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How can informal networks facilitate
innovation and knowledge sharing within
startups? The case study of the startup
Mulheres Positivas.

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Introduction

Background

Startups are widely acknowledged as pivotal drivers of innovation. They bring fresh ideas to the marketplace, often fostering radical advancements. Yet, the success of these emerging ventures is deeply intertwined with their ability to connect knowledge flows. Startups act as “pollinators” of knowledge, helping to disseminate technological and market information within open innovation ecosystems (Chesbrough, 2003). This constant flow of knowledge between startups and established firms within entrepreneurial ecosystems emphasizes the critical role that informal networks play in these environments (Alberti & Pizzurno, 2017). These networks, both internal and external, enable startups to access valuable resources and develop innovative products and services more rapidly.

Understanding the structure and role of these networks is crucial to comprehending how startups leverage relationships to succeed in competitive environments. Informal networks, which operate outside traditional organizational charts, are a key component in knowledge transfer, collaboration, and creativity (Wasserman & Faust, 1994). They facilitate the establishment of connections that are not dictated by hierarchical lines but by shared goals and mutual benefit. In fact, informal networks have been studied extensively through Organizational Network Analysis (ONA) and Social Network Analysis (SNA) to understand how social structures influence organizational behavior, decision-making, and innovation (Benzoni, 2020).

Need for the Study

Despite the well-documented importance of networks in startups, there is a gap in the literature concerning how informal networks specifically contribute to innovation and knowledge sharing. Most studies have focused on formal organizational structures, overlooking the powerful yet often invisible dynamics of informal relationships. Informal networks often operate in the background, subtly influencing key decisions and fostering innovation in ways that formal systems cannot replicate. This study addresses this gap by exploring how informal networks, characterized by non-hierarchical relationships, contribute to knowledge sharing and innovation in startups.

The need for this research is particularly pressing in today’s rapidly changing business environment, where startups must be agile, innovative, and adaptable. Modern organizations have shifted away from rigid hierarchical structures, embracing fluidity and adaptability to foster creativity (Cunha, Clegg, Gaim & Giustiniano, 2022). This shift makes it imperative to understand the informal structures that support this agility, particularly in the context of startups that rely heavily on informal networks for survival and growth.

Purpose of the Study

The purpose of this study is to explore how informal networks contribute to innovation and knowledge sharing within startups. Specifically, this research uses a dual perspective, investigating both internal and external informal networks. Internally, it examines the unstructured communication, social interactions, and collaborative dynamics that occur within organizations, particularly how these elements increase trust and facilitate the sharing of innovative ideas. Externally, the study explores how startups rely on informal networks beyond their immediate organizational boundaries, seeking advice, feedback, and problem-solving support from a broader network of contacts. These external networks often provide critical resources and expertise that startups may lack internally, highlighting the importance of connections that extend beyond the formal organizational structure.

This dual perspective is emphasized by the organization of the thesis: while the first chapter focuses exclusively on the role of internal informal networks, the second chapter expands this view by demonstrating the significance of both internal and external networks in driving the success of startups. By integrating these two approaches, the study aims to provide a comprehensive understanding of how informal networks support innovation and growth in the dynamic environment of startups.

Theoretical Framework

The theoretical framework of this research is based on the analysis of informal networks and how they influence innovation and knowledge sharing in startups. Organizational Network Analysis (ONA) is central to understanding how unstructured relationships, based on informal ties, can accelerate creativity and improve organizational efficiency.

Cross and Prusak (2002), who identified the different types of actors within informal networks, state that the latter facilitate the circulation of information more effectively than formal channels. Information brokers are crucial as they connect different groups within the organization, enabling the flow of essential information. This is especially vital for startups, where quick access to information can determine success.

Burt's (2004) concept of brokerage expands on this idea, showing how brokers fill 'structural holes' in networks, facilitating the exchange of innovative ideas. These individuals connect the startup to external resources that are crucial for solving complex problems and stimulating innovation.

In terms of innovation, Arena (2023) highlights how the small and lean structure, such as that of startups, facilitates creativity and innovation. Small teams develop new products faster thanks to direct communication and fewer bureaucratic hurdles. This is combined with informal networks, which allow startups to adapt quickly, accessing crucial external resources to tackle complex challenges and accelerate the innovation process.

The ability to exploit these informal relationships is amplified by metaknowledge, i.e. the awareness of ‘who knows what’ inside and outside the organization (Ren & Argote, 2011). In an environment such as that of startups, where resources are limited, metaknowledge provides quick access to the skills needed to solve problems and develop new solutions (Cross, Borgatti & Parker, 2001). The ability to activate these connections strategically improves the speed and effectiveness of innovation.

In summary, the literature highlights how informal networks are crucial for knowledge sharing and innovation in startups. These networks, through non-hierarchical ties, allow for greater agility and creativity than formal structures, accelerating information transfer and fostering collaboration in open ecosystems.

Research Question and Methodology

The central research question of this thesis is: *How can informal networks facilitate innovation and knowledge sharing within startups?* This question is derived from the need to understand the dual role of internal and external informal networks in the growth and success of startups. Specifically, the research focuses on the Mulheres Positivas case study, a startup that operates in various countries with the aim of promoting women’s empowerment and professional development.

The first chapter explores the evolution of informal networks within organizations, starting from sociometry to the development of Organizational Network Analysis (ONA). It emphasizes how informal networks play a crucial role in decision-making, creativity, and overall productivity. The chapter highlights key concepts like social capital, network analysis, and the fundamental principles of informal networks. It also discusses how organizations can exploit the power of these networks to promote innovation and enhance collaboration, while addressing potential structural and ethical challenges that arise from informal interactions.

The second chapter delves into the critical role of networks in the success of startups, focusing on how connectivity and innovation are intertwined. It explains how startups, as drivers of innovation, benefit from both internal and external networks that provide knowledge flows and strategic resources. The chapter highlights the importance of social relationships, creativity, and knowledge sharing within entrepreneurial ecosystems. It also emphasizes the value of weak ties and network brokers in fostering innovation, alongside the strategic role of team dynamics and metaknowledge in enhancing startup adaptability and success.

The data collection method consisted of semi-structured interviews with the four key individuals involved in the startup, focusing on their experiences with unstructured communication and trust dynamics.

For the analysis of the data, the research adopts qualitative methodologies, using open coding to identify emerging themes from the interviews. The coding process helped classify the responses into categories. By organizing and interpreting the data through these themes, the study aligns its findings with existing theoretical frameworks on organizational and social network analysis, further reinforcing the understanding of how informal networks support innovation.

Limitations

Several limitations could affect the validity of this study's findings. First, the study focuses exclusively on startups, which may limit the generalizability of the results to larger, more established organizations. Startups operate in highly dynamic environments that may not be representative of the more stable conditions in mature firms. Furthermore, the reliance on interviews and self-reported data could introduce bias, as participants may provide socially desirable answers rather than truthful reflections of their experiences.

Additionally, the informal nature of the networks being studied presents challenges in terms of measurement. Unlike formal structures, which are well-defined and easy to map, informal networks are often fluid and difficult to quantify. This could lead to difficulties in accurately capturing the full scope of these networks and their impact on innovation.

Finally, cultural differences may also influence the findings. Informal networks function differently in various cultural contexts, which could affect how they contribute to innovation. For example, in some cultures, informal networks may be more hierarchical and less open to new ideas, which could limit their effectiveness in fostering innovation (Horak, 2022).

Delimitations

The study uses qualitative methods, including interviews with startup founders and key network participants. This approach allows for a deeper exploration of the nuanced ways in which informal networks operate within startups. However, a significant limitation is the small number of interviews, as only four interviews were conducted. Indeed, this focus on qualitative data also means that the study will not attempt to quantify the impact of informal networks on innovation in a statistically significant way. Instead, it aims to provide rich, descriptive insights that can inform future research on this topic.

Chapter I

Informal Networks

From Sociometry to Organizational Network Analysis: Tracing the Evolution

The concept of “business organization” is a multifaceted and challenging concept to comprehend and characterize. Numerous study techniques and analytical processes have emerged over time, offering an equal number of definitions. It is common knowledge that every business has two realities: a formal organization defined by roles and hierarchies, and an informal organization made up of the intricate web of relationships that employees build while completing tasks or managing projects (collaboration), resolving conflicts, exchanging information, or, most importantly, enjoying pleasant times together. The intricate and dynamic relationship between the two impacts how the organization operates, shapes the actions of both individuals and groups, and significantly affects performance. Relational networks, or informal networks, have an impact on decision-making, creativity, inventiveness, productivity, and the capacity to accomplish individual, group, and global goals.

Informal networks are studied through O.N.A. (Organizational Network Analysis), that has its origins in the field of sociology and, more specifically, in S.N.A. (Social Network Analysis). S.N.A. is concerned with analyzing the structure and characteristics of social groups through various indicators; its application to organizations enables the investigation of roles, groups, and players that have declined in the corporate environment, thus moving from a “social” to an “organizational” plane. Improvements in organizing this kind of analysis were made possible by the contributions of several strands that came together to form the S.N.A.

The earliest studies on these issues date back to the 1930s, when sociometric analysts asserted that individuals’ conceptual patterns are determined by society and influenced by group organizations and social climate. In particular, the main innovation of this stream of scholars is that of the sociogram, apported by Jacob Moreno. Before him, networks had only been depicted as “plots of connections”; analytical diagrams had never been used to illustrate networks. Since then, researchers are permitted to depict actors as points and relationships as lines that make it simple to recognize leaders, isolated individuals and chains of connection (Benzoni, 2020).

At the same time, Elton Mayo (1933), a Harvard researcher, conducted research studies on the Heawthorne power plant which had a significant impact on the analysis of social networks. He discovered that simply altering the physical working environment, the company’s various divisions saw improvements, even those where no work modifications had been made. Mayo concluded that the workers’ straightforward involvement in the studies, the company’s concern of them, and their perception of themselves as a group and team capable of self-motivation at work were the main causes of the outcomes. Mayo therefore draws attention to the fact that informal groups exist inside businesses and that it is crucial to manage and consider these groups in order to achieve both personal and organizational goals.

The anthropologists of the Manchester school introduced a unique perspective to the examination of social networks, emphasizing conflict and change over network cohesion and integration. This approach merged formal social network analysis techniques with sociological concepts. Clyde Mitchell had a crucial role in propelling this revolutionary methodology for examining interpersonal networks. Central to Mitchell's (1969, p. 2) contributions was his definition of social networks as *"specific sets of interpersonal bonds characterized by the property in which the nature of relationships, as a whole, can be utilized to forecast and interpret the social behavior of individuals."*

The evolution of the practice to how it is known today ends between the 1960s and 1970s. When Harrison White's research introduced algebraic models and dimensional scaling to represent roles in social networks. In particular, there were two major innovations. The first was the development of algebraic models of groups, based on set theory, to represent various forms of relationships, including the concept of "role" in social networks. This innovation allowed a new perspective on group dynamics through a reconsideration of existing mathematical theories. The second innovation, multidimensional scaling, was equally significant, as it allowed social relationships to be translated into metric distances and represented graphically. This approach, especially visually, facilitated the understanding of social networks and their structures (Benzoni, 2020). This final step of the research was essential in extending the application of network analysis to the context of companies and organizations giving rise to Organizational Network Analysis. Within this perspective Soda's (1998) conceptualization of networks represents a milestone in the literature: *"the analytical tool with which to represent and study intra-organizational or inter-organizational relationships, that is, between the organization and its external environment"*

According to Wasserman and Faust (1994) it is hardly remarkable that the network perspective was discovered nearly simultaneously by so many scholars from so many different areas. Its usefulness is vast, and it can address a wide variety of disciplinary issues with a multitude of solutions. Social network analysis goes beyond a simple way of discussing social relations. It provides a precise way to define important social concepts and offers a theoretical alternative to the idea of independent social actors. The methodologies provide formal statements and measures of social structural properties, prompting researchers to clearly define social concepts and develop testable models. It also allows measurement of structures and systems that are otherwise difficult to describe, offering tests for hypotheses about such structural properties.

Factors Driving the Increasing Significance of Informal Networks

Certain key economic ties are organized in large part by network architecture. Informal social networks are frequently used as a platform for information sharing and the distribution of commodities and services that are not exchanged on open markets. Not only are party invites and other types of friendship exchanged among these commodities, but job vacancies, business possibilities, and similar information can also be mentioned. Informal networks can arise through a variety of methods. Individual attraction, similar interests, common

responsibilities, timetables, and location all play a role in how people associate and are drawn to one another. However, those who are part of a common informal network also have personal interests. Individuals join unofficial networks of others to pursue their own personal gain (Huning, Bryant & Holt, 2015). According to Jackson and Wolinsky (1996), within a company, the official network that facilitates the exchange of pertinent information among employees may significantly impact the organization's overall efficiency. In both situations, an agent's location within the network may have an impact on both his or her productivity and bargaining power in relation to other agents, and the structure of these kinds of organizations may show this.

Before delving into the in deep definition of informal networks, it is necessary to talk about social capital. The chosen definition of social capital is presented by Leana and Van Buren (1999), who focus on its organizational implications, particularly how shared goals and alignment contribute to its formation. They describe social capital as *“a resource reflecting the character of social relations within the firm [...] realized through members' levels of collective goal orientation and shared trust, which create value by facilitating successful collective action.”* Social capital theory explores the advantages that employees or individuals can obtain through networking, highlighting the resources acquired from being part of a group or network. This concept is intricately linked to the innate sociability of humans, underscoring the importance of interactions with other individuals and society at large. Social capital theory challenges the neoclassical notion of atomistic markets by highlighting the significance of social networks in curbing opportunistic behavior and enhancing the effectiveness of economic transactions. It views social capital as a valuable asset, accrued through investments of time and attention in social relationships (Coleman, 1988), thus enabling organizations to leverage their employees' social capital as a conduit for knowledge transfer within the company.

Therefore, it is necessary to understand what made organizations interested in the relationships that connect individuals, and thus employees.

First of all, as emerged in the first paragraph, the discovery of informal communication channels that were previously impossible to identify and quantify has been made possible by the advancement of network analysis techniques (Wasserman & Faust, 1994).

Secondly, during the 20th century, companies have experienced a significant transformation, moving away from rigid hierarchical structures designed for a society where strict adherence to orders was paramount. Instead, they embraced flexibility and adaptability, fostering an environment conducive to creativity, and encouraging contributions from all levels (Cunha, Clegg, Gaim & Giustiniano, 2022). This shift towards fluidity acknowledges that organizational structures should not be rigidly dictated from the top-down but should instead facilitate flexibility and autonomy, thereby fostering innovation and agility through a bottom-up approach. This change has been motivated by the need to adapt to a “liquid” world where companies can no longer guarantee a career for life. This has led to a reduction of humanistic elements in management practices and a greater emphasis on workforce efficiency and flexibility. Less hierarchical and flatter organizations have become commonplace allowing greater responsiveness to change. An interesting study conducted by Maurer, Bach and Oertel (2023) shows that formal structure concerns rules, processes, roles,

and responsibilities, while informal structure includes social networks and affective relationships. Both influence social interactions in organizations. Hierarchy, a component of formal structure, influences communication and interactions, but does not completely determine informal social structure. Moreover, self-managed organizations, which are becoming increasingly popular, challenge traditional hierarchical models and have significant implications for internal communication.

One effect of these restructuring processes is that work is increasingly being coordinated and carried out through informal networks of relationships as opposed to strictly adhering to the pathways outlined by intricate work procedures or traditional hierarchical organizations. These informal networks are typically not shown in traditional organizational charts, even though they may assist new product development projects or cross important work processes. However, via the efficient exchange of specialized knowledge, these networks frequently support organizational adaptability, creativity, efficiency, and the quality of their output. For firms that compete based on knowledge and their capacity for innovation and adaptation, cultivating cooperation and work within such informal networks is becoming more and more important (Cross, Borgatti & Parker, 2002).

Why Analyzing Informal Networks Is Important

Investigating informal networks inside companies has become an important field of research because it provides insight into the complex dynamics of cooperation and communication that exist outside of conventional organizational structures. In this context, we will explore the crucial reasons behind the analysis of informal networks, as articulated by Cross, Borgatti and Parker (2002), while also presenting significant examples that underscore the importance of these networks within contemporary organizations.

As a first reason they emphasize the promotion of integration among individuals with different expertise. In knowledge-intensive environments, collaboration among employees with diverse skill sets is crucial. Formal structures alone often struggle to achieve effective integration of these varied perspectives, backgrounds, and problem-solving styles. Merely rearranging organizational charts isn't enough to facilitate effective collaboration among high-end knowledge workers. Informal networks serve as a vital conduit for these individuals to collaborate seamlessly and leverage each other's strengths. Also in this area, Cross himself along with Martin and Weiss (2006) study the importance of collaboration. In this view, companies must be able to track and assess the value that is produced, or destroyed, in employee collaboration networks. When applied appropriately, social network analysis can yield important insights into the costs and economic gains resulting from cooperative interactions. Businesses may use this to choose where to focus their efforts to lower expenses and increase connections, which will increase the organization's overall efficiency. Businesses can use social network analysis to find and copy high-performance models of collaboration, teach staff members how to work together like successful colleagues do, increase accessibility to technical help and expertise, and update performance metrics to reflect shared accountability more accurately. These interventions can assist

businesses in simplifying their operations, redefining roles, providing better customer service, and allocating human, financial, and physical resources more effectively. Two examples that fall into this category, highlighting the importance of informal networks, are those outlined by Cross, Borgatti and Parker (2002) in the first study cited:

- Promoting effective collaboration within a strategically important group: they conducted an analysis of a large global consulting organization, where a highly qualified group was charged with providing thought leadership and specialized support to the organization's knowledge management consultants. Two separate categories were identified by the study, not simply one group. The reason for this divide was because the group's distinct competences led the network to break along the very dimensions along which it was intended to be connected. Due to shared interests, members of these two groupings had grown closer over time and frequently collaborated and had similar job interests. But none of the subgroups knew how to include the other members in initiatives or what they might provide as consultants. However, their specific strategic objective was to incorporate these special talents. The example illustrates how issues like misperceptions about one another's skills may cause networks inside companies to break apart. On the other hand, efficient cooperation and information exchange may be encouraged through social network analysis and suitable interventions, enhancing organizational performance all around.

This case is a clear example of communities of practice (Wenger & Snyder, 2000), these communities are informal groups of individuals bound together by shared knowledge and their spontaneous and informal nature makes them difficult to manage and integrate into the organization.

- Ensuring integration within groups following strategic change initiatives: they conducted a study on a global telecommunications practice which has undergone a significant restructuring to combine the knowledge of many organizations into a single industry practice. An SNA showed that the network was fragmented, underscoring the necessity of measures to improve integration. The actions included educating executives, redesigning staffing approaches, implementing skill-profiling systems, setting up in-person meetings, and modifying tactics for performance evaluation and recruiting. The overall goals of the treatments were to improve network resilience and connection by encouraging information exchange, integrating peripheral members, and redistributing burden. This shows that although internal restructuring or acquisitions often involve performance improvements, they do not always materialize due to a lack of support for strategically important informal networks.

The second reason for carrying out a social network analysis is to identify critical issues in informal networks that cross functional, hierarchical, geographic, or organizational boundaries. In these networks, individuals may be spread across various geographical locations and/or have distinct operational and financial goals, but for the business to succeed, they frequently need to work together well (Cross, Borgatti & Parker, 2002). Again, it is possible to identify two examples that demonstrate how informal networks cross boundaries:

- Collaboration across functional boundaries: they took an in-depth look at the dynamics of collaboration among the divisions of a big company, which had expanded through acquisitions over the years. They observed that some divisions collaborated a lot with each other, while others had minimal contact. In particular, cultural barriers and knowledge gaps between divisions have been identified as major obstacles to effective collaboration. With this detailed information, the company was able to successfully intervene to promote greater collaboration and learning between divisions, thereby improving its ability to seize market opportunities and achieve its strategic goals.
- Collaboration across hierarchical boundaries: within organizations, there is another type of critical boundary that is not functional but hierarchical. Some informal networks within organizations appear to restrict contacts by inflexibly adhering to the chain of command since they are very similar to the company's own hierarchy. Employees' ability to follow the hierarchy and receive information seems to be less restricted in other networks, which are more flexible. Has been analyzed the collaboration and information sharing among hierarchical levels within a commercial banking organization. This made it possible to assess how effectively this group was collaborating as a decision-making body and to see the extent to which the executive team was connecting to the broader leadership network for informational purposes or effectively communicating decisions to this group. From a diagnostic point of view, these visualizations are important on two fronts. First, they allow us to understand how information tends to flow in and out of the high-level management group. Second, they help us identify any biases in an individual's personal network. This critical information can provide valuable insights for improving organizational effectiveness and developing leadership potential within the organization.

In summary, the analysis of informal networks within organizations reveals the crucial importance of collaboration among individuals with different competencies and the identification of critical issues that cross functional and hierarchical boundaries. Social network analysis offers valuable insights into collaboration patterns, facilitating informed decision-making and organizational development.

Fundamental Principles of Informal Network

This section will explain the fundamental principles of informal network analysis, defining the key figures and clarifying their respective roles based on their positioning within the network. According to Wasserman and Faust (1994), the key concept to be defined are: actor, relation tie, [...], subgroup, group, relation, and network.

- Actor: there has been considerable discussion surrounding the connections and relationships among units, employees, or functions within an organization. These entities, which require interconnection, are referred to as actors—the fundamental unit of measurement in SNA. The word “actor” does not imply that these things must possess free will or the capacity to “act.” Moreover, most of social network

applications concentrate on groups of actors that have a common type (e.g., members of a work group). Actors can be called also “nodes” (Waldstrøm 2001).

- **Relational Tie:** what links and connect actors together. A relational tie could be of different type, from the friendship to any relationship that connect each fundamental unit within the network. Waldstrøm (2001) identify relational tie also as a “link” to which he also attached several properties. One of these is link strength, which measures how much affection, knowledge, or other material is shared between nodes to indicate how intense the relationship is. While reciprocity gauges the extent to which people report the same intensities of reciprocal connection, symmetry reveals whether the relationship is bilateral or asymmetric. The term “multiplexity” describes how people may be part of multiple networks and play various roles inside an organization. Lastly, clarity of expectations shows whether all participants to the relationship agree on what constitutes suitable behavior. Even though these characteristics are clearly observable, they are frequently connected and have the power to affect one another in a social network.
- **Subgroup:** refers to any subset of actors within a network along with all the ties among them. This encompasses dyads, which are pairs of actors connected by a tie, and triads, which involve three actors and their potential ties. Subgroups are vital for understanding network structures and dynamics, as researchers often analyze them based on specific criteria to uncover patterns and relationships within the larger network.
- **Group:** *“is the collection of all actors on which ties are to be measured”* (Wasserman & Faust, 1994). Therefore, a group is made up of a certain number of individuals that are chosen for theoretical, conceptual, or empirical reasons and are the basis of which network measurements are made.
- **Relation:** The set of ties of a certain type that connect a pair of actors in a group and define a relationship between them.
- **Network:** the set of actors and the relationships among them.

It is interesting to identify the different types of actors/nodes that can be faced in an informal network and how they are connected in the network. There are two different studies that classify the different types of actors, giving each of them different names but representing the same concepts.

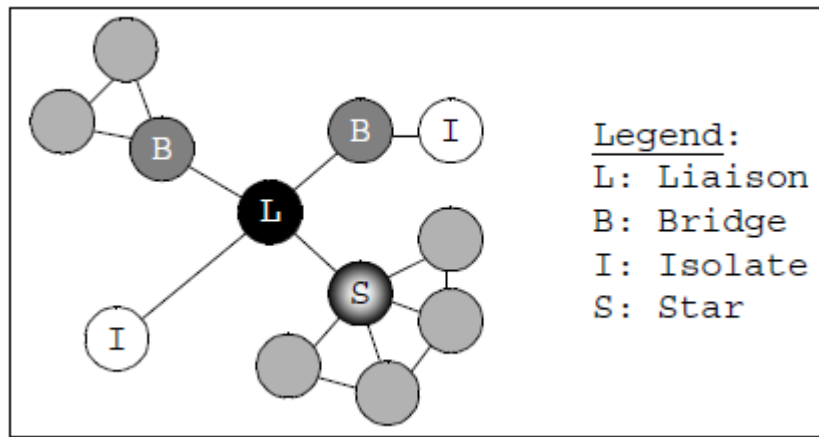
The first role is also the one most easily imagined when thinking of a network, the Central Connector (Cross & Prusak, 2002) also called by Waldstrøm (2001) as the Star. These are individuals play a crucial role in facilitating information flow and collaboration. Despite not necessarily holding formal leadership positions, central connectors are often the go-to people for colleagues seeking information or assistance. The central connectors are also the people who have the most connections. Recognizing and rewarding central connectors is vital for enhancing organizational productivity. While some companies offer spot rewards or incorporate connector performance evaluations into annual bonuses, others implement structural changes to support and amplify their role. However, some central connectors may inadvertently create bottlenecks due to

overwhelming workloads or misuse of their influence. In such cases, interventions may involve redistributing responsibilities, altering incentive systems, or restructuring project teams to foster more efficient collaboration. Identifying overloaded central connectors through network analysis allows organizations to implement targeted solutions, such as redistributing tasks and creating formal communication channels, to alleviate their burden and improve overall network efficiency.

The Boundary Spanner (Cross & Prusak, 2002) or Liaison (Waldstrøm, 2001) are individuals who build connections between different groups within and outside the organization. The sharing of knowledge and skills across departments, satellite offices, and even outside organizations is made easier by these figures. In contexts that need cooperation and information exchange, such as product development or strategic partnerships, they are essential. Boundary spanners are uncommon, though, as they need a certain set of academic competence, wide social networks, and specific personal qualities. Their role involves cultivating external relationships, often cutting across formal organizational boundaries.

In large informal networks, Information Brokers play a crucial role in connecting various subnetworks within the organization (Cross & Prusak, 2002), also called Bridge by Waldstrøm (2001). These people are what keep the network together by serving as intermediaries between different groups. Information brokers are crucial to the efficiency of the network because they have a richness of indirect relationships despite maybe having fewer direct links than the central connectors. Organizations often recognize and support information brokers by formalizing their roles and expertise, designating them as go-to people in specific areas. By empowering information brokers, organizations can enhance information sharing and leverage collective expertise more effectively across the network. However, relying too heavily on information brokers poses risks, as their departure could disrupt the entire informal network. To mitigate this risk, executives should encourage central connectors to expand their connections with subgroups, allowing them to potentially take over information broker roles if needed.

In conclusion there are the Peripheral Specialists (Cross & Prusak, 2002) or Isolate (Waldstrøm, 2001). These actors are part of every informal network, they work at the periphery yet provide invaluable knowledge to the collective. Executives may try to force peripheral experts to become more active, but this might backfire if they are not fully integrated into the network. For a variety of reasons, such as concentrating on maintaining their professional eminence or attending to personal commitments, these people could choose to keep their distance. Forcing them into more activities can lead to resentment and ultimately result in their departure, which could result in the loss of important knowledge. To keep a well-rounded and productive informal network, executives need to value and honor the preferences of peripheral specialists.



Source: Waldstrøm, C. (2001). Informal Networks in Organizations-A literature review.

In summary, knowing the basic concepts of social network analysis offers insights into the informal structures and dynamics of organizations. It is possible to better comprehend how people interact and work together inside these networks by distinguishing important figures like actors, relational linkages, etc. Furthermore, recognizing various actor types in informal networks highlights the variety of responsibilities people play in promoting communication, encouraging teamwork, and preserving network cohesiveness. Identifying and assisting these diverse functions is essential to raising the effectiveness and productivity of the business. In essence, an organization's ecosystem becomes stronger and more productive when all players within informal networks are valued for their contributions.

Types of Informal Networks

Informal networks, based on their characteristics, can be classified into three types: advice, trust, and communication networks, each serving distinct yet interrelated functions (Krackhardt & Hanson, 1993).

The advice network is fundamental for the dissemination of knowledge and expertise, facilitating problem-solving and fostering an environment ripe for innovation. This network proves especially vital in industries characterized by rapid technological advancements and a high demand for innovative solutions. It operates on the principle of seeking and sharing specialized knowledge, thereby enhancing the organization's ability to adapt to new challenges and opportunities. Many studies show that professionals are more likely to turn to people than impersonal sources for information (Cross, Parker, Prusak & Borgatti, 2003). This underpins the critical role those social relationships play in accessing knowledge, solving problems, and learning within professional settings.

In organizational settings, the dynamic of advice between supervisors and subordinates turns out to be one of the central pillars for information flow and problem solving. This reflects the formal hierarchical structure that predominates in most organizations. Supervisors and subordinates interact frequently because these relationships are intrinsically linked to the leadership, support, and decision-making functions within a

company. Indeed, advisory relationships between supervisor and subordinate tend to be more frequent and meaningful than peer relationships (Lazega & Van Duijn, 1997). In addition, the formation of advisory ties within formal subgroups such as departments is generally associated with positive outcomes, supporting the idea that similarity and proximity within these structures can foster collaboration and knowledge exchange (Hunter, Bentzen & Taug, 2020). Extending this concept, Yoon, Jeong, and Park's (2021) empirical study within a Korean paint manufacturing company underscores the nuanced influence of informal network structures on knowledge dissemination. Their findings highlight the pivotal role of between-subgroup network strength in facilitating external knowledge sharing, suggesting that robust connections among different subgroups significantly enhance the exchange of information and expertise across the organizational landscape. This evidence aligns with the notion that strong ties within advice networks can foster a conducive environment for innovation by facilitating the free flow of critical knowledge and insights necessary for addressing complex challenges and leveraging new opportunities.

On the other hand, the trust network, founded on emotional support and mutual respect among colleagues, significantly impacts organizational culture, employee morale, and engagement. Trust networks are essential for creating a supportive work environment where employees feel valued and motivated. The dynamics of trust networks can significantly influence employee retention rates, as individuals are more likely to remain with an organization where they have strong interpersonal relationships and feel a sense of belonging. The role of trust networks in fostering a collaborative and supportive organizational culture is underscored in the work of Krackhardt and Hanson (1993), where two cases were analyzed.

In the first case, a company faces difficulties with a strategic working group charged with proposing a new corporate direction. The group was led by an individual with significant technical expertise, positioning him as a key figure within the advice network. However, his peripheral role in the trust network impeded the group's ability to forge a consensus and advance their proposals. His perceived aloofness and reluctance to genuinely engage with others' ideas meant he struggled to manage conflicts or guide the group towards unified objectives effectively. To address this issue, the company introduced a co-leader, who held a prominent place within the trust network. This strategic move enhanced the group's dynamics and productivity by leveraging Benson's relational capital to foster a more collaborative environment.

The second case illustrates a similar problem with the head of a department, who, despite his technical excellence, is in a marginal position in the trust network and shows deficiencies in managerial skills. This negatively affects the performance and morale of his team.

These examples demonstrate the importance of trust networks in facilitating collaboration and innovation within organizations. They highlight how a central position in an advice network may not be sufficient to ensure a leader's effectiveness if this is not accompanied by a solid presence in the trusted network.

The study by White, Currie, and Lockett (2016) emphasizes that leadership within an organization is not a singular, fixed position but a dynamic set of relationships characterized by the flow of influence through

both formal and informal networks. Leaders recognized for their advice-giving capabilities may also need to be embedded within trust networks to optimize their effectiveness. The presence of leaders who provide support and guidance within these informal networks can signal influential leadership, suggesting that pluralized leadership is as much about relationships and trust as it is about expertise and decision-making.

In essence, the interplay between advice and trust networks is not merely complementary but is also a fundamental characteristic of how pluralized leadership is expressed and nurtured within modern organizations. This synthesis of knowledge sharing, innovation, emotional intelligence, and collaborative culture embodies the multifaceted nature of leadership that extends beyond traditional hierarchical paradigms.

For the purposes of this research is important to underscore the importance of social networks and informal support, particularly for new businesses. According to the study of Welter and Kautonen (2005), during the startup stage, entrepreneurs primarily seek assistance from their social networks, which include family, friends, and business partners. This suggests that personal trust plays a crucial role in this process. Businesses eventually look for more official support systems as they expand, such development agencies, consultants, and business groups.

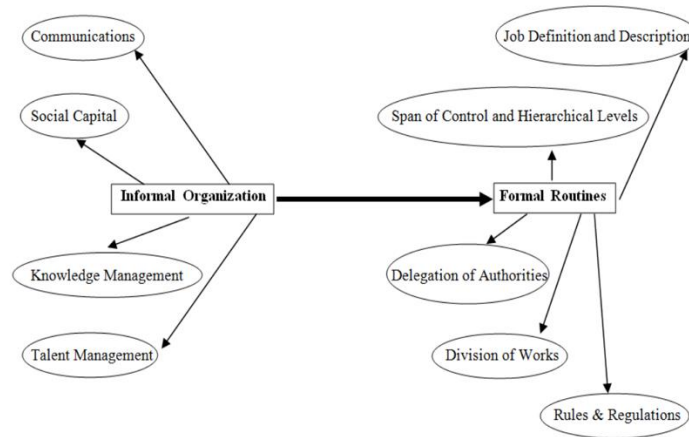
Lastly, the communication network, encompassing the informal channels through which information flows within an organization, often surpasses formal communication channels in effectiveness and speed. This network is instrumental in facilitating the rapid dissemination of information, enabling more agile decision-making processes, and ensuring that employees at all levels are informed and engaged. Indeed, in the study of Krackhardt and Hanson (1993) shows that that the most profitable divisions were not the ones with more communication, but those with high-quality, two-way communication across all levels. Employees who span these communication boundaries and engage in cross-group communications often occupy roles that are crucial for organizational integration, acting as bridges across the ‘silos’ that may form within a company. Women, executives, and members of general management, sales, and marketing functions are particularly likely to be involved in this boundary-spanning communication (Kleinbaum, Stuart, & Tushman, 2008).

The communication network, therefore, comprises the patterns and pathways of interaction among employees, shaped by formal and informal structures within the organization, and is a critical component of how coordination and cooperation are achieved in a modern, complex firm.

In conclusion, informal networks that include trust, communication, and advice networks inside enterprises are vital for improving the performance and flexibility of the company. Advice networks serve as a catalyst for innovation and information exchange, while trust networks support the culture of the organization by affecting cooperation and morale. Networks of communication provide quick and efficient information distribution, which is necessary for making well-informed decisions. Together, these networks operate in concert to provide an environment that fosters innovation, welcomes change, and unites workers around shared objectives. Thus, identifying and fostering these networks may be a very effective approach for businesses hoping to prosper in the dynamic, fast-paced world of modern business.

Relationship between Formal and Informal Organization

“If the formal organization is the skeleton of a company, the informal is the central nervous system driving the collective thought processes, actions, and reactions of its business units” (Krackhardt & Hanson, 1993).



Source: Sarlak, Salamzadeh (2014). Analyzing the impacts of informal organizations on formal routines in a networked organization.

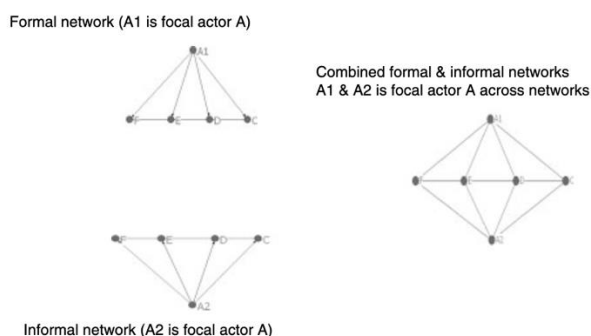
Even though business leaders invest a great deal of time and money in reorganizing organizational charts and structuring their firms, the real work frequently occurs through informal networks, outside these formal arrangements. The informal organization is evolving beyond the formal organization's stated structured ways of functioning. These are dynamic networks that develop and change as workers communicate, exchanging office politics and technical know-how. But since they have little insight into the daily exchanges within their firms or the larger social fabric, managers frequently underestimate the size and makeup of these networks. The challenge for many companies is to manage these networks effectively to capitalize on their potential while minimizing the downsides, such as complexity and potential for information overload (Lowell, Matson & Weiss, 2007). Conventional approaches to overseeing or regulating these networks, such as enforcing rules, engaging informants from within, or holding focus groups, frequently prove ineffective. Managers may enhance and supplement their formal organizational structures by comprehending and utilizing the power of informal networks. This involves not only identifying and leveraging existing networks but also sometimes restructuring them to align more closely with company goals. This method emphasizes how crucial informal networks are to the development of organizations and how a sophisticated approach that balances formal organizational goals with these informal dynamics is necessary.

Indeed, it is important to analyze both the informal and formal aspects of an organization in conjunction, due to the belief that such a comprehensive approach offers a fuller understanding of how

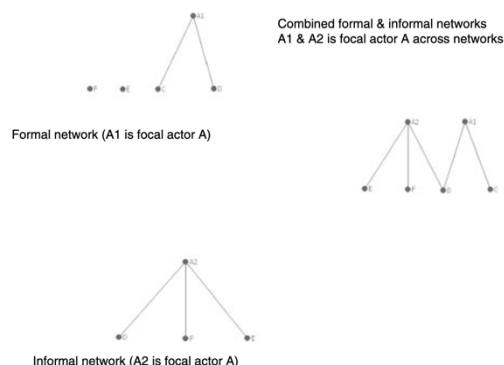
organizations operate. Moreover, these two elements function together, influencing each other in ways that significantly affect the performance outcomes of individual members within the organization.

An interesting measure to analyze is the “network consistency,” which is defined as the degree of overlap between the informal networks of advice and information and the formal organizational structures and processes (Soda & Zaheer, 2012).

Example 1: High consistency for focal actor A across formal and informal networks



Example 2: Low consistency for focal actor A across formal and informal networks



Source: Soda & Zaheer (2012). A network perspective on organizational architecture: performance effects of the interplay of formal and informal organization.

When formal structures and informal networks come together, they help reinforce the fundamental values of the organization by harmoniously reflecting guiding principles in both the social and procedural spheres. This harmony offers workers a simplified atmosphere where their official duties and informal relationships coexist without friction, thus reducing role conflict and overburden. Maintaining this consistency not only makes network maintenance easier and lowers related costs, but it also builds stronger, more reliable relationships that support improved performance and communication. In addition, occupying core positions both formally and informally independently enhances the generation of incremental innovations. These positions provide advantageous access to resources, control over critical processes, and valuable knowledge which, in turn, fuel innovation productivity (Maoret, Tortoriello & Iubatti, 2020). When inventors are central in the informal knowledge-sharing network and affiliated with a core organizational unit, the effect on innovation productivity is not merely additive but multiplicative, suggesting a synergy between the formal and informal structures that significantly boosts innovation. In this prospective, is easy to affirm that the greater the formal distance between two individuals, the less likely they are to establish an informal relationship. However, when such ties do form across wider formal gaps, they can catalyze new pathways for communication that transcend the rigid boundaries of formal organization, allowing for more agile and responsive information flow within the company (Hunter, Bentzen & Taug, 2020).

Indeed, when the formal and informal sectors are too closely aligned, it can limit organizational flexibility by entangling workers in a web of over-embedding that makes it difficult for them to take on new projects or make new relationships. This restriction runs the danger of stifling intellectual variety, which is a necessary component of creativity and flexibility (Soda & Zaheer, 2012). Indeed, for individuals that occupy

core positions in both formal and informal structure the spread of their knowledge ties matters. If their connections are primarily reaching out to peripheral network members, there might be a decrease in incremental innovation productivity (Maoret, Tortoriello & Iubatti, 2020). This illustrates that while a central position facilitates access to varied information and resources, stretching these connections too thin across different groups might lead to a dilution of focus, limiting the depth of engagement required for sustained, incremental innovation.

Lowell, Matson and Weiss (2007) outlined an organizational model that intertwines informal networks with the formal corporate structure, thus creating the so-called “formal network.” As it turns out, in a modern, complex work environment, informal networks develop spontaneously, fueled by the shared interests and knowledge of employees, often independent of the organization’s formal hierarchy. These networks are vital sources of value, as they encourage collaboration and the sharing of best practices. However, they can also lead to complexity and confusion, circumventing management control, causing inefficiencies and sometimes duplication of effort. The adoption of formal networks aims to overcome these limitations by providing a planned and manageable structure for professional collaboration that capitalizes on informal dynamics and elevates organizational effectiveness, reducing the problems associated with unmanaged informal networks. The proposed shift towards organized formal networks aims to harness these spontaneous informal interactions by providing a structured and manageable framework for professional collaboration. By enabling direct pathways for the natural exchange of information and knowledge, formal networks can reduce the search and coordination costs that are typically associated with connecting parties with related knowledge and interests. They also offer a solution to overcome the silo barriers inherent in many organizations, facilitating more effective horizontal collaboration across vertical divisions. Furthermore, in this model, it is clearly defined who participates in the network, based on the skills, professional interests or contribution each member can make to the network’s goals. Leadership within this structure is not only a position but a responsibility, indeed, leaders are held accountable for the performance of networks, which acts as a driving force to nurture vibrant and productive networking communities.

The interplay between formal structures and informal networks within organizations serves as a crucial nexus for innovation, performance, and streamlined operations. Leaders who understand and manage the balance between the formal and informal level of the organization, can unlock potent synergies, enhancing both individual productivity and collective success. However, careful attention is required to ensure this alignment doesn’t become overly restrictive, as the right mix of formal clarity and informal flexibility is key to fostering a vibrant, innovative organizational environment.

Women in Informal Networks

Data on women and organizations now available reveals a variety of issues, including pay disparities, a low percentage of women achieving leadership roles, and a lack of confidence in their abilities and output.

Although there is a broad range of subjects covered in studies regarding gender inequality inside organizations, the focus here is on those addressing the interaction between gender and informal networks.

Both men and women are actively involved in informal networks. Women participate as much as men in these networks. However, the type of engagement and the centrality roles within these networks differ between genders. According to Brass's (1985) research, although women were actively participating in the organization's informal networks, they had a less significant role in the networks that comprised the coalition that dominated the group and was primarily made up of males. Women's perceptions of influence were shown to be lower than those of males in relation to this difference in network centrality. Moreover, the study indicated that women's self-exclusion or exclusion from these crucial networks may be a factor in their underrepresentation in supervisory roles and negatively affect their overall career advancement. This theory is confirmed also by Hosseinzadeh and Kazemi (2012), who state that women may not get the same job satisfaction or advantages from informal networks as men do, despite their active involvement and occasionally prominent roles in these groups. This raises the possibility of a gender bias in the effectiveness of networking for professional growth. The study challenges the notion of gender-based exclusion from these networks by finding that women are active and occasionally important actors in informal connection networks within businesses. Nonetheless, the structure and dynamics of these networks are greatly influenced by the nature of the job. Despite occupying similar positions within the organization, women, received significantly less work-related help from their informal networks compared to men (McGuire, 2002). This disparity persists even when controlling for job and network-related structural factors, such as the position held within the organization, access to confidential information, and the ability to make significant decisions. Indeed, while formal organizational structures and policies are crucial, the informal networks that operate within and alongside these structures play a significant role in reinforcing existing inequalities. This underscores the need for organizations to address not only formal policies and practices but also the informal dynamics that influence career advancement and resource access within the workplace.

Generation X men are confirmed as the most central group within informal networks, probably because they hold leadership roles with greater decision-making authority. According to a study conducted by D'Ingeo, Gila and Sauerwald (2024) men tend to seek advice mostly from other men (of the same or different generation), women, on the other hand generally seek help from both male and female colleagues. Their requests for work advice are also more dispersed with respect to age. This is corroborated by Ibarra (1992) who examined how homophily, the tendency for people to seek out or be attracted to those who are similar to themselves, and the use of individual attributes and positional resources influence the distribution of power within organizations. It has been discovered that men tend to create stronger homophilic ties. Another explanation of this phenomena could be a greater scarcity of female colleagues in higher roles from whom to seek job advice. At more advanced stages of the career path, women are more likely to experience career setbacks and, as in a pyramid, shrinks the percentage of female professionals who make it to senior roles. The result may be greater scarcity of female colleagues in higher roles from whom to seek business advice.

Furthermore, the difference in behavior between genders can be a source of inequality that contributes to networks working better for men than for women. Men are more likely than women to have access to top executives, which is frequently considered essential for networking. During face-to-face conversations, men are more likely to engage with leaders because assertiveness and self-assurance, qualities traditionally viewed as masculine, are used as benchmarks for skill and capability. This prejudice can hinder women's ability to expand their networks by limiting how they display these attributes or how they are perceived (Rua-Gomez, Carnabuci & Goossen, 2024). Men may talk candidly about their accomplishments with superiors, but women may be reluctant to do the same, which over time may result in less acknowledgment. This dynamic implies that women may not achieve network status by only imitating masculine actions, as they may face criticism for their excessive aggression. Because of this, women who want to build high-status networks find it challenging to strike a balance between assertiveness and adhering to gender norms.

Conversely, generation X women are described as particularly influential in providing emotional support. Millennials, on the other hand, are listed as central to soft skills, reinforcing the idea of an active and proactive role that women are playing in shaping corporate culture (D'Ingeo, Gila & Sauerwald, 2024). Furthermore, as seen above, women play a significant role in facilitating cross-boundary communication (Kleinbaum, Stuart, & Tushman, 2008). They are key actors in bridging different groups within the company, which is crucial for spreading information throughout various segments of the organization. Indeed, women are more successful at forming high-status networks through third-party introductions, which act not just as connections, but as personal endorsements and affirmations of their professional abilities, carrying an implicit trust from the mutual acquaintance (Rua-Gomez, Carnabuci & Goossen, 2024). Although women are good at spotting unofficial networks, they don't always use this ability to advance their careers. Strategic utilization of these ties by women may foster real, supportive connections that serve the team, rather than just advancing their own careers. This centrality in corporate support networks, especially in interpersonal skills and emotional support, may reflect gender stereotypes that traditionally attribute greater interpersonal skills to women. However, it also suggests that women can pioneer a new leadership style that values listening and empathy.

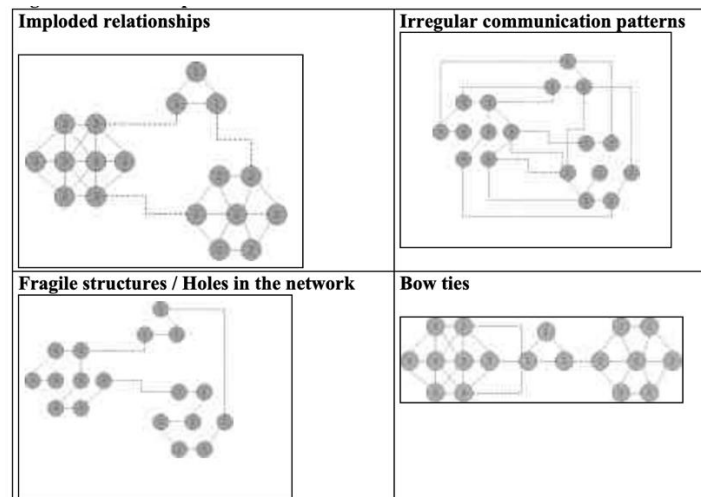
In conclusion, as women continue to actively participate in informal networks and confront gender-specific challenges, the corporate commitment to create network sponsor programs can serve as a key step towards ensuring women not only access high-status networks but also harness the full potential of these connections for career development. Unlike mentorship, which is often more guidance-oriented, sponsorship involves active promotion and advocacy for women's career advancement, leveraging the sponsor's influence to unlock new opportunities (Rua-Gomez, Carnabuci & Goossen, 2024). This concerted effort can shift the dynamic from one where women are less likely to gain the same advantages as men from informal networks, to one where women are equipped with the strategies and support necessary to navigate and ascend within the professional sphere successfully.

Problems in Informal Networks

This section will explore the problems that informal networks can present, which can be of two types: structural or ethical.

Krackhardt & Hanson (1993) have identified the five recurring types of configurations of informal networks that are not per se positive or negative, nor efficient or inefficient. The decisive element is their congruence with the company's objectives. Indeed, it is possible to define these configurations as structural problems and are the following:

- **Imploded relationships:** a significant issue occurs when subgroups within the organization show little openness to other groups, leading to an extreme form of grouping. This situation can cause groupthink and suboptimization phenomena, where the group tends to isolate itself, limiting diversity of opinion and potentially undermining innovation and efficiency.
- **Irregular communication patterns:** conversely, if individuals communicate excessively with members of other subgroups at the expense of interactions within their own group, a cohesion problem may emerge. It is essential to balance internal and external communication to prevent both extremes, ensuring that there is enough dialogue both within and between groups to maintain organizational unity and solidarity.
- **Fragile structures:** in some situations, team members tend to interact exclusively within their own group or only with colleagues from a different department. Fragile social structures may not be able to transmit information quickly or effectively, weakening the organization's ability to adapt and respond to new challenges.
- **Holes in the network:** a high tendency to clustering and limited openness can generate holes in the communication network, hindering the flow of information between subgroups. This configuration can be considered an extension of the problem of fragile structures, as it prevents smooth and timely communication within the organization.
- **"Bow ties":** this configuration describes situations where two groups or clusters depend on one or a few individuals (boundary spanners) to transmit information from one group to another. Although slightly better than the holes in the network, the butterfly tie situation represents a weakness in the network, given the risk of bottlenecks at those critical points where dependence on a few individuals can slow or disrupt the flow of information.



Source: Waldstrøm, C. (2001). Informal Networks in Organizations-A literature review.

So far, it has been seen that the use and exploitation of informal networks succeeds in greatly increasing the exchange of knowledge, information, and, in general, significantly increasing the performance of organizations. But if not identified and properly analyzed they can also lead to significant negative consequences that, in this study, will be identified as ethical problems.

First, informal networks can facilitate corrupt practices through relationships based on trust and exchange of favors, where individuals expect reciprocity in ways that violate ethical and legal principles. Dense networks can become protected environments in which corruption flourishes because members feel safe from being sued. At the same time, strong internal cohesion can hinder innovation and promote a culture of homogeneity that limits diversity of thought and efficiency. Moreover, the tendency of these networks to emphasize group identity can exacerbate intolerance and social division, damaging social cohesion and democratic institutions (Baycan & Öner, 2023). Furthermore, as seen in the previous section, it has been recognized that social exclusion can be a negative side effect of informal networking, with a particular impact on women due to gendered social contexts that act as barriers to their careers (Horak & Alsarhan, 2022).

If we shift our focus to a more international perspective, however, networking practices differ significantly depending on cultural and geographic context. It shows that while informal networking is generally considered positive, differences in underlying norms, values and ideals can lead to ethical dilemmas for international managers, especially when local networking ideals are not taken into account (Horak, 2022). For example, in settings such as China, *guanxi* is an informal networking practice involving the exchange of favors, gifts, and personal assistance. This practice is critical to business success and is considered ethical and necessary within the local culture. However, for those from a culture where such practices are viewed in a negative light or even associated with corruption, adhering to these methods can present an ethical dilemma. These informal network systems may be efficient routes to desired results, but at the same time they may contravene an international manager's personal or corporate ethical standards.

Therefore, harnessing the presence of informal networks in the right way not only means knowing how to recognize and value them, but also requires deep reflection on one's own beliefs and corporate values, as well as an active commitment to finding a balance between operational effectiveness and ethical integrity. Taking a critical and informed approach to informal networks can help managers identify and mitigate potential ethical risks while promoting business practices that respect diverse cultural norms.

Chapter II

Leveraging Networks for Startup Success

Connectivity and Innovation: The Importance of Networks in Startups

Startups are crucial in innovation processes because they introduce new ideas to the market and transform them into economically sustainable businesses. Their innovation and success depend on the availability of knowledge flows: they influence and are influenced by established firms, are part of clusters where they can access specialized knowledge and can be supported by entrepreneurial ecosystems composed of institutions and other organizations (Henton & Held, 2013). As “pollinators” of knowledge, startups are essential to the present innovation ecosystem because they help spread technological and market information inside open innovation clusters. Open innovation, which Chesbrough (2003) defines as the deliberate use of internal and external knowledge flows to accelerate invention and grow markets, has completely changed how businesses, especially startups, cooperate and compete. Because of their adaptability and capacity to fill global voids, startups not only foster technical innovation but also make it easier for various organizations inside innovation clusters to share vital information (Alberti & Pizzurno, 2017).

In the dynamic world of startups, the ability to build and maintain effective relationships plays a crucial role in the development and success of young companies. These relationships, observable from two distinctive perspectives, internally and externally, function as catalysts for knowledge exchange, access to essential resources, and ongoing support. Internally, as analyzed in the previous chapter of this work, close and harmonious collaboration within the founding team facilitates quick and innovative decisions, creating a resilient and responsive work environment. Externally, connections with customers, investors, and business partners open the door to financial opportunities, strategic advice, and deeper market understanding. In an era where agility and adaptability are key, understanding and harnessing the power of relationships from both perspectives becomes imperative for any startup that aspires to stand out and thrive in the competitive business environment.

From a study made by Mattsson, Helmersson, and Standing (2019) emerged that in the startup context, relationships emerge as key elements that influence not only the startup, but also the development and expansion of companies. The importance of relationships manifests itself as much within the founding team as in interactions with external agents. Internally, relationships among partners evolve and strengthen through the business development process and relate primarily to interactions among foundation team members. These relationships are crucial because they facilitate an exchange of knowledge and skills that are vital to the shaping and evolution of the business model. Indeed, a cohesive team can significantly improve the effectiveness of strategic decisions, accelerating the process of developing and implementing innovative ideas. In addition, a supportive work environment incentivizes the sharing of honest and constructive feedback, which is essential for the rapid iteration of the product or service offered by the startup.

On the other hand, external relationships play an equally critical role, facilitating access to essential resources such as financing, information, and technical expertise that might otherwise be inaccessible. These relationships are vital for navigating through the uncertainties of starting a business and accelerating the product or service launch phase. Entrepreneurs use these relationships to access resources that may not be available internally and to better navigate the entrepreneurial and market ecosystem.

In summary, the relational fabric of a startup-both internal and external-is a key pillar that supports not only the initial survival but also the long-term growth and internationalization of the company. Relationships, therefore, must be carefully nurtured and developed, as the scalability and success of the business depends on them.

For the purpose of this study, it is crucial to clarify what entrepreneurial ecosystems are and how they are related to the concept of network. Ecosystems, comparable to biological systems (Autio & Thomas, 2013), consist of a variety of actors, resources and environmental conditions that determine their durability and performance (Garnsey & Leong, 2010). High-growth firms, particularly high-tech firms, consume resources rapidly and often lack the internal capacity to generate the knowledge needed for timely new ventures. These firms benefit from interacting with actors in their environment to access unique resources and attract entrepreneurial activity. This ability to effectively navigate and exploit opportunities within networks is crucial to their success. Entrepreneurial ecosystems are not only based on networks, but are themselves network configurations, that provides pathways to access resources and funding, as well as facilitating knowledge transfer and reducing institutional barriers (Powell, 2002). These networks are composed of direct and indirect ties that help companies navigate the business landscape, improve their competitive capabilities, and innovate more effectively. In addition, networks influence the effectiveness of ecosystems through their governance structures and relational dynamics. Characteristics such as network density, strength of ties, and centrality of actors are crucial in determining how effectively the ecosystem can support startups and other innovative firms (Scott, Hughes & Ribeiro-Soriano, 2022).

In further analyzing the relational fabric that supports startups, the critical role of social networks in facilitating access to crucial resources and strategic support clearly emerges. Interactions within the ecosystem, which go well beyond the internal ties between founding team members, extend to include a wide range of stakeholders, including investors, advisors, and business partners. These external relationships are critical for navigating through the uncertainties typical of a startup's early stages and accelerating product development and commercialization.

Perotti and Yu (2015) make an interesting contribution on this issue. Indeed, according to them having a strong presence in their community, or "tribe," helps startups exchange important information and resources. Having strong connections within a tribe not only increases visibility but also provides access to possible partners, consumers, and investors. Numerous network centrality measures, including degree centrality and betweenness centrality, may be used to quantify the interconnection within a community. Degree centrality is a measure of a startup's communication activity that shows how many direct links it has. Conversely,

betweenness centrality highlights a startup's potential impact and control over information flow by measuring how much it functions as a bridge inside the network. Startups with high indegree centrality within their tribe tend to perform better. This is because they can count on a greater support, feedback, and amplification of the startup's message and innovations. A high betweenness centrality indicates that the startup is an important node in the network that unites diverse groups and promotes information flow. These kinds of startups are in a better position to spot new trends, possible dangers, and cooperative opportunities.

Startup networks not only act as conduits for resources and information, but also play a crucial role in providing validation and moral support to entrepreneurs, elements that are often underestimated but vital to the long-term sustainability of a fledgling venture (Escalfoni, da Silva & Oliveira, 2020). A startup's ability to weave an effective network is thus as much a matter of building strategic connections as it is of cultivating authentic and mutually beneficial relationships.

In this context, a deep understanding of one's entrepreneurial ecosystem becomes an invaluable asset. Identifying and leveraging the interdependencies within these networks can mean the difference between success and failure. Startups that manage to position themselves at the center of these interactive dynamics not only improve their accessibility to essential resources, but also establish a solid foundation for potential future collaborations, significantly expanding their reach and influence within the ecosystem.

In conclusion, the relationship between startups and their environment is strongly bidirectional: while startups draw from the ecosystem to grow and thrive, they also contribute, through their success and innovation, to the dynamism and vitality of the ecosystem itself. Therefore, care in building and maintaining these networks is not just a strategic practice, but a fundamental element that permeates all stages of entrepreneurial development.

Creativity as the Foundation of Innovation

This chapter has so far discussed innovation and how startups utilize networks to pursue it. However, a fundamental issue that is indispensable for innovation remains unaddressed: creativity. Creativity is indispensable for innovation, serving as the foundation upon which novel ideas are built and developed.

In this context an interesting study by Anderson, Potočník and Zhou (2014) explores several factors that influence innovation and creativity in organizations. Intrinsic motivation is considered a key ingredient for creativity, and prosocial motivation can strengthen this effect. When a person is intrinsically motivated, they perform a task because they find it intrinsically rewarding. This type of motivation is often associated with greater commitment, creativity, and persistence, as people are driven by a sense of personal satisfaction rather than external incentives such as money or recognition. Another factor that influences creativity is the network.

Several studies have explored how social networks influence individual creativity, highlighting those social relationships play a key role in inspiring and sustaining the creative process. Creativity is not only an

individual trait but is strongly influenced by the social context in which a person operates. In fact, social relationships and group interactions can be seen as antecedents to creativity (Perry-Smith & Shalley, 2003). Engaging with a varied range of individuals both within and outside the organization is crucial for enhancing creative abilities. Diversity in experience, expertise, and job responsibilities exposes people to new and innovative concepts, which raises the possibility that they may learn about various methods to solving issues. Understanding how social behaviors affect creativity requires interaction with a variety of associates and increased communication; however, it's also critical to take into account the type of exposure and information shared, which varies depending on the individuals' relationship strength and standing in the network.

Granovetter (1973) distinguishes two categories for social interactions: weak and strong links. Strong ties, involving a high level of emotional closeness and frequent interactions, tend to create dense social networks where information is redundant and there is strong local cohesion. However, these strong ties can lead to an overall fragmentation of the social network, limiting the flow of new ideas and information. In contrast, weak ties, characterized by less frequent interactions and lower emotional intensity, act as bridges between different social circles. These ties are crucial for the spread of information and innovations because they connect individuals who would otherwise be unconnected. Granovetter points out that weak ties are essential for large-scale social cohesion and for the integration of individuals into larger communities.

Information that travels through a weak link tends to come from outside the immediate social circle, being less repetitive and more varied. This exposure to nonredundant information enriches an individual's knowledge in his or her field, not necessarily with creative information, but with a broader and more diverse knowledge base (Perry-Smith, 2006). Individuals with a large number of weak relationships have the capacity to contrast possible solutions with those that their contacts have already put into practice, which enhances their comprehension of the subtleties of solutions and promotes the unconventional mix of ideas. Weak ties can also provide access to different perspectives because they are less dependent on similarities between the people involved. These links signify distinct affiliations with certain social circles, providing a diverse collection of individuals with different backgrounds and ways of doing things. Weak relationships provide access to diverse social groups, which fosters creative processes including divergent thinking the adoption of new approaches (Perry-Smith, 2006).

Perry-Smith and Shally (2003) have developed a model called the creativity centrality spiral. An individual's central position in the network, defined by proximity centrality, reflects the average distance between an actor and other network members. An actor with high proximity centrality can quickly access a wide range of information and resources through direct and indirect ties. This access facilitates creativity by allowing the individual to take informed risks, access different social circles, and obtain a broader spectrum of knowledge and skills relevant to creativity. However, excessive centrality can become constraining, causing stress and conflict due to managing multiple viewpoints and expectations. Conversely, relationships that span network borders can be advantageous for peripheral players since they provide them access to novel and distinct concepts and methods. This job promotes independence and adaptability, two qualities that are

essential for creativity. Diverse viewpoints can be combined by peripheral players with numerous external connections, opening even more opportunities for original solutions (Perry-Smith & Shally, 2003). Indeed, according to the spiral model of creativity and centrality, when innovative ideas draw connections and attention, they become more central in the network. But when centrality rises, information redundancy and homogeneity may stifle innovation. Up to a point where centrality becomes a constraint and reduces creativity, the positive spiral between centrality and creativity persists.

The relationship between position in the network and creativity is moderated by contextual factors such as diversity with respect to the network, cultural norms, and the rigidity of symbolic structures. For example, a cultural environment that fosters information sharing and support for creativity makes social relationships more likely to facilitate creativity (Perry-Smith & Shally, 2003).

To sum up, it is essential to foster interactions among various work groups and foster weak ties to encourage creativity. Professionals should maintain and develop weak ties both within and outside the organization to enhance their ability to think creatively and address problems innovatively. However, it is crucial that individuals do not become overly central in their network, as this may limit their creativity.

In addition, again Perry-Smith and Mannucci, analyze the importance of networks in turning creative ideas into realized innovations, dividing the innovation process several stages. They highlight that characteristic of networks that facilitate one stage can hinder the next. For example, while weak ties are useful in idea generation, they are less effective in elaboration, where the emotional support of strong ties is more critical. Similarly, structural closure useful in implementation can limit the influence needed in promotion. Therefore, creators must continuously adapt their network activation strategies according to the needs of each stage (Perry-Smith & Mannucci, 2017).

In conclusion, social network activation must be flexible in order to facilitate the many stages of the creative and innovative process. To ensure the success of the whole process from concept to innovation, creators need to understand the dynamics of their networks and modify their methods to meet the unique obstacles at each step.

The Strategic Position of Brokers in Social Networks for Innovation

In the context of innovation and creativity, the structure of social and professional networks plays a crucial role in facilitating the dissemination of knowledge and ideas. The concept of “network brokerage” emerges as a key dimension in understanding these dynamics. The figure of the broker, or intermediary, is in a strategic position within the network, connecting individuals or groups that would otherwise remain disconnected. This position allows the broker to access and transfer nonredundant information, potentially positively influencing both his or her own creativity and that of other network members.

Brokers, therefore, by connecting several different groups, are a clear example of weak ties. According to Burt (2004), brokers fill structural holes. Structural holes are defined as empty spaces in the structure of a

social network where there are no direct connections between certain groups or individuals. These spaces represent opportunities for individuals to act as brokers. Those who facilitate connections between disparate groups are more used to a greater variety of alternatives and ways of thinking. As seen above, the importance of weak ties lies precisely in the ability to reach diverse networks and information, brokers exposure enables people to choose and combine novel concepts in ways that are less apparent to those who are part of a small, closed group (Fleming, Mingo & Chen, 2007). In other words, the ability to see and combine different options across structural holes is what transforms intermediation into social capital.

Building on the importance of brokerage in creativity, Li et al. (2018) extend the work by investigating the mechanisms through which brokers boost creativity in the team context. More specifically, it has been found that advice brokers in central positions of advice networks could generate more unique and nonredundant information that was applied to raise the recipients' creative potential. Research has established that the creativity of advice givers improves as well because the brokers integrate ideas from other sources and reflect on their knowledge. This not only helps in generating new ideas but also contributes to creating a creative space collectively. Further positive influences from psychological safety within the team happen because people will be motivated to experiment with new ideas without fear of what will happen because of the latest experiment. Indeed, the dynamic interplay of brokerage, creativity, and psychological safety underscores brokers' multifaceted benefits to innovation within networks.

The decision to seek knowledge from outside one's immediate team or unit is influenced by the density and strength of within-team and inter-subsidiary networks. High-density within-team networks, characterized by strong, frequent interactions among team members, can create a self-sufficient environment where the perceived need to seek external knowledge is reduced. This is due to the development of a common knowledge base and mutual problem-solving capabilities within the team (Hansen, Mors & Løvås, 2005). Strong team ties within the organization must be weighed against wide-ranging external relationships. Strong within-team networks lead to cohesion and efficient internal problem-solving, whereas weak ties and inter subsidiary networks are essential for access to diverse and novel information, leading to innovation and reduced search and transfer costs. Effective knowledge sharing must be strategic in management and ensure the right level of internal team connectivity to leverage collective expertise, along with enough external connections to infuse fresh ideas and views into their work (Hansen, Mors & Løvås, 2005).

In addition to cohesion, another variable to evaluate for the transfer of knowledge and creativity is the size of the team (Arena, 2023). Smaller teams, compared to larger teams, have fewer interactions to manage, which improves coordination and decreases time spent on bureaucratic activities. This structure promotes an entrepreneurial environment in which people can collaborate more closely, take responsibility for their tasks, and deal with challenges more quickly. Small, agile teams can develop new products 37% faster. In addition to speed, smaller teams also tend to be more innovative, generating breakthrough discoveries more frequently than larger groups, disruptive ideas decrease as team size increases, while smaller teams are more likely to create novel innovations (Arena, 2023). The dynamic of small teams is closely related to startups, which often

consist of a small number of highly motivated and collaborative people. This lean structure allows startups to operate with greater agility, adapt quickly to market changes, and experiment with new ideas without the bureaucratic rigidities typical of larger organizations. Startups, like the small teams described by Arena (2023), benefit from more effective communication and better internal coordination, resulting in an accelerated development and innovation process.

To conclude, the interconnection between small teams, startups, and social networks demonstrates how strategic management of team size and internal and external relationships can accelerate the innovation process, leading to disruptive breakthroughs and sustainable long-term success.

Knowledge Sharing and Metaknowledge

Knowledge sharing is a crucial aspect of organizational success, involving the transfer of knowledge between individuals within an organization to drive innovation, development, and learning (de Matos Viegas, 2023). Successful knowledge sharing requires direct communication between individuals to disseminate information effectively throughout the organization, enhancing competitiveness and organizational performance (Abinbuhaybeha, 2023). Knowledge sharing is a fundamental component of knowledge management, where individual knowledge is transformed into organizational knowledge, contributing to enhanced company performance and success (Radosavljević, 2022).

A critical element that facilitates effective knowledge sharing is metaknowledge. Metaknowledge is an individual's understanding of "who knows what," which involves recognizing the knowledge and expertise possessed by others (Ren and Argote, 2011). This concept enables individuals to access more information than they personally have by knowing the distribution of task-related knowledge (Argote and Ren, 2012). Through transactive memory, individuals can identify who possesses specific knowledge, facilitating easier information retrieval from external sources (Ren and Argote, 2011). People often do not know exactly whom to approach for specific knowledge. Consequently, studying individuals' metaknowledge requires consideration of their cognitive processes. This type of knowledge is critical because it enables individuals to effectively navigate within the organization's social networks, quickly finding the right resources to solve specific problems (Cross, Borgatti & Parker, 2001). Different levels of metaknowledge can lead to varying outcomes. Studies have shown that it enhances performance in various organizational settings, including consulting, product assembly, and software development (Faraj and Sproul, 2000; Lewis, 2004). In terms of team performance, individuals with high metaknowledge are more likely to engage in behaviors that promote information processing due to recognizing its importance for team success (van Ginkel and van Knippenberg, 2009). High levels of metaknowledge also lead to a more comprehensive understanding of available knowledge and its distribution. Individuals who have a clear understanding of the skills of others and who value those skills positively are more likely to seek information and learn through social networks. In addition, easy access to other network members' thinking facilitates learning and knowledge sharing (Cross & Borgatti, 2003).

The strategic management of both internal team dynamics and external network relationships is essential for the sustainable growth and success of startups. By leveraging the power of metaknowledge, startups can enhance their ability to innovate, adapt, and thrive in a competitive business environment. This dynamic interplay between knowledge sharing, metaknowledge, and network relationships underscores the fundamental importance of relational fabric in supporting not only the initial survival but also the long-term growth and internationalization of startups.

Overall, the chapter has highlighted the multifaceted role of knowledge sharing, metaknowledge, and networks in driving innovation and organizational performance. The insights provided emphasize the need for startups to carefully nurture and develop their relational networks to achieve sustained success and competitive advantage.

Chapter III

Methodology

Qualitative Research and The Case Study Approach

This chapter describes the methodology used to conduct research on the role of informal networks in innovation and knowledge sharing within startups, with a specific focus on the Mulheres Positivas case study. The objective of the research is to answer the following question, “How can informal networks facilitate innovation and knowledge sharing within startups?”

The research aims to understand how informal relationships among members of an organization can positively influence the process of the organization’s growth and success, specifically through the case of Mulheres Positivas. This study explores the internal dynamics of informal networks, their ability to facilitate innovation, and how these networks contribute to the dissemination of knowledge.

The main objective of the research is twofold and merges organizational and entrepreneurial perspectives. On the one hand, it examines how informal networks among members of Mulheres Positivas have contributed to facilitating innovation and knowledge sharing. This includes studying social interactions, unstructured communication, and the dynamics of trust and collaboration that emerge in an informal setting. On the other hand, it also analyzes the influence of informal networks that are created outside the organization. Indeed, as was analyzed in the previous chapter, in the startup context, development and success do not depend solely on internal resources. Informal external networks can play a crucial role in solving complex problems and fostering innovation. In many cases, startup founders and employees turn to external contacts for advice, feedback, and support on specific issues that may not be easily solved within the organization itself.

This thesis adopts an explanatory qualitative research approach to delve into complex phenomena, behaviors, and experiences. By focusing on the reasons, motivations, and relationships underlying these elements, this methodology offers a deeper understanding beyond what numerical data and statistical analysis can provide. In contrast to quantitative research, which emphasizes statistical analysis of data from research samples, this qualitative method allows for rich, descriptive data collection directly from participants. This approach aids in identifying patterns, themes, and relationships, aligning them with theoretical frameworks or conceptual models to guide the analysis. The emphasis on narrative, description, and interpretation of empirical data underscores the value of qualitative analysis in uncovering the deeper meanings and interpretations of participants’ experiences.

Doing qualitative analysis of informal networks is useful for understanding the deep dynamics that govern social interactions beyond formal structures. The qualitative approach allows rich and detailed data to be collected through interviews, participant observations and personal narratives, offering a more comprehensive understanding of the relationships and connections between individuals. This method allows relationships to be contextualized within their social and cultural environments, highlighting how cultural

norms, social expectations and available resources influence interactions and network dynamics. In addition, qualitative storytelling offers a more human and nuanced view of social phenomena, allowing the exploration of individual motivations and perceptions that shape informal networks (Bellotti, 2014).

The methodology of this research is based on a case study approach, a prominent strategy in qualitative social research. Yin (2009) characterizes a case study as an empirical investigation focusing on a phenomenon within its real-world context, ideal for examining intricate issues that are not easily quantifiable. This approach preserves the comprehensive nature of real-life occurrences, such as organizational behaviors and social dynamics (Yin, 2018). One of the key strengths of this method is its ability to incorporate various data sources, including interviews, observations, and document analysis, thereby enhancing the credibility and validity of the research (Stake, 1995). The selection of cases is a critical component, chosen for their potential to yield significant insights. Flyvbjerg (2006) argues that strategic case selection can enhance the generalizability of the findings. Single case studies are justified when dealing with unique, hypothesis-testing, or exemplary cases (Yin, 2018). As Priya (2021) points out, the interplay between theory and case study research is vital, as case studies play a significant role in testing existing theories.

Selection of Mulheres Positivas as a Case Study

Mulheres Positivas was selected as a case study for this research due to a combination of personal and academic reasons, closely linked to direct experience within the social context in which the organization operates. The initial encounter with Fabi Saad, the founder of Mulheres Positivas, occurred during an event titled “Women & Leadership” held at LUISS on March 10, 2023. This event sparked interest in exploring the work carried out by the organization and the impact it is having in promoting gender equality in Brazil. This interest was further expanded during an exchange period in Brazil, from August to December 2023, which provided an opportunity to immerse in the reality of Mulheres Positivas and gain a deeper understanding of the situation of women in Brazil. This experience offered a unique perspective on the social and cultural challenges Brazilian women face daily, enriching the methodological approach of the research.

Mulheres Positivas is a global ecosystem active in seven countries, dedicated to promoting the personal and professional development of women. Adapting to different cultures and local contexts, Mulheres Positivas operates under different names in various countries: “Mujeres Positivas” in Mexico and Colombia, “Women Plus” in Italy, “Women Choice AI” in Dubai, “Positive Women” in the United States, and “Femmes Positives” in France. This strategy allows Mulheres Positivas to customize its initiatives according to the cultural specificities and needs of each country, ensuring a significant and adapted impact.

Mulheres Positivas operates through three fundamental pillars:

- Skills personal and professional growth: the organization offers over 300 training and development courses designed to improve women’s personal and professional skills. Through their app, users can

access a wide range of educational resources, including online classes, seminars and teaching materials, all aimed at promoting individual growth and competitiveness in the labor market.

- **Combating gender violence:** Mulheres Positivas actively engages in the fight against gender violence by providing support and awareness-raising tools. The application offers specific features such as free psychological support and access to help lines for women in dangerous situations. Initiatives such as the “Caminho Delas” are designed to increase personal safety, including collaborative maps to mark safe areas. More specifically, “Caminho Delas” is a project launched in collaboration with TIM, aimed at improving the safety of women by allowing them to share their travel routes and identify safe paths within cities. This feature uses real-time data and feedback from users to highlight secure areas and provide women with a safer commuting experience.
- **Promoting financial independence:** facilitating access to work is another key pillar of Mulheres Positivas. The organization works with over 200 partner companies to create targeted employment opportunities for women, especially in contexts where access to work for the female gender has historically been limited. To date, the app is the leader in the Latin American region in terms of job offers aimed at women, with more than 80,000 dedicated job vacancies.

The choice of Mulheres Positivas as a case study is further motivated by the alarming situation of women in Brazil, highlighted by the Atlas of Violence (2024). This report underscores the extreme vulnerability of young girls to sexual abuse and domestic violence, with 49.6% of violence notifications for girls aged 10 to 14 involving sexual abuse and 65.2% of notifications of violence against women in 2022 attributed to domestic violence. Moreover, 62% of femicide victims in Brazil are black women, a statistic that emphasizes the urgency of targeted interventions.

In this context, Mulheres Positivas not only provides crucial support and resources but also engages in raising awareness and educating Brazilian society on critical issues such as gender-based violence and equality. The selection of Mulheres Positivas as a case study allows for an exploration of how informal networks within a startup can foster significant social change and how these dynamics can be applied in similar contexts to enhance the impact of initiatives supporting women. Ultimately, this research on informal networks is itself the result of a series of informal encounters between Fabi Saad and the researcher. These interactions gradually led to the selection of Mulheres Positivas as the case study and the subsequent development of this research. The organic nature of these informal meetings underscores the significance of informal networks, not just as a subject of study, but as a catalyst for the research process itself.

Data Collection and Participant Overview

Data collection was mainly conducted through semi-structured interviews and analysis of relevant documents. This approach allows for rich and detailed qualitative data, providing an in-depth understanding of participants’ experiences and perceptions. The questions were designed with the aim of helping to answer

the research question with clarity and depth, ensuring that they are consistent with the theoretical frameworks, the substantive problem under investigation, and the main objective of the research (Chidiac, 2015).

Before conducting the interviews, an initial meeting was held just with the founder of Mulheres Positivas to gain a comprehensive understanding of the startup's history, mission, vision, and overall goals. This preliminary discussion provided valuable context that informed the subsequent interviews and analysis.

Each participant was asked the same set of questions to ensure that individuals in different roles were interviewed on the same topic. This approach aimed to obtain complete and comparable data, while simultaneously avoiding bias or errors that could arise from using different procedures for each respondent. However, the method was that of the semi-structured interview, so unlike a structured interview in which the interviewer asks the same questions to all the interviewees in the same sequence, in this case although the questions were the same for each, the order could vary, this was to be able to make the interview smoother and therefore be able to adapt the sequence to the flow of the conversation.

The interviews were conducted over a time from July to August 2024. Each lasted about 40 minutes and was structured on 11 questions divided into four blocks to be able to analyze the answers from the personal, work, and social and political context aspects. The interviews were divided into sections to ensure complete coverage of the areas of research interest. Each block of questions was designed to explore specific aspects of informal networks, innovation, and leadership within Mulheres Positivas.

The first part can be defined as ice-breaking, that is, an initial part to put the respondent at ease and empathize with the interviewer and the topic at hand. The first block of questions focused on the history and early development of Mulheres Positivas, asking questions to gain an understanding of the genesis of the organization, the vision of the founder, and the first steps taken to build the ecosystem. This historical context is essential to understanding how the informal networks developed from the beginning. The second block of questions focused on innovation and creativity within Mulheres Positivas, with particular reference to specific projects such as Caminho Delas, to understand how informal networks contributed to the generation of innovative ideas and the implementation of new projects, highlighting concrete examples of success. In the third block, questions focused on the use of metaknowledge, exploring how the organization manages and uses awareness of available skills and knowledge, analyzing the methods and tools used to track and communicate these skills, and the impact of metaknowledge on efficiency and innovation. Finally, the fourth block focused on the role of informal external networks in solving complex problems and fostering innovation, investigating how Mulheres Positivas members use their external contacts for support and feedback, and the importance of these networks to the organization. This methodological approach made it possible to collect comprehensive and comparable data, ensuring an in-depth understanding of the internal and external dynamics that influence innovation and knowledge sharing within the organization.

Accordingly, the interviews conducted involved 4 key personalities within the reality of Mulheres Positivas:

- Fabi Saad: the founder of Mulheres Positivas, named by Forbes as one of Brazil's 20 most influential women in 2022, combines a strong background in social communications digital marketing and women's leadership at Oxford. She is the author of 4 books and is recognized as a reference on gender issues in South America;
- Alexandre Cenerli: Mulheres Positivas' operations and business development director with over 20 years' experience in the market and a specialization focused on telecommunications. He oversees all operations to ensure process efficiency, aligning daily activities with the business goal of developing innovative solutions that create genuine social impact. On the commercial front, he develops strategic partnerships and creates targeted sales strategies to expand market presence and deliver value to customers and partners committed to diversity;
- Débora Manezes: Mulheres Positivas' head of customer experience and marketing digital, with extensive experience in product management, innovation and digital channels. She is the responsible for managing in-house and outsourced staff, as well as the results of all partners and suppliers;
- Mayra Bervenuto: Mulheres Positivas' business support specialist, she combines her background in production, marketing and administration to strengthen and innovate the business processes.

In conclusion, the process of data collection through semi-structured interviews provided a comprehensive and articulate view of Mulheres Positivas' internal dynamics, highlighting how informal networks, both internal and external, play a crucial role in fostering innovation and knowledge sharing. Interviews with the organization's four main stakeholders provided valuable information on skills management and development, as well as leadership and implementation of social impact-oriented strategies.

Chapter IV

Fostering Innovation through Informal Networks: the Mulheres Positivas case

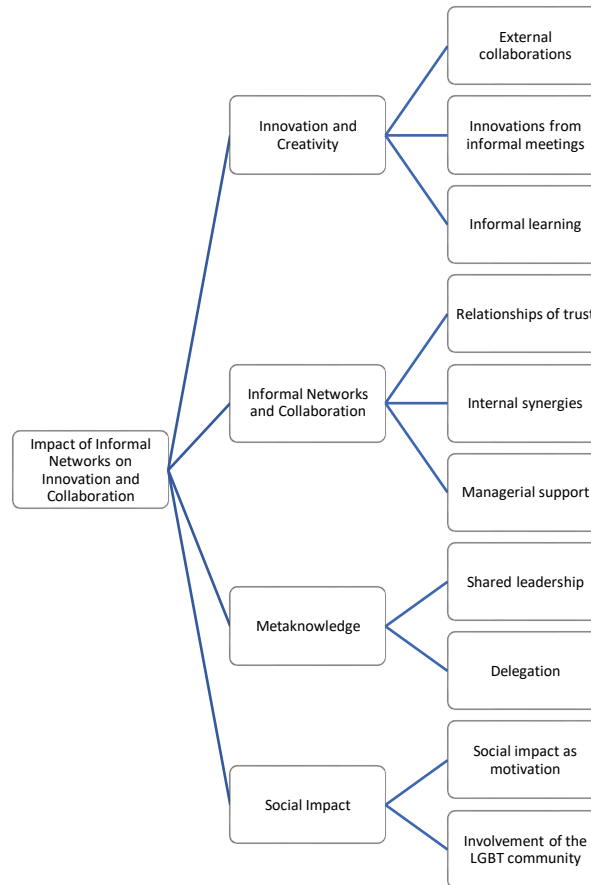
Data Analysis

The analysis of the interview data was conducted using a three-stage coding process: open coding, axial coding, and selective coding. This approach made it possible to identify key themes and synthesize them into main concepts that reflect the dynamics that emerged from the Mulheres Positivas case study.

In the open coding phase, interview transcripts were analyzed to identify key concepts and ideas. Each unit of meaning was coded, making it possible to recognize recurring themes such as “innovation”, “informal networks”, “mutual support” and “knowledge sharing”. This initial process generated a wide range of codes that reflected both the personal experiences of the participants and the organizational dynamics of Mulheres Positivas.

In the axial coding, the codes that emerged were organized into broader categories based on similarities and relationships between concepts. For example, the concepts of “informal discussions” and “spontaneous collaborations” were grouped under the broader category of “Informal Networks and Collaboration”. Similarly, concepts related to awareness of competences within the organization were brought together under the category of “Metaknowledge”. This step made it possible to structure the information and highlight the links between the main themes.

In the final stage, known as selective coding, the main themes of the analysis were selected and defined. These themes summarize the identified categories into key concepts representing the synthesis of the collected data. The following chart illustrates the main themes that emerged from the analysis of the interviews conducted, summarized through the process of open coding, axial coding and selective coding. The categories identified reflect the dynamics that characterize the Mulheres Positivas ecosystem, highlighting the impact of informal networks on innovation, collaboration, meta-knowledge and commitment to social impact.



Findings and Results

This paragraph presents the findings emerged from the interviews. The results will be exposed according to the scheme above.

One of the central issues that emerged was Innovation and Creativity, that is, how innovative ideas are often the result of informal conversations and interactions within and outside the organization. The Caminho Delas project is a concrete example of how a simple conversation led to the development of one of the most successful initiatives of Mulheres Positivas. The Caminho Delas project is one of the most significant examples of how informal networks can give rise to innovative projects with great social impact. The idea originated during an informal meeting between Fabi and a girl, who was working on a project for women's safety on the streets of Milan. During a mentoring event in Italy, Fabi saw the potential of adapting and bringing this project to Brazil, with the aim of creating a local version that would meet the specific needs of Brazilian women, *"I spoke to this girl, Eleonora, and asked if I could take this project to Brazil...."*. The informal meeting with Eleonora not only generated the initial idea, but also initiated an international collaboration, demonstrating how informal networks can break geographical and cultural barriers to foster innovation. Fabi then worked with Alexandre and the Mulheres Positivas team to structure the project and adapt it to the Brazilian context.

Another crucial aspect of Caminho Delas is the role played by the collaboration with TIM, one of the project's main partners. After bringing the idea to Brazil, Fabi and her team entered protracted negotiations with TIM, proposing the project as a marketing strategy that would not only have a positive social impact, but also promote the brand. The partnership enabled the technological development of the application, integrating safety features for women and involving TIM shops throughout Brazil. This phase of the project is another example of how formal and informal networks can coexist, with personal and professional interactions creating opportunities for growth and innovation. The long negotiation with TIM, which saw Mulheres Positivas' team engaged in a continuous exchange of ideas and project adaptations, demonstrates the importance of informal networks in building trust and collaboration between partners. Caminho Delas consolidated Mulheres Positivas' reputation as an innovative and social impact-oriented organization. It has also strengthened the organization's capacity to create strategic alliances, demonstrating that informal networks can evolve into valuable formal partnerships. Looking to the future, the success of this project provides a model for the development of other initiatives that can arise from simple conversations and spontaneous collaborations.

Another key theme is Informal Networks and Collaboration, which refers to the crucial role of these networks in facilitating cooperation between team members and external stakeholders. Informal discussions, such as those reported by Mayra and Débora, facilitated the sharing of practical knowledge and the adoption of new strategies, contributing to the growth of the organization. Débora provided a concrete example of the potential of informal networks when she described how a simple conversation with a colleague from another organization led to significant improvements in her work. During a coffee break, a casual discussion allowed Débora to acquire new ideas on how to tackle a technical challenge related to software systems integration. These ideas, born from an informal interaction, were successfully applied to the project she was working on, demonstrating how informal networks are often the place where critical information exchanges take place that lead to innovative solutions. *"During a coffee break I was talking to a colleague from another team described an approach that had led to significant improvements in his work. This exchange inspired me to go deeper and subsequently apply some aspects of the method, adapting it to our project, with very positive results."*

Another example of informal collaboration at Mulheres Positivas concerns Mayra, who explained how informal support from managers was crucial in helping her make operational decisions. Often, in moments of uncertainty or when faced with a difficult choice, Mayra was able to rely on informal conversations with her managers, who offered her advice and guidance without the need to formalize a request for support. These moments of spontaneous collaboration not only facilitated the decision-making process, but also strengthened the bond of trust between Mayra and her superiors.

A key aspect that also emerged was Metaknowledge, which proved to be crucial in solving problems and developing projects. Both Fabi and Alexandre emphasized the importance of team members' awareness of their skills and resources, which is essential for delegating tasks and maximizing operational effectiveness. A clear example of how metaknowledge is used in Mulheres Positivas was described by Fabi, who emphasized how she is fully aware of the skills and strengths of each team member. This awareness allows her to

strategically assign the most suitable tasks to each person, optimizing resources and ensuring that the right people are working on the right problems or projects. *“If I need someone to negotiate, of course I call Alexandre.”*

Informal networks within the organization further strengthen metaknowledge, as through informal interactions, conversations and spontaneous collaboration, team members can learn more about each other's competencies. This continuous learning process is essential to develop a metaknowledge that is not static but adapts to new challenges and internal developments. Alexandre described a situation where metaknowledge enabled a gap in the team to be filled through collaboration with external experts. In this case, the awareness of those who possessed the necessary expertise, inside and outside the organization, made it possible to carry out a project with great impact: psychological support for the users of the Mulheres Positivas app. *“We called a partner who works with psychologists, and he said he could help us. Now we are doing a psychological support project on our app.”* This situation clearly illustrates how metaknowledge is not limited to the internal boundaries of the organization, but also extends to external networks. Alexandre was able to identify and engage an external expert, to fill a specific gap in the team's expertise and provide a psychological support service via the app. This demonstrates the importance of knowledge of external networks and the ability to access these resources to expand the organizations' operational capabilities.

Another theme that emerged was Social Impact, represented by the social mission of Mulheres Positivas that unified and motivated the team. At Mulheres Positivas, the mission to promote gender equality and support social change is the driving force that motivates all members of the organization. This mission is not just an abstract ideal, but a reality lived daily by team members, who feel deeply involved in pursuing a positive impact on women's lives. However, social impact cannot be achieved without a solid foundation of trust and personal relationships, which are essential to build a collaborative and cohesive work environment.

The mission of Mulheres Positivas provides a common purpose that unites the group and creates an emotional connection between members. Alexandre, one of the main team members, spoke about his dedication to the fight against the gender gap, highlighting how this issue is not only a personal challenge, but a global cause that requires collective commitment. *“I believe in the gender gap as a global problem, and it is important for me to do something about it.”* Alexandre's passion for this cause translates into an active and deep involvement in the project. His commitment to social change is not just a personal motivation, but a force that fuels his participation and drives him to constantly contribute to the development of new projects and initiatives, such as supporting the LGBTQ+ community in the Mulheres Positivas app. Fabi also stressed that social impact is the main reason why people decide to join the project. It is not just about work or earnings, but the will to make a difference. This common goal creates a strong sense of belonging and shared values within the organization. *“The people who work with me really want to help women... it's not about the money, it's about the social impact.”*

The strong commitment to the social mission has created the conditions for the development of personal relationships based on trust within the team. People working for Mulheres Positivas share not only a

common purpose, but also a deep mutual respect and trust. This trust is essential for open collaboration and effective problem solving. The trust dynamics at Mulheres Positivas are closely linked to the social impact the organization seeks to achieve. The people who work together share the conviction that their work is really making a difference in the lives of women, establishing a virtuous circle: commitment to social impact strengthens trust and cooperation between team members, while mutual trust makes it possible to tackle complex challenges and realize ambitious projects. Mayra described how internal cohesion have created an environment where people feel free to express their opinions and work together to continuously improve. The presence of a common mission and trusting relationships allows all members to feel part of a united community. *“Today we are very united within the company, and this is very positive for me because I feel free to talk about my work and the improvements that might occur.”*

Mayra’s experience reflects the importance of an organizational culture that values trust as central to the well-being of team members and their ability to collaborate effectively. Trust allows not only for sharing ideas and projects, but also for accepting feedback constructively, creating a climate of continuous improvement.

Discussion

The results of the data analysis confirm and extend several theoretical concepts discussed in the previous chapters. Interviews conducted with key members of Mulheres Positivas revealed that the dynamics of informal networks, metacognition, and mutual trust are essential to promote innovation and collaboration within the organization. These findings find a correspondence with classical and recent theories on social networks and innovation.

Informal networks highlight the relationships among members of an organization as well as between them and external entities, which are not made explicit by the formal structure but help explain the functioning of an organization. The data collected in the interviews show that informal networks in Mulheres Positivas have played a crucial role in the emergence of innovative projects, such as Caminho Delas, which grew out of an informal conversation between Fabi and Eleonora. This confirms the concept of open innovation proposed by Chesbrough (2003), who points out that innovative ideas often result from informal interactions with actors outside the organization. Another key aspect that emerged from the interviews is that informal networks allow for greater organizational flexibility, as team members can exchange ideas without being constrained by rigid hierarchies. This is in line with Granovetter’s (1973) theory of weak ties, according to which less formal and less structured connections facilitate the diffusion of ideas and innovations among individuals in different networks.

Hansen, Mors and Løvås (2005) point out that effective knowledge sharing is strategic to ensuring the right level of connectivity, understood as the ability to maintain and manage internal and external relationships. The interviews revealed that connectivity was a critical factor in the success of Mulheres Positivas. It has enabled the team to create strategic alliances, such as the collaboration with TIM for the technology

development of Caminho Delas, which has expanded the impact and reach of the project. This example reflects the importance of an active external network for innovation and growth, a central concept in connectivity theory. A well-managed network enables startups to overcome internal limitations and make the most of external resources. This is exactly what was observed in Mulheres Positivas, where informal networks acted as bridges to connect individuals with different skills (Granovetter, 1973), fostering both innovation and rapid adaptation to market needs.

Arena's study (2023) adds an important dimension to the concept of connectivity and innovation, highlighting how team size is a crucial variable for efficiency and innovation in startups. Arena points out that smaller teams tend to be more agile and coordinated, with fewer interactions to manage than larger teams. This allows small teams to develop new products faster and generate disruptive innovations more frequently than larger teams. In the context of Mulheres Positivas, the small team allowed for greater flexibility and internal coordination, facilitating effective communication and rapid implementation of new ideas. The agile structure of the organization facilitated the acceleration of development and innovation processes, confirming Arena's (2023) observations. This type of organization fosters individual accountability and close collaboration among team members, as seen in the interviews conducted. The idea that startups with small, motivated teams have a competitive advantage in terms of innovativeness is closely related to the very nature of informal networks. In Mulheres Positivas, these networks allowed team members to collaborate effectively without being hindered by rigid bureaucratic structures, fostering an environment in which innovative ideas can develop rapidly.

The interviews provided insight into the concept of metaknowledge, which refers to the awareness of skills and knowledge within the team. Ren and Argote (2011) argue that transactive memory within organizations increases efficiency and the ability to respond to complex problems. The data collected support this notion, as Fabi demonstrated a strong awareness of his team members' skills, such as Alexandre's ability to negotiate and manage external relationships. This enabled more efficient management of roles and tasks within the organization, improving productivity and the ability to innovate. Alexandre's ability to manage external relationships allowed him to fill a gap in the team by collaborating with external experts (a partner working with psychologists) in order to develop a psychological support project for Mulheres Positivas app users. In addition, Mayra's experience underscored how the informal support she received from managers, based on a deep understanding of individual dynamics and skills, was critical to her ability to make operational decisions. This further reinforces the relevance of metaknowledge, as it enables a smoother flow of information within the team, ensuring that the right people are involved in key decision-making processes.

Another central theme concerns the role of trust networks. According to Krackhardt and Hanson (1993), trust is critical to forging a collaborative and supportive organizational culture. Interviews with members of Mulheres Positivas confirm this assertion. Mutual trust among team members has created a collaborative environment in which people feel free to share their ideas without fear of being judged or suffering negative consequences. This trust has enabled open and honest collaboration, as described by

Debora, who pointed out that informal conversations during coffee breaks have led to significant improvements in ongoing projects, demonstrating the importance of trust networks in facilitating innovation within organizations.

Another aspect that emerged in the analysis concerns the concept of intrinsic motivation (Anderson, Potočník and Zhou, 2014), that is, how an organization's social mission can act as a motivating force for its members. In *Mulheres Positivas*, the desire to make a positive impact in the lives of Brazilian women acted as an intrinsic motivator that pushed team members to work hard. Alexandre highlighted how her commitment to the platform was not only driven by professional goals, but by her deep desire to address the gender gap and promote social equality.

Conclusion

This research highlighted the crucial role of informal networks in innovation and knowledge sharing within startups. Through the Mulheres Positivas case study, it was shown how non-hierarchical and unstructured relationships can accelerate creative processes, facilitate organizational flexibility and promote collaboration. Interviews with key members of the organization revealed how informal conversations and spontaneous interactions, both inside and outside the organization, were the basis for the birth of innovative projects such as Caminho Delas.

The analysis of social networks has confirmed that knowledge sharing through informal networks not only accelerates information transfer, but also helps to overcome the structural limitations of a startup, making problem solving easier. This study also showed that mutual trust and metaknowledge, or the awareness of who knows what within the organization, are key elements in the success of informal networks and their ability to generate innovation.

In conclusion, this research has helped fill a gap in the literature regarding the role of informal networks in startups, demonstrating their strategic importance for success and growth in a dynamic and competitive environment. Informal networks, through weak ties and spontaneous collaborations, are a powerful tool for fostering organizational agility and adaptability to market challenges, suggesting that organizations that know how to harness such dynamics are better equipped to innovate and thrive.

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