instead may contribute to tension on the job and emotional exhaustion.

This thesis considers felt accountability as an essential psychological measure of responsibility distributions' experience at an individual level — and hence as an important factor in examining the impact of responsibility distribution on cognitive load in cross-functional project teams. Thus, in contrast to Hall et al.'s broad focus on an organizational perspective (2015), psychology Professor Kathleen M. O'Connor (1997) studied how accountability works on a team level — comparing solo negotiators with three-person negotiation teams. Her experiment showed that high accountability increased levels of competitive motives and produced significantly higher levels of competitive outcomes among solo negotiators. But for teams, accountability pressures were shared among members, causing each member to feel significantly less personally accountable for the group's results. As a result, accountability didn't enhance the competitiveness of teams — motivation effects and relative benefits didn't differ significantly between high-accountability and low-accountability conditions. Team members additionally described feeling more powerful and perceiving greater advantage when negotiating compared to solitary teammates.

These findings indicate how the same pressure on accountability produces qualitatively distinct impacts, depending on whether responsibility is carried out unilaterally or collectively. O'Connor (1997) shows what happens when responsibility is imposed from outside the team. And there's another question of what occurs when accountability comes from within. This was studied by Stewart, Snyder, and Kou (2021). In their longitudinal study of 65 teams of Irish business students engaging in a complicated business simulation over three months, they found that shared team

accountability emerged as a relational emergent state, formed through repeated social interactions as evidenced by the findings of the study. Cross-functional project teams work in exactly this type of environment, with formal accountability structures serving as complements to informal relational responsibilities established via continued team exchanges. They found that initial team accountability was positively and strongly associated with trust, identification, commitment, and efficacy in the preliminary phases of collaboration. At halfway through the project, accountability was a major predictor of greater collective effort and stronger team viability at the end of the project while it had no significant predictive value for financial task performance when previous performance was accounted for.

These findings imply that a relational framing of accountability shapes the way teams work as social systems over time — and that its best predictors relate to the quality of collaborative participation, rather than merely the output of collaboration in an objective context. The studies presented in this section confirm that accountability is not a universally-considered concept. Hall, Frink, and Buckley (2015) found that felt accountability operates as a psychological state that can improve coordination and result in tension when enacted to excess. O'Connor (1997) showed that the same external demand for accountability has radically different effects depending on whether responsibility is allocated alone or collectively. This picture reached further with Stewart, Snyder and Kou (2021) who demonstrated that accountability can also emerge relationally, coming from within the team, with the most significant impacts relating to the quality of collaborative engagement rather than just objective output. With coordinated tasks and concurrent project obligations in cross-functional project teams, all three dynamic types can probably co-occur.

This body of work supports the thesis that felt accountability is an important variable and links responsibility distribution to the cognitive and motivational experiences of individual team members.

1.3. How the distribution of responsibility affects motivation and behavior

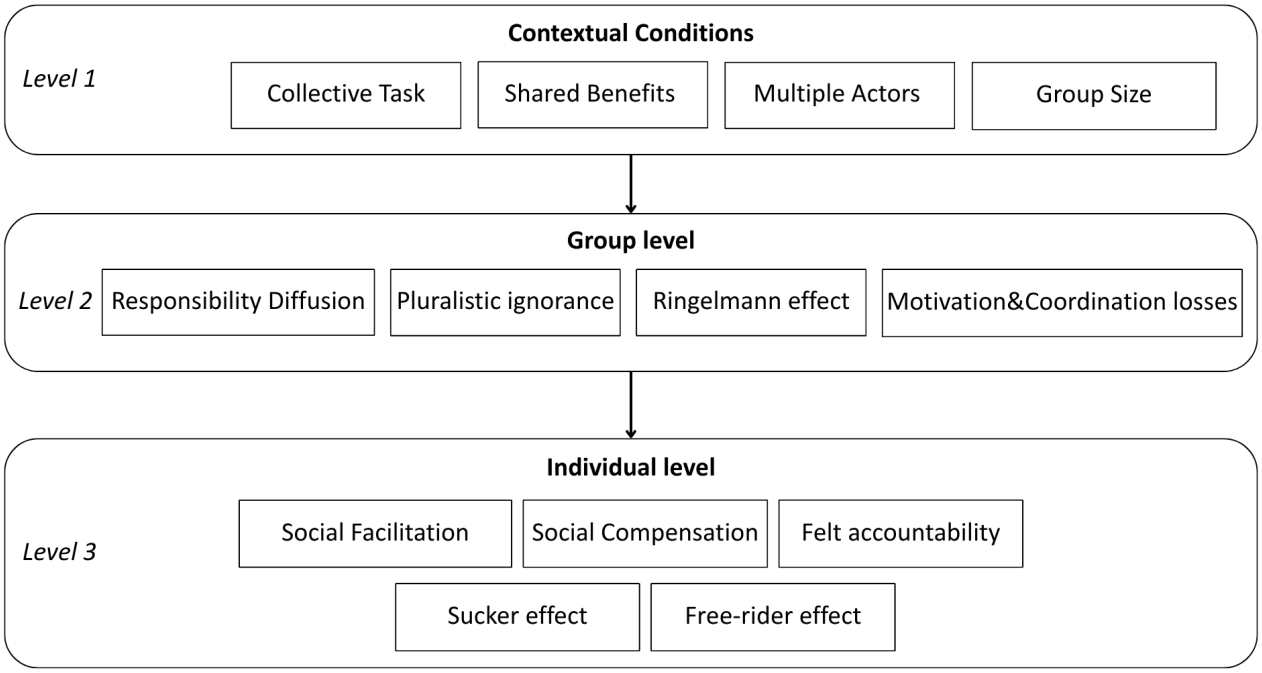
The following analysis is the author's interpretive synthesis of the theoretical material reviewed in the preceding sections. The theoretical material this chapter reviews looks at group dynamics from three analytically distinct but interconnected levels.

On the broadest level, certain structural conditions—the collective nature of the task, the presence of multiple actors, group size, and the shared distribution of

benefits—set the parameters within which group behavior unfolds. These conditions are largely external to individual participants and establish the context that makes the phenomena described at lower levels possible.

Figure 1

A three-level framework of group dynamics and individual action.



There is a group dynamic to these structural conditions. If accountability is allocated to multiple actors, that is, personal responsibility is diluted — resulting in pluralistic ignorance and a tendency to inhibit personal intervention. At the same time, as group size increases the discrepancy of collective potential and actual level of productivity increases, resulting in coordination and motivation losses. These 2 chains of effect are not independent; diffusion of responsibility enhances motivation losses, making the social-psychological and productivity processes at these levels complementary.

The shape of the picture gets further nuanced at the level of the individual. And in general the same group setting that leads some to loaf and free-ride, will, depending on given conditions, cause some individuals to exert compensatory effort. The extent of how somebody reduces or increases their contribution is determined by how they see themselves as accountable, what they expect from their colleagues and how meaningful they find the work. Felt accountability appears here the most salient

psychological variable — one that can dampen effort-reduction effects outlined above, but whose impact would differ regarding shared or individual responsibility.

The three levels are not working in a vacuum. This kind of situational condition sets group-level dynamics, which shape individual behaviors in turn, while the responses of individuals feed back into and reshape group dynamics through time. This recursive logic serves as a baseline for explaining why the distribution of responsibility in cross-functional project teams often leads to suboptimal results, and is also a theoretical framework for the model of optimal responsibility distribution constructed in the final sections of this thesis. The schematic arrangement of these relationships at the three levels is shown in Figure 1.

2. Cognitive Load: Theoretical Foundations and Team-Level Applications

The following sections examine cognitive load as both an individual and a collective phenomenon. First, the first subsection, Cognitive Load Theory: Foundations and Extensions, will describe the theory itself and how its theoretical elaboration, including its generalization to joint working, has led to contemporary frameworks for studying the mental load. The second subsection, Shared Knowledge Structures and Team Coordination, describes how cognitive work is spread out among team members using transactive memory systems, shared mental models, and team-level measures of cognitive efficiency.

2.1. Cognitive load theory: foundations and extensions

First, cognitive load theory was proposed by University of New South Wales educational psychologist John Sweller (1988), who revealed that the typical problem solving methodology takes a toll on working memory. He carried out a variety of experiments on problem-solving teams. Solution writers are forced to juggle multiple possible tasks at once, with little residual cognitive capacity to learn schemas. Sweller identified three types of cognitive load: a) intrinsic load, that is, a load that is proportional to the relative complexity of the task and is a function of how many elements are required to be processed at once; b) extraneous load, which emerges from badly designed presentations or poor task structures; and c) germane load, that is, a taskful cognitive load that is given in constructing and automating schemas.

In the same era, Sweller (2011) had revisited his original framework to improve it in important respects. Intrinsic load, he explained, is derived from the number of elements that must interact simultaneously - a distinction that's very specific to group settings, where tasks require multiple interrelated factors to be processed with different individuals having to do it all together. More notably, Sweller reoriented germane load from conceptualized load as a third independent mode, and instead considered it as the remaining working memory capacity that was actively focusing on schema construction and automation. This refinement underscored that the intended task design objective is to provide a sufficient cognitive capacity for the productive work to take place.

Upon these foundations, Sweller and his co-authors Kirschner and Zambrano (2018), researchers in the field of educational psychology, introduced collaborative cognitive load theory, which theoretically generalized the Cognitive Load Theory to the context of tasks performed with another's assistance. They suggested that through

coordination a collective working memory can form, so, when people participate as a group in difficult activities, they can share mental effort across individuals and handle material that would exhaust the individual. But collaboration also adds what the authors call transactive activities, which they argue take up cognitive resources that could have been otherwise freed up to do something else. If those activities are poorly structured, there can be more load on top of the benefit of collaborating.

2.2. Shared knowledge structures and team coordination

A foundational step toward extending this framework beyond the individual was made by social psychologist Daniel Wegner (1987), American social psychologist and Professor of Psychology at Harvard University, who introduced the concept of the transactive memory system. Rather than treating group memory as a simple sum of individual memories, Wegner proposed that teams develop a shared system in which members specialize in distinct knowledge domains and learn not only what they know themselves, but also who knows what else within the group.

This allows the team to distribute cognitive effort across its members. Instead of each person holding all relevant information internally, individuals offload knowledge to others and retain only the awareness of where that knowledge can be retrieved. In well-functioning teams, this system reduces individual cognitive load by enabling an efficient division of informational responsibility. However, when the transactive memory system is poorly constructed, the system breaks down.

A closely related framework was proposed by Cannon-Bowers, Salas, and Converse (1993), researchers in industrial-organizational psychology, in their chapter *Shared Mental Models in Expert Team Decision Making*. Building on earlier work, they offered a formal definition of shared mental models as *"knowledge structures held by members of a team that enable them to form accurate explanations and expectations for the task, and, in turn, to coordinate their actions and adapt their behavior to demands of the task and other team members"* (Cannon-Bowers et al., 1993, p. 228).

The core argument of the theory is that effective team performance requires more than individual expertise. Team members must hold compatible cognitive representations of four key domains: a) the equipment and tools they use, b) the task and its likely contingencies, c) the roles and interaction patterns of team members, and d) the knowledge, skills, and tendencies of specific teammates. The theory thus establishes a direct link between the quality of shared mental models, the efficiency of

responsibility distribution within a team, and the overall cognitive burden placed on each individual member.

One of the first attempts to operationalize cognitive load specifically at the team level was made by Naval Air Warfare Center researcher Joan H. Johnston and colleagues (2013), who developed the measure of team cognitive efficiency (TCE). By combining each team member's subjective experience of mental workload — assessed using the NASA Task Load Index — with the team's objective performance outcomes, TCE captures the relationship between how hard a team works cognitively and how effectively it performs.

In a military simulation study, teams that received targeted training and decision support achieved higher TCE scores, meaning they performed better while experiencing comparatively lower individual cognitive load. This work represented an important bridge between individual-level cognitive load measurement and team-level performance assessment, and it directly informs the measurement approach adopted in the present study.

When combined, these contributions confirm that cognitive load in collaborative contexts can never be considered at the individual level only. It is influenced by how mental work is spread among team members, how clearly knowledge responsibilities are assigned, and how well the coordination process works. This is precisely why the present thesis approaches cognitive load not as an individual attribute but as a team-level phenomenon. In cross-functional project teams, where members bring different functional backgrounds and hold concurrent obligations across multiple projects, the distribution of mental work is inherently collective. Examining cognitive load in isolation from the structural and relational conditions that shape it would therefore produce an incomplete picture. The empirical investigation that follows treats cognitive load as the product of both individual experience and collective arrangements of responsibility.

3. Cross–Functional Collaborative Structures and Role Multiplicity

3.1. Transition from traditional hierarchical to cross-functional structures

There's no universal answer to the question you're asked How to organize collective work well? Reflecting on their own research two decades after it was conducted, Lawrence and Lorsch outlined the transformation their work had initiated. The first central question of organizational theory, prior to 1967, was what is the single best way to manage and organize and their contribution was to re-conceptualize it as what management style and organization form would suit it best to their particular situation (Lawrence & Lorsch, 1986, p. ix). This reframe led to an understanding that various environmental conditions demand radically different organizational forms.

One of the most consequential of the environmental shifts was the rise of the complexity and interrelationship of work itself: as tasks became more complexly technical, as markets became less predictable, and organizations started leveraging multiple specialized areas of expertise at the same time, the stable status quo of a single-function team became one in which people from different disciplines were brought together around common project goals rather than shared functional identities.

Lawrence and Lorsch (1967) examined organizations in a climate of different degrees of environmental uncertainty. It was their main argument that as organizations mature, and with growing complexity beyond individual organizations, they are able to branch into specialized units, each focused on parts of their environment which are at one end of the line of the larger scope of external challenges they face. This segmentation generates what they called differentiation: differences in cognitive and emotional orientation between managers in different functional departments. In highly certain conditions, a production department develops tightly structured routines and short time horizons. Deep uncertainty will make a research unit with looser structures and long-range orientations. These differences are not circumstantial; they are structurally intrinsic for each unit to effectively carry out its task. The issue is one that arises from the organization's obligation to function as one.

Lawrence and Lorsch defined integration as that quality of the state of collaboration among departments that is required to achieve unity of effort due to the needs of the environment (Lawrence & Lorsch, 1967, p. 11). The more the organization is differentiated, the more arduous it is to reach that kind of collaboration using traditional hierarchical communication. No single type of departmental conflict can be resolved within a single function, and it will take longer to escalate those up and out of

the organization than the environment allows for; and inter-fragile conflicts across departmental divides take longer than the environmental conditions allow. What Lawrence and Lorsch had shown empirically was that organizations excelling in dynamic industries were not those that had eradicated differentiation. They had put in place ways to get integrated in spite of it. Structurally the implication was that they were about to find that organizations in complex, uncertain environments needed lateral coordination devices that would bring different specialists together in productive contact without crumpling the functional differences.

Galbraith (1971) investigated this structure in practice. The functional form is effective in stable environments: it can efficiently pool specialized resources, and enable experts along paths to professional development. But when product cycles are shortened, and trade-off decisions between engineering, production, and marketing are repeatedly and rapidly made, the amount of information that gets moved through the hierarchy faster and faster than senior managers have capacity to absorb leads to project slippage (Galbraith, 1971, p. 30). The solution Galbraith documented featured a succession of incremental additions layered onto the existing functional structure: temporary task forces, then permanent cross-functional teams designed to operate around the top products, then product managers to assist joint decision-making, before moving to a dual authority structure where individuals reported to both a functional manager and a project manager.

Lawrence and Lorsch and Galbraith illustrate the same fundamental transformation from two complementary perspectives. Lawrence and Lorsch demonstrated how divergent functionalism creates integration problems in the face of uncertainty. Galbraith demonstrated what organizations really did to solve those problems.

The result was a cross-functional team which was structured around a project incorporating specialists from different departments, working under time pressure, and then broke up when it was complete. It was a structural response to the increasing dissonance between the functionally structured composition of its team and the complexity of the work it was tasked to do.

3.2. Role multiplicity and boundary spanning

The idea that teams cannot operate as self-contained units has roots in organizational theory that predates the concept of boundary spanning itself. Galbraith (1971) argued at the level of organizational design that as task uncertainty increases

and product cycles shorten, the functional hierarchy loses its capacity to process the volume of decisions required.

His solution was structural: lateral coordination mechanisms such as task forces and cross-functional teams were needed to bridge the gaps between departments. This was a claim about organizational architecture, not about what individual teams do at their boundaries. The focus was on how organizations should be designed to enable coordination, not on how teams actively manage their relationships with the outside world.

Ancona and Caldwell (1992) shifted the level of analysis from organizational structure to team behavior. Their contribution was to show that even within well-designed structures, teams differ substantially in how they engage with their organizational environment, and that these differences matter for performance.

Studying 45 new-product development teams in high-technology companies, they identified three main types of boundary activity. Ambassador activities aimed at managing the relationship with senior management and securing resources. Task coordinator activities aimed at managing horizontal interdependencies with other functional groups. Scout activities involved general scanning of the technical and market environment. The central finding was that the type of external activity, not its frequency, predicts performance. Teams that combined ambassadorial and task coordinator activity consistently outperformed those that remained isolated or concentrated on scouting alone.

More recent research has extended this picture in two directions. O'Leary, Mortensen, and Woolley (2011) documented that simultaneous membership in multiple teams has become a structural norm rather than an exception, with surveys estimating that between 65 and 95 percent of knowledge workers in the United States and Europe belong to more than one project team at a time.

Where Ancona and Caldwell described how individuals span the boundary between their team and the broader organization, O'Leary et al. showed that the boundary itself has multiplied: individuals now navigate competing obligations across several teams simultaneously, each with its own task demands, coordination requirements, and time pressures.

the authors demonstrated that increasing the number of team memberships improves productivity up to a point through better time utilization and more focused work practices, but beyond a moderate threshold it fragments attention, increases switching costs, and reduces both individual and team performance. Variety in team

memberships, meaning the degree of difference across the teams a person belongs to, stimulates learning but increases coordination costs.

Fodor and Flestea (2016) provided empirical grounding for what happens when boundary spanning breaks down in structurally complex systems. Analyzing a real search and rescue operation involving multiple specialized teams, they found that fluid membership and competency diversity disrupted communication networks, reduced information density, and impaired the development of shared situation awareness.

Teams that were poorly connected to the broader system held specialized knowledge that could not be accessed by others, and the absence of effective boundary spanning meant that this knowledge remained siloed at the team level rather than contributing to collective performance. The study illustrated that the boundary spanning Ancona and Caldwell described as a performance-enhancing behavior becomes a structural necessity in systems where teams are interdependent and membership is fluid.

3.3. Summary

The theoretical analysis in this section gives us an idea of what is generally known about the contemporary cross-functional project teams which is then divided into four categories, the first such as structural features. Cross-functional project teams are temporary by design, formed around a particular project and disbanded when the project is complete (Ancona & Caldwell, 1992). They are multidisciplinary in composition, drawing members from different functional departments with diverse cognitive orientations, time horizons, and goal priorities (Lawrence & Lorsch, 1967). Members frequently perform under two different forms of authority, reporting simultaneously to the functional manager and to a project manager (Galbraith, 1971). Team composition tends to change: team members come in and out at different times of the project life cycle (Fodor & Flestea, 2016).

The second category involves employment characteristics. Organizations make a conscious effort to mix permanent and non-permanent employees as a strategic staffing approach that employs flexible work arrangements to tap specialized skills from time to time (Kalleberg, 2001). The ability to work on several projects simultaneously is now not an exception, but a structural norm - with surveys showing that between 65 and 95% of knowledge workers are on more than one project team at a time (O'Leary et al., 2011). Members cannot therefore spend all their time and cognitive resources and are instead divided through competing project obligations.

The third category discusses operational characteristics. Cross-functional project teams are not capable of functioning as closed units: they rely on other parts of the organization to get resources, information, and support (Ancona & Caldwell, 1992), and must balance their relationships with the external organizational environment. A history of working together is generally absent from teams: the temporality of membership combined with the fluidity of composition make it common for team members to start working together without prior or previous experience in group work, and as a result pre-existing mechanisms and shared mental models (Fodor & Flestea, 2016) tend to become less available.

The fourth category relates to coordination impacts. Functional difference between the team members tends to compound the difficulty of integration as a conventional hierarchical approach that relies on lateral coordination of processes to avoid re-dissolving processes (Lawrence & Lorsch, 1967; Galbraith, 1971). Fluid membership disrupts the communication networks and prevents shared situation awareness development and encourages lack of information openness that hinders shared performance within groups (Fodor & Flestea, 2016). However, switching from one team to another, when responsibilities are assigned to them and each receives different norms and expectations, creates cognitive switching costs, and the cost increases with the extent to which different team memberships involve (O'Leary et al., 2011).

Ultimately, when accountability is distributed amongst groups of people who simultaneously carry on more than one project and responsibility across the individual team members' actions, individual accountability is diffuse, which provides conditions that are closely related to the motivational and cognitive dynamics examined in this study.

4. Key Social–Psychological Factors in Team Performance

The previous sections clarified how responsibility and cognitive load manifest at levels of the individual and team, as well as the contexts within which cross-functional forms of organization make these effects possible. The present section examines the social-psychological factors that mediate this relationship. The factors examined here were chosen due to the established association between these factors and group functioning and responsibility distribution. They cover three levels of analysis: the individual level, including felt accountability and perceived fairness; the interpersonal level, including trust and psychological safety; and the group level, including social influence processes, social identity, and social exchange dynamics. Collectively, they represent the most empirically grounded candidates for explaining why and how distribution of responsibility influences cognitive load in cross-functional project teams.

This theoretical choice was then empirically tested; the factors confirmed by participants, as well as additional factors that emerged from the data, are described in Chapter 2.

4.1. Social influence, conformity and groupthink

One of the earliest systematic demonstrations of how group context shapes individual behavior was provided by doctoral researcher Muzafer Sherif (1935). He placed participants in a situation of perceptual uncertainty and found that when people faced this ambiguity in small groups, their individual judgments converged toward a shared group norm — even though no one instructed them to align. Approximately 75% of people claimed they were not swayed by the group at all, but the influence was real and enduring. Participants who initially worked to establish norms within a group continued to apply them even when tested in isolation. What Sherif's findings reveal is not simply that people conform under pressure, but that group context can silently restructure what individuals take to be true.

Solomon Asch (1951) extended this question by wondering whether group pressure influences judgment even when the answer is obvious, conducting his now-classic line-matching experiments at Swarthmore College. He put a single participant in a group of confederates who all gave a clearly incorrect answer to a visual task. Asch pointed out three patterns of yielding: 1) some participants genuinely believed the majority to be right; 2) others doubted their own judgment and went along with the group; 3) and a third group knew they were right and conformed to others since they

didn’t want to seem different. Sherif and Asch together demonstrate is that group context does not merely add pressure from the outside — it reshapes how individuals perceive, interpret, and report reality from within. These are not interchangeable responses to group pressure but different implications for how responsibility and judgment are distributed in collective settings.

Another scientist Milgram (1963) designed an experiment in which participants were instructed to administer electric shocks of increasing intensity to another person under the pretense of a learning study. Despite the victim's protests and their own visible distress, 65% of participants obeyed fully to the end. The finding matters here not because of the scale of obedience, but because of what it reveals about responsibility. When acting under authority, individuals do not simply follow orders — they offload moral responsibility onto the person giving them, and in doing so, remain subjectively unaccountable for outcomes they are directly causing.

While Sherif, Asch, and Milgram examined influence at the level of individual judgment and behavior, research psychologist Irving Janis (1982) documented its consequences at the level of collective decision-making. Analyzing major political and military failures the scientist introduced the concept of groupthink to describe a specific failure of collective reasoning: when group members become more invested in maintaining harmony and consensus than in critically evaluating available options, the quality of decision-making deteriorates. Under these conditions, groups turn to self-censorship, to collective rationalization, and to the suppression of dissent — not via concerted coordination, but through a gradual and largely unconscious process. That unanimous decisions may appear to reflect collective resolve, when in reality they reflect each member’s individual avoidance of conflict.

This dynamic stands in direct tension with the conditions that make transactive memory systems (Wegner, 1987) and team cognitive efficiency (Johnston et al., 2013) possible. Both depend on members actively contributing distinct knowledge and engaging in honest information exchange. When groupthink takes hold, precisely these behaviors are suppressed. Members withhold dissenting information, strive to the perceived group position, and the cognitive benefits of distributed knowledge are lost.

What makes conformity, obedience, and groupthink particularly significant as social-psychological factors in team performance is that they are not imposed from outside — they grow out of ordinary social interaction between team members. They shape how members perceive shared reality, how responsibility is allocated and experienced, and whether critical information reaches collective decision-making at all.

4.2. Leadership and its influence on team dynamics

Leadership style was a key determinant of group climate and behavior according to Lewin, Lippitt, and White (1939)—who in their classic experimental work systematically tested three leadership styles—authoritarian, democratic, and laissez-faire—and made sure that group composition and tasks were held constant. In authoritarian contexts, groups were either highly apathetic or hostile. Greater spontaneous, cooperative, and fact-based engagement was observed under democratic leadership. The laissez-faire condition presented the best illusion of freedom but was characterised by disorganized and largely unproductive behavior. What these findings confirmed is that leadership style conditions the psychological space at which group members operate. Subsequent scholarship has developed and reframed this insight.

Heim, Laker, and Tabaeifard (2026), in a review of responsible leadership research spanning 2004 and 2024, referred to responsible leadership — initially articulated by Pless (2007) — as an approach that incorporates ethical aspects (e.g., norms, values, and principles) and expands accountability beyond the internal leader–follower relationship to the broader community of stakeholders. At the team level, Heim et al. (2026) identify psychological safety and trust as two of the key relational vehicles through which responsible leadership is demonstrated. This is a significant expansion of Lewin et al.'s original insight. This previous work showed that leadership style shapes the psychological atmosphere of a group, and if you were to choose which psychological conditions matter most when it comes to maintaining ethical, effective team behavior over time, the responsible leadership framework specifies those conditions.

Considered together, these perspectives indicate that leadership shapes team operation not just through the hierarchies it creates but by the psychological conditions it generates: trust, psychological safety, and the social environment that enables or limits meaningful involvement. This is important for the current thesis as this situation is likely to influence the way in which responsibility is experienced and distributed between members of cross-functional project teams. The two constructs are extensively analysed in subsequent sections..

4.3. Trust in teams

Trust as a social-psychological phenomenon was first systematically empirically investigated in Deutsch’s (1958) conceptualisation, as a circumstance in which an individual has a certain behavioral expectation with another and acts on that

assumption, perceiving that the costs of misplaced trust outweigh the benefits of its fulfillment. Using experiments with a two-person non-zero-sum game, Deutsch showed that motivational orientation is a strong predictor of whether trust or suspicion is formed. A cooperative orientation reliably produced mutual trust, a competitive one produced mutual suspicion, and an individualistic orientation was highly sensitive to situational conditions. These discoveries established trust not as a static personality trait but as a fluid social phenomenon driven by perceptions of intent, situational scaffolding, and the quality of party communication. Deutsch's approach, which laid stress on the circumstances in which trust takes effect, ignored the issue of what makes someone else truly deserving of that trust.

This issue was directly confronted by management scholars Roger Mayer, James Davis, and F. David Schoorman (1995), who defined trust as willingness to be vulnerable to the actions of another party based on positive or favorable expectations — independently of any ability to monitor or control that party. Their model reveals three trustworthiness factors: 1) ability, interpreted as competence specific to a domain; 2) benevolence, or a genuine positive disposition toward the trustor independent of self-interest; 3) integrity, measured as perceived adherence to acceptable principles, consistency of past behavior, and alignment between words and actions. But the translation of trust into performance is a bit trickier than the literature often implies.

A review of four decades of empirical evidence (Dirks & Ferrin, 2001) found trust impacts upon behavior and performance in the workplace to be considerably weaker and less consistent than often promoted. This proposed two competing models.

The direct effect model, which suggests that higher trust directly leads to more cooperation and better performance than lower levels, is the most widely adopted.

The moderation model posits that trust doesn't actually yield favorable outcomes, but rather creates the environment or conditions in which other elements become more prone to positive outcomes. The moderation model was more theoretically coherent: it was also found that under low trust, even high motivation failed to produce cooperative behavior, whereas under high trust it was successfully channeled toward collective goals..

4.4. Psychological safety

Related to trust but conceptually distinct is psychological safety — the extent to which team members perceive it to be safe to speak up, ask questions, and acknowledge mistakes without the danger of interpersonal consequences.

Organizational scholar Amy Edmondson (1999), in a multimethod field study of 51 work teams in a manufacturing organization, conceptualized team psychological safety as a shared belief that the team is safe for interpersonal risk-taking.

Edmondson states that cohesion can suppress disagreement and critical thinking, whereas psychological safety creates the conditions under which interpersonal risk-taking becomes possible. The construct also extends beyond interpersonal trust: where trust concerns expectations about another's future behavior, psychological safety refers to the broader team climate built on mutual respect and the sense that one can be oneself without fear of adverse consequences. The study found that psychological safety was positively associated with learning behavior — defined as seeking feedback, sharing information, asking for help, discussing errors, and experimenting — and that learning behavior in turn mediated the relationship between psychological safety and team performance. Structural factors such as leader coaching and organizational support influenced performance primarily through this mediating mechanism. Edmondson also identified an asymmetry between high- and low-safety teams: those with high psychological safety were able to confront and work through structural constraints, while those with low safety tended to become trapped in self-sealing patterns of silence and disengagement.

These findings were extended in a systematic review of 83 empirical studies by Newman et al. (2017), which examined the antecedents, outcomes, and boundary conditions of psychological safety. Across individual, dyadic, team, and organizational levels of analysis, the authors found that supportive leadership, high-quality relationships among team members, and enabling organizational practices are the core conditions that foster the construct, with effects being strongest at the team level. In terms of outcomes, psychological safety was consistently linked to learning behavior, performance, innovation, creativity, knowledge sharing, and voice behavior (Sanner & Bunderson, 2013, as cited in Newman et al., 2017). The review also surfaced an important nuance: psychological safety is not uniformly beneficial. Excessively high levels may, under certain conditions, facilitate unethical team behavior, as members feel safe to voice and support options they might otherwise suppress. The relationship between psychological safety and team outcomes is therefore more complex than early research implied.

4.5. Perceived fairness and equity theory

the issue of what amounts to fair in social interactions has roots in social psychology, but it was not until fairly late in addressing the subject systematically on a theoretical level that it began to develop in the type of way that other group-related phenomena do.

Adams (1965) expanded on Homans's (1961) idea of distributive justice, and Stouffer et al.'s (1949) concept of relative deprivation, which suggested a theory of inequity based on social comparison. Someone compares the ratio of their own results to inputs against the corresponding ratio of a relevant other, so if these proportions are imbalanced, they generate a pressure in the person to improve it. Adams proposed four different ways that this can happen: (a) to alter one's inputs or outcomes, (b) to cognitively distort, (c) to act on the comparison other, (d) to distance oneself or exit the exchange from it (absenteeism or leaving the interaction). He also observed an asymmetry of thresholds — underreward brings a stronger grievance than overreward, which is more easily accounted for as good fortune. This framework related to the allocation of results — is it adequate to give something to someone in part due to their contribution.

A parallel tradition initiated by Thibaut and Walker (1975) and developed by Leventhal (1980) focused on operations of how the outcomes are obtained. Leventhal defined six criteria of fairness in procedures: consistency, absence of bias, accuracy, correctability, representativeness, and ethicality. People are sensitive not only to what they make but to how their fate decisions are determined and how procedural-fair treatment can maintain acceptance of outcomes that might otherwise appear unjust.

Expanding on this, Colquitt, Noe, and Jackson (2002) extended this in a team level sense, by expanding the notion of procedural justice climate — a joint sense among members of a team of how just the group is treated procedurally. Dividing their analysis between climate level and climate strength, they tested both in a sample of 88 manufacturing teams. Climate level predicted team performance and absenteeism, as aligned with both the instrumental model and the relational model — a model that relates procedural fairness to perceptions of legitimacy and belonging. Climate strength moderated this association. The relationship between favorable perceptions of justice and team performance was much stronger when team members agreed on the level of procedural fairness.

Based on fairness heuristic theory, this was due to the disruptive effect of different perceptions in weak climates, where members face colleagues who rate

fairness differently on multiple occasions and therefore need to regularly reassess themselves to negate the behavioral impact of a specific perception. Team size and collectivism were strong predictors of climate level: larger teams exhibited less favorable climates because of lower member participation while more collectivist teams expressed higher climate levels, consistent with preferences for harmony-preserving procedures..

4.6. Social identity and group cohesion

With regards to theoretical background that has influenced the social psychology of groups, social identity theory is distinguished by the extensive range of phenomena it has exposed and the volume of empirical contributions it has provided across decades and disciplines.

It was suggested by Tajfel (1974) that group membership significantly forms the self-concept of someone. Social identity — a component of self-concept derived from information about being part of a group as well as the emotional valence of the category — is made to mean only relationally: a group becomes psychologically realistic to its members just because it can be compared with other groups. Tajfel's minimal group experiments showed that even nonspecific, trivially defined group boundaries were enough to establish systematic in-group favoritism and out-group discrimination, in the absence of prior hostility or objective conflict of interest. The underlying dynamic is one of positively valued distinctiveness: it is the desire of groups to achieve a set of advantageous characteristics over relevant comparison groups, as this specific quality ensures members act to a positive degree of contribution to their self-esteem.

Tajfel and Turner (1979) offered a full theoretical explication of this process. Festinger (1950) talked about a broader dimension of group life: the forces that hold groups together and control how people communicate with one another. He characterized cohesiveness as the resultant of all forces acting on members to remain in the group, and revealed that tighter groups can have stronger effects on members, leads to more conformity, and tends to reject repeated deviants. Cohesion, therefore, is not a fixed thing but rather fluid, influencing communication, social influence, and boundary maintenance.

Hogg's (2000) social identity theory also suggested that uncertainty reduction serves as an essential motivational foundation for identification. People take part in or identify with groups, not just to boost self-esteem, but to eliminate their subjective feelings about the way they perceive themselves and their identity. Self-categorization

acts as a way to dissolve such uncertainty by prescribing cognition and behavior that is consensual of the members self-concept.

These insights were applied in terms of the organizational domain by Ashforth and Mael (1989), noting that previous research had systematically conflated social identification with an organization or subunit with commitment and internalization. Describing organizational identification in the way of experiencing one's oneness with a group, they argued that this can emerge even when interpersonal cohesion is absent — when the group is reified as a psychological entity independent of its members..

4.7. Social exchange theory

So far, the social-psychological factors analyzed—perceived fairness, identity, and cohesion — not only affect how individuals relate to their social groups, but also how they understand and respond to the treatment they receive from others, a dynamic that social exchange theory directly confronts.

Homans (1958) suggests that social interaction is actually an exchange of goods — material and non-material goods — under the laws of reinforcement: behavior that is rewarded tends to be repeated, and persons who receive much from others are under pressure to give much in return. He also saw distributive justice as a condition of group balance: if the costs that were borne by one group far exceed those borne by another, the pressure needs to be exerted for that group to offer rewards that are proportioned to it, and if such a proportionality has been violated, the groups work to restore it. The theoretical distinction which had the most profound impact on subsequent research was that between economic and social exchanges.

As Blau (1964, in Cropanzano et al., 2017) has pointed out, economic exchanges are quid pro quo and involve active regulation, while social transactions are always open-ended; they produce a diffuse obligation and establish trust and commitment in the long-term — redrawing reciprocity as a signal of relationship quality rather than just another automatic transaction returning the same value for money. Cropanzano et al. (2017) found two key limitations in the application of social exchange theory. First, most constructs employed in the theory have significant overlap of their own and it is difficult to differentiate those constructs. Second, the theoretical position has had an implicit presumption that the absence of something positive is equivalent to the presence of something negative—that is, low trust should equally be equated with active distrust—that is not empirically true. To overcome this limitation, the authors

suggested two dimensions of the social exchange constructs: hedonic value and activity level.

This framework accounts for what they recognize as homeomorphic reciprocity and provides more accurate prediction about the behavior of people in response to positive and negative treatment in the context of organizations.

4.8. Summary

This section presents a theoretical analysis of seven social-psychological factors that influence team behaviour in the cross-functional project context of the current study.

Social influence mechanisms — including conformity, obedience, and groupthink — determine how individual judgment and collective decision-making are constrained by group context.

Ledership style structures the psychological and organizational conditions under which members work, shaping the degree of autonomy, cooperation, and accountability available to the team.

Trust — understood as a dynamic social process shaped by perceived ability, benevolence, and integrity — establishes the interpersonal foundation for coordination and shared responsibility.

Psychological safety defines whether members feel able to speak up, acknowledge errors, and engage in the interpersonal risk-taking that learning and adaptive performance require.

Perceived fairness and equity shape how members evaluate their contributions relative to others, influencing motivation, effort, and withdrawal.

Social identity and group cohesion determine the strength of members' attachment to the team and the clarity of its boundaries, affecting how responsibility is perceived and distributed.

Social exchange theory, finally, provides a framework for understanding the reciprocal dynamics — governed by principles of homeomorphic reciprocity and shaped by the distinction between economic and social exchange — through which all of these conditions are sustained or eroded over time.

5. Conceptualization of Key Concepts

the preceding sections of this chapter have drawn on a wide body of theoretical and empirical literature to examine the main constructs that are central to this study. Before moving to an analysis of their interrelationships and existing research gaps, it is necessary to specify precisely how each of these constructs is understood and operationalized within the present study. The definitions offered below are not intended to replace the theoretical discussions provided earlier but to make explicit the meanings that will guide the empirical investigation.

A comprehensive alphabetical list of all key terms and their definitions as used throughout this work is provided in the Glossary of Terms.

5.1. Social-psychological factors

Throughout this study, the term social-psychological factors refers to the psychological processes and social conditions that shape how individuals behave, perceive their responsibilities, and interact with others in group settings. These include, but are not limited to, the mechanisms of diffusion of responsibility and social loafing (Darley & Latané, 1968; Latané, Williams, & Harkins, 1979), felt accountability and perceived responsibility (Hall, Frink, & Buckley, 2015), psychological safety (Edmondson, 1999), trust (Mayer, Davis, & Schoorman, 1995), perceived fairness (Adams, 1965; Colquitt, Noe, & Jackson, 2002), social identity and group cohesion (Tajfel, 1974; Festinger, 1950), leadership style (Lewin, Lippitt, & White, 1939), and social exchange dynamics (Homans, 1958; Cropanzano, Anthony, Daniels, & Hall, 2017).

Within the broader framework of this study, these factors are therefore not seen as outcomes in isolation but as social and psychological conditions that may explain why and how the distribution of responsibility shapes the cognitive load experienced by team members. It is not an objective of this paper to examine all these factors at once but it draws on this theoretical analysis above to determine the most pertinent constructs for empirical study.

5.2. Responsibility distribution

Responsibility distribution is a measure of the extent to which task-related duties, authority to make decisions, and consequences of actions may be distributed in an individual or a collective by members of the team. The distinction between

individual responsibility and collective responsibility has been one of the most important aspects of research in this field since Darley and Latané (1968), who found that sharing responsibility between more than one person leads to lower personal responsibility amongst the individuals.

Steiner (1972) subsequently indicated that collective arrangements create motivation losses, and Kerr (1983) presented two mechanisms by which collective responsibility can attenuate individual effort: the free rider effect and the sucker effect. In this study, the distribution of responsibility is conceptualized in a continuum from totally individual to wholly collective. This means that a balanced distribution means responsibilities are divided in a way that members see as clearly defined, fairly shared and proportional to their roles and capacities.

An imbalanced distribution would be one in which responsibility is either too much centralized in only certain people or so dispersed throughout the team that individual accountability is lost. Perceived accountability — the subjective sense that one's actions will be evaluated and that one is answerable for outcomes — is one of the key psychological indices in which a certain team member's experience can fall within a given dimension (Hall, Frink & Buckley, 2015).

In the survey instrument that is employed in the current study, the distribution of responsibility is assessed using self-report measures of how responsibility is typically shared within the team..

5.3. Cognitive load

Cognitive load in this study is the subjective mental demand one has to cope with at each stage of their performance in a cross-functional project team. Hart and Staveland (1988) described workload as a hypothetical concept: the cost incurred by a human operator to achieve a particular level of performance. This human-focused definition is particularly fitting for the current article, as in the same cross-functional project environment the workload experiences of team members could vary dramatically according to their roles, capability, and perceived duties. The theoretical framework of cognitive load employed in this study is based upon Sweller (1988), who identified the three elements: intrinsic load, extraneous load; and germane load. Although this three-stage framework lays a basis for the theoretical framework employed in this study, the empirical measurement of cognitive load adopts the method proposed by Hart and Staveland (1988). Cognitive load was measured using the multidimensional

rating scale developed by Hart and Staveland (1988), NASA Task Load Index (NASA-TLX). In our methodology chapter we detail the instrument, its subscales, and rationale for its selection.

5.4. Team efficiency and team performance

In this study, the team performance is approached according to the Hackman (2002) three-criteria model, which suggests that an effective work team must a) simultaneously produce output that meets the standards of those who use it, b) maintain or enhance members' capacity to work together in the future, and c) contribute positively to the learning and well-being of individual members.

This three-dimensional frame fits with the scope of this study, which is focused not only on objective task outputs, but also on the environment that makes up the social functioning of teams in the long run. For the sake of statistical measurement, team performance can be operationalized with self-report items on perceived team efficiency, frequency of meeting deadlines, and satisfaction with the quality of work produced by the team.

These indicators correspond in most respects to the first of Hackman's three criteria, given the limitations of survey-based measurement.\.

5.5. Cross-functional collaborative structures

For the purposes of this study, a cross-functional collaborative project team is a form of temporary, multidisciplinary group comprising specialized professionals from different functions or professional backgrounds engaged in a shared overall objective that is derived from a specific project goal.

This definition integrates perspectives from a) Lawrence and Lorsch (1967), who also showed that organizations working in the face of environmental uncertainty must introduce differentiated specialists into collaborative contact, b) Galbraith (1971), who characterized the structural development of cross-functional groups as a response to information-processing challenges, and c) Ancona and Caldwell (1992), who demonstrated that teams of this type vastly differ in their proactive boundary management with the broader organizational context.

The unique structural characteristics of such teams include a) a temporary assembly focused on a given project goal, b) dual authority over the members, fluid composition, and c) simultaneous membership in multiple teams (O'Leary, Mortensen, & Woolley, 2011; Fodor & Flestea, 2016). According to the inclusion criteria

elaborated in the methodology chapter, participants must present current or recent experience working in teams that meet that definition in order to participate in this study.

5.6. Role multiplicity

The term role multiplicity, as defined by the present study, refers to the condition in which an individual simultaneously holds distinct roles across multiple concurrent projects or teams.

As O'Leary, Mortensen and Woolley (2011) observed, this has taken shape as a structural norm, and not an exception, in modern firms. All teams must balance tasks and coordination requirements and roles, and members have different responsibilities that have to be negotiated in different contexts. Role multiplicity is analytically distinguished from, but closely related to, boundary spanning.

While boundary spanning speaks to how members negotiate the relation between their team and the wider organizational context (Ancona & Caldwell, 1992), role multiplicity is the structural condition of holding fragmented membership across multiple teams in a single organization. The cognitive effects of this condition are immediately applicable to the current study: switching between teams with different tasks, norms, and role expectations results in cognitive switching costs that scale up with increasing variety of team memberships (O'Leary et al., 2011).

In this study, role multiplicity is examined as a structural characteristic of the research context rather than being measured directly, and simultaneous multiple team membership is considered as one of the inclusion criteria for participation within it.

5.7. Optimal balance of responsibility

The concept of optimal balance of responsibility is central to the third task of this study — to develop a conceptual model aimed at identifying the distribution of responsibility that supports effective team performance while minimizing cognitive overload.

As the theoretical analysis in the previous sections has established, the relationship between responsibility distribution and its outcomes is not linear. Fully individual responsibility can produce excessive cognitive and emotional load on specific team members, reduce collaboration, and undermine shared commitment (Hall, Frink, & Buckley, 2015). Fully collective responsibility, by contrast, tends to

generate diffusion of accountability, social loafing, and motivational losses (Darley & Latané, 1968; Latané, Williams, & Harkins, 1979; Kerr, 1983).

The concept of optimal balance is understood in this study as the point — more precisely, the range — at which responsibility is distributed in a way that preserves clear individual perceived accountability, supports productive collaboration, and does not impose cognitive demands that exceed members' capacity to manage them effectively. This draws on Hackman's (2002) argument that effective team performance requires not only productive output but also processes that sustain members' capacity and well-being. These conditions are difficult to meet when responsibility is either too concentrated or too diffuse.

Operationally, this concept enters the study at two points. This concept runs its course into the study, operationally, at two key moments. In the quantitative part of our study, respondents are asked to rate the degree to which responsibility in their team is individually versus collectively distributed, and to report their perceived personal accountability for outcome. Secondly, in the qualitative phase the question is directly posed what an optimal balance of responsibility would be like to the participant, in an attempt to elicit perceptions from participants themselves of the ideal balance according to their experience.

CHAPTER 2. RESEARCH METHODOLOGY

1. Interrelationship Between Core Constructs and Research Gaps

The theories considered within the above sections span more than a century of exploration extending from the early empirical work on group phenomena and personal responsibility in the first half of the 20th century to the more recent studies on cognitive load, team dynamics, and organizational trust. Responsibility distribution has grown from the seminal studies of social psychology concerning group motivation and bystander behavior, whereas cognitive load scholarship has developed mostly within educational and cognitive psychology. Social-psychological constructs like psychological safety, trust, and perceived fairness have been largely investigated in the context of team performance and learning outcomes.

As the final result, this analysis points to three main constructs that structure the present study: a) responsibility distribution, b) cognitive load, and c) social-psychological factors. Researchers have rarely examined these three constructs together within a single integrative framework.

This section builds on the basis generated by the previous chapters and attempts to explain some of the dynamics between these constructs, and noting the lack of research in this area as well.

The connection between responsibility distribution and cognitive load has not been explicitly discussed in organizational or social-psychological studies. Yet, the theoretical logic of some bodies of work aligns around a potentially promising set of mechanisms by which the distribution of responsibility may influence the cognitive demands imposed on individual team members.

When responsibility is concentrated on specific individuals, those members are likely to experience higher cognitive load: felt accountability prompts more effortful processing and sustained vigilance, which becomes increasingly costly when accountability is excessive or poorly defined (Hall, Frink, & Buckley, 2015). When responsibility is diffused across the group, individual load may decrease, but diffusion does not eliminate cognitive demand — it redistributes it. Collaboration introduces transactive activities such as communication, negotiation, and joint decision-making that place their own demands on working memory (Kirschner, Sweller, Kirschner, & Zambrano, 2018), and the more ambiguous the distribution of responsibility, the more cognitive resources members must spend tracking who is accountable for what and managing the motivational risks of shared obligation (Kerr, 1983).

Multiple team membership adds another layer of complexity. O'Leary, Mortensen, and Woolley (2011) documented that individuals who belong to several teams simultaneously must constantly transition between different task contexts, role expectations, and coordination requirements, with each switch generating cognitive costs that accumulate across the working day and increase with the variety of memberships held. In such conditions, the distribution of responsibility within any single team captures only part of the cognitive picture, as members carry obligations and attentional demands from other projects as well.

Johnston, Fiore, Paris, and colleagues (2013) proposed team cognitive efficiency as a way of assessing whether a team's coordination structure is generating meaningful output relative to its cognitive costs. From this perspective, the relevant question is not simply how much load members experience, but whether the prevailing distribution of responsibility supports or undermines the efficient use of cognitive resources at the team level. An imbalanced distribution — whether too concentrated or too diffuse — may reduce team cognitive efficiency by overloading specific members or generating excessive coordination overhead (Kirschner et al., 2018).

Social-psychological factors do not simply accompany these dynamics but appear to shape the conditions under which the relationship between responsibility distribution and cognitive load unfolds. Three sets of factors seem particularly relevant on the basis of the preceding theoretical analysis.

Psychological safety and trust may reduce the cognitive cost of coordination. When members feel safe to raise concerns, acknowledge uncertainty, and ask for help, the interpersonal risk management that would otherwise consume working memory is likely to decrease (Edmondson, 1999). Trust matters for similar reasons. Mayer, Davis, and Schoorman (1995) conceptualized it as a function of perceived ability, benevolence, and integrity, and when trust is present, members are less compelled to verify others' contributions independently, which would otherwise add extraneous load without contributing to task outcomes. Where trust is low, this monitoring burden grows. By contrast, higher trust enables mutual cognitive interdependence: members can specialize, rely on others' expertise, and offload cognitive work through the team's transactive memory system (Wegner, 1987), reducing the individual load that any given distribution of responsibility would otherwise generate (Kirschner et al., 2018).

Perceived fairness represents a second potentially moderating condition. Colquitt, Noe, and Jackson (2002) demonstrated that the degree to which team members perceive procedural fairness shapes both their cooperative behavior and their engagement with collective tasks. When the distribution of responsibility is perceived

as unfair members are likely to experience heightened frustration and effort (Hart & Staveland, 1988). A distribution that is simultaneously unequal and perceived as unjust may therefore amplify subjective cognitive load beyond what the objective task demands alone would predict.

Shared accountability at the team level constitutes a third relevant factor. Stewart, Courtright, and Manz (2023) conceptualized shared team accountability as a relational emergent state — a property that develops through interaction rather than being formally assigned. Teams with higher shared accountability at the project midpoint showed stronger performance and greater collective effort, suggesting that when members collectively feel answerable for outcomes. They tend to engage more actively in coordination rather than withdrawing behind the cover of diffused responsibility. This implies that the same formal distribution of responsibility may produce quite different cognitive and motivational effects depending on whether the team has developed a meaningful sense of collective answerability.

Taken together, these theoretical threads suggest a coherent logic: a) responsibility distribution may shape cognitive load through mechanisms involving felt accountability, coordination overhead, and switching costs, b) while social-psychological factors — particularly psychological safety, trust, perceived fairness, and shared accountability — may may explain why how costly or manageable these mechanisms prove in practice. Yet this logic has not been examined as an integrated model.

The most consequential gap concerns the organizational context in which these constructs have typically been studied. The foundational research on diffusion of responsibility (Darley & Latané, 1968), social loafing (Latané, Williams, & Harkins, 1979), and motivation losses (Steiner, 1972; Kerr, 1983) was conducted in laboratory settings or stable group configurations with clearly delineated tasks and singular project assignments. The same is true of organizational research on cognitive load and team performance (Johnston et al., 2013; Kirschner et al., 2018).

Cross-functional project teams are different. They are temporary by design, multidisciplinary in composition, and characterized by multiple authority, fluid membership, and simultaneous participation in multiple projects (Lawrence & Lorsch, 1967; Galbraith, 1971; Ancona & Caldwell, 1992; O'Leary et al., 2011). Mathieu, Marks, and Zaccaro (2001) further showed that interdependent teams pursuing both proximal and distal goals generate coordination demands that single-team models are not designed to capture.

In such conditions, responsibility distribution is not a stable structural feature but a continuously negotiated property of the team. Social-psychological mechanisms through which accountability, trust, and fairness perceptions develop are also likely to operate differently in temporary teams without shared history, where members' attention is divided across concurrent projects.

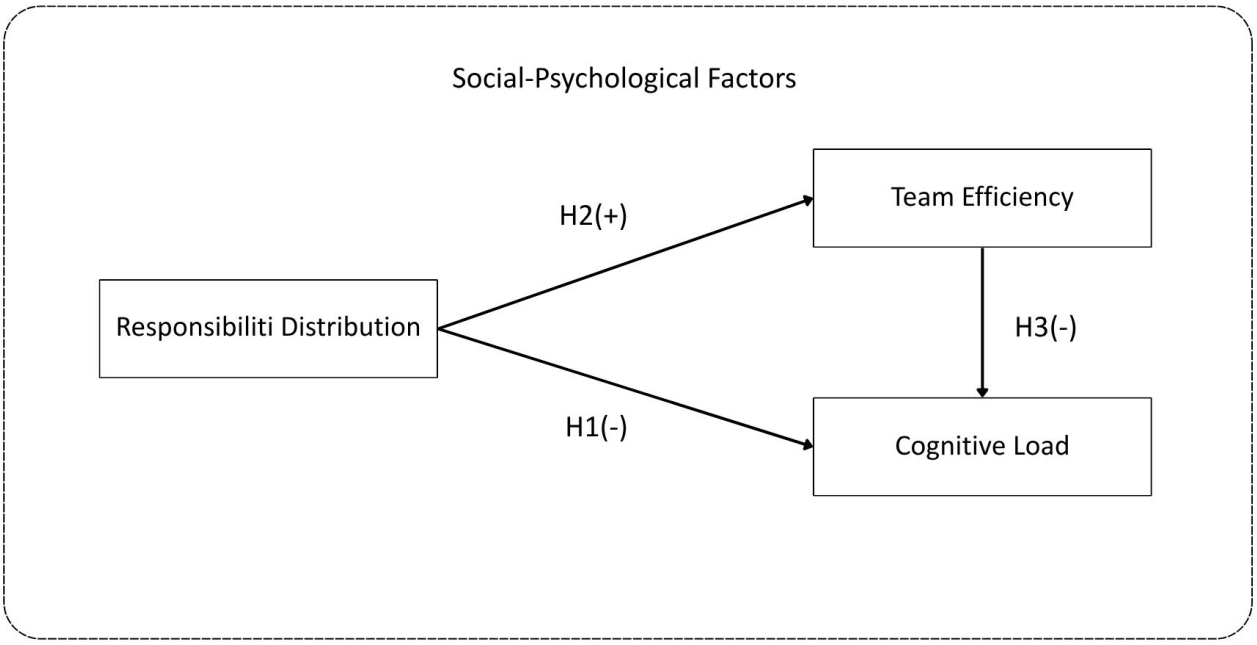
Whether the theoretical relationships outlined above hold in this specific context remains an empirically open question. Which social-psychological factors prove most consequential in moderating them is equally unresolved. These are the questions the present study seeks to address.

2. Conceptual Framework of the Study

The theoretical analysis presented in the preceding sections makes it possible to outline the conceptual framework that guides the empirical part of this study. The framework outlines the primary constructs, the anticipated direction of the relationships among the constructs, and the application of such social-psychological processes as an explanatory mechanism for the qualitative phase.

Figure 2

A schematic representation of the proposed relationships



The study examines responsibility distribution as the primary independent variable. It is conceptualized along a continuum from fully individual to fully collective, with a balanced distribution understood as one in which responsibilities are perceived as clear, fair, and proportional to members' roles and capacities. Cognitive load, measured through the NASA Task Load Index (Hart & Staveland, 1988), serves as the primary dependent variable. Team efficiency represents a secondary outcome variable.

The theory behind the proposed connection between responsibility allocation and cognitive load rests on underlying logic developed in earlier portions of this chapter. When individual responsibility is concentrated (with particular individuals), felt accountability intensifies and the cognitive load increases (Hall, Frink, & Buckley, 2015). As responsibility becomes overly diffused, coordination overhead increases whilst low individual motivation could result from external processes of social loafing

and the free-rider effect (Latané, Williams, & Harkins, 1979; Kerr, 1983). A balanced distribution is expected to reduce both sources of excess load while preserving sufficient individual accountability to sustain effort and engagement.

The quantitative stage of the study tests the relationship between responsibility distribution and cognitive load directly. The qualitative stage is designed to explore the social-psychological mechanisms that may explain why this relationship exists. Since the theoretical review, psychological safety, trust, perceived fairness, and shared accountability are the most likely candidates. However, the qualitative stage remains open to mechanisms that participants themselves identify as relevant to their experience.

3. Methodological Approach

3.1. General methodology description

The current study employs the explanatory sequential mixed-methods design according to Creswell and Plano Clark (2018). This design includes two distinct phases conducted in sequence: the first phase is quantitative and the second a qualitative stage, where the second stage is explicitly built upon and guided by the results of the first.

The research question as well as the overall objectives of the study prompted the selection of this design. The first goal is for quantitative measurement in a sufficiently large sample. The second objective includes qualitative inquiry into participants' lived experience. Neither alone would be sufficient. A purely quantitative study would only determine whether a relationship existed but would be unable to explain why. A qualitative study alone could provide rich descriptions of experience but could not assess the prevalence or direction of this relationship across a broader population.

The explanatory sequential design also allows for a clear and transparent structure in reporting: quantitative findings are presented first, followed by qualitative explanation, which makes the logic of the study easy to follow for the reader.

All the quantitative survey questions as well as participant information sheet are presentet in Annex A on this study.

All the qualitative stage questions as well as interviewer's scripts are presented in Annex B of this study.

3.2. Quantitative data analysis

3.2.1. Participants and sampling

The survey was distributed through purposeful and snowball sampling via LinkedIn, Telegram communities, and direct personal outreach to professionals. The quantitative stage of the study involved 102 participants recruited through purposive sampling via LinkedIn, Telegram professional communities, SurveySwap, and direct personal outreach. Inclusion criteria required current or recent experience working in cross-functional project teams with simultaneous membership in more than one team. All participants provided informed consent prior to completing the survey.

3.2.2. Survey instruments

Cognitive load was measured using the NASA Task Load Index (NASA-TLX), developed by Hart and Staveland (1988). The NASA-TLX is a widely validated multidimensional self-report instrument that assesses subjective workload across six dimensions: mental demand, physical demand, temporal demand, performance, effort, and frustration. The weighted version of the instrument was used, in which participants complete fifteen pairwise comparisons to indicate which dimension contributed more to their overall workload. Each dimension's weight reflects the number of times it was selected across the fifteen pairs. The overall weighted score is calculated as the sum of each dimension's weight multiplied by its rating, divided by fifteen. This procedure yields a single composite score reflecting the respondent's subjective cognitive load, with higher scores indicating greater load. The NASA-TLX was selected because it is the most extensively validated instrument for subjective workload assessment across occupational and team contexts, and because its multidimensional structure captures the complexity of cognitive experience in cross-functional project work.

Responsibility distribution was measured through a single self-report item asking participants to rate how responsibility for project tasks and results is typically distributed within their team, on a continuous scale from 0 (fully collective) to 10 (fully individual). This item was designed to capture the respondent's subjective perception of where their team falls on the individual-to-collective continuum defined in the conceptual framework.

Perceived accountability was assessed using three custom items rated on a 0–10 continuous scale: "I feel personally accountable for the results of my team's work," "In my team, it is clear who is responsible for what," and "When a mistake happens in the project, I usually feel it is my personal responsibility." These items were developed to operationalize felt accountability as defined by Hall, Frink, and Buckley (2015).

Social loafing was assessed using three custom items: "In my team, some members tend to put in less effort than others," "I sometimes reduce my effort when I know the team will still complete the task," and "In group tasks, I often feel that my individual contribution is not noticeable."

Team outcomes were assessed using three items rated on a 0–10 continuous scale: overall team efficiency, frequency of meeting deadlines, and satisfaction with the quality of work produced by the team.

3.2.3. Data analysis strategy

Six analytical procedures were applied to the quantitative data, each selected for a specific purpose.

Internal consistency analysis using Cronbach's alpha was conducted for all three custom scales prior to the main analysis. Cronbach's alpha assesses the degree to which items within a scale measure the same underlying construct — in other words, whether they are sufficiently interrelated to be treated as a composite index. This procedure was necessary because the perceived accountability, social loafing, and team outcomes scales were developed specifically for this study and had not been previously validated. The conventional threshold for acceptable internal consistency is $\alpha \geq 0.70$, though values approaching this threshold are considered adequate for short scales in exploratory research.

Descriptive statistics — including means, medians, standard deviations, and ranges — were calculated for all primary constructs. Descriptive analysis provides an initial characterisation of the sample's responses and allows for the identification of any distributional anomalies before proceeding to inferential tests.

Pearson correlation analysis was used to examine bivariate relationships between the primary constructs. Pearson's r is appropriate when both variables are continuous and the relationship between them is assumed to be linear. Correlation analysis was conducted as a preliminary step before regression, to identify which pairs of constructs show statistically significant associations and in which direction.

Linear regression analysis was used to test the hypothesised relationships between responsibility distribution, perceived accountability, cognitive load, and team outcomes. Regression extends correlation by estimating the unique predictive contribution of each predictor while accounting for the others, and by quantifying the proportion of variance in the outcome explained by the model (R^2). Two regression models were estimated with NASA-TLX weighted score as the outcome, and two with team outcomes mean as the outcome, progressively adding predictors to assess their independent contributions.

The findings of this study are presented in Chapter 3.

3.3. Qualitative data analysis

The qualitative stage of this study was designed to explain and contextualise the patterns identified in the quantitative stage. Guided by the logic of the explanatory sequential mixed-methods design (Creswell & Plano Clark, 2018), the interview guide

was developed after the quantitative data had been collected and preliminarily analysed, so that the questions directly addressed the constructs and relationships that emerged from the survey results.

3.3.1. Participants and sampling

A purposeful sampling strategy was employed to select participants for the qualitative stage. Nine individuals were recruited from the pool of quantitative survey respondents who had indicated willingness to participate in a follow-up interview. From this pool, participants were selected to ensure variation across professional roles, years of experience in cross-functional teams, and organisational contexts. The final sample included four project managers, one head of a media relations department, one communications strategist, one fundraising manager, one content designer, and one head of a project office. Experience in cross-functional collaborative structures ranged from one to over twenty years. Participants represented different organisations and sectors, which broadened the contextual range of the data.

3.3.2. Data collection

Semi-structured in-depth interviews were conducted individually with each participant, either in person or via video call, depending on the participant's availability and location. Each interview lasted approximately 35 to 40 minutes. An interview guide was used to ensure thematic consistency across interviews while allowing flexibility to follow emerging threads in the conversation. The guide centred on a single overarching question about participants' experience of responsibility distribution in cross-functional teams, supported by probing questions about cognitive load, accountability, and team dynamics. All interviews were audio-recorded with participants' informed consent. Recordings were transcribed verbatim using Good Tape, an automated transcription service, after which all transcripts were reviewed manually by the researcher to verify accuracy.

3.3.3. Data analysis

Thematic analysis was conducted following the six-stage framework outlined by Braun and Clarke (2006): familiarisation with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. The approach was primarily theoretical rather than purely inductive, meaning that the coding process was guided by the research questions and the

constructs identified in the quantitative stage, while remaining open to themes that emerged independently from the data. All nine transcripts were read in full prior to coding. Initial codes were generated by working systematically through the entire data set, giving equal attention to each transcript. Codes were subsequently grouped into candidate themes, which were reviewed and refined across two levels: first at the level of coded extracts, and then in relation to the full data set. The analysis was conducted by the researcher alone.

The findings of this study are presented in Chapter 3.

CHAPTER 3. FINDINGS AND DISCUSSION

1. Quantitative Findings

1.1. Descriptive statistics

Descriptive statistics were calculated for all primary constructs across the full sample of 102 participants.

Table 1
Descriptive Statistics for the Main Study Variables

Variable	M	SD	Median	Min	Max
Responsibility Distribution	5.70	2.38	5.00	0.00	10.00
Accountability	7.46	1.89	8.00	1.00	10.00
Social Loafing	4.31	2.00	4.67	0.00	9.67
Cognitive Load (NASA-TLX)	7.09	1.35	7.40	3.40	10.00
Team Outcomes	7.50	1.74	7.67	1.67	10.00

Note. N = 102. M = mean. SD = standard deviation.

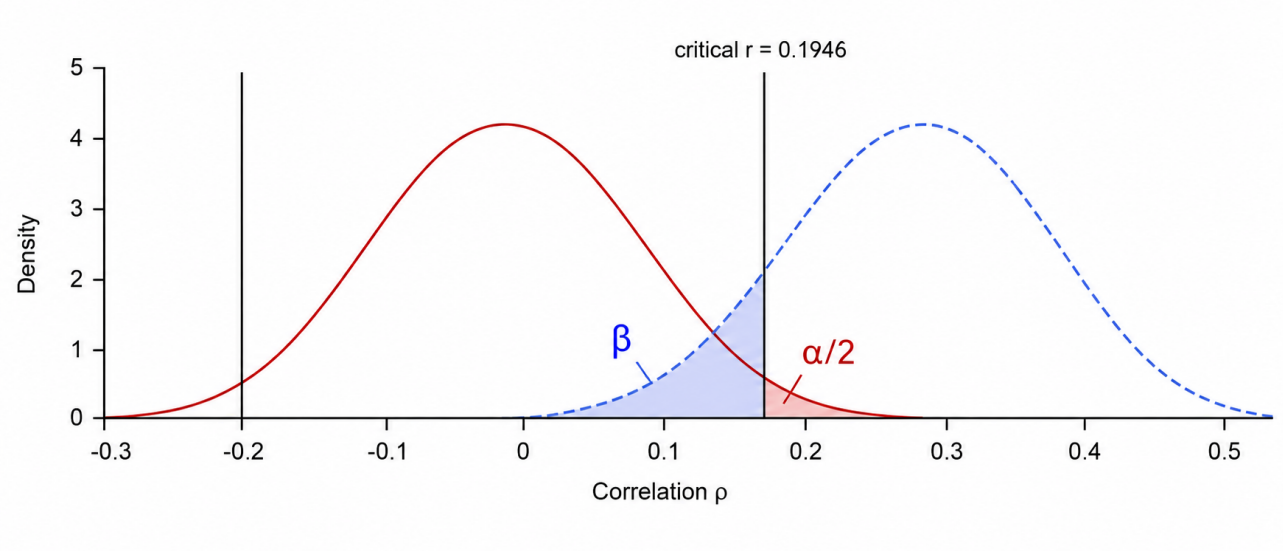
Responsibility distribution showed a mean of 5.70 (SD = 2.38, Mdn = 5.00), indicating that participants on average perceived their team's responsibility structure as moderately balanced, with considerable individual variation across the sample. Perceived accountability yielded a mean of 7.46 (SD = 1.89, Mdn = 8.00), suggesting that respondents generally reported a relatively high sense of personal responsibility for team outcomes. Social loafing mean scored 4.31 (SD = 2.00, Mdn = 4.67), falling below the midpoint of the scale and indicating that motivational losses were perceived as moderate rather than pronounced. The NASA-TLX weighted score produced a mean of 7.09 (SD = 1.35, Mdn = 7.40), reflecting a relatively high level of subjective cognitive load across the sample. Team outcomes mean was 7.50 (SD = 1.74, Mdn = 7.67), indicating that participants rated their teams' efficiency, deadline adherence, and work quality positively on average.

1.2. Sample Adequacy

A post-hoc power analysis in G*Power assessed whether the sample size was sufficient for the planned correlation analysis.

Figure 3

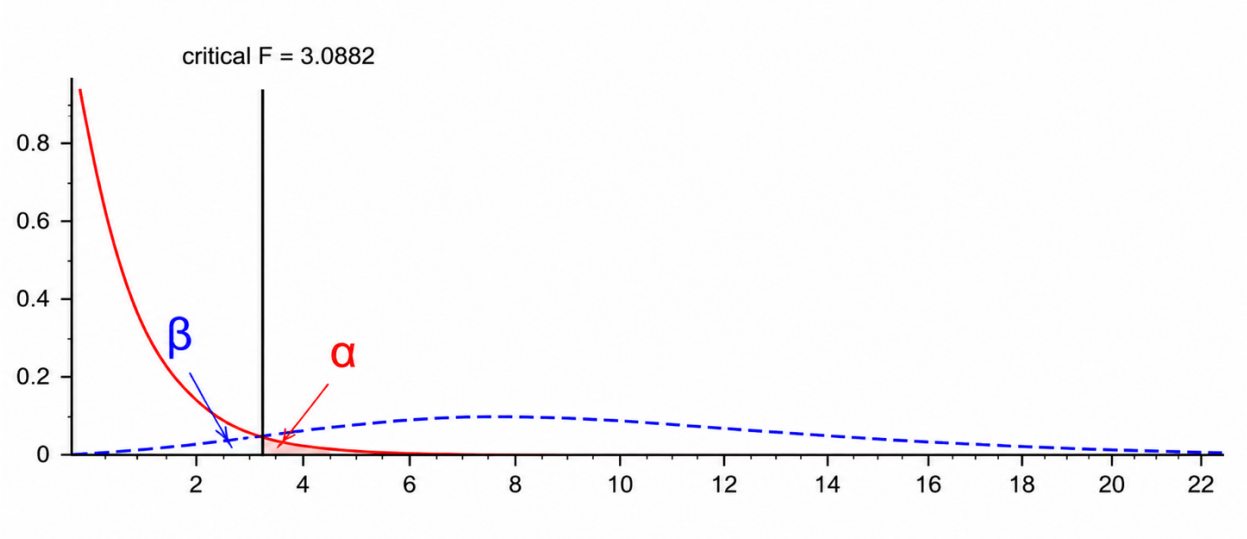
Post-hoc power analysis for the correlation analysis (N = 102, α = .05, r = .30).



The analysis applied a two-tailed bivariate correlation model with a medium expected effect size (r = .30), a significance level of α = .05, and a total sample size of 102 participants. A medium effect size was selected based on Cohen's conventional recommendations for behavioral and social science research. The analysis produced a statistical power value of 1 − β = .87, exceeding the commonly recommended minimum threshold of .80. These results indicate that the sample size was sufficient for detecting medium-sized correlation effects within the quantitative stage of the study.

Figure 4

Post-hoc power analysis for the multiple regression model (N = 102, α = .05, f^2 = .15, two predictors).



To evaluate whether the sample size was sufficient for the regression analyses, a post hoc power analysis was conducted using G*Power 3.1. The analysis was based on a multiple regression model with two predictors, an assumed medium effect size ($f^2 = .15$), and a significance level of $\alpha = .05$. With a total sample size of 102 participants, the achieved statistical power was .94. This value exceeds the commonly recommended threshold of .80, indicating that the sample provided adequate power to detect medium-sized effects in the regression models. Consequently, the non-significant findings observed in several regression analyses are unlikely to be attributable to insufficient statistical power.

The a priori power analyses indicated that the achieved sample size was sufficient to detect small-to-moderate effects in both correlation and multiple regression analyses, supporting the statistical adequacy of the study design.

1.3. Reliability analysis

Prior to the main analysis, internal consistency was assessed for all three custom scales using Cronbach's alpha.

Table 2

Reliability Statistics for the Accountability Scale

Scale	Cronbach's α
Accountability Scale	.669

Note. The scale included the following items*: I feel personally accountable for the results of my team's work, In my team, it is clear who is responsible for what, and When a mistake happens in the project, I usually feel it is my personal responsibility.*

The perceived accountability scale yielded $\alpha = 0.669$. This value falls marginally below the conventional threshold of 0.70 but is considered acceptable for a three-item scale in exploratory research. The scale mean was retained for use in subsequent analyses.

Table 3

Internal Consistency Reliability of the Social Loafing Scale

Scale	Cronbach's α
Social Loafing Scale	.375

Note. The scale included the following items: *In my team, some members tend to put in less effort than others; I sometimes reduce my effort when I know the team will still complete the task; In group tasks, I often feel that my individual contribution is not noticeable.*

The social loafing scale produced α = 0.375 across all three items, indicating poor internal consistency. Inspection of item content revealed a likely source of this problem: the first item ("In my team, some members tend to put in less effort than others") assesses the perceived behaviour of other team members, whereas the remaining two items assess the respondent's own behaviour and subjective experience. These tap conceptually distinct phenomena and cannot be treated as indicators of a single construct.

Table 4

Internal Consistency Reliability of the Reduced Social Loafing Scale

Scale	Cronbach's α
Reduced Social Loafing Scale	.110

Note. The scale included the following items: *I sometimes reduce my effort when I know the team will still complete the task and In group tasks, I often feel that my individual contribution is not noticeable.*

Removing the first item (In my team, some members tend to put in less effort than others) — as this one measures others efforts rather than the respondent's — and may be not influenced by respondents themselves. The remaining two produced α = 0.110, confirming that no reliable composite can be formed from any combination of these items.

The three social loafing items were therefore treated as separate indicators, and the social loafing mean was excluded from regression analysis. This finding is discussed further in the limitations section.

Table 5

Internal Consistency Reliability of the Team Outcomes Scale

Scale	Cronbach's α
Team Outcomes Scale	.883

Note. The scale included the following items: *Overall, how would you rate the efficiency of your current or most recent cross-functional project team; How often does your current or most recent cross-functional project team meet deadlines"; and How satisfied are you with the quality of work produced by your current or most recent cross-functional project team.*

The team outcomes scale demonstrated strong internal consistency (α = 0.883), and the scale mean was retained for all subsequent analyses.

1.4. Correlation analysis

Pearson correlations were computed among responsibility distribution, perceived accountability, NASA-TLX weighted score, team outcomes mean, and the two retained social loafing items.

Table 6
Correlations Among Responsibility Distribution, Accountability, Cognitive Load, and Team Outcomes

Variable	1	2	3	4
1. Responsibility Distribution	—			
2. Accountability	.156	—		
3. Cognitive Load (NASA-TLX)	.073	.182	—	
4. Team Outcomes	.216*	.407***	-.054	—

Note. N = 102. Values represent Pearson correlation coefficients (*r*). Cognitive Load was measured using the weighted NASA-TLX score. $p < .05$*, $p < .01$**, $p < .001$***.

Two statistically significant correlations were identified. Responsibility distribution was positively associated with team outcomes mean (r = 0.216, p = .029), indicating that more individually oriented responsibility structures were weakly associated with higher self-reported team efficiency. Perceived accountability showed a moderate positive correlation with team outcomes mean (r = 0.407, p < .001), suggesting that higher felt accountability was consistently associated with better team outcomes. No other correlations reached statistical significance. Notably, responsibility distribution showed no significant association with NASA-TLX weighted score (r =

0.073, p = .466), and neither social loafing item correlated significantly with any other construct.

1.5. Regression analysis

Four linear regression models were estimated to examine the predictive relationships among the primary constructs.

Table 7

Linear Regression Analysis Predicting Cognitive Load From Responsibility Distribution

Predictor	B	SE	t	p
Intercept	6.855	0.348	19.694	< .001
Responsibility Distribution	0.041	0.056	0.732	.466

Note. Dependent variable: Cognitive Load (NASA-TLX weighted score). N = 102. Model fit: $R = .073$, $R^2 = .005$.

A simple regression with NASA-TLX weighted score as the outcome and responsibility distribution as the sole predictor yielded $R^2 = 0.005$, with the predictor failing to reach statistical significance ($\beta = 0.041$, $p = .466$). Responsibility distribution explains less than 1% of the variance in cognitive load. This finding indicates that the degree to which responsibility is individually or collectively distributed does not predict the level of subjective cognitive load experienced by team members in this sample.

Table 8

Linear Regression Analysis Predicting Team Outcomes From Responsibility Distribution

Predictor	B	SE	t	p
Intercept	6.607	0.439	15.040	< .001
Responsibility Distribution	0.157	0.071	2.210	.029

Note. Dependent variable: Team Outcomes. N = 102. Model fit: $R = .216$, $R^2 = .047$.

A simple regression with team outcomes mean as the outcome produced R^2 = 0.047 and a statistically significant effect for responsibility distribution (β = 0.157, p = .029). More individually oriented responsibility distribution was associated with higher team outcome ratings, though the effect is small, accounting for approximately 5% of the variance.

Table 9

Multiple Regression Analysis Predicting Cognitive Load From Responsibility Distribution and Accountability

Predictor	B	SE	t	p
Intercept	6.014	0.591	10.168	< .001
Accountability	0.124	0.071	1.748	.083
Responsibility Distribution	0.026	0.057	0.458	.648

Note. Dependent variable: Cognitive Load (NASA-TLX weighted score). N = 102. Model fit: R = .187, R^2 = .035.

Adding perceived accountability as a second predictor did not improve model fit meaningfully (R^2 = 0.035). Neither responsibility distribution (β = 0.026, p = .648) nor perceived accountability (β = 0.124, p = .083) reached statistical significance. The model fails to predict cognitive load, confirming that the constructs measured in the quantitative stage do not account for variance in NASA-TLX scores within this sample.

Table 10

Multiple Regression Analysis Predicting Team Outcomes From Responsibility Distribution and Accountability

Predictor	B	SE	t	p
Intercept	4.232	0.699	6.060	< .001
Accountability	0.352	0.084	4.180	< .001
Responsibility Distribution	0.114	0.067	1.710	.091

Note. Dependent variable: Team Outcomes. N = 102. Model fit: R = .436, R^2 = .190.

The addition of perceived accountability substantially improved model fit (R^2 = 0.190). Perceived accountability emerged as a strong and significant predictor (β = 0.352, p < .001), while responsibility distribution no longer reached the conventional significance threshold (β = 0.114, p = .091). Together, these two constructs explain 19% of the variance in team outcomes. The attenuation of the responsibility distribution

effect when accountability is controlled suggests that part of the association between responsibility distribution and team outcomes observed in Model 2 may operate through felt accountability — that is, the way responsibility is distributed may matter for team outcomes partly because of how it shapes individual members' sense of personal answerability. However, this pattern was not confirmed by a direct test of the relationship between responsibility distribution and accountability, which yielded a non-significant result (β = 0.124, p = .118).

Table 11

Linear Regression Analysis Predicting Accountability From Responsibility Distribution

Predictor	B	SE	t	p
Intercept	6.756	0.484	13.950	< .001
Responsibility Distribution	0.124	0.079	1.580	.118

Note. Dependent variable: Accountability. N = 102. Model fit: $R = .156$, $R^2 = .024$.

A final regression was estimated to test whether responsibility distribution predicts felt accountability. The model produced $R^2 = 0.024$ and a non-significant effect (β = 0.124, p = .118), indicating that the way responsibility is distributed does not reliably predict how accountable individual team members feel.

1.6. Summary of quantitative findings

The quantitative stage produced a differentiated pattern of results. The null hypothesis H0 cannot be fully rejected, nor can H1 be fully confirmed. Responsibility distribution showed a statistically significant but weak association with team outcomes ($R^2 = 0.047$, p = .029), providing partial support for H1. No significant relationship was found between responsibility distribution and cognitive load in any model tested, which represents the central non-confirmation of the hypothesis. Perceived accountability emerged as the strongest predictor of team outcomes in the study (β = 0.352, p < .001), operating independently of responsibility distribution. The social loafing scale did not function as a reliable composite measure and its items showed no significant associations with other constructs.

These findings suggest that the relationship between responsibility distribution and team functioning is more complex than the direct linear model proposed in H1.

The absence of a significant effect on cognitive load is particularly notable and warrants further investigation. The qualitative stage of the study was designed precisely to explore the social-psychological mechanisms that may explain why the hypothesised relationships did or did not emerge — and to identify factors that the quantitative instruments may not have captured.

2. Qualitative Findings

The qualitative stage was conducted to explain and deepen the patterns identified in the quantitative results. Nine semi-structured interviews were carried out with professionals holding diverse roles in cross-functional collaborative structures, with experience ranging from one to over twenty years.

Table 12

Summary *of Qualitative Themes*

Theme	Description	Key Codes	Participants
Responsibility distribution and role clarity	Absence of explicit role boundaries and misalignment between formal and actual responsibility as primary sources of dysfunction and cognitive overload	Role ambiguity causing rework or gaps; mismatch between assigned and carried responsibility; explicit accountability mapping; collective responsibility without explicit structure leads to diffusion	9/9
Cognitive load in cross-functional work	Shift in cognitive load source from task execution to system coordination; invisible labour as the highest-cost and least-recognised form of work	Shift in cognitive load source — from task to coordination; invisible labour as hidden individual cost; context switching cost; team effectiveness masking individual cognitive cost	9/9
Felt accountability and its psychological consequences	Felt accountability as a psychological state distinct from workload; mechanisms of over-commitment, upward offloading, and residual culture effects	Felt accountability amplifying subjective cognitive load beyond task volume; responsibility offloading upward; prior punitive experience shaping accountability avoidance; manager absorbing accountability under ambiguity	9/9
Leadership, trust, and team climate	Trust as the foundational condition for effective team functioning; leadership tone, reciprocal accountability, and toxicity as determinants of team climate	Trust as foundational condition for team functioning; leader tone as determinant of team climate; reciprocal accountability — leader modelling expected behaviour; indifference and toxicity as threats to team functioning	9/9

Motivation, recognition, and engagement	Visibility of individual contribution as a prerequisite for engagement; genuine delegation and recognition as mechanisms sustaining motivation	Perceived contribution as prerequisite for engagement; delegation as motivational mechanism; recognition as motivational tool; collaborative workload renegotiation	8/9

Thematic analysis of the interview data yielded five themes: responsibility distribution and role clarity; cognitive load in cross-functional work; felt accountability and its psychological consequences; leadership, trust, and team climate; and motivation, recognition, and engagement. Table 12 presents the themes identified through thematic analysis and the frequency of their appearance across interviews. Each theme is presented below with illustrative extracts from the interview data. Participant identifiers (P1–P9) are used throughout to preserve anonymity. The complete coding table, including all codes and supporting extracts, is provided in Annex C.

2.1. Responsibility distribution and role clarity

Across all nine interviews, participants consistently identified the absence of explicit role boundaries and clearly communicated accountability structures as a primary source of dysfunction in cross-functional teams. When responsibility was not formally discussed and documented, it tended either to diffuse across the team without anyone taking genuine ownership, or to concentrate invisibly on individuals who were never formally assigned it.

Several participants drew a distinction between responsibility that exists on paper and responsibility that is carried in practice. One participant described the gap between these two as a recurring feature of cross-functional work: when formal and real accountability do not align, the resulting ambiguity increases rather than reduces cognitive load, because team members must continuously monitor what is and is not their domain (P1). This observation points to a structural tension that is specific to cross-functional settings, where role boundaries are inherently more porous than in functionally siloed teams.

The consequences of unclear responsibility distribution were described in concrete terms. Participants reported that ambiguity led to task duplication, gaps in execution, and unresolved conflicts about who had failed when something went wrong. One participant noted that in the absence of a retrospective mechanism, accountability conflicts within the team remained unaddressed indefinitely, with each side continuing

to attribute the failure to the other (P3). Another described how certain functions operated as isolated units with no lateral communication, their only point of contact with the rest of the organisation being the head of the function — a structural arrangement that limited the team's collective awareness and problem-solving capacity (P6).

By contrast, participants who had worked in teams with explicitly negotiated accountability structures described markedly different experiences. Proactively mapping formal and real responsibility for each team member, discussing it with the team, and recording it in shared documents was identified as a practice that reduced ambiguity and, with it, cognitive overload (P1). Similarly, establishing clear agreements at the outset of a project about ways of working, escalation paths, and decision-making authority was described as a mechanism that prevented conflicts before they arose (P2, P7). The clarity of who holds the final decision on any given matter emerged as a recurring prerequisite for effective team functioning, particularly in contexts involving multiple functions and competing priorities.

2.2. Cognitive load in cross-functional work

A second theme that emerged consistently across the interviews concerned the qualitative nature of cognitive load in cross-functional settings. Participants described a shift that occurs when moving from mono-functional to cross-functional work: the primary source of mental effort moves away from executing tasks and towards managing the system within which tasks are executed. As one participant put it, the difficulty no longer lay in the work itself but in the need to continuously hold the entire structure in mind — tracking who is doing what, where delays might occur, and who has or has not yet synchronised with whom (P1).

This shift was described as a fundamentally different cognitive mode rather than simply a greater quantity of work. Participants spoke of the need to maintain awareness of multiple interdependent workstreams simultaneously, to switch between different types of thinking within the same working day, and to remain available and responsive across a range of functions whose outputs were linked. One participant, drawing on a background in cognitive science, described the practice of deliberately separating different modes of thinking across the working week — reserving specific days for analytical work, writing, coordination, and creative tasks — as a strategy that significantly reduced the burden on working memory (P1). The fact that this level of

intentional self-management was necessary at all speaks to the cognitive demands that cross-functional coordination places on individuals.

Several participants highlighted the role of invisible labour as a particular feature of cross-functional cognitive load. Work that holds the system together — anticipating gaps, absorbing ambiguity, managing informal coordination — is frequently unrecognised by other parts of the team, yet it is precisely this work that carries the highest individual cognitive cost (P1, P4, P9). One participant observed that a team can appear externally effective while individual members are carrying a disproportionate and invisible cognitive burden, a dynamic that remains unaddressed because its cost is never made visible (P1).

The position of project lead was identified as particularly exposed to this form of load. Participants in coordinating roles described functioning as an integrative hub through which all functional threads passed, requiring sustained concentration across a large number of parallel directions (P2). The cognitive cost of this role was distinguished from physical fatigue: while the body recovers from physical exertion through sleep, recovery from sustained mental coordination load was described as considerably slower and less predictable (P2). Participants also noted that cross-functional work involving multiple unrelated projects compounds this effect, as each new project domain requires rebuilding contextual knowledge from scratch rather than drawing on accumulated expertise (P5).

Some participants identified structural supports that reduced cognitive load in cross-functional settings. Working in close alignment with an authoritative supervisor — someone whose judgment could be consulted quickly and whose institutional standing could be leveraged when needed — was described as a significant source of cognitive relief, particularly when navigating complex multi-stakeholder environments (P5). Shared authority of this kind reduced the individual burden of decision-making without removing personal accountability for execution.

2.3. Felt accountability and its psychological consequences

The third theme concerns the subjective experience of accountability — how individuals feel responsible, independently of what has been formally assigned to them. Across the interviews, participants consistently described a gap between the volume of tasks they were formally responsible for and the psychological weight of responsibility they actually experienced. This gap was identified as an independent source of

cognitive load that operates alongside, and sometimes in excess of, the demands of the work itself.

Several participants drew an explicit distinction between workload and felt accountability. One participant articulated this distinction clearly: workload is a quantitative category describing how many tasks must be completed in a given time, while accountability is about whether a person understands the purpose of their work, feels that it matters, and experiences a stake in its outcome (P8). This distinction has direct implications for cognitive load: a person carrying a heavy workload but low felt accountability may be mentally less burdened than a person with fewer tasks but a strong sense of personal responsibility for the result.

The subjective amplification of responsibility was described as a personality-related disposition that interacts with organisational conditions. Participants who identified themselves as highly conscientious described experiencing stress that was disproportionate to the actual complexity of their tasks, driven not by the tasks themselves but by a persistent sense of responsibility for outcomes that extended beyond their formal role (P3, P6). This dynamic was particularly visible in situations where relational capital was insufficient — where a person lacked the established working relationships that would ordinarily facilitate task execution, the cognitive cost of completing even routine tasks increased substantially because every interaction required additional effort to build trust or navigate uncertainty (P3).

The tendency to absorb responsibility that formally belongs to others was identified as a recurring pattern, particularly among participants in coordinating roles. When something went wrong, project managers and account managers consistently described taking the blame regardless of where the failure had originated, partly because they viewed this as appropriate to their role and partly because the alternative — publicly attributing responsibility to a specific team member — felt socially costly (P2, P4, P8). One participant described this dynamic as structurally inevitable: when outcomes are shared but accountability is diffuse, the person who organises the process becomes the default bearer of responsibility for its failures (P8).

Two less visible mechanisms of accountability avoidance also emerged from the data. The first was responsibility offloading upward: participants described a pattern, common in teams without strong autonomy norms, where individuals sought managerial approval for minor decisions as a way of reducing their own felt accountability. One participant reflected that he had engaged in this behaviour himself before understanding, from the other side of the managerial relationship, that it transferred cognitive load onto the manager without reducing it in the system as a

whole (P9). The second mechanism was shaped by prior experience: participants who had worked in punitive organisational cultures described a residual reluctance to act without explicit authorisation, even in environments where autonomous decision-making was actively encouraged (P9). This suggests that felt accountability is not only a function of current organisational conditions but also of accumulated workplace experience.

2.4. Leadership, trust, and team climate

The fourth theme addresses the social and relational conditions at the team level that determine whether formally distributed responsibility functions in practice. Participants across all interviews identified trust as the foundational condition without which structural clarity alone is insufficient. As one participant stated directly, trust was the first word that came to mind when asked what makes a team function — when trust is absent, people do not know what to do, they question decisions, and the resulting uncertainty compounds both workload and felt accountability (P8).

Trust in this context was described in two related but distinct senses. The first was interpersonal trust between team members — confidence that colleagues are competent, that they will follow through on commitments, and that their intentions are aligned with the team's goals. The second was trust in the leader's judgment and decision-making. Several participants noted that when they had confidence in their supervisor's authority and expertise, they experienced significantly less cognitive load, because the burden of navigating difficult or ambiguous situations could be shared rather than carried alone (P5, P7).

The leader's behaviour was consistently identified as the primary determinant of team climate. Participants described how the tone set by the person at the top of the project structure propagates through the team: a leader who models transparency, reciprocity, and collaborative problem-solving creates conditions in which team members feel safe to raise concerns, renegotiate workload, and acknowledge difficulty (P2). Reciprocal accountability — the expectation that the leader will hold themselves to the same standards they set for the team — was described as particularly important. One participant noted that if a leader asks team members to work outside normal hours but does not do so themselves, the resulting perception of unfairness damages team relationships in ways that are difficult to repair (P2).

The distinction between formal authority and informal authority emerged as a recurring theme in participants' accounts of leadership effectiveness. Participants

observed that some leaders command genuine followership while others, despite holding equivalent formal positions, do not — and that this difference is not reducible to technical competence or seniority. Informal authority was described as built through consistent behaviour, warmth, and demonstrated care for team members, rather than through positional power (P2). Soft skills — the capacity to communicate clearly, manage relationships, and respond to the emotional dynamics of the team — were identified as prerequisites for effective team functioning that are no less important than technical expertise (P2, P3).

Toxicity was identified as a structural threat to team functioning that operates independently of the formal accountability system. A single team member whose behaviour is consistently negative or disengaged was described as capable of destabilising the dynamics of an entire team, regardless of how clearly roles and responsibilities have been defined (P3, P4, P7). Several participants noted that addressing this threat requires active intervention rather than passive tolerance, and that the longer it goes unaddressed the more difficult it becomes to correct.

Shared high-stakes accountability — situations in which all team members understand that they are collectively responsible for an outcome that matters — was identified as a powerful cohesive force. One participant described a project operating under extreme time pressure and high external scrutiny in which the team maintained positive dynamics throughout precisely because everyone understood the weight of what they were doing together (P3). This suggests that the relationship between accountability and team climate is not uniformly negative: when accountability is genuinely shared and the stakes are understood, it can function as a source of solidarity rather than stress.

2.5. Motivation, recognition, and engagement

The fifth theme addresses the conditions under which team members voluntarily take on responsibility and remain engaged in their work. Participants consistently described a connection between the visibility of their individual contribution and their willingness to invest effort beyond what was formally required. When the link between a person's specific work and the team's outcome was clear and acknowledged, engagement followed naturally. When this link was obscured — either by the diffuse nature of collective work or by the absence of recognition — motivation declined and responsibility was more likely to be avoided or minimised.

The sense of personal contribution was identified as a prerequisite for engagement rather than a byproduct of it. Several participants described actively seeking to demarcate their own portion of shared work — not out of reluctance to collaborate, but because having a clearly identifiable piece of the outcome made it possible to feel genuinely responsible for something and to experience the result as one's own (P6). One participant described leaving a position in a large organisation precisely because the work felt too diffuse to generate this sense of ownership, and moving to a role that offered broader scope and more visible impact (P4).

Recognition was described not merely as a motivational tool but as an informational signal — evidence that a person's work has been seen and that it matters. Participants noted that the absence of recognition, even for small contributions, accumulates over time into a sense of invisibility that erodes engagement (P2, P9). One participant described a recurring situation in which team members whose work was integral to a project outcome were consistently omitted from acknowledgment, and observed that this omission, however unintentional, had a measurable effect on their investment in subsequent work (P9). The implication is that recognition functions less as a reward and more as a form of accountability confirmation — it closes the loop between effort and outcome in a way that sustains motivation.

The clarity of project goals emerged as a structural prerequisite for engagement. Participants described projects in which the absence of clearly articulated expectations led to work being done without any clear sense of what success would look like, resulting in effort that felt purposeless and outcomes that satisfied no one (P3). Conversely, projects with well-defined goals and understood stakes were described as generating higher engagement and greater willingness to absorb difficulty. One participant noted that people are considerably more willing to work hard and take on responsibility when they understand why the work matters and what it is building towards (P5).

Delegation was described as a motivational mechanism in addition to an operational one. When a leader delegates not merely tasks but genuine responsibility for a domain — communicating trust in the person's judgment and expertise — team members reported feeling more valued and more invested in the outcome (P2). This stands in contrast to delegation as task assignment, which distributes work without transferring ownership. The distinction matters for cognitive load as well as motivation: genuine delegation reduces the leader's coordination burden while increasing the team member's sense of agency. Autonomy and accountability, in this

account, are not in tension but mutually reinforcing — giving people real responsibility for a direction tends to generate both higher engagement and more creative output (P2).

Finally, participants identified collaborative workload renegotiation — the practice of revisiting how tasks are distributed when circumstances change — as a condition for sustained engagement. Teams that had established norms of openly discussing overload and collectively adjusting responsibilities were described as better able to maintain both performance and cohesion under pressure (P2). The absence of such norms, by contrast, led to silent accumulation of burden, eventual disengagement, and in some cases departure.

3. Limitations

Many limitations of this research should be noted while interpreting the results. They relate to the quantitative phase, the qualitative phase, and the integrated design. A total of 102 respondents were included to support the regression models but they still have limited statistical capability to detect small effects. The results are therefore to be read with caution as regards the weak associations and should be replicated on larger samples before broad generalisations are reached.

The qualitative sample consisted of nine participants, suitable for some exploratory thematic analysis but narrowing down to only certain experiences or attitudes.

Moreover, all quantitative data were acquired using self-report methods, which are influenced by response bias, social desirability impacts, and retrospective distortion. Participants' ratings of their cognitive load, accountability and team results are subjective assessments rather than measures of objective performance. The social loafing scale did not show sufficient internal consistency ($\alpha = .375$), which excluded its inclusion in the regression analyses. This is a measurement deficiency in the quantitative phase: the construct cannot be evaluated in relation to other variables, although it has conceptual significance. Despite retaining the scale, the perceived accountability scale is also below the conventional norm of good reliability ($\alpha = .669$) and it is of this construct that we should interpret the findings.

The qualitative analyses were performed by a single researcher, without independent co-coding or member checking. Although careful attention was paid throughout coding to discern true patterns from those that were induced, without inter-rater verification the analytical decisions used during coding and theme development cannot be independently validated. This is a common disadvantage of single researcher qualitative research and is important to consider when evaluating the rigour of the results. Lastly, the explanatory sequential structure of the present study places the qualitative phase as explanatory in relation to the quantitative findings. This sequencing is theoretically fruitful but also limiting: the qualitative analysis was guided by what emerged from the survey data, which may have diverted attention from certain dimensions of participants' experience that lie beyond a quantitative framework. Some of the emergent qualitative findings — invisible labour, responsibility offloading, past experience of punishment — indicate that the phenomenon is richer than the quantitative instruments were designed to capture, and that a more open-ended qualitative design might have revealed additional dimensions.

Finally, based on the integration of findings from the quantitative survey, qualitative interviews, and the subsequent mixed-method interpretation, two conceptual models were developed: the Explanatory Model and the Prescriptive Model. These models, presented in Section 5, *Conceptual Model of Balanced Responsibility Distribution*, represent an attempt to synthesize the empirical findings into coherent frameworks describing the dynamics of responsibility distribution in cross-functional teams and potential managerial implications. Preliminary statistical testing of selected relationships reflected in these models was conducted using the quantitative dataset. While several findings provided partial support for the proposed mechanisms, the overall pattern of results was modest and did not allow for comprehensive empirical validation of the models. They should therefore be regarded as preliminary conceptual frameworks rather than definitive representations of the phenomenon. Future research is needed to test, refine, and extend these models across different organizational contexts, team structures, and samples in order to evaluate their robustness, generalizability, and practical applicability.

4. Integration of Quantitative and Qualitative Findings

4.1. Responsibility distribution and cognitive load.

Quantitative stage. No statistical correlation was observed ($R^2 = 0.005$, $p = .466$). Whether responsibility was shared individually or collectively did not predict the amount of subjective cognitive load of the team.

Qualitative stage. Participants reported part of a process that the survey instrument did not identify. Cognitive load in cross-functional teams did not depend on how much responsibility someone held, but how clearly that responsibility was defined. When formal and actual accountability were in conflict, cognitive load rose — by forcing team members to actively monitor what was and wasn't in their domain. It is role clarity, rather than distribution per se, that was the operative variable.

Integration. The qualitative stage shifts the focus from the quantitative no (non-find): the instrument measured the individual-to-collective distribution of responsibility, not its clarity. These are different constructs. The lack of statistical effect is less a lack of relationship than a measurement gap.

4.2. Responsibility distribution and team outcomes

Quantitative Stage. There was a weak but statistically significant positive association ($\beta = 0.157$, $p = .029$). Individualized responsibility structures were also found to be associated with higher self-reported team outcomes.

Qualitative stage. Respondents identified as being the direction of this effect, but we supplemented this with critical conditions. Individual contribution visible was indicated to be a pre-requisite of engagement; in order for that contribution to be visible, team members had to know what they were part of. But too much individualisation without coordinating systems was said to be maladaptive in that it led to siloed work, communication failures and unresolved accountability issues.

Integration. Convergence with qualification. While the quantitative direction receives support, its position is articulated in the qualitative data as the circumstances under which it is maintained and when it contradicts.

4.3. Perceived accountability and team outcomes

Quantitative stage. Perceived accountability was the most powerful predictor of team outcomes in the study overall ($\beta = 0.352$, $p < .001$), accounting for how accountability was formally allocated independently.

Qualitative stage. Three qualitative themes directly connect to this finding and describe how it works. Theme 3 demonstrated felt accountability runs parallel to the formal assignment of role — participants in coordinating roles habitually took on responsibility that was formally held by others. Theme 4 made the point that without trust and good leadership accountability does not blossom or only becomes chronic stress rather than performance. Theme 5 found that true delegation — a delegation of real responsibility for a set of duties, not just a list of items — resulted in greater both felt accountability and output quality.

Integration. Good agreement with the mechanism's rationale. This is the most credible finding across the two rounds. The quantitative result drives the effect; the qualitative data tells you how and under what conditions it works.

4.4. Cognitive load: level and nature

Quantitative stage. A NASA-TLX weighted mean of 7.09 (SD = 1.35) indicates that the subjective cognitive load across the sample is consistently high suggesting how much more high the burden of cross-functional project work is, and the fact there are many people who must bear this burden.

Qualitative stage. Participants described the qualitative nature of this load. What created cognitive demand, was not the volume of tasks, but keeping the entire coordination system in mind — monitoring interdependencies, anticipating gaps, coordinating informal communication. Invisible labour — the work done to ensure the team structure is kept operational — has been recognised as having the highest individual cognitive cost, being unnoticed by others on the team. The project lead role was identified as particularly vulnerable, with transition across unrelated projects being found to exacerbate cognitive needs over the working day.

Integration. Extension. The quantitative stage established that cognitive load is high; the qualitative stage explained that they know it is — and show that its sources are structural and relational at work not just task-volume.

4.5. Social-psychological factors

Quantitative stage. The social-psychological determinants based in terms of the theoretical framework were not directly measured in a survey instrument and are not present in the quantitative results.

Qualitative stage. Active mechanisms of trust, leadership, recognition and psychological safety emerged in all nine interviews. Trust, as described, is the basic

condition without which structural clarity alone is not enough. It was found that leadership behaviour was the ultimate driving force in team climate and to what degree accountability could be shared rather than solely on the individual level. Recognition worked not just as a motivator, but as an informational signal that a person's contribution was seen and mattered. Participants did not explicitly name psychological safety, but it was present underlying this latent theme that was often seen as part of descriptions of teams where members felt safe to renegotiate load and bring up doubts without fear.

Integration. Qualitative-dominant. This was evident from their qualitative stage: It explains and explains why there was some variation in work on the aspect of the task performance which went unnoticed in qualitative studies by the quantitative survey instruments in the team setting.

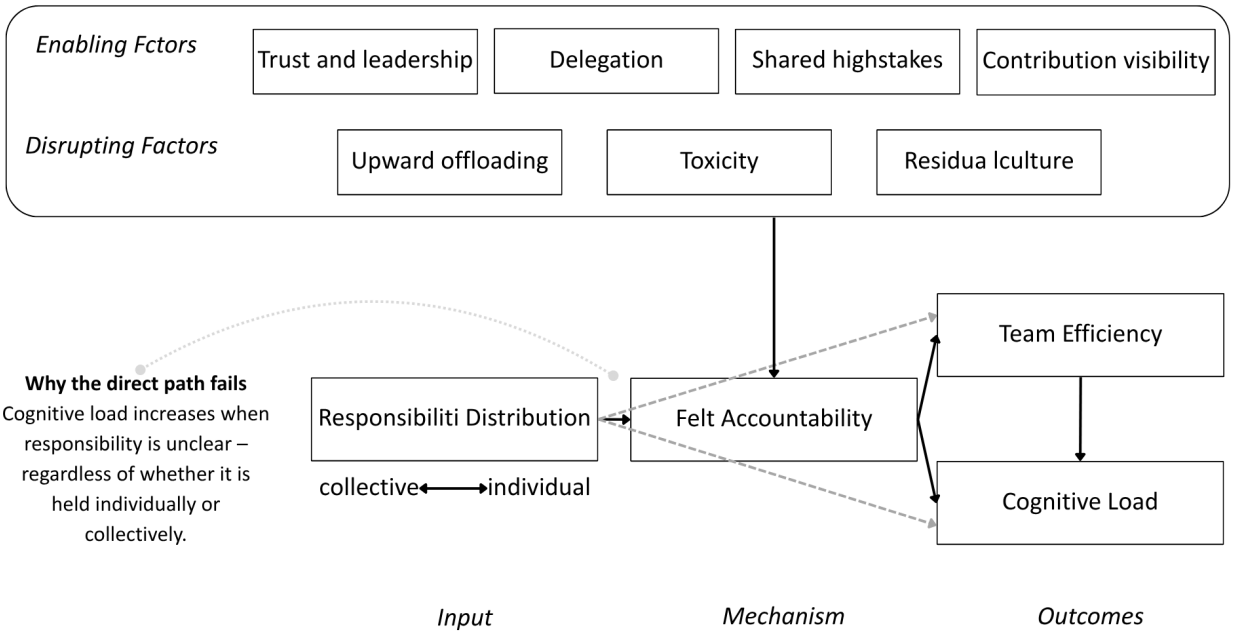
5. Conceptual Model of Balanced Responsibility Distribution

For this study, the third task called for the creation of a conceptual model which delineates the optimal balance of responsibility allocation aimed at increasing team productivity while minimizing cognitive overload. Yet, the empirical findings revealed a more nuanced and multifaceted picture than the theory would have predicted. The quantitative phase demonstrated that responsibility allocation is no direct predictor of cognitive load, whereas the qualitative phase revealed the social-psychological mechanisms responsible for the failure to attain this finding, as well as the contexts under which responsibility allocation acts as a moderator of team functioning. Explanatory model

The model displayed in Figure 5 maps the pathway from responsibility distribution to team outcomes through felt accountability as the central mechanism.

Figure 5

Explanatory model of responsibility distribution and cognitive load in cross-functional collaborative structures.



Responsibility distribution — conceptualized along a continuum from fully individual to fully collective — is the input variable. The quantitative phase found a weak but significant association between more individually oriented structures and team outcomes ($\beta = 0.157$, $p = .029$). No direct relationship was found between

responsibility distribution and cognitive load ($R^2 = 0.005$, $p = .466$). This null finding reflects a measurement gap rather than an absence of relationship. Qualitative participants described cognitive load as driven not by distribution type but by role clarity. When formal and actual responsibility aligned, cognitive load decreased. When they diverged, it increased. The survey captured distribution type but not clarity — two distinct constructs.

Felt accountability emerged as the strongest predictor of team outcomes across all models ($\beta = 0.352$, $p < .001$), operating independently of formal role assignment. The qualitative phase established that it develops through social interaction, is shaped by leadership and delegation quality, and can be amplified or eroded by relational conditions within the team.

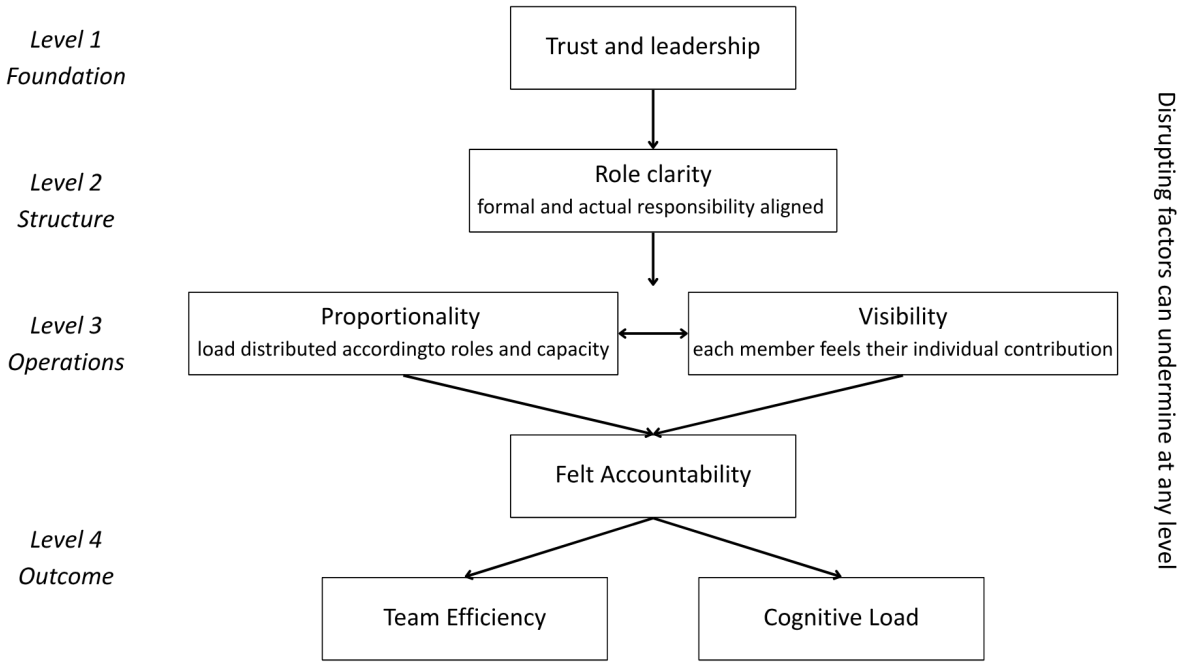
Four enabling conditions support its development. Three disrupting conditions undermine felt accountability regardless of structural clarity.

5.1. Prescriptive model

The prescriptive model shown in Figure 6 specifies the optimal conditions for distributing responsibility among cross-functional project teams. The conditions are hierarchically arranged by four levels. The base is built on trust and leadership climate. Across all nine interviews, participants characterized trust as the condition where structural clarity alone has no significant impact.

Figure 6

Prescriptive model of optimal responsibility distribution in cross-functional collaborative structures.



A leader who demonstrates transparency and reciprocal accountability creates the psychological space in which the conditions at the higher levels can exist. The second level is role clarity, which is not equivalent to responsibility distribution as measured in the quantitative phase. Participants consistently said the gap between formal and actual responsibility — not distribution type — was the biggest cause of cognitive overload. When these two diverge, team members expend considerable cognitive resources to track what lies beyond their scope.

The third level comprises two interconnected operational conditions. Proportionality is when the burden of work is allocated according to the members' roles and abilities. Visibility refers to each member's ability to identify their specific

contribution to the collective outcome. Visibility was defined among participants not as a motivational reward but more as an informational signal that the work was seen and its contribution mattered. When the first three levels operate, accountability without overload becomes an attribute of the team rather than a burden that is only on one individual. This parallels the quantitative observation that perceived accountability represents the strongest predictor of team efficiency in this study ($\beta = 0.352$, $p < .001$).

Three disruptive conditions can harm the model on any level. Upward offloading causes cognitive load on those in leadership but without decreasing it within the hierarchy. Even one individual's toxicity is destabilizing to team dynamics, no matter how clear the structures are. Residual culture effects generate sustained resistance to work independently even when context itself promotes acting autonomously.

6. Discussion

Specifically, the core research question was to determine the mediating role played by social-psychological variables on the relationship between responsibility distribution and cognitive load within cross-functional collaborative project teams. The results gave one specific answer.

The relationship between responsibility distribution and team outcomes was weak, but significant ($\beta = 0.157$, $p = 0.029$) but no immediate relationship between it and cognitive load ($R^2 = 0.005$, $p = 0.466$). For all models, felt accountability represented the top predictor of team outcomes ($\beta = 0.352$, $p < .001$). The qualitative phase accounted for this by explaining the non-representative nature of the proposed direct path, the reasons why it didn't hold, and by investigating how the distribution of responsibility might influence team functioning in reality. The null for cognitive load is not the result of a lack of relationship, but rather a construct gap. Participants repeatedly agreed that cognitive load is the result of role clarity — the degree of alignment between theory and practice — rather than distribution type. erceived accountability emerged as a relevant psychological factor associated with team outcomes, but its mediating role was not statistically confirmed. Therefore, perceived accountability should be interpreted not as a confirmed mediator, but as an explanatory psychological factor that helps contextualize the relationship between responsibility distribution and team outcomes. The survey instrument captured the range of individual-to-collective, but not clarity.

Responsibility distribution and role clarity are separate constructs that need to be operationalised separately in future studies. Felt accountability was a central mechanism and corresponds with Hall et al.'s (2015) view of accountability as a psychological state rather than a structural phenomenon. The qualitative information extended this, revealing that felt accountability within cross-functional teams evolves by virtue of social interaction, delegation quality, and relational environment — not simply due to designation of formal roles. This is consistent with O'Connor (1997) and Stewart et al. (2023) who showed that accountability pressure has qualitatively different effects depending on a preference for individual versus collective responsibility and the process of shared accountability arises as a relational emergent state.

Trust and leadership climate functioned as the initial enabler, as per Dirks and Ferrin's (2001) moderation model; trust does not result in cooperation but rather sets the ground rules under which other conditions are made effective by success. Equally

relevant in this same register was Edmondson's (1999) theory of psychological safety — teams with high psychological safety negotiated openly to renegotiate workloads and recognized overload, whereas those without such knowledge accumulated burden but with silence.

The motivational dynamics generated by qualitative stages complicate predictions from social loafing research. When it is high stakes, fragmented accountability changed for collective solidarity instead of motivational cost-perpetuation as hypothesized by Williams and Karau (1991), leading to what is known as social compensation effect.

The theoretical framework also suggested three disruptive conditions: upward offloading redistributes cognitive load upwards without reordering mechanisms; toxicity destabilizes team dynamics outside of structural clarity. The residual culture effects suggest that an individual's organization history changes the way accountability is felt—a feature that was absent from the underlying theoretical framework outlined in Chapter 1 and one that should be critical for continued research.

7. Practical Implications

For organizations. Role clarity — the alignment between formal and actual responsibility — should be treated as a design variable rather than an assumed outcome of project planning. Explicit mechanisms such as responsibility mapping and structured project kickoffs make accountability visible before conflict reveals its absence. The prescriptive model developed in this study offers a framework: trust and leadership climate must be established before role clarity can take hold, and role clarity must precede the operational conditions of proportionality and visibility.

For leaders and project managers. Genuine delegation — transferring real responsibility for a domain rather than assigning discrete tasks — generates felt accountability and ownership. Delegating tasks while retaining decision-making authority creates workload without motivation. Upward offloading should be read as a signal of insufficient psychological safety or unclear role boundaries, not individual initiative failure. Reciprocal accountability — holding oneself to the same standards set for the team — was consistently identified as the foundation of the trust that enables other conditions to function.

For organizational development. Residual culture effects suggest that individuals carry the psychological imprint of prior punitive environments into new contexts. Onboarding practices that explicitly name expectations around autonomous decision-making may reduce their persistence. Toxicity — even in a single team member — destabilizes dynamics regardless of structural clarity. Early intervention rather than passive tolerance was the consistent recommendation across participants.

For organizational psychologists and researchers. This study identifies role clarity as a construct distinct from responsibility distribution type, one that requires separate operationalization in future research. The null finding on the direct path between responsibility distribution and cognitive load reflects this measurement gap. Future work should develop validated measures of role clarity in cross-functional settings, distinguishing it from role ambiguity and accountability clarity. The relational developmental account of felt accountability supported here suggests that interventions should target the social conditions that generate accountability rather than the formal structures that assign it.

For those shaping workplace policy. Invisible labour — the cognitive work of holding coordination systems together — is disproportionately concentrated in coordinating roles and structurally invisible because it produces no discrete deliverable. Recognition and workload monitoring systems that make this work visible

address both a fairness deficit and a cognitive load risk. More broadly, cognitive overload in cross-functional organizations has structural causes. Addressing it requires structural and cultural intervention, not individual resilience training.

CHAPTER 4. CONCLUSIONS

This study examined the social-psychological factors that influence the relationship between responsibility distribution and cognitive load in cross-functional collaborative project teams, combining quantitative survey data from 102 participants with qualitative semi-structured interviews with nine professionals.

The first task required a theoretical investigation of the social-psychological and socio-cognitive determinants of responsibility allocation and cognitive load of project teams. The review resulted in seven factors arranged into three levels of analysis: felt accountability and perceived fairness at the level of individuals; trust and psychological safety at the level of interpersonal relationships; social influence processes, social identity, and social exchange dynamics at the level of groups. The analysis revealed individual motivation and effort are determined by structure-induced diffusion of responsibility, social loafing and free-rider and sucker effects, and reported felt accountability as the main psychological variable mediating the relationship between structural arrangements and individual behavior.

The second task involved investigating empirically the relationship among responsibility distribution, cognitive load, team efficiency. In the quantitative phase a weaker but statistically significant association between more responsibility structures that are individual oriented and higher team outcomes was found ($\beta = 0.157$, $p = .029$), but no direct association between responsibility distribution and cognitive load ($R^2 = 0.005$, $p = .466$). Felt accountability turned out to be the best predictor of team outcomes in all the examined models ($\beta = 0.352$, $p < .001$), function independently of formal attribution of responsibility. The qualitative step explained the null hypothesis: cognitive load results not from distribution type per se, as it is, but rather from role clarity - the extent to which formal responsibility matches what is socially responsible. We identified three other disruptive conditions that were not forecast in our model: upward offloading; toxicity and lingering culture effects.

The third task was to develop a conceptual model of ideal responsibility allocation. Two pairwise models were formulated. This explanatory model maps the trajectory from responsibility distribution to team effectiveness via felt accountability to the facilitator and the disruptor processes behind said process. The prescriptive model details the hierarchy conditions for the best balance: trust and leadership climate as baseline, role clarity as structural precondition, proportionality and contribution visibility as operational conditions, and accountability without overload as the team-level product. Collectively, the models demonstrate that the optimal distribution of

responsibility is not a set structural arrangement, but rather a dynamic state in the environment contingent upon relational, cultural, and leadership conditions; and that without these, formal design cannot be the ideal for responsibility allocation.

The study contributes to social and organizational psychology by defining role clarity as a construct rather than being dependent upon responsibility distribution type, by showing that felt accountability arises relationally rather than structurally, and by examining the social-psychological conditions that might underpin team performance when it comes to responsibility distribution. Future research should aim to create validated measures of role clarity, replicate the quantitative findings with larger and more diverse samples, and investigate the disrupting conditions found here across broader organizational and cultural contexts.

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Annex A

SURVEY. Responsibility Distribution and Cognitive Load in Cross-Functional Project Teams

Participant information sheet

Study Title: Responsibility Distribution and Cognitive Load in Cross-Functional Project Teams

Purpose of the study: the aim of this study is to explore how the distribution of responsibility (individual vs. shared) in cross-functional project teams is related to cognitive load and team outcomes, and to understand the underlying socio-psychological mechanisms.

What will I be asked to do?

You will be asked to complete an online questionnaire that includes questions about your experience in project teams, workload, responsibility distribution, and team outcomes. The survey consists of 7 sections and takes approximately 12–15 minutes.

Voluntary participation

Your participation is completely voluntary. You can refuse to participate or withdraw from the survey at any time without any negative consequences.

Confidentiality and data handling

Your responses to this survey are confidential but not fully anonymous. In order to conduct purposeful sampling for the follow-up in-depth interviews, the researcher needs to be able to link survey responses with contact information for selected participants.

If you agree to be considered for an interview, you will be asked to provide your email address at the end of the survey. Your email will be stored separately and used only to contact you if you are selected for an interview based on your survey responses.

All data will be stored securely and will be deleted after the study is completed (no later than five years). The survey results will form the core quantitative part of this master's thesis and may also be used in future academic publications and practical recommendations for organizations.

Risks and benefits

Risks: The survey involves minimal risk. You may experience slight discomfort when reflecting on your workload or team experiences.

Benefits: There are no direct personal benefits, but your participation will contribute to a better understanding of team dynamics in project work.

Right to withdraw

You may stop filling out the survey at any point. If you withdraw, your data will not be used.

Informed Consent

By clicking "Next" and proceeding with the survey, you confirm that:

- You have read and understood this information sheet.
- You voluntarily agree to participate in this survey.
- You are at least 18 years old.

Thank you for participating in this study! The survey consists of 7 sections (3 to 7 questions each) and will take approximately 12–15 minutes to complete.

Section 1: Demographic Information

1. What is your age?
   18–24 / 25–30 / 31–35 / 36–40 / 41 and above
2. What is your gender?
   Female / Male / Non-binary or Other / Prefer not to say
3. What is your highest level of education?
   Bachelor's degree / Master's degree / PhD or Doctoral degree / Other
4. How many years of professional work experience do you have?
   [Number input]
5. How long have you been working in project teams?
   Less than 1 year / 1–3 years / 4–6 years / 7 years or more
6. On average, how many people are in the cross-functional project teams you usually work in?
   3–5 people / 6–10 people / 11–15 people / More than 15 people
7. What is the main industry/sector of your current or most recent project?
   [Open text]

Section 2: Responsibility Distribution in Your Team

Please think about your most recent (the last 3-6 months) or typical cross-functional project team.

What is a cross-functional team?

A cross-functional team is a group of people with different professional backgrounds and expertise (for example, marketing, IT/development, finance, design, engineering, product management, sales, HR, operations, legal, research & development, quality assurance, and other functions) who work together on the same project or task. Score it on a 0–100 scale.

1. In your team, how is responsibility for project tasks and results usually distributed? (0 = Almost entirely on individual team members, 100 = Almost entirely shared among the team)

2. To what extent do you personally feel responsible for the overall success or failure of the project? (0 = Not at all responsible, 100 = Fully responsible)

3. In your team, who usually bears the main responsibility when something goes wrong?

Individual team members / The project manager / The whole team collectively / It depends on the situation

Section 3: NASA Task Load Index (NASA-TLX)

Instruction

Please rate the workload you typically experience while working in your cross-functional project team.

What is a cross-functional team?

A cross-functional team is a group of people with different professional backgrounds and expertise (for example, marketing, IT/development, finance, design, engineering, product management, sales, HR, operations, legal, research & development, quality assurance, and other functions) who work together on the same project or task.

Part 1: Rating Scales (0–100)

Score it on a 0–100 scale.

1. Mental Demand — How much mental and perceptual activity was required?

2. Physical Demand — How much physical activity was required?

3. Temporal Demand — How much time pressure did you feel?

4. Performance — How successful were you in accomplishing the goals of the task? [0 — Perfect to 100 — Failure]

5. Effort — How hard did you have to work (mentally and physically)?

6. Frustration Level — How irritated, stressed, and annoyed versus content and relaxed did you feel?

Part 2: Weighting (15 Paired Comparisons)

Now we would like you to compare the relative importance of each dimension to your overall workload experience.

You will see 15 pairs of dimensions. For each pair, please select which of the two dimensions contributed more to your workload in the cross-functional team. For

each pair below, choose the one dimension that was more important to your overall experience of workload.

1. Mental Demand or Physical Demand?
2. Mental Demand or Temporal Demand?
3. Mental Demand or Performance?
4. Mental Demand or Effort?
5. Mental Demand or Frustration?
6. Physical Demand or Temporal Demand?
7. Physical Demand or Performance?
8. Physical Demand or Effort?
9. Physical Demand or Frustration?
10. Temporal Demand or Performance?
11. Temporal Demand or Effort?
12. Temporal Demand or Frustration?
13. Performance or Effort?
14. Performance or Frustration?
15. Effort or Frustration?

Section 4: Perceived Accountability

Score it on a 0–100 scale.

1. I feel personally accountable for the results of my team's work.
2. In my team, it is clear who is responsible for what.
3. When a mistake happens in the project, I usually feel it is my personal responsibility.

Section 5: Social Loafing

Score it on a 0–100 scale.

1. In my team, some members tend to put in less effort than others.
2. I sometimes reduce my effort when I know the team will still complete the task.
3. In group tasks, I often feel that my individual contribution is not noticeable.

Section 6: Team Outcomes

Score it on a 0–100 scale.

1. Overall, how would you rate the efficiency of your team?
2. How often does your team meet deadlines?
3. How satisfied are you with the quality of work produced by your team?

Section 7: Invitation to Participate in Follow-up Interview

The quantitative part of this study will be followed by in-depth semi-structured interviews to better understand the experiences and mechanisms behind the survey results.

1. Would you be willing to participate in a follow-up interview (approximately 30–45 minutes, via Zoom)?

Yes, I am interested / No, thank you / Maybe

2. If you answered “Yes” or “Maybe”, please leave your email address so that the researcher can contact you with more information about it. Participation in the interview is completely voluntary. You can withdraw at any time. Your survey responses will remain anonymous even if you agree to the interview. If you prefer not to leave your email, you can skip this question.

Thank you very much for completing the survey!

Your responses are highly valuable for research on social-psychological aspects of project work.

Annex B

INTERVIEW. Guide In-depth Semi-structured Interview

Opening script

Thank you for agreeing to participate in this interview. The purpose of this conversation is to help me better understand your personal experiences in cross-functional project teams, especially regarding responsibility distribution and cognitive load. There are no right or wrong answers. During the interview, I will be audio-recording the conversation so that I can accurately capture your responses. The recording will be used only for analysis and will be deleted after the study is completed. During the interview you have the full right to:

- Stop the interview at any time,
- Skip any question you don't want to answer,
- Ask to pause or stop the recording,
- Request that the entire interview not be used in the research at all.

If at any point you feel uncomfortable or change your mind, just let me know and we can stop immediately.

Central question

1. Can you walk me through what it feels like to work in a cross-functional project team in terms of how responsibility is shared or carried individually?

Section 1. Main questions

1. How would you describe the way responsibility is typically distributed in your cross-functional project teams?
2. Thinking about the survey results regarding workload, can you tell me about situations when you felt mentally overloaded (or, on the contrary, that the workload felt manageable)?
3. How does the way responsibility is distributed in the team influence how mentally demanding the work feels for you?
4. From your experience, how do team members perceive personal accountability when responsibility is shared? Can you give examples of when this worked well or created problems?
5. How does the current distribution of responsibility affect the overall efficiency, quality of work, and atmosphere in the team? What would an ideal balance of responsibility look like for you in a cross-functional project team?

Section 2. Possible questions

1. Can you tell me more about that?
2. Can you give me a specific example from a recent project?
3. How did that make you feel?
4. Why do you think that happened?
5. What helped / made it more difficult?

Section 3. Closing questions

1. Is there anything else about responsibility, workload, or team dynamics that we haven't covered but you think is important?
2. Do you have any questions for me?

Closing script

Thank you very much for sharing your experiences. Your insights are extremely valuable for this research. At the end of the study, if you are interested, I can share the main results of the research with you. I already have your contact information, so I will be able to send you a summary when the study is completed. Do you have any questions for me before we finish?

Annex C

CODING TABLE. the Results of Semi-Structuder Interviews

Quote	Code	Participant
"The load shifted from the tasks themselves... the complexity was no longer in the work itself, but in the need to constantly hold the entire system in mind."	shift in cognitive load source — from task to coordination	Participant 1
"I constantly began to exist within a certain system of dependencies."	interdependence as cognitive context	Participant 1
"If there is no clear understanding of who is responsible for what, either things get redone or tasks just hang in the air."	role ambiguity causing rework or gaps	Participant 1
"Invisible work... holds the entire system together... but many parts of the team don't even know it exists."	invisible labour as hidden individual cost	Participant 1
"The difference between formal responsibility, actual responsibility, and internal responsibility."	formal vs. real vs. felt accountability — tripartite distinction	Participant 1
"Formally, the team may have a clear picture of who is responsible for what, but in reality people carry much more than that."	mismatch between assigned and carried responsibility	Participant 1
"I was documenting formal and actual responsibility for each person... the structure was being spelled out."	explicit accountability mapping as managerial practice	Participant 1
"Shared responsibility... when not backed up by a clear conversation... turns into diffuse responsibility."	collective responsibility without explicit structure leads to diffusion	Participant 1
"Diffuse responsibility significantly increases cognitive load, especially for people prone to anxiety."	diffused accountability amplifies cognitive load	Participant 1
"This most often happens due to a lack of sufficient quality communication."	poor communication as root cause of accountability gaps	Participant 1
"I always took on the role of the last resort myself, because I was the manager."	manager absorbing accountability under ambiguity	Participant 1
"Externalization... I offload things from my head into an external system... so as not to mix different modes of thinking."	individual cognitive load regulation strategies	Participant 1

"A team can look effective from the outside, but be extremely costly cognitively for certain individuals."	team effectiveness masking individual cognitive cost	Participant 1
"It is important not to overstep the boundaries of your responsibility — if you understand them at all."	boundary clarity as protection against overload	Participant 1
"It is important to understand who makes decisions. And what to do when something goes wrong."	decision-making clarity as prerequisite for team functioning	Participant 1
"When you trust people with their own area of work, that is exactly the motivation for mid-level team members that is so often missing in some projects."	delegation as motivational mechanism	Participant 2
"People come and say, I don't feel my value, because I'm not doing anything for the project. Can I leave?"	perceived contribution as prerequisite for engagement	Participant 2
"You don't need to control every step — what matters is controlling the outcome."	outcome-focused vs. process-focused control	Participant 2
"I have a set of 10 keys to unlock each function. I am the link holding all of it together."	project lead as integrative hub — cognitive centrality	Participant 2
"The moment you get distracted for five minutes, you fall out of context. And that concentration is very important."	context switching cost under multiple simultaneous responsibilities	Participant 2
"It is much harder to recover from mental load than from physical fatigue."	differential recovery — cognitive vs. physical load	Participant 2
"We agreed at the start on how we work. If something is not working out, we sit down and renegotiate."	upfront agreements as conflict prevention mechanism	Participant 2
"If you ask people to work overtime, you have to be willing to do the same."	reciprocal accountability — leader modelling expected behaviour	Participant 2
"Building human relationships within a team is just as complex and demanding as finding people with the right competencies."	relationship building as legitimate work	Participant 2
"We would sit down and agree on which tasks could be taken off someone so that they could feel their own involvement."	collaborative workload renegotiation	Participant 2
"The tone in the team determines the result. That is the kind of team you will have."	leader tone as determinant of team climate	Participant 2
"Teamwork does not imply giving instructions... it works when you actually hear what other people think."	horizontal collaboration vs. top-down directive model	Participant 2

"When you give a team a little more freedom, they come back to you with new ideas."	autonomy enabling accountability and creativity	Participant 2
"Having hard skills is no longer enough. Soft skills matter now."	soft skills as prerequisite for effective team functioning	Participant 2
"When you acknowledge even small wins, it is a very strong motivator."	recognition as motivational tool	Participant 2
"There are projects where you want to work because of the person leading them... And then there is a great person, but the project group does not see them as a leader."	informal authority vs. formal position	Participant 2
"There was no room for error... documents had to be proofread meticulously."	high-stakes accountability amplifying cognitive load	Participant 3
"Everyone understood the high level of responsibility this project carried, and that is why the team did not slide into negativity."	shared high-stakes accountability as team cohesion mechanism	Participant 3
"There were many tasks, but they were all clearly structured — everyone knew what they were doing."	role ambiguity causing rework or gaps	Participant 3
"The account manager was someone who was also a strategist by nature... which meant the account person was effectively performing two roles."	mismatch between assigned and carried responsibility	Participant 3
"It is always the project manager who takes the heat."	manager absorbing accountability under ambiguity	Participant 3
"Their sense of responsibility toward the client runs much deeper than it does in functional departments."	differential felt accountability by role type	Participant 3
"If I see that I am not getting engagement, I will not do it either."	reciprocal accountability — leader modelling expected behaviour	Participant 3
"The tasks were not the kind that overloaded me — I was simply experiencing them as stressful... because I felt a strong sense of responsibility."	felt accountability amplifying subjective cognitive load beyond task volume	Participant 3
"Because I did not have the kind of relationships that could have supported that... it consumed far more resources than it should have."	lack of relational capital increasing cognitive cost of task execution	Participant 3
"I didn't want to mess up... someone had to do it, so Vika took things on, and so did I."	social pressure to not let team down driving over-commitment	Participant 3

"We still have cases where someone dropped the ball and each side thinks the other is to blame. Those cases are still unresolved."	unresolved accountability conflicts due to absence of reflection mechanisms	Participant 3
"There has to be genuine care... if there is a toxic person on the team, it will constantly undermine everyone else."	indifference and toxicity as threats to team functioning	Participant 3
"There needs to be a clear plan. So that everyone has a clear understanding of their roles and the expected boundaries of responsibility."	role ambiguity causing rework or gaps	Participant 3
"When there are no clearly defined expectations for what we want from the project as an outcome... it becomes work done for the sake of work."	unclear project goals as demotivating factor	Participant 3
"When you are on your own, everything depends only on you and that is scarier... you need to be responsible for everything together."	shift in cognitive load source — from task to coordination	Participant 4
"It is much easier in a team, because essentially each person is responsible for their own part. And you can easily identify what you need to do right now."	role ambiguity causing rework or gaps	Participant 4
"In the evening you do quick hands-on tasks... then you come home and work on strategic presentations... at night you write a report. And that is just your life — you live and you work."	invisible labour as hidden individual cost	Participant 4
"Because there is so little time and the responsibility is so great, you end up just doing it yourself... there is no time to explain or redo things."	mismatch between assigned and carried responsibility	Participant 4
"There is the PM and the partner who knows the client. The account."	manager absorbing accountability under ambiguity	Participant 4
"You know you have a shared enemy... everyone is struggling, everyone is having a hard time... we grow very close and support each other."	shared high-stakes accountability as team cohesion mechanism	Participant 4
"The absence of masks and toxicity... I feel that its presence creates a kind of barrier, like an elephant in the room, getting in everyone's way."	indifference and toxicity as threats to team functioning	Participant 4
"Without follow-ups there will be chaos — no one will understand where we are headed."	decision-making clarity as prerequisite for team functioning	Participant 4
"I enjoy having broad responsibility rather than a narrow focus."	perceived contribution as prerequisite for engagement	Participant 4
"You don't need to hold too many different directions in your hands at once, all of which need to be aligned."	shift in cognitive load source — from task to coordination	Participant 5

"You need to build a stable authority among these people so that they perceive you as someone whose tasks are mandatory to complete."	informal authority vs. formal position	Participant 5
"When there is a person you can strategically think things through with, and that person holds authority, their authority extends to you as well and makes the work easier."	shared authority as cognitive support mechanism	Participant 5
"You do this because people need to feel their own sense of responsibility for certain decisions."	delegation as motivational mechanism	Participant 5
"You are constantly tied to your phone... that readiness has to be 24/7."	high-stakes accountability amplifying cognitive load	Participant 5
"This decision goes outward. If you did not proofread the text, 8,000 people will receive a notification with an error."	high-stakes accountability amplifying cognitive load	Participant 5
"My task is to simplify his work as much as possible — to take off him all the responsibility I can take on myself."	manager absorbing accountability under ambiguity	Participant 5
"It is very important that people feel that their work actually impacts something."	perceived contribution as prerequisite for engagement	Participant 5
"Every time you need to learn from scratch the rules that operate within this structure."	context switching cost under multiple simultaneous responsibilities	Participant 5
"When you push someone who is genuinely not ready... they will be under constant stress. Place people where they belong."	differential felt accountability by role type	Participant 5
"This responsibility that you personally feel — which I always aspired to as an individual — is what allows me to associate the outcome with myself."	perceived contribution as prerequisite for engagement	Participant 6
"This shared effort diffuses the feeling that they will come specifically for you."	collective responsibility without explicit structure leads to diffusion	Participant 6
"It is simpler when you work alone... I always tried to carve out my piece of the work so it would not blur. That was easier for me."	invisible labour as hidden individual cost	Participant 6
"I knew that if I didn't do it, no one would... I could take on more responsibility than more senior analysts."	social pressure to not let team down driving over-commitment	Participant 6
"My effectiveness comes from the fact that I take all the responsibility that falls on me very personally. The desire not to disappoint."	felt accountability amplifying subjective cognitive load beyond task volume	Participant 6

"They trusted me a great deal, and I trusted them greatly... there was no micromanagement whatsoever. We just moved forward like two engines — working and delivering results."	trust as foundational condition for team functioning	Participant 6
"I really value communicative people who can talk about what is happening with them. If they feel a problem, they say so."	poor communication as root cause of accountability gaps	Participant 6
"Not only an understanding of what each of us does, but an understanding of others as well. Of where those areas of responsibility overlap."	explicit accountability mapping as managerial practice	Participant 6
"There is an analytics function that lives in its own world, and its only point of contact with senior management or other functions is through the head of that function."	functional silos limiting cross-team visibility and collaboration	Participant 6
"The best format is one-on-one with the manager, where a real conversation takes place with you... where Lena focuses on you as a person."	recognition as motivational tool	Participant 6
"Every corporate project is a new domain you are entering... no one knows whether you will find anything at the end. Because that always creates stress."	high-stakes accountability amplifying cognitive load	Participant 6
"When you work in a single focused direction rather than spreading yourself across ten others, you become maximally effective."	boundary clarity as protection against overload	Participant 7
"When something came at me... that is not my job."	mismatch between assigned and carried responsibility	Participant 7
"You need to either talk it through with the person... And when the person agrees to it, they will no longer react with: why should I be the one to do this?"	upfront agreements as conflict prevention mechanism	Participant 7
"In that moment I understand that I am frightened. You realize your life is changing because you are carrying an enormous weight of responsibility."	high-stakes accountability amplifying cognitive load	Participant 7
"The people around you play a huge role... Sasha and Ivan were an incredibly strong source of support. And I think I got through it because of that support."	relationship building as legitimate work	Participant 7
"It is very important to cultivate in people a sense of responsibility for their own actions and results. Not only the manager gets their head taken off."	explicit accountability mapping as managerial practice	Participant 7
"She began to delegate more of that responsibility. At first you think — wow, is this really falling on me now? And then you adapt."	delegation as motivational mechanism	Participant 7

"They see each other, talk about life... the exchange of energy is very important."	relationship building as legitimate work	Participant 7
"If one person is completely out of step with everyone else, that single person can rock the boat and turn people against each other."	indifference and toxicity as threats to team functioning	Participant 7
"In that moment my thinking simply shifted — my attitude toward work, the scale of my thinking, the scale of my sense of responsibility."	role transition expanding perceived scope of responsibility	Participant 7
"Over the long term, I genuinely feel more at ease working as a solo contributor within a team."	individual cognitive load regulation strategies	Participant 8
"If something goes well — we're all great. If something goes wrong — that's on me."	manager absorbing accountability under ambiguity	Participant 8
"Responsibility is about whether we feel our contribution to a shared goal. Workload is a more grounded, practical category."	formal vs. real vs. felt accountability — tripartite distinction	Participant 8
"When people are responsible and care about the result as much as you do, you feel cognitively unburdened. You know that someone else is running toward that goal right alongside you."	diffused accountability amplifies cognitive load	Participant 8
"She decided not to do it. But what will that give us? I don't understand what for. And she didn't ask what it meant to me."	unclear project goals as demotivating factor	Participant 8
"The first word that came to my mind was trust... if that trust is absent, you end up in a situation where everyone is doing things without knowing why."	trust as foundational condition for team functioning	Participant 8
"All of us need sparring partners to generate new ideas... that isolation from everyone is frustrating."	interdependence as cognitive context	Participant 8
"That burden of responsibility — the one I took on myself — became unbearable at some point."	felt accountability amplifying subjective cognitive load beyond task volume	Participant 8
"They didn't know whether there was a final word, who was accountable for this... the person was receiving tasks from me, receiving tasks from there, and was completely overwhelmed."	diffused accountability amplifies cognitive load	Participant 9
"Her tasks went unnoticed, she had an enormous workload... she said nothing because she thought it was normal."	invisible labour as hidden individual cost	Participant 9

"People tried to offload cognitive responsibility onto me by writing about any micro-task... you yourself are stimulating micromanagement and adding to someone else's workload."	responsibility offloading upward as cognitive coping mechanism	Participant 9
"Most likely it was fear carried over from a previous job... people were afraid because they thought they would be fired."	prior punitive experience shaping accountability avoidance	Participant 9
"When you are confident that people are experts in what they do, it is much easier for you to delegate part of the work to them."	trust as foundational condition for team functioning	Participant 9
"If a task comes to you with no information, no clear brief and no context, that will affect quality, speed, and the willingness to do the work."	poor communication as root cause of accountability gaps	Participant 9
"The lit editors were always forgotten in the tags... you invest an enormous amount of time. It is obvious that had an impact on them."	recognition as motivational tool	Participant 9
"Those women on the team who said nothing... she is ready to take on responsibility, which means she will be able to make certain decisions."	formal vs. real vs. felt accountability — tripartite distinction	Participant 9
"If the workload is light right now, the period when everything falls apart is definitely coming... the reluctance to face that period."	high-stakes accountability amplifying cognitive load	Participant 9

GLOSSARY OF TERMS

Accountability (Felt Accountability) — a subjective psychological state in which an individual perceives that their decisions or actions will be evaluated by a salient audience, with rewards or sanctions contingent on that evaluation. When individuals perceive clear personal accountability, they engage in more effortful cognitive processing and proactive coordination; excessive accountability can increase job tension and emotional exhaustion. (Hall, Frink, & Buckley, 2015)

Actual Productivity — the level of output a group actually achieves in practice, as distinct from its potential productivity. The gap between the two arises from coordination losses and motivation losses, and was a central concern of Steiner's model of group performance. (Steiner, 1972)

Ambassador Activities — a type of external boundary-spanning behavior in which team members manage relationships with senior management and secure resources. One of three main boundary activity types; teams combining ambassador and task coordinator activity consistently outperformed internally focused teams. (Ancona & Caldwell, 1992)

Arousal / Drive — an increase in physiological and psychological activation triggered by the mere presence of others. In Zajonc's drive theory, heightened arousal strengthens dominant responses, facilitating performance on simple tasks but impairing it on complex or novel ones. (Zajonc, 1965)

Authoritarian Leadership — a leadership style in which the leader makes decisions unilaterally without inviting participation. In Lewin, Lippitt, and White's (1939) study, groups under authoritarian leadership showed extreme apathy or aggression, and motivation depended entirely on the leader's presence. (Lewin, Lippitt, & White, 1939)

Boundary Spanning — the practice by which team members actively manage their team's relationships with the broader organizational environment. Initially described as a performance-enhancing behavior, it was shown by Fodor and Flestea (2016) to become a structural necessity when teams are interdependent and membership is fluid. (Ancona & Caldwell, 1992; Fodor & Flestea, 2016)

Climate Level — the average level of a shared perception within a team — in the context of procedural justice, the degree to which members on average perceive fair procedural treatment. Climate level was found to predict team performance and absenteeism independently of climate strength. (Colquitt, Noe, & Jackson, 2002)

Climate Strength — the degree of consensus among team members in their shared perceptions of procedural fairness. Climate strength moderated the relationship between justice perceptions and team outcomes: the link between favorable procedural justice and performance was stronger when members agreed on the level of fairness. (Colquitt, Noe, & Jackson, 2002)

Coaction — a condition in which individuals work on the same task simultaneously and in each other's presence, but independently and without pooling outputs. Used by Williams and Karau (1991) as a comparison condition to isolate the effect of individual identifiability on effort. (Williams & Karau, 1991)

Cognitive Load — the total demand placed on working memory during task performance. Sweller (1988) identified three types: intrinsic load (task complexity), extraneous load (poor task design), and germane load (capacity directed toward schema construction). Effective performance requires managing these so that working memory is not overwhelmed. (Sweller, 1988; Sweller, 2011)

Cognitive Load Theory — a framework introduced by Sweller (1988) grounding instructional and task design in the limitations of working memory. Problem-solving places heavy demands on working memory, leaving little capacity for schema acquisition; effective design reduces extraneous load to free capacity for germane processing. (Sweller, 1988)

Cognitive Switching Costs — the cognitive resources consumed when an individual transitions between teams or role contexts that carry distinct norms and demands. O'Leary et al. (2011) identified these as a central mechanism through which multiple team membership beyond a moderate threshold degrades individual and team performance. (O'Leary, Mortensen, & Woolley, 2011)

Collaborative Cognitive Load Theory — an extension of Cognitive Load Theory to collaborative settings by Kirschner et al. (2018). Teams can draw on collective working memory to handle complex tasks, but collaboration also introduces transactive activities that consume cognitive resources and can offset the benefits of shared effort when poorly organized. (Kirschner, Sweller, Kirschner, & Zambrano, 2018)

Collective Working Memory — the combined cognitive capacity available to a team when members collaborate, allowing the group to process more information than any individual could manage alone. Proposed within Collaborative Cognitive Load Theory as a key benefit of effective teamwork. (Kirschner, Sweller, Kirschner, & Zambrano, 2018)

Conformity — the adjustment of individual judgments or behavior to align with group norms or the majority position. Asch (1951) identified three patterns: genuine perceptual change, self-doubt leading to deference, and conscious compliance to avoid standing out. Asingle dissenting ally reduced conformity from 32% to 5.5%. (Asch, 1951; Sherif, 1935)

Coordination Losses — Reductions in group output arising from difficulties in synchronizing individual efforts — poor timing, miscommunication, or suboptimal sequencing — rather than from reduced motivation. Identified by Steiner (1972) as one of two primary sources of the gap between potential and actual productivity. (Steiner, 1972)

Cross-Functional Team — a group of people with different professional backgrounds who work together on the same project. Characterized by temporary assembly around a project goal, multidisciplinary composition, frequent dual authority, and fluid membership with individuals entering and exiting across the project lifecycle. (Ancona & Caldwell, 1992; Galbraith, 1971; Lawrence & Lorsch, 1967)

Democratic Leadership — a leadership style in which the leader encourages participation and facilitates group input into decisions. In Lewin, Lippitt, and White's (1939) study, groups under democratic leadership showed more cooperative and fact-oriented interactions, and motivation persisted even in the leader's absence. (Lewin, Lippitt, & White, 1939)

Differentiation — Differences in cognitive and emotional orientation — including time horizons, goal priorities, and structural formality — that develop across functional departments as a consequence of specialization. Lawrence and Lorsch (1967) showed that greater differentiation makes integration through conventional hierarchical means increasingly difficult. (Lawrence & Lorsch, 1967)

Diffusion of Responsibility — the reduction in each individual's sense of personal accountability that occurs when responsibility is perceived as shared among multiple people. Darley and Latané (1968) demonstrated this in bystander experiments: participants were less likely to intervene when they believed others were present, as the sense of duty became diluted. (Darley & Latané, 1968)

Distributive Justice — the principle that outcomes should be proportional to inputs, evaluated by comparing one's own outcome-to-input ratio against that of a relevant other. Unequal ratios motivate behavior to restore balance. Adams (1965) noted that underreward generates sharper grievance than overreward. (Adams, 1965; Homans, 1961)

Dominant Response — the most probable, well-learned behavioral reaction in a given situation. In Zajonc's (1965) drive theory, arousal from others' presence increases the likelihood of dominant responses, facilitating performance when they are correct and impairing it when they are not. (Zajonc, 1965)

Dual Authority — an organizational arrangement in which individuals report simultaneously to both a functional manager and a project manager. A defining feature of matrix organizations, introduced as a structural solution to coordination challenges that exceed the capacity of purely functional hierarchies. (Galbraith, 1971)

Economic Exchange — a form of social exchange that is quid pro quo, involves clearly specified obligations, and requires active monitoring of compliance. Distinguished from social exchange by its transactional logic and the absence of diffuse, open-ended obligations, as elaborated by Blau (1964, as cited in Cropanzano et al., 2017). (Blau, 1964, as cited in Cropanzano, Anthony, Daniels, & Hall, 2017)

Environmental Uncertainty — the degree to which an organization's external environment is unpredictable and rapidly changing. Lawrence and Lorsch (1967) showed that higher uncertainty requires greater internal differentiation and more sophisticated lateral integration mechanisms, creating the conditions that give rise to cross-functional arrangements. (Lawrence & Lorsch, 1967)

Equity Theory — a framework for understanding perceived fairness in social exchanges proposed by Adams (1965). Aperson compares their own outcome-to-input ratio against that of a relevant other; unequal ratios produce tension motivating restorative behavior such as altering effort, distorting perceived value, or withdrawing from the exchange. (Adams, 1965)

Evaluation Apprehension — an increase in drive level caused by the anticipation of being evaluated by others. Proposed as an alternative to mere-presence explanations of social facilitation: it is specifically the perceived potential for evaluation that generates the motivational increase. (Henchy & Glass, 1968; Cottrell, 1968, 1972, as cited in Geen, 1989, in Paulus, 1989)

Extraneous Load — the component of cognitive load arising from poorly designed task structures or presentations. Because it consumes working memory without contributing to schema formation, reducing extraneous load is a primary goal of effective task and instructional design. (Sweller, 1988)

Fairness Heuristic Theory — a framework holding that people use fairness judgments as cognitive shortcuts for deciding whether to cooperate with authorities. Invoked by Colquitt et al. (2002) to explain why low climate strength weakens the

behavioral influence of procedural justice: divergent fairness perceptions prompt continuous re-evaluation. (as cited in Colquitt, Noe, & Jackson, 2002)

Fluid Membership — a structural condition in which team members enter and exit at different stages of the project lifecycle. Fodor and Flestea (2016) showed that fluid membership disrupts communication networks and impairs shared situation awareness, making effective boundary spanning a necessity rather than an advantage. (Fodor & Flestea, 2016)

Free-Rider Effect — a motivational tendency in which individuals withhold effort in collective tasks because they expect others to carry the workload and anticipate sharing in the group's success regardless of their own contribution. Identified at the collective action level by Olson (1965) and applied to small groups by Kerr (1983). (Kerr, 1983; Olson, 1965)

Free-Rider Problem — the collective action dilemma in which group benefits are shared collectively while costs are borne individually, giving rational members an incentive to minimize effort. As group size increases, each individual's perceived contribution becomes negligible, systematically diffusing motivation. (Olson, 1965)

Germane Load — the portion of working memory capacity actively directed toward constructing and automating cognitive schemas. Reconceptualized by Sweller (2011) as the productive residual of working memory after intrinsic and extraneous demands are met; effective task design frees capacity for this schema-building to occur. (Sweller, 1988; Sweller, 2011)

Group Cohesion — the resultant of all forces acting on members to remain in the group, defined by Festinger (1950) as a dynamic property. More cohesive groups exert stronger social influence. Edmondson (1999) distinguished cohesion from psychological safety: cohesion can suppress critical thinking, whereas psychological safety enables interpersonal risk-taking. (Festinger, 1950; Edmondson, 1999)

Group Inhibition of Bystander Intervention — the suppression of helping behavior caused by observing others' passivity in an ambiguous emergency. Latané and Darley (1969) showed this operates through pluralistic ignorance: others' inaction leads individuals to reinterpret the situation as non-serious, suppressing their own impulse to help. (Latané & Darley, 1969)

Groupthink — a collective decision-making failure in which the desire for unanimity overrides realistic appraisal of alternatives. Janis (1982) identified a central paradox: unanimous decisions may reflect individual avoidance of interpersonal conflict rather than genuine collective judgment. (Janis, 1982)

Hedonic Value / Activity Level — Two dimensions proposed by Cropanzano et al. (2017) for organizing social exchange constructs: hedonic value refers to the valence of what is received; activity level refers to whether the exchange involves active behavior or its absence. Together they support the concept of homeomorphic reciprocity. (Cropanzano, Anthony, Daniels, & Hall, 2017)

Homeomorphic Reciprocity — the tendency to match both the valence and activity level of what one receives in a social exchange. Proposed by Cropanzano et al. (2017) as a more precise account of reciprocity than the assumption that individuals simply return equivalent value. (Cropanzano, Anthony, Daniels, & Hall, 2017)

In-Group Favoritism / Out-Group Discrimination — the tendency to evaluate in-group members more favorably and discriminate against out-group members, even in the absence of prior hostility or objective conflict. Tajfel's (1974) minimal group experiments showed that arbitrary group boundaries alone are sufficient to produce this pattern. (Tajfel, 1974)

Instrumental Model (of procedural justice) — a theoretical account holding that people value fair procedures because they provide control over outcomes. Used by Colquitt et al. (2002) alongside the relational model to interpret why procedural justice climate level predicted team performance. (as cited in Colquitt, Noe, & Jackson, 2002)

Integration — the quality of collaboration among departments required to achieve unity of effort in response to environmental demands (Lawrence & Lorsch, 1967, p. 11). Greater differentiation makes integration harder through hierarchical means, requiring lateral coordination mechanisms to bring specialists into productive contact. (Lawrence & Lorsch, 1967)

Intrinsic Load — the component of cognitive load arising from the inherent complexity of a task — specifically the number of interacting elements that must be processed simultaneously. Determined by the nature of the material itself and cannot be reduced by design without altering the task. (Sweller, 1988; Sweller, 2011)

Laissez-Faire Leadership — a leadership style characterized by the absence of active guidance, ostensibly offering maximum freedom. In Lewin, Lippitt, and White's (1939) study, this condition produced the most disorganized and unproductive group behavior despite appearing most autonomous. (Lewin, Lippitt, & White, 1939)

Lateral Coordination Mechanisms — Structural devices layered onto functional hierarchies to facilitate coordination across departments. Galbraith (1971)

documented a developmental sequence from temporary task forces to dual authority structures, emerging as responses to the information-processing demands of complex environments. (Galbraith, 1971)

Learning Behavior — a cluster of team behaviors — seeking feedback, sharing information, asking for help, discussing errors, and experimenting — identified by Edmondson (1999) as the primary mechanism linking psychological safety to team performance. (Edmondson, 1999)

Main Effect Model (of trust) — One of two accounts proposed by Dirks and Ferrin (2001) to explain trust's influence on workplace behavior. It posits that higher trust directly produces greater cooperation and performance, but was found less empirically supported than the moderation model. (Dirks & Ferrin, 2001)

Matrix Structure — an organizational form combining functional and project-based lines of authority, in which individuals report to both a functional and a project manager. Documented by Galbraith (1971) as a structural response to coordination challenges exceeding the capacity of purely functional hierarchies. (Galbraith, 1971)

Minimal Group Paradigm — an experimental procedure by Tajfel (1974) in which participants were assigned to groups on arbitrary criteria. The consistent finding of in-group favoritism under these minimal conditions demonstrated that group membership alone is sufficient to produce social discrimination. (Tajfel, 1974)

Moderation Model (of trust) — One of two accounts proposed by Dirks and Ferrin (2001). It holds that trust shapes the conditions under which other determinants translate into effective performance. Under low trust, even high motivation failed to produce cooperative behavior; under high trust, motivation was channeled toward collective goals. (Dirks & Ferrin, 2001)

Motivation Losses — Reductions in group output arising from decreases in individual effort under collective conditions — social loafing, free-riding, and the sucker effect. Identified by Steiner (1972) as one of two primary sources of the gap between potential and actual productivity. (Steiner, 1972; Kerr, 1983)

Multi-Team Systems — Configurations in which two or more teams with their own dynamics and goals work interdependently toward a shared superordinate objective. Referenced by Mathieu et al. (2001) as an increasingly prevalent form of organizational work requiring coordination across team boundaries. (Mathieu, Marks, & Zaccaro, 2001)

Multiple Team Membership — the structural condition in which an individual simultaneously belongs to more than one project team. O'Leary et al. (2011) documented this as a norm for 65–95 percent of knowledge workers; beyond a

moderate threshold it fragments attention, increases switching costs, and reduces performance. (O'Leary, Mortensen, & Woolley, 2011)

NASA Task Load Index (NASA-TLX) — a multidimensional self-report instrument for assessing subjective workload, developed by Hart and Staveland (1988). It captures six dimensions: mental demand, physical demand, temporal demand, performance, effort, and frustration level. The weighted version uses pairwise comparisons to reflect each dimension's relative importance to overall workload. (Hart & Staveland, 1988)

Obedience to Authority — the tendency to comply with instructions from a perceived authority even when doing so conflicts with personal values. Demonstrated by Milgram (1963), in which 65 percent of participants administered maximum shocks when instructed — a key mechanism through which individuals transfer personal responsibility upward. (Milgram, 1963)

Organizational Identification — the perception of oneness with an organization or subunit, in which an individual defines themselves through group membership. Ashforth and Mael (1989) showed it can arise without interpersonal cohesion because the organization is treated as a psychological entity independent of its members. (Ashforth & Mael, 1989)

Perceived Responsibility — a subjective sense of personal obligation for outcomes, shaped by social and structural context. Distinct from formal accountability, it reflects how personally answerable an individual feels — a construct that can be amplified or diluted by group size, role clarity, and the degree to which responsibility is shared. (Hall, Frink, & Buckley, 2015; Darley & Latané, 1968)

Pluralistic Ignorance — a mechanism whereby each individual privately doubts the group's prevailing norm but assumes others genuinely hold it, leading everyone to conform publicly to a norm no one privately endorses. Latané and Darley (1969) demonstrated this in bystander research: others' passivity led individuals to reinterpret emergencies as non-serious. (Latané & Darley, 1969)

Positively Valued Distinctiveness — the motivational drive underlying social identity processes, whereby groups seek characteristics that differentiate them favorably from relevant comparison groups. Tajfel and Turner (1979) described this as a central mechanism linking social categorization to intergroup discrimination. (Tajfel & Turner, 1979)

Potential Productivity — the maximum output a group could theoretically achieve if all members contributed fully and coordination were perfect. Introduced

by Steiner (1972) as a theoretical baseline; the gap between potential and actual productivity is explained by coordination and motivation losses. (Steiner, 1972)

Procedural Fairness (criteria) — Six criteria identified by Leventhal (1980) for evaluating the fairness of outcome-determining procedures: consistency, absence of bias, accuracy, correctability, representativeness, and ethicality. People are sensitive not only to what they receive but to how decisions about their outcomes are reached. (Leventhal, 1980, as cited in Colquitt, Noe, & Jackson, 2002)

Procedural Justice Climate — a shared team-level perception of how fairly the team is treated procedurally. Colquitt et al. (2002) distinguished climate level (average perception) from climate strength (consensus), and showed both independently predict team performance and absenteeism. (Colquitt, Noe, & Jackson, 2002)

Propensity to Trust — a stable individual disposition shaping baseline willingness to be vulnerable to others before any specific information is available. Identified by Mayer et al. (1995) as a fourth factor in their trust model, alongside ability, benevolence, and integrity. (Mayer, Davis, & Schoorman, 1995)

Psychological Safety — a shared team belief that members will not be embarrassed or punished for speaking up, asking questions, or acknowledging mistakes. Conceptualized by Edmondson (1999) as distinct from cohesion and trust; positively associated with learning behavior, which mediates the relationship between psychological safety and team performance. (Edmondson, 1999; Newman, Donohue, & Eva, 2017)

Public Good — a benefit available to all group members regardless of individual contribution. In Olson's (1965) analysis, the non-excludable nature of public goods is the structural condition giving rise to the free-rider problem: rational individuals have an incentive to withhold contribution while benefiting from others' efforts. (Olson, 1965)

Relational Emergent State — a team property that develops through social interactions rather than formal assignment. Stewart et al. (2023) conceptualized shared team accountability as a relational emergent state; higher accountability at the project midpoint predicted stronger final performance, greater collective effort, and higher team viability. (Stewart, Courtright, & Manz, 2023)

Relational Model (of procedural justice) — a theoretical account holding that people value fair procedures because they signal respect and group belonging. Used by Colquitt et al. (2002) alongside the instrumental model to interpret the effects of

procedural justice climate on team outcomes. (as cited in Colquitt, Noe, & Jackson, 2002)

Relative Deprivation — the sense of grievance arising from unfavorable comparison of one's circumstances against a relevant reference group. Referenced by Adams (1965) as a precursor to equity theory; Stouffer et al.'s (1949) work provided an empirical foundation for Adams's account of inequity. (Stouffer et al., 1949, as cited in Adams, 1965)

Responsible Leadership — an approach to leadership, first conceptualized by Pless (2007), that integrates ethical dimensions and extends accountability to a wider stakeholder network. Heim et al. (2026) identify psychological safety and trust as the key relational mechanisms through which it is enacted at the team level. (Pless, 2007, as cited in Heim, Laker, & Tabaeifard, 2026)

Role Multiplicity — the condition in which an individual simultaneously performs distinct roles across multiple concurrent projects or teams. It generates cognitive switching costs, contributes to the diffusion of accountability, and can fragment attention and coordination when membership variety is high. (O'Leary, Mortensen, & Woolley, 2011)

Schema — an organized knowledge structure encoding recurring patterns of information, enabling expert performance by allowing familiar task elements to be handled automatically rather than processed individually in working memory. Schema acquisition is the productive goal that effective task design is intended to promote. (Sweller, 1988)

Scout Activities — a type of external boundary-spanning behavior involving general scanning of the technical and market environment. One of three main boundary activity types identified by Ancona and Caldwell (1992); teams relying primarily on scouting alone did not consistently outperform internally focused teams. (Ancona & Caldwell, 1992)

Self-Categorization — the cognitive process by which individuals classify themselves as members of a social group, adopting the group's norms and expected behaviors. Hogg (2000) proposed it serves an uncertainty reduction function, providing consensual validation and a clear prescription for behavior in ambiguous situations. (Hogg, 2000)

Sequential Explanatory Mixed-Methods Design — a two-stage design in which quantitative data are collected and analyzed first, followed by qualitative data to explain the quantitative results. Adopted in this study to allow initial identification

of statistical relationships followed by exploration of underlying social-psychological mechanisms. (Creswell & Plano Clark, 2018)

Shared Mental Models — Knowledge structures held by team members enabling accurate expectations and coordinated action. Cannon-Bowers et al. (1993, p. 228) argued that effective performance requires compatible representations across four domains: equipment, task contingencies, team roles, and the knowledge and tendencies of specific teammates. (Cannon-Bowers, Salas, & Converse, 1993)

Shared Situation Awareness — a collective understanding of the current task environment enabling coordinated action. Fodor and Flestea (2016) showed that fluid membership and competency diversity impaired its development, as specialized knowledge remained siloed rather than accessible across the broader system. (Fodor & Flestea, 2016)

Social Comparison — the process by which individuals evaluate their opinions, abilities, or outcomes by comparing them against those of others. A foundational mechanism in equity theory, where it drives fairness assessments, and in social identity theory, where intergroup comparison provides the basis for self-esteem. (Adams, 1965; Tajfel, 1974)

Social Compensation — the tendency to increase personal effort in collective tasks when co-workers are expected to perform poorly, provided the task is meaningful. Williams and Karau (1991) demonstrated that this compensatory increase disappeared when the task was framed as low in meaningfulness. (Williams & Karau, 1991)

Social Contingency Model — a model of accountability by Tetlock (1985, 1992) treating judgment as a social activity performed for evaluative audiences. Individuals adjust cognitive effort based on the audience's nature, the timing of accountability demands, and whether the audience's views are known in advance. (Tetlock, 1985, 1992, as cited in Hall, Frink, & Buckley, 2015)

Social Dilemma — a situation in which individually rational self-interest leads to collectively suboptimal outcomes. Applied to small-group motivation by Kerr (1983), who showed that diffused group responsibility creates motivational conflict between personal and collective interests, generating free-rider and sucker effects. (Orbell & Dawes, 1981, as cited in Kerr, 1983)

Social Exchange Theory — a framework for understanding social interaction as an exchange governed by reciprocity. Homans (1958) established that rewarded behavior tends to be repeated. Blau (1964, as cited in Cropanzano et al., 2017) introduced the key distinction between economic exchanges and social exchanges

that build diffuse obligations and relational commitment over time. (Homans, 1958; Blau, 1964, as cited in Cropanzano, Anthony, Daniels, & Hall, 2017)

Social Facilitation — the tendency for the presence of others to enhance performance on simple tasks and impair it on complex ones. First demonstrated by Triplett (1898); Zajonc (1965) provided a unifying explanation via drive theory: others' presence raises arousal, strengthening dominant responses. (Triplett, 1898; Zajonc, 1965)

Social Identity — the part of an individual's self-concept deriving from group membership and the value attached to it. Tajfel (1974) proposed it acquires meaning only through intergroup comparison, motivating individuals to seek positively valued distinctiveness for their in-group to sustain the positive contribution of membership to self-esteem. (Tajfel, 1974; Tajfel & Turner, 1979)

Social Loafing — a decrease in individual effort when working as part of a group rather than alone. Latané et al. (1979, p. 822) defined it as a decrease in individual effort due to the social presence of others; as group size increases, per-person output decreases non-linearly, driven by genuine motivational loss under collective conditions. (Latané, Williams, & Harkins, 1979)

Sucker Effect — the tendency to reduce personal contribution to a collective task to avoid being exploited — working hard while others contribute little but share equally in the group's success. Distinguished from the free-rider effect by its underlying motivation: aversion to exploitation rather than desire to benefit without cost. (Kerr, 1983)

Task Coordinator Activities — a type of external boundary-spanning behavior managing horizontal interdependencies with other functional groups. One of three main boundary activity types by Ancona and Caldwell (1992); teams combining this with ambassador activity consistently outperformed those relying on scouting or isolation. (Ancona & Caldwell, 1992)

Team Accountability Questionnaire (TAQ) — a validated self-report instrument measuring shared team accountability as a relational emergent state. Used by Stewart et al. (2023) in a study of 65 teams; higher TAQ scores at the project midpoint predicted stronger final performance, greater collective effort, and higher team viability. (Stewart, Courtright, & Manz, 2023)

Team Cognitive Efficiency (TCE) — a measure by Johnston et al. (2013) combining each member's subjective workload (via NASA-TLX) with objective team performance, capturing the relationship between cognitive effort and

effectiveness. Teams achieving higher performance with lower cognitive load score higher on TCE. (Johnston et al., 2013)

Team Viability — the capacity and willingness of team members to continue working together in the future — a forward-looking indicator of team health. Identified by Stewart et al. (2023) as an outcome positively predicted by relational accountability measured at the project midpoint. (Stewart, Courtright, & Manz, 2023)

Transactive Activities — Coordination behaviors arising from collaboration — communication, negotiation, joint decision-making — that are necessary for aligning understanding but also consume cognitive resources. Kirschner et al. (2018) showed that when poorly organized, these generate additional load that offsets the benefits of collective working memory. (Kirschner, Sweller, Kirschner, & Zambrano, 2018)

Transactive Memory System — a shared group-level system in which members specialize in distinct knowledge domains and develop awareness of who knows what. Proposed by Wegner (1987); in well-functioning teams, individuals offload knowledge to others and retain only awareness of where it can be retrieved, reducing individual cognitive load. (Wegner, 1987)

Triangle Model of Responsibility — a framework by Schlenker et al. (1994) defining personal responsibility through three elements: a prescriptive norm, the individual's connection to the relevant event, and their causal role in producing the outcome. Referenced by Hall et al. (2015) as a foundational model for understanding felt accountability. (Schlenker et al., 1994, as cited in Hall, Frink, & Buckley, 2015)

Trust — the willingness to be vulnerable to another's actions based on positive expectations, irrespective of the ability to monitor that party. Deutsch (1958) showed it is a dynamic social process shaped by motivational orientation and situational structure; Mayer et al. (1995) formalized it as a function of perceived ability, benevolence, integrity, and propensity to trust. (Deutsch, 1958; Mayer, Davis, & Schoorman, 1995)

Trustworthiness (dimensions of) — the attributes justifying vulnerability to another party. Mayer et al. (1995) identified three dimensions: ability (domain-specific competence), benevolence (positive orientation toward the trustor independent of self-interest), and integrity (adherence to acceptable principles and consistency between words and behavior). (Mayer, Davis, & Schoorman, 1995)

Uncertainty Reduction (as motivation for group identification) — the drive to reduce subjective uncertainty by identifying with a group. Hogg (2000) proposed

that people join groups not only to enhance self-esteem but to resolve uncertainty through self-categorization, which provides consensual validation and prescribes cognition and behavior via the group prototype. (Hogg, 2000)

Variety in Team Memberships — the degree of difference across the multiple teams to which an individual simultaneously belongs. O'Leary et al. (2011) found that higher variety stimulates learning but increases coordination costs, as individuals must manage more distinct sets of role expectations and task contexts simultaneously. (O'Leary, Mortensen, & Woolley, 2011)

Voice Behavior — the proactive expression of ideas, concerns, or opinions by team members, even when doing so involves interpersonal risk. Identified by Newman et al. (2017) as one of the outcomes consistently associated with psychological safety across individual, dyadic, team, and organizational levels. (as cited in Newman, Donohue, & Eva, 2017)

Working Memory — the cognitive system responsible for temporarily holding and processing information during task performance. Its limited capacity is the central constraint addressed by Cognitive Load Theory: when elements to be processed simultaneously exceed capacity, performance and learning are impaired. (Sweller, 1988)