

MASTERARBEIT | MASTER'S THESIS

Titel | Title

Costly Information Inefficiencies due to Dissatisfied Employees

verfasst von | submitted by

Alessandro Mistura BA

angestrebter akademischer Grad | in partial fulfilment of the requirements for the degree of

Master of Science (MSc)

Wien | Vienna, 2025

Studienkennzahl lt. Studienblatt |
Degree programme code as it appears on the
student record sheet:

UA 066 915

Studienrichtung lt. Studienblatt | Degree
programme as it appears on the student
record sheet:

Masterstudium Betriebswirtschaft

Betreut von | Supervisor:

Univ.-Prof. Dipl.-Chem. Dr. Markus Georg Reitzig
MBR

Zusammenfassung

Die effektive interne Informationsverarbeitung wird für Organisationen in zunehmend dynamischen Umfeldern zu einem entscheidenden Erfolgsfaktor. Störfaktoren, insbesondere unzufriedene Mitarbeiter, stellen eine konstante Gefahr für den reibungslosen Informationsfluss dar und können die Kommunikation nachhaltig beeinträchtigen. Während sich die Forschung bislang vor allem mit Produktivitätsverlusten durch reduzierten Arbeitseinsatz beschäftigt hat, blieben ineffiziente Informationsflüsse als Folge von Unzufriedenheit weitgehend unbeachtet. Auch strukturelle Folgen wurden in der Literatur bislang vernachlässigt – der Fokus lag hauptsächlich auf individuellen, psychologischen Aspekten.

Die vorliegende Arbeit untersucht den Umgang verschiedener Organisationsstrukturen mit Unzufriedenheit sowie deren Fähigkeit, Kommunikations- und Entscheidungsprozesse dennoch aufrechtzuerhalten. Ziel ist es, Entscheidungsträger im Umgang mit Unzufriedenheit zu unterstützen und eine fundierte Wahl der passenden Organisationsstruktur zu ermöglichen. Mit einem in Python erweiterten agentenbasierten Simulationsmodell wurden die folgenden sechs gängigen Organisationsformen hinsichtlich ihrer strukturellen Resilienz untersucht: funktionale, divisionale, Matrix-, Netzwerk-, Team-basierte und horizontale Organisationen. Simuliert wurden die internen Kommunikationsprozesse sowohl unter stabilen Bedingungen (ohne Störfaktoren) als auch in einem Szenario, in dem Unzufriedenheit künstlich nachgestellt wurde. Ein Parameter reduzierte dabei gezielt die Kommunikations- und Kooperationsbereitschaft der Agenten.

Die Ergebnisse zeigen deutliche Unterschiede in der Resilienz der einzelnen Strukturen, die sich unter Unzufriedenheit zusätzlich verstärken. Besonders bemerkenswert ist, dass einige Strukturen unter Unzufriedenheit bessere Ergebnisse zeigten – ein Hinweis darauf, dass Unzufriedenheit auch als Antreiber für positive Veränderungen wirken kann. Die Arbeit bietet damit neue Perspektiven auf Unzufriedenheit innerhalb von Organisationen und liefert sowohl theoretische Impulse zur Erforschung struktureller Resilienz als auch praktische Orientierung für Unternehmen im Umgang mit internen Widerständen.

Abstract

Effective internal information processing is a key success factor for organizations in increasingly dynamic environments. Disruptive factors, especially dissatisfied employees, pose a constant threat to the smooth flow of information and can significantly impair communication. While research has so far mainly focused on productivity losses due to decreased work effort, inefficient information flows as a result of dissatisfaction have gone largely unnoticed. Structural consequences have been neglected in the literature as well - the focus has mainly been on individual, psychological aspects.

This study examines how different organizational structures address dissatisfaction while maintaining communication and decision-making processes. The objective is to support decision-makers in handling dissatisfaction and to provide a sound choice of the appropriate organizational structure. Using an agent-based simulation model enhanced in Python, the following six common organizational forms were studied for their structural resilience: functional, divisional, matrix, network, team-based, and horizontal organizations. Internal communication processes were simulated under both stable conditions (without disruptive factors) and in a scenario in which dissatisfaction was artificially modeled. A dedicated parameter reduced agents' willingness to communicate and cooperate.

The results reveal clear differences in the resilience of the individual structures, which are even further strengthened under dissatisfaction. It is particularly noteworthy that some structures perform better under dissatisfaction - an indication that dissatisfaction may serve as a driver for positive change. The work therefore offers new perspectives on dissatisfaction within organizations and provides both theoretical impulses for research on structural resilience as well as practical orientation for companies in dealing with internal resistance.

Acknowledgements

I would like to sincerely thank Prof. Dr. Reitzig for his valuable guidance, insightful feedback, and support throughout my master's thesis. His expertise helped me shape and improve my work in many important ways.

A special thanks goes to Robert Janjic, who was a constant source of help during the entire research process. His technical know-how, patience, and willingness to assist, especially with the development of the agent-based model in Python, made a huge difference.

I am also grateful to Ms. Perger for her ongoing organizational support and kind assistance at every stage of this project.

Finally, I want to thank my family for their unwavering encouragement, understanding, and emotional support throughout this journey.

Table of Contents

Zusammenfassung	ii
Abstract	iii
Acknowledgements	iv
1. Introduction	1
2. Literature Review	4
2.1 Information Inefficiencies in Organizations.....	4
2.1.1 Organizational Communication – Definition and Significance.....	4
2.1.2 Information Flow in Organizations	7
2.1.3 Causes of Information Inefficiencies.....	10
2.2 Job Satisfaction and Its Organizational Impact	15
2.2.1 Definition.....	16
2.2.2 Effects of Job Satisfaction	16
2.3 Organizational Structure and Information Sharing	17
2.3.1 Definition and Importance of Organizational Structure.....	18
2.3.2 Types of Organizational Structures	18
2.3.3 Influence of Organizational Structure on Information Sharing.....	24
2.3.4 Organizational Resilience and Information Flow.....	25
3. Methodology	29
4. Results	36
4.1 Overview and Key Metrics.....	36
4.2 Information Flow in Different Organizational Structures	37
4.3 The Impact of Dissatisfaction on Information Flow	41
5. Discussion.....	47
5.1 Summary of Key Findings	47
5.2 Interpretation of Findings.....	48
5.2.1 Key Patterns in the Data	48
5.2.2 Answering the Research Questions	50

5.2.3	Theoretical Implications	51
5.2.4	Surprising Results	55
5.3	Practical Relevance for Organizations	57
5.4	Limitations of the Study	58
5.5	Suggestions for Future Research	60
6.	Conclusion	61
	References.....	63

Figures

Figure 1.	<i>Corporate communication framework.</i>	5
Figure 2.	<i>Types of Information Flows.</i>	8
Figure 3.	<i>Types of Organizational Structures.</i>	18
Figure 4.	<i>Agreement level (convergence) without the influence of dissatisfaction.</i>	39
Figure 5.	<i>Change adoption without the influence of dissatisfaction.</i>	41
Figure 6.	<i>Agreement level (convergence) with the influence of dissatisfaction.</i>	44
Figure 7.	<i>Change adoption with the influence of dissatisfaction.</i>	46

Tables

Table 1.	<i>Agreement level (convergence) without the influence of dissatisfaction.</i>	38
Table 2.	<i>Change adoption without the influence of dissatisfaction.</i>	40
Table 3.	<i>Agreement level (convergence) with the influence of dissatisfaction.</i>	42
Table 4.	<i>Change adoption with the influence of dissatisfaction.</i>	45

1. Introduction

Organizations are increasingly forced to react quickly and flexibly to external changes in a working world that is more and more characterized by complexity, uncertainty, and dynamic change. A key prerequisite for this adaptability is a functioning internal information flow, which serves as the basis for communication, coordination, and sound decision-making processes. In this respect, the organizational structure plays a decisive role, as it has a major influence on how information is distributed, processed, and transmitted within a company. The structure is therefore not only an organizational tool, but a key factor in an organization's adaptability.

To maintain a stable information flow, it is essential to identify potential disruptive factors at an early stage and actively address them. A commonly underestimated factor in organizational practice is employee dissatisfaction. Dissatisfied personnel are often less willing to share or absorb information, which can significantly damage communication and collaboration. While research has so far mainly focused on the individual, psychological consequences of dissatisfaction, such as loss of performance or demotivation, there is a lack of sound knowledge about the structure-related effects on organizations as a whole. In particular, it remains unclear how different organizational structures deal with existing dissatisfaction and whether they remain capable of maintaining an efficient flow of information and sound decision-making ability. Even though its importance is growing amid continuous organizational change, this research gap has remained largely unaddressed in empirical or simulation-based studies.

Here, the thesis seeks to contribute to closing the identified gap. It examines how existing dissatisfaction affects the flow of information within organizations and what structural characteristics help mitigate its negative effects. The aim is to identify organizational forms that are particularly resilient to internal disruptions and can maintain functionality even under adverse conditions. A core focus here is the idea of organizational resilience, defined as an organization's ability to cope with various challenges without being significantly restricted in its functionality. In this context, dissatisfaction is not understood as an isolated individual problem, but instead as a systemic phenomenon that has a structural influence on organizational processes.

A frequently overlooked aspect in organizational research is the question of how dissatisfaction affects the flow of information within different structures - in other words, not only how it arises or how it affects the individual level, but also how it is addressed at a systemic level. While existing literature focuses intensively on the prevention and the psychological aspects of dissatisfaction, it remains unclear how different organizational structures deal with internal discontent. This work, therefore, does not pursue a preventive but an analytical approach: dissatisfaction is considered a given condition, and its effects on core organizational communication processes are analyzed.

The analysis uses an agent-based simulation model programmed in Python. Six common organizational structures are simulated: functional, divisional, matrix, network, team-based, and horizontal. Each is tested under two conditions: a stable scenario and one involving dissatisfaction among the agents representing employees. The model includes a mechanism that allows dissatisfied behavior to be specifically represented. A dissatisfaction parameter influences the likelihood of agents passing on information or adapting to group decisions. Higher dissatisfaction leads to reduced communication and increased isolation - with direct consequences for the information exchange within the network. The model is based on an original version by Puranam and Clement on the diffusion of change and was extended and adapted for this thesis. This approach enables the investigation of causal relationships under controlled conditions and the systematic identification of structural effects.

In contrast to approaches that focus on cultural differences, individual personality traits, or the emotional states of employees, this study exclusively addresses the structural level: Which characteristics of organizational structures influence the handling of internal dissatisfaction and its consequences for communication and decision-making? The study therefore provides important insights into structural models displaying greater organizational resilience, i.e., a particularly high resistance to internal disruptions while maintaining the ability to act and adapt.

The focus of this research is also highly relevant for practical applications. Nowadays, companies are often confronted with internal resistance - for example, during changes, crises, or as a result of tensions between departments. This work not only provides theoretical contributions but also offers a new, structural perspective on the topic of dissatisfaction. By combining classic organizational models with modern simulation methods, it shows how dissatisfaction has a systemic effect and whether it can even

serve as a trigger for positive change. In this context, the study provides practical guidance for managers faced with the challenge of selecting an organizational structure to effectively manage internal resistance. The simulation results assist in evaluating which structural forms are especially effective at maintaining performance and organizational agility even under unfavorable conditions. For managers and decision-makers in particular, the study offers clear guidance on which organizational structures work best when dissatisfaction is already present or about to arise. The findings support selecting a structure that stays stable and resilient, even in challenging situations.

At the core of this investigation lies the question: Which organizational structures can maintain stable communication and decision-making processes despite internal dissatisfaction? The simulation should help to systematically answer this question and open up a perspective on the interplay between structure and internal dynamics that has received little attention so far. Therefore, this thesis is a contribution to the systematic investigation of structural resilience in the context of organizational dissatisfaction with a view to both theory and practice.

There are six chapters in this thesis. Following the introduction, chapter two provides the theoretical framework with an overview of relevant concepts from organizational theory and the emergence and effects of dissatisfaction in organizations. Chapter three outlines the simulation model developed and explains the methodological principles. Subsequently, chapter four presents the results, before these are interpreted and discussed with regard to theoretical and practical implications in chapter five. Finally, the thesis is concluded with a summary of the key findings and an outlook for further research.

2. Literature Review

The following chapter provides an overview of the theoretical foundations of this thesis. To this end, it examines the existing research on information inefficiencies, their causes and consequences, the influence of job satisfaction, and the role of organizational structures in the internal information exchange. The goal is to classify key terms, identify research gaps, and thus create a theoretical basis for the subsequent analysis.

2.1 Information Inefficiencies in Organizations

Although information is one of the most accessible organizational resources, its efficient management remains a persistent challenge, especially when internal dissatisfaction disrupts communication processes. This chapter explores the concept of information inefficiency, its causes, effects, and implications for organizations. The chapter introduces the concepts of organizational communication and information flow, including different types of flows and the reasons behind information inefficiencies.

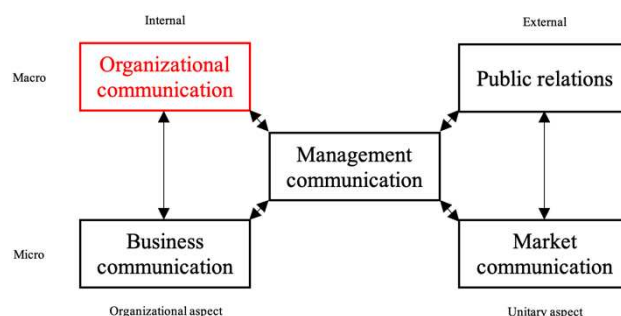
2.1.1 Organizational Communication – Definition and Significance

Effective communication in organizations is crucial for the creation of synergies, the support of important decision-making processes, and a cohesive corporate culture. The decisive role of organizational communication is underlined by one of the most important axioms of communication expert Paul Watzlawick: “One cannot not communicate”. It underlines the tremendous impact of communication on every company and highlights the fact that it shapes every aspect of an organization's activities.

The tremendous importance of effective communication in organizational success is emphasized by Richmond et al. (2005), who define organizational communication as “the process by which individuals stimulate meaning in the minds of other individuals by means of verbal and nonverbal messages in the context of a formal organization” (Richmond et al., 2005, p. 20). Communication can therefore be seen as the element that integrates and connects organizational processes. This perspective is illustrated by Ivancevich et al. (2007), who describe organizational communication as the glue that holds the organization together. Some of the key challenges that organizational communication addresses include

the thoughtful design of internal communication, understanding how and why communication breakdowns happen, and, if they do, how to prevent them. This also involves ensuring that messages are

Figure 1. *Corporate communication framework.*



Note. Adapted from Podnar (2015, p. 6).

received as intended and choosing the right medium for delivering them (Mumby & Kuhn, 2019).

Organizational communication can be considered an internal sub-area of corporate communication, which in turn encompasses "both the total of marketing communication and the large range of forms of organizational communication and management communications" (van Riel 1995, 21), and thus serves as a generic term for all communication within and outside an organization. Other sub-areas of corporate communication are business communication, management communication, public relations, and market communication (Podnar, 2015).

One of the most influential figures in the study of organizational communication is Charles W. Redding. Often referred to as the father of the field, Redding identified four core characteristics that form the foundation of a successful organization: interdependence, task and function differentiation, goal orientation, and control (Mumby & Kuhn, 2019).

Interdependence: Interdependence refers to the mutual reliance among organizational members and indicates that the actions of individual members influence others within the system. For example, students, although they have less authority than professors, have a considerable impact on the faculty, the staff, and the administration of a university. The more complex and global organizations become, the stronger this interdependence grows and the greater the dependence on partners, communication channels, and structures becomes. Minor disruptions, such as delays in raw materials or production

issues, can therefore have a significant impact on the entire system and affect global markets (Mumby & Kuhn, 2019).

Differentiation of Tasks and Functions: Most organizations, from small businesses to large corporations, apply the principle of division of labor, where tasks are distributed so that each member concentrates on their area of expertise. In the early 20th century, two dominant systems shaped the organization of work: Frederick Taylor's scientific management and Max Weber's bureaucracy. While bureaucracy focuses on assigning specific roles to create a rational organizational structure, scientific management aims to find the most efficient methods by analyzing each task (Mumby & Kuhn, 2019).

Goal Orientation: Organizations are inherently goal-oriented and focused on achieving specific objectives. In practice, however, they pursue multiple, sometimes even contradictory goals. For example, different departments may pursue conflicting goals, or there may be tensions between the organization's goals and those of partners, employees, or shareholders. The most common conflicts concern working conditions, environmental impact, or outsourcing (Mumby & Kuhn, 2019).

Control: Control is an important factor in the functioning of an organization, especially when conflicts between objectives occur. While Charles W. Redding distinguishes between authority, rules, plans, and roles, Mumby and Kuhn (2019) identify five overlapping types of control: direct, technological, bureaucratic, ideological, and biocratic control.

Richmond and McCroskey (2008, as cited in Chin-Chung et al., 2017) identify six functions of organizational communication: informational (providing necessary information), regulative (ensuring guideline fulfillment), integrative (coordinating tasks), managerial (motivating and building relationships), persuasive (influencing the fulfillment of tasks), and socializing (involving all members of the organization).

Formal and Informal Communication in Organizations

Within a company's internal communication, the literature distinguishes between formal and informal types. Formal communication occurs through predefined channels that promote efficiency and clarity, and can be either written or spoken. It includes upward, downward, and horizontal flows, typically coordinated by specific departments or supervisory roles (Allan, 2007).

Informal communication, also known as the rumor mill, lacks a defined structure, flows freely, and is therefore a quick and highly valued source of information in organizations. It can take on a written form (emails, notes, etc.) or be passed on verbally (discussions, gossip) from person to person. However, every company must be aware that incorrect information can quickly spread in this way, which is why informal communication, especially across several instances, is less suitable for the transfer of important and complex information (Allan, 2007). According to Bisen & Priya (2009), informal communication can be divided into the following four forms: the single chain describes the flow of communication from one person to another, while in the star chain, one person shares information with several others. In the cluster chain, an individual passes on information to certain others, who in turn pass it on to other specific individuals. The probability chain describes an information distribution process without a specific sequence (Bisen & Priya, 2009).

2.1.2 Information Flow in Organizations

In today's increasingly complex and constantly changing business environment, free information flow is a key success factor for companies. In this subchapter, its importance and definition are examined from an organizational point of view. By analyzing the different types of information flow, from formal to informal channels, insights into the dynamics of information diffusion in modern workplaces are provided.

2.1.2.1 Definition and Importance of Information Flow

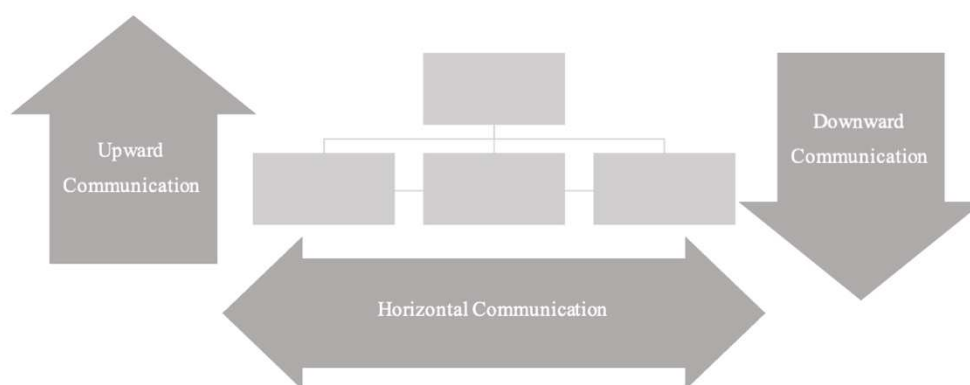
Information flow refers to the transfer and movement of knowledge, data, or messages within and between individuals, departments, or organizations. This flow includes all processes of information distribution and exchange and is an essential component for the successful functioning of organizations. In a constantly changing economy characterized by ever-faster information networks, neither people nor the flow of goods can keep up with the speed of information exchange. Information flows everywhere – not only via technical tools such as computers or telephones but also through human behavior in the form of gestures, facial expressions, and even nature. In short, the flow of information is essential to every form of life (Barwise & Seligman, 1997).

Nowadays, information is one of the most valuable resources for organizations, and access to it represents a decisive competitive advantage. As a result, modern management theory holds that it is the responsibility of leadership to ensure the smooth and efficient flow of information (Mader, 2016). According to Barwise and Seligman (1997), a central question in the theory of information is how objects, events, or situations that are physically separated can still convey information in the absence of direct physical connection. An effective flow of information requires not only a distributed system capable of transmitting data across locations, but also consistent patterns, or regularities, that link these elements and enable information transfer while allowing for a certain degree of predictability in phenomena or events.

2.1.2.2 Types of Information Flows

The direction in which information flows depends, among other factors, on the nature of information. For example, work instructions are typically delivered in a downward information flow. In contrast, real-time updates on production status are often conveyed from lower to higher levels through an upward flow of information. In addition to the type of information, the direction of information flow also depends on both the sender and the receiver of the communication (Dietz et al., 2019). While there is considerable but not complete agreement in the literature regarding the distinction between different types of information flows, it is commonly categorized into three, occasionally four, internal information flows. These categories typically encompass vertical (downward and upward) and horizontal information flows.

Figure 2. *Types of Information Flows.*



Note. Adapted from Lunenburg (2010, p. 2)

Downward Information Flows: The most common direction of communication is the downward flow of information. Here, communication moves hierarchically from top to bottom, for example, from the top management level through various levels of the organization to the lowest level. It is important to note that information is more likely to be distorted or misunderstood the more levels it passes through. Downward communication facilitates the distribution of work instructions, information about the company's vision, the transmission of directional decisions, and similar information units through the levels of an organization (Dietz et al., 2019). Downward information flow characteristics include its one-way orientation, a predominantly written form, a focus on macro issues, and its formal nature (Einwiller et al., 2008). Tools of downward communication include company meetings, notice boards, newsletters, annual reports, employee meetings, and similar means (Dietz et al., 2019).

Canary and McPhee (2011) identify five key purposes of downward information flow: communicating goals and strategies, providing instructions along with their reasoning, establishing organizational procedures, offering performance feedback, and promoting socialization to support cultural alignment and employee engagement (Canary & McPhee, 2011).

Upward Information Flows: In upward communication, information flows from lower to higher hierarchical levels, such as from an employee to a supervisor or from staff to management, and is often transmitted informally. This type of communication functions as a feedback mechanism through which valuable insights into processes and procedures, such as problems, current conditions, and opportunities for improvement, can be communicated to higher levels (Dietz et al., 2019). For upward communication to be effective, it is essential that higher levels of the hierarchy not only permit but also actively encourage it. Equally important is a relationship between superiors and subordinates that fosters honesty and trust (Chin-Chung et al., 2017; Dietz et al., 2019). According to Canary (2011), there are five different types of information transmitted through upward communication, including problems and exceptions, suggestions for improvement, performance reports, complaints and disputes, and information about the organization's finances and accounting. Chin-Chung et al. (2017) emphasize that upward communication tends to be more effective when messages are worded positively, properly timed, consistent with the organization's current policies, and directed to the right person.

Common tools used for upward information flows include reports, notes, employee surveys, supervisor evaluations, employee discussions, department meetings (Dietz et al., 2019), and complaint management (Einwiller et al., 2008).

Horizontal and Diagonal Information Flows: Horizontal information flows take place at the same hierarchical level within an organization and include the informal exchange of knowledge, experience, and information that occurs spontaneously and without constraint (Chin-Chung et al., 2017; Dietz et al., 2019). Canary (2011) categorizes horizontal flows into problem-solving within departments, coordination between departments, and consultation with specialized teams. They take the form of breaks, workshops, intranet, group discussions, seminars, and conferences (Dietz et al., 2019). Diagonal information flows are a hybrid of vertical and horizontal communication, and involve interactions between different levels and departments. The advantages of diagonal communication include higher efficiency, greater speed, and better teamwork, while some disadvantages are neglecting the chain of command, overlooking individuals, and the occurrence of misunderstandings.

2.1.3 Causes of Information Inefficiencies

Despite the huge progress in information technology and the fact that information is both a critical success factor and a potential competitive advantage for companies, many organizations struggle with inefficiencies in their information management. Organizations must identify the drivers of these inefficiencies to realize the full potential of their information capabilities. The following chapter highlights the key causes of information inefficiencies in organizations and draws on insights from management theory, behavioral economics, and information systems research.

2.1.3.1 Information Asymmetry

Information asymmetry refers to situations in which information is unevenly distributed between two or more parties, meaning that one party has better or more complete information than another. According to New Keynesian economist Joseph E. Stiglitz, information asymmetry is about “that fact that different people know different things. Workers know more about their own abilities than the firm does Similarly, the owner of a car knows more about the car than potential buyers ... and so on” (Stiglitz, 2002, p. 469 & 470).

The concept has broad implications for management research and is fundamental to virtually every major organizational theory. Information asymmetries have a significant impact on the areas of strategic management, entrepreneurship and direct international business, organizational behavior and theory, human resource management, and corporate social responsibility. Covering both challenges and opportunities, information asymmetries serve as the basis for many important theories, including agency theory (Jensen & Meckling), transaction cost economics (Williamson), resource-based theory (Barney), institutional theory (DiMaggio & Powell; Zucker), resource dependence theory (Pfeffer & Salancik), and signaling theory (Spence), as summarized by Bergh et al. (2019).

Negative selection is one of the main consequences of asymmetric information and describes a situation in which outcomes are non-Pareto-optimal. Due to such asymmetries, companies offering low-value products grow faster than those selling higher-quality alternatives. This results in a market dominance of so-called “lemons” and a market in which only sellers know the true quality of the products, while buyers base their willingness to pay on the assumed average quality and are thus more easily deceived. As a result, inferior products may crowd out higher-quality ones. George Akerlof (1970), who received the Nobel Prize for his work on markets with asymmetric information, identified several mechanisms to counteract lemon markets. These include providing information to potential buyers through advertising, building a strong reputation, offering guarantees and warranties, setting minimum standards, and using trusted intermediaries to verify product quality. In contrast, Spence recommends a signaling strategy to eliminate adverse selection: measures taken by the seller to emphasize product quality, for instance, by setting a high price (Wankhade & Dabade, 2010).

Another consequence of asymmetric information is moral hazard, which typically arises after a contract has been signed. A common example is when a product is handled carelessly, which goes against the intended use of the warranty (Wankhade & Dabade, 2010).

2.1.3.2 Silos and Fragmentation of Knowledge

Besides information asymmetry, the fragmentation of knowledge and the emergence of silos within organizations are key contributors to information inefficiencies. These barriers hinder the open exchange of knowledge and limit its effective use. According to Mills et al. (2006), an organizational silo arises when employees within one department do not interact with colleagues from other departments, even

though such interaction would offer operational advantages. Silos can also form due to employees' social identity when members of a group see themselves as distinct and seek to preserve that identity in contrast to other departments (Mills et al., 2006). As Hébert-Dufresne et al. (2023) point out, knowledge silos emerge when “structural properties of organizational interaction networks limit the diffusion of information” (p. 1).

Organizational silos are often linked to hierarchical structures, where communication primarily flows vertically – up and down the chain of command (Mills et al., 2006). Bento et al. (2020) describe silos as barriers to the flow of information and open communication that are more of a cultural than a technological nature. According to the authors, silo mentality refers to a lack of systems thinking and an absence of a vision for the organization as a whole. This not only reduces both efficiency and morale but also leads to a reluctance to share information and collaborate across departments.

A silo can lead to various negative behaviors and outcomes. For instance, departments that depend on close collaboration may experience communication breakdowns. It is also common for work to be duplicated or for tasks to be left incomplete when no one clearly feels responsible (Mills et al., 2006). According to Hébert-Dufresne et al. (2023), organizational silos are not inherently good or bad. They may have negative consequences, for example, if they restrict the adaptation of practices or hinder the spread of innovation. Silos can, however, also have positive effects, such as helping to prevent confidential information from being shared outside the silo or strengthening social bonds within teams.

Lencioni (2006) outlines four practical ways to break down silos. Firstly, defining a common thematic goal helps departments work toward the same objective and improves collaboration. Secondly, setting specific goals provides individual teams with concrete and measurable ways to contribute to the overall strategy. Furthermore, regular standard objectives help ensure ongoing alignment and prevent silos from forming due to isolated ways of working. Finally, establishing clear measurement criteria enables progress to be monitored, accountability to be strengthened, and bottlenecks in the information flow to be identified early on (Lencioni, 2006).

2.1.3.3 Cognitive Biases and Heuristics

Rational decision-making theory often assumes that people think logically and always make optimal decisions based on complete information. In practice, however, this is not always the case. Cognitive biases and heuristics are important psychological mechanisms that play a key role in the decision-making process. Kahneman and Tversky introduced the term cognitive bias in 1972 to describe the systematic and imperfect nature of people's response patterns in judgment and decision-making processes (Kahneman, 2011; Tversky & Kahneman, 1974; Wilke & Mata, 2012).

Cognitive biases are recurring thinking errors that distort judgment and cause people to deviate from what should be logical decisions. These biases often arise from mental shortcuts that operate automatically and unconsciously, especially in situations involving time pressure or complex information. As a result, the way people perceive and process information can be influenced to the extent that it leads to incorrect interpretations or inefficient decisions. Closely linked to this are heuristics, which are simple rules or strategies that help individuals make decisions quickly without having to analyze every detail. While these shortcuts are often practical and efficient, they can also become problematic when the underlying assumptions are incorrect or the available information is incomplete (Bazerman & Moore, 2013). One of the best-known biases is confirmation bias, which causes people to perceive information selectively and prefer facts that support their existing beliefs. Information that contradicts their beliefs or challenges previous decisions or judgments is ignored (Nickerson, 1998; Kappes et al., 2020).

The availability heuristic occurs when decisions are based on information that is particularly easy to access rather than an objective analysis of all relevant data. An example of the availability heuristic is the assessment of a start-up company's chances of survival based on all the difficulties it might encounter. The anchoring bias, on the other hand, describes the phenomenon that people tend to be strongly influenced by the first available information, the so-called anchor. If, for example, forecasts are based on such initial information, the various predictions can differ greatly depending on which initial value is assumed (Tversky & Kahneman, 1974). Another common bias is overconfidence. It leads people to overestimate their abilities or knowledge, making false assessments due to excessive self-assurance. In addition to cognitive patterns such as overconfidence and selective perception, motivational factors

such as the desire for a positive self-image also play a role. In addition, group dynamics can further amplify the effect (Moore & Healy, 2008).

In organizations, cognitive biases and heuristics can accordingly lead to poor decision-making, inefficient strategies, and inappropriate investments, as they distort the perception and interpretation of information. In addition, group dynamics can affect the quality of decisions by suppressing critical perspectives. It is therefore important for organizations to take countermeasures, such as debiasing, systematic analyses, and data-based decision-making, to prevent cognitive biases (Bazerman & Moore, 2013).

2.1.3.4 Further Causes of Information Inefficiencies

In addition to the previously discussed key reasons for information inefficiencies, including information asymmetry, silos, and cognitive biases, other factors may also hinder effective information management. The following section outlines additional commonly cited sources of inefficiency.

Information Overload: A common cause for information inefficiencies is information overload, where the amount of information available exceeds the information processing capacity of the recipient. This can lead to dysfunctional consequences such as stress or confusion (Jacoby et al., 1974). As a result, individuals may find it difficult or fail to process the relevant information, which affects decision-making processes and problem-solving abilities. Contributing factors include technological advances, the high availability of information, increasingly complex tasks, and organizational factors such as poorly organized information structures. To prevent these effects, it is essential to provide only relevant information. In addition, software tools can simplify information processing, and reducing the number of information sources can lower complexity (Eppler & Mengis, 2004).

Cultural Barriers: Cultural differences within organizations include variations in values and norms and can influence information processes that affect the perception, interpretation, and dissemination of information. They can significantly influence the flow of information and, according to Hofstede (2002), include specific dimensions such as power distance, individualism versus collectivism, and masculinity versus femininity. The importance of culture in organizational communication is illustrated by Hall's distinction between low- and high-context cultures. While a high-context culture interprets and implies

more, communication in a low-context culture is very explicit and direct. These differences can lead to information deficits when members of different cultures communicate with each other (Hall, 1989). Cultural differences in communication styles often lead to conflicts, misunderstandings, the concealment of information, and distorted decision-making processes (Hall, 1989; Hofstede, 2002).

Social barriers: Social barriers in organizations can arise from group dynamics or established social norms and restrict communication and collaboration. A frequent issue is social conformity, where individuals adapt to the prevailing norms, values, or behaviors of a group, which is often at the expense of diverse opinions and creative ideas (Blundel & Ippolito, 2008). Another example is groupthink, which describes how the desire for harmony within a group can suppress critical thinking and lead to poor or irrational decisions (Booker, 2020). Social hierarchies also influence the way information is shared. While higher status can encourage collaboration and advice seeking, managers who are focused on dominance and who feel that their power is limited may withhold information for strategic reasons (Anicich et al., 2016).

Organizational Structure: Efficient information processing is essential for organizations to manage uncertainty. The structure of an organization plays a key role in how information is collected, processed, and shared (Joseph & Gaba, 2020). Tushman & Nadler (1978) describe organizations as “information processing systems” (p. 614). If the organizational structure is not aligned with information needs, inefficiencies can occur. Too little structure can lead to chaos, poor coordination, and information overload, while too much structure can lead to excessive bureaucracy and slow decision-making (Tushman & Nadler, 1978). In highly hierarchical organizations, multiple levels of decision-making can delay the flow of information and contribute to inefficiencies (Joseph & Gaba, 2020). The organizational structure is considered a central cause of information inefficiencies in this thesis and is therefore analyzed in depth as part of the empirical study.

2.2 Job Satisfaction and Its Organizational Impact

Job satisfaction is a key topic in workplace research and is directly linked to well-being, productivity, and organizational success. It plays a crucial role in engagement and motivation. The following section examines the definition and effects of job satisfaction at both the individual and organizational levels.

2.2.1 Definition

Job satisfaction is discussed from various perspectives in the literature, yet most definitions agree that it is a psychological concept reflecting an individual's attitude toward their job. Terms like vocational satisfaction or job morale are often used interchangeably to help clarify its meaning (Schlick et al., 2010). Generally, it should be understood as an evaluative state characterized by how people think and feel about their work (Neuberger et al., 1978). Locke (1976, as cited in Rosenstiel & Nerdinger, 2011) defines job satisfaction as a positive emotional response to work experiences. Similarly, Spector emphasizes both the cognitive and emotional components and defines job satisfaction as follows:

“... how people feel about their jobs and different aspects of their jobs. It is the extent to which people like (satisfaction) or dislike (dissatisfaction) their jobs. As it is generally assessed, job satisfaction is an attitude. That means it reflects people's evaluations of the job along a continuum from favorable to unfavorable” (Spector, 2022, p. 2).

In the past, job satisfaction was focused on the result of satisfying needs. Today, however, there is a more complex assessment in which both global satisfaction (overall satisfaction) and facet satisfaction (satisfaction with specific work elements) are considered (Spector, 2022). This is particularly helpful for companies to identify existing dissatisfaction and bring about targeted improvements. Satisfaction assessment is primarily based on surveys, as these are simple and scalable, and the results can be standardized (Spector, 2022). The most commonly used job satisfaction survey instruments are the Job Satisfaction Survey (JSS), the Minnesota Satisfaction Questionnaire (MSQ), and the Job Descriptive Index (JDI). Although interviews are less common due to their comparatively high cost, they can provide deeper insights into employee attitudes (Schlick et al., 2010).

2.2.2 Effects of Job Satisfaction

Job satisfaction has far-reaching effects. It impacts both employee performance and commitment as well as the performance of the organization as a whole. Some of the most important consequences associated with job satisfaction include:

Performance: Meta-analyses by Petty et al. (1984) and Davar and Bala (2012) reveal that satisfied employees usually perform better. Spector (2022) similarly confirms that there is a moderate but

consistent link between job satisfaction and performance. Jacobs and Solomon (1977) add that this connection becomes stronger when companies recognize good performance and reward it accordingly. In such cases, employees tend to be happier and more productive.

Organizational Performance: At the organizational level, satisfied employees contribute to higher profitability and better customer satisfaction. According to Harter et al. (2002), satisfied employees increase both the profitability of the company and customer satisfaction. Schneider et al. (2003) identified a correlation between employee satisfaction and better market behavior, for example, an increase in earnings per share (EPS).

Retention and Turnover: As previously mentioned, job satisfaction has a major impact on whether employees stay or leave. Dissatisfied employees are more likely to consider resigning, exploring other job opportunities, and ultimately leaving the organization (Rubenstein et al., 2018). By using a process model of collective turnover, Bartunek et al. (2008) can confirm this relationship: they emphasize that satisfaction strongly influences employees' decisions to stay or leave.

Health and Well-Being: Satisfaction is closely linked to better health and well-being of employees. This close relationship is particularly important in customer-facing areas, where employee satisfaction improves service quality and the customer experience (Benitez & Medina, 2021). Studies by Kornhauser (1965) and Davar and Bala (2012) confirm that job satisfaction is a key factor for the mental and physical health of employees.

2.3 Organizational Structure and Information Sharing

In today's dynamic business environment, effective information flow is essential to success. Therefore, the structure of an organization plays a central role in shaping this process. The following chapter highlights the importance of organizational structures, examines their types, and explores their impact on information exchange. Understanding these dynamics lays the foundation for identifying opportunities in designing efficient communication, collaboration, and innovation. This analysis also serves as the basis for the empirical investigation later in this thesis.

2.3.1 Definition and Importance of Organizational Structure

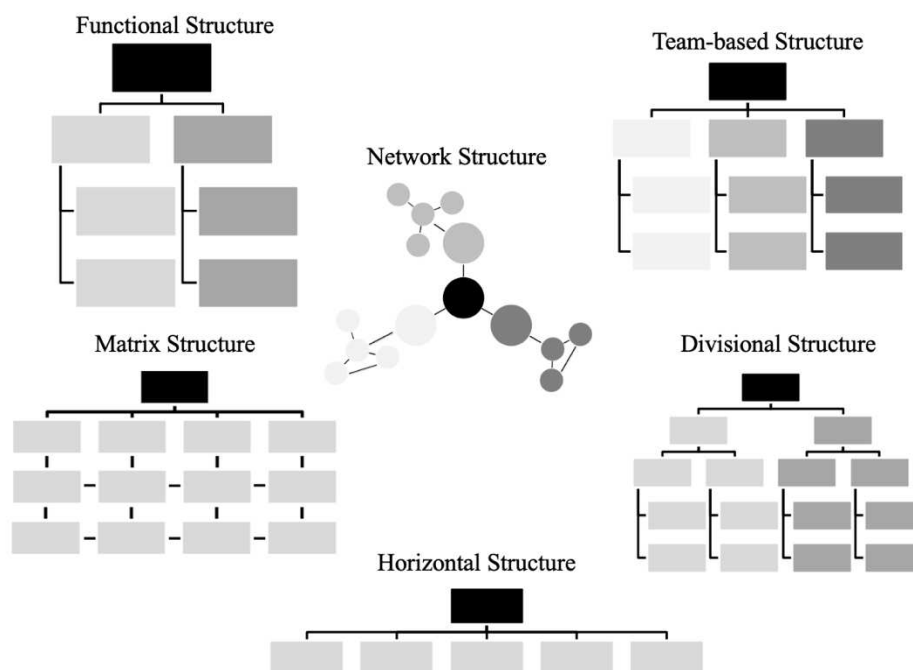
Organizational structure sets the framework for assigning roles, tasks, and communication channels (Bergmann & Garrecht, 2021). It serves as a coordination tool by defining relationships, distributing tasks, and establishing hierarchies (Black & Bright, 2019). According to Barney and Griffin (1992), organizational structures codify relationships between leaders and support coordination by aligning leadership styles and work processes toward shared goals. Similarly, Arnold and Feldman (1986) argue that structure helps coordinate and align work activities and improves information flow.

Since every structure has its strengths and weaknesses, the most suitable choice depends on the specific needs of the organization (Bergmann & Garrecht, 2021). Alfred Chandler's well-known phrase "structure follows strategy" (1969) highlights the importance of adapting organizational structures to align with evolving strategies in order to stay competitive. This kind of adaptation is essential for both medium-sized and large companies facing dynamic market conditions.

2.3.2 Types of Organizational Structures

Every organization has its own needs and dynamics, which is why organizational structures sometimes differ considerably in their structure and are adapted to meet specific requirements.

Figure 3. *Types of Organizational Structures.*



Note. Own illustration.

Each structure has its own strengths and weaknesses and shapes how tasks, responsibilities, and communication are organized. In the following, the most important types of organizational structures are explained in more detail, and their characteristics and functions are analyzed. These include functional, divisional, matrix, network, team-based, and horizontal structures, which are central to the discussion in this thesis.

2.3.2.1 Functional Structure

The functional organizational structure is one of the most widely used and is defined by a clear focus on a company's core areas, such as R&D, finance, marketing, and human resources. Employees are grouped according to their specialization, which allows them to contribute deep expertise and helps boost efficiency (Black & Bright, 2019; Keathley & Harrington, 2020).

Key advantages of this structure are a high degree of specialization, efficient task management, and optimized knowledge exchange within the functional units. Its standardized processes make it especially suitable for mass production, where consistency and efficiency are essential (Ahmady et al., 2016). However, the structure also has weaknesses. Processes can become complex and slow down decision-making. In addition, the centralized control can limit the development of top management talent across departments (Keathley & Harrington, 2020).

A well-known example of a functional organization is Amazon, which organizes its operations around key areas such as IT, customer service, and logistics to efficiently manage its massive e-commerce platform. Although the company maintains a hierarchical structure, the corresponding management levels are minimized. Small working groups enable quick decision-making and ensure a certain degree of adaptability (Keathley & Harrington, 2020).

2.3.2.2 Divisional Structure

Companies with a divisional structure split the organization into units based on product lines, markets, or regions. These units usually operate with a high degree of independence. This approach is particularly common in large organizations that are active in different markets, especially because it allows them to react quickly to changes in the environment. Each department operates largely autonomously in certain

areas, such as product categories, customer segments, or geographical regions (Bergmann & Garrecht, 2021).

According to Ahmady et al. (2016), a divisional structure reduces the decision-making burden at the top management level, as it delegates all operational tasks to the individual business units and instead places the entire focus on strategic supervision. This broad oversight turns the respective divisional heads into “entrepreneurs within the company” and improves important aspects such as flexibility, responsiveness, and decision-making (Bergmann & Garrecht, 2021). Integrating all relevant functions into the individual departments increases the quality and speed of customer service (Black & Bright, 2019).

However, the divisional structure also presents companies with challenges, as effective implementation requires a large number of qualified managers, extensive coordination between departments, and compatible individual systems. Accordingly, the overall administrative effort increases (Bergmann & Garrecht, 2021). In addition, the isolation of business units can hinder communication and reduce the overall efficiency of the organization (Black & Bright, 2019). In order to benefit from advantages such as high flexibility and clear accountability, the organization requires precise coordination and alignment with its strategic needs.

2.3.2.3 Matrix Structure

In order to adapt to particularly complex business environments, the matrix structure combines aspects of different organizational models. Due to its high flexibility and functional efficiency, it is often employed by large multinational and complex organizations such as Procter & Gamble (Keathley & Harrington, 2020; Bergmann & Garrecht, 2021). It pairs functional departments, such as marketing or production, with a focus on products or customers. This creates a dual task specialization where employees typically report to both a functional and a project manager. Such dual specialization enables both functional expertise and a customer or product-focused perspective to be incorporated and promotes customer focus and resource utilization. However, it can also lead to complexity and confusion (Keathley & Harrington, 2020).

The most important advantages of the matrix structure include a strong customer focus, the ability to react flexibly to changes, and a higher level of employee motivation due to the autonomy of the

departments. From a management perspective, the reduced coordination effort increases the focus on strategic decisions, and, with effective management, the matrix offers adaptability and efficient resource allocation (Bergmann & Garrecht, 2021).

However, dual reporting can slow down decision-making and requires skilled managers, which in turn increases administrative costs (Bergmann & Garrecht, 2021). In addition, coordination efforts can lead to conflicts (Bach et al., 2012, cited in Bergmann & Garrecht, 2021), and there is a risk that department managers may prioritize their own goals over those of the company (Bergmann & Garrecht, 2021).

2.3.2.4 Network Structure

The network structure is a flexible alternative to traditional hierarchies that emphasizes customer needs and teamwork, replacing rigid internal processes. Cross-functional collaboration ensures innovation and rapid responses to market changes (Keathley & Harrington, 2020). The structure has evolved from the matrix model and enables companies to remain agile by distributing expertise even with rapid technological changes and shorter product lifecycles (Ahmady et al., 2016). In contrast to static hierarchical models, the network structure involves working on specific tasks in informal networks and multifunctional teams, which in turn means a high degree of flexibility and enables companies to adapt the teams according to project requirements and market demand. The network structure's practical innovation is supported by studies showing that the majority of tasks are completed through the use of networks rather than formal hierarchies (Black & Bright, 2019).

However, this structure is also highly technology-dependent, which means that potential communication errors could negatively impact a company's productivity (Black & Bright, 2019). Such communication problems may increase due to the high level of decentralization, forcing many companies to invest in information technology (Ahmady et al., 2016). Through efficient communication, technology management, and the use of external resources, organizations can mitigate the weaknesses and use the network as a powerful and effective tool (Keathley & Harrington, 2020).

2.3.2.5 Team-based Structure

Modern organizations are increasingly building their structure around the team-based model, seeking to benefit from the flexibility and responsiveness of this approach. The emphasis is on autonomy as well

as on shared collaboration and accountability. Therefore, it is particularly suitable for dynamic organizations and is applied in both public and private sectors to manage complex demands (Bernards, 2023; Groeneveld & Kuipers, 2014). The team-based structure's high level of autonomy is particularly beneficial for innovation and rapid decision-making (Cohen & Bailey, 1997).

A major challenge associated with the team-based structure is cognitive uncertainty resulting from incomplete or contradictory information. In contrast to traditional systems with centralized decision making, this structure requires a visionary leadership style to deal with ambiguity (Bernards, 2023). Clear direction and support are important to avoid conflict and ensure continuous employee engagement focused on organizational goals (Magpili & Pazos, 2018).

2.3.2.6 Horizontal Structure

The horizontal organizational structure aims to strengthen internal communication and collaboration by minimizing hierarchical levels. Compared to traditional vertical structures, it provides employees with more autonomy, which promotes creativity and innovation (Bergmann & Garrecht, 2021). As there are fewer management levels, communication becomes more open, which favors the exchange of ideas and feedback. However, this comes at the cost of less direct supervision due to a lower number of managers per employee (Bergmann & Garrecht, 2021).

This structure is particularly suitable for conglomerates as it facilitates the joint use of resources and strategic alignment across business units. Porter (1985) highlights the potential for creating synergies and improving innovation through the coordination of goals (Verma et al., 2022). Research also highlights positive effects on employee satisfaction and a better ability to respond quickly to market changes (Bergmann & Garrecht, 2021). By reducing hierarchies and fostering cross-divisional collaboration, the horizontal structure provides a solid foundation for organizations operating in a rapidly changing business environment (Verma et al., 2022).

2.3.2.7 Alternative Organizational Structures

As markets and technologies are constantly evolving, organizations often consider traditional structures no longer suitable for today's requirements. In response, new and alternative organizational models are emerging, offering more flexibility, agility, and adaptability.

Virtual Organization: One of the new, increasingly common structures is the virtual organization. It uses digital technologies to connect geographically separated teams and resources, which significantly reduces costs and provides access to global talent. A prominent example of a virtual organization is Dell (Black & Bright, 2019; Bergmann & Garrecht, 2021).

Holacracy: Holacracy is a decentralized structure that promotes autonomy and adaptability throughout the organization with self-organized teams. However, due to the high degree of independence, there is also a risk of ambiguity regarding individual roles (Bergmann & Garrecht, 2021; Black & Bright, 2019).

Flat Structure: In a flat structure, hierarchical levels are minimized, which increases the power and decision-making authority of individual employees. This can promote creativity and team internal communication, but requires a high degree of coordination. It is often employed in start-ups and in creative industries (Bergmann & Garrecht, 2021; Worren, 2018).

Adhocracy: Offering companies a high degree of flexibility, adhocracy focuses on innovation, creativity, and risk-taking. It is used increasingly often in dynamic industries where rapid adaptation is essential, such as the technology and consulting sectors. This structure is designed to motivate employees to experiment and push boundaries. The disadvantages associated with adhocracy include inefficiency in routine work (Black & Bright, 2019).

Platform Organization: The platform organization is designed to facilitate internal and external exchange and usually relies on technology to connect customers and companies. This structure uses network effects to drive rapid growth, is very flexible, and can therefore adapt quickly to market changes. Despite the fact that they often face regulatory challenges, organizations such as Uber and Airbnb demonstrate how successful a platform structure can be (Parker et al., 2016).

Sociocracy: Sociocracy promotes decentralized decision-making and equality. It operates through a network of circles, each of which is responsible for a specific area and is linked to the other circles to ensure coordination throughout the organization. This system is based on the principle of consent, which means that proposals are accepted if no valid objections are raised. Since every member has the opportunity to participate in decisions that affect them, this method promotes inclusion, transparency,

and adaptability. Sociocracy functions best in groups where collaboration and self-organization are primary (Buck & Villines, 2007).

Boundaryless Organization: As the name suggests, a boundaryless organization aims to remove traditional barriers both internally between individual departments and externally to a company's environment. Key aspects are cross-functional teams, the free flow of information, and the ability to react quickly to market changes. However, the foundation for a boundaryless organization is a particularly robust communication system (Ashkenas et al., 2002).

Hybrid Structure: A hybrid structure combines several elements from different structures. Organizations benefit from a high degree of flexibility and the ability to adapt the organizational design precisely to specific requirements, for example, by combining functional and divisional structures. Obviously, this not only has positive effects, but it also increases complexity and complicates decision-making (Daft, 2021).

2.3.3 Influence of Organizational Structure on Information Sharing

The structure of an organization has a significant influence on the creation, processing, and distribution of information. It also affects the way information is communicated and how it flows across all hierarchical levels. In addition to the formal and informal exchange of information, the entire decision-making process and its effectiveness are highly dependent on the structure of an organization (Malenko, 2023).

In organizations, information often passes through multiple hierarchical levels, which increases the risk of barriers and delays in effective communication. Due to this potential risk, increasingly less companies are focusing on soft information (such as contextual knowledge and qualitative data) as it becomes more difficult to communicate as hierarchical differences increase (Skrastins & Vig, 2019). Therefore, especially large companies and financial institutions focus primarily on hard information such as figures and reports. In doing so, they avoid the loss of context and qualitative data. Decentralized structures significantly facilitate information flow by reducing hierarchies, promote employee empowerment at the local level, and enable a better utilization of soft information. Several studies highlight the improved decision management of decentralized structures, as local managers are enabled to make decisions based

on contextual information. In their study on Mexican banks, Canales and Nanda (2012) found that managers with greater decision-making power granted loans to small businesses on the basis of qualitative and contextual data.

Considering previous findings on organizational structure, it becomes evident that employees in more autonomous structures tend to be more committed to collecting relevant data. Furthermore, flat structures appear to support efficient information sharing by reducing communication barriers. Malenko (2023) directly links the easily available information and the associated short market reaction times of a decentralized organization with greater transparency and accountability, and thus with strong corporate governance. Centralized structures, on the other hand, are characterized by an efficient distribution of quantitative data, but are significantly limited in their flexibility.

Organizations need to find a balance between centralization and decentralization, while improving their information processing by leveraging constantly evolving technologies (Bloom et al., 2014). The choice of organizational structure is a crucial factor and should be aligned with both the type of information to be processed - whether qualitative or quantitative – and the company's strategic goals.

2.3.4 Organizational Resilience and Information Flow

Organizations nowadays are constantly confronted with difficulties ranging from technological changes to crises or internal conflicts. To cope with these in the best possible way, they need a high level of resilience: the ability to adapt, recover, and grow stronger. This becomes particularly important when employee dissatisfaction or poor information flow disrupts daily operations. The next section discusses the concept of resilience, its importance for organizations, and its potential to improve communication and reduce information-related problems.

2.3.4.1 Definition and Importance of Organizational Resilience

In a world characterized by uncertainty, crises, and sudden changes, organizational resilience has become a crucial factor in determining success or failure. Vogus and Sutcliffe (2007) define it as “the maintenance of positive adjustment under challenging conditions such that the organization emerges from those conditions strengthened and more resourceful” (p. 3418). The concept of organizational resilience is widely discussed in the literature, and research in this area has developed enormously,

particularly in the years since the early 2000s. Because the literature extensively explores this concept from various perspectives, no single, consistent definition of organizational resilience exists. Accordingly, various terms are used, including organizational resilience, resilience potential, resilience capacity, and resilient organization (Duchek, 2020).

The importance of resilience becomes particularly clear during times of crisis. Companies with a high level of resilience can adapt quickly to changing market conditions, navigate disruptions effectively, and maintain long-term competitiveness. Thanks to this crisis management capability, resilient companies recovered more quickly from the 2008 financial crisis and were able to operate more sustainably (Linnenluecke, 2017). In addition to crisis management, resilience also offers a clear competitive advantage to those organizations that can adapt quickly to changing conditions and are therefore more resistant to market uncertainties and technological disruptions (Vogus & Sutcliffe, 2007). By being able to overcome critical situations and create a competitive advantage, resilience automatically contributes to the long-term organizational viability. By anticipating uncertainty and evolving continuously, resilient companies become less vulnerable to external shocks (Denyer, 2017).

There is disagreement in the literature about how many perspectives the concept of organizational resilience is divided into, but most researchers distinguish between three and four perspectives that represent similar basic views. While Duchek (2020), for example, distinguishes between the three perspectives of resistance and recovery, adaptation, and anticipation, Denyer (2017) divides organizational resilience into the four strategies of preventative control, mindful action, performance optimization, and adaptive innovation.

Due to the diverse approaches in research, organizational resilience is defined in multiple ways. Home and Orr (1997) emphasize its importance in responding to unexpected disruptions, describing resilience as a key ability that helps organizations handle major unexpected changes in a positive way, without falling into long-lasting problems or setbacks (Home & Orr, 1997). Lengnick-Hall et al. (2011) focus on organizational adaptability and define it as a “firm's ability to effectively absorb, develop situation-specific responses to, and ultimately engage in transformative activities to capitalize on disruptive surprises that potentially threaten organization survival” (Lengnick-Hall et al., 2011, p. 244). In contrast,

Somers (2009) highlights a forward-looking perspective, framing resilience as “identifying potential risks and taking proactive steps ... to ensure that an organization thrives in the face of adversity” (p. 13).

2.3.4.2 Impact of Resilience on Information Flow and Inefficiencies

Organizational resilience plays a crucial role in the efficient flow of information and the reduction of inefficiencies in companies. According to organizational behavior expert Karl E. Weick and his well-known sensemaking theory, companies must continuously process and interpret information to reduce uncertainty (Weick, 1995). Information inefficiencies often result from communication silos, isolated departments with limited exchange, slow information processing, and the associated inefficient decision-making processes. Additionally, hierarchical structures can restrict access to relevant information. These factors may lead to delayed decisions and increased operational risks.

Resilient organizations can counteract these problems through agile structures, networked communication, and, as previously mentioned, by learning quickly from crises. Duchek (2020) defines resilience as the ability of organizations to anticipate, adapt, and respond to unforeseen events. Effective information management and a functioning flow of information are essential to respond to change at an early stage.

In their study on crisis management and resilience, Williams et al. (2017) demonstrate that resilient companies can gather, analyze, and provide information quickly. This supports fast decision-making and minimizes delays in the communication process. According to Lengnick-Hall et al. (2011), a resilient organization has a greater capacity to learn, which enables more efficient information processing and reduces inefficiencies through insights gained from past experiences. According to Linnenluecke (2017), organizational resilience refers to a company’s ability to proactively adapt to external shocks and uncertainties, thereby reducing inefficiencies. Flexible communication channels and the removal of rigid hierarchies can optimize information processing and enhance the efficiency of decision-making processes.

Particularly when considering previous crises, it is evident that digital transformation plays a crucial role in strengthening organizational resilience and that the effective dissemination of information can be facilitated by the use of suitable technologies. Browder et al. (2024) examined how digital

transformation affected organizational resilience and how quickly and effectively crisis scenarios could be managed. They analyzed two organizations that operated as so-called essential businesses during the COVID-19 pandemic and showed that previously underused digital capabilities such as virtual access, virtual collaboration, and data-driven decision-making contributed significantly to effective crisis management. According to the authors, the integration of digital technologies not only increases efficiency but also serves as a strategic tool to strengthen resilience. Especially during crises, a flexible and digitally supported flow of information can reduce uncertainties, accelerate decision-making processes, and avoid inefficient structures.

All in all, an effective flow of information is fundamentally important for organizations, as it enables rapid decision-making, increased adaptability in uncertain situations, and general resilience. Particularly resilient companies are often characterized by agile structures and the increased use of digital technologies, enabling them to minimize inefficiencies and adapt flexibly to various challenges. Especially in times of crisis, a high level of resilience not only provides short-term stability but also increases competitiveness in the long term, enabling the sustainable development of organizations.

3. Methodology

The objective of this paper is to analyze the effects and possible differences of organizational structures on the behavior of dissatisfied employees concerning individual information reception, processing, and distribution. For this purpose, an agent-based simulation model was developed to simulate the distribution of information in organizations, taking employee dissatisfaction into account. The following chapter outlines the research design and structure of the simulation model. It provides an overview of its key components, parameters, and the validation approach.

Research Design

An agent-based simulation model replicating real organizational interactions is used to investigate the impact of different organizational structures on the diffusion of information and the adoption of new ideas or processes. The model is designed to explore how structure and dissatisfaction influence information sharing and decision-making, ultimately affecting the overall organizational performance. An extension of an agent-based model was chosen as it allows individual interactions in varying structures to be represented as realistically as possible. This method enables the analysis of information dynamics and the effects of dissatisfaction within organizations to offer insights and practical implications for the design of more effective organizational structures.

Model Overview

The simulation model developed for this master's thesis is based on an agent-based simulation created by Phanish Puranam and Julien Clement to analyze the diffusion of change. Robert Janjic from the Strategic Management subject area at the University of Vienna adapted the model as part of the master's program in Business Administration in the Experimental Methods course. Building on these modifications, the model was further developed in this thesis in order to address additional research questions, particularly regarding the influence of dissatisfaction and different organizational structures on employee communication behavior.

The adapted model depicts organizations as network structures that represent communication channels and relationships between agents (employees). These agents are equipped with individual characteristics (e.g., decision-making ability and satisfaction status) and a certain level of dissatisfaction, which affects their willingness to communicate and interact. The simulation was extended to examine the influence of

six commonly observed organizational structures on organizational communication behavior: functional structure, divisional structure, matrix structure, network structure, team-based structure, and horizontal structure.

These structures significantly shape the information exchange and decision-making processes. Key elements of the model are dissatisfaction (which influences the interaction of agents and the speed of information flow), communication channels (represented by network algorithms that model interactions within the respective structure), and decision-making (based on personal experience and peer influence within the network). These extensions enable a more nuanced exploration of how organizational structures and dissatisfaction dynamics affect performance.

Organizational Structures

The model simulates six different structures that reflect common organizational designs in companies: the functional, divisional, matrix, network, team-based, and horizontal structure. Each structure is represented as a network, with nodes reflecting the agents (employees) and edges representing the communication links. The networks were designed to reflect the real structures and communication processes of the respective organizational forms as realistically as possible.

The **functional structure** is characterized by employees being grouped according to areas of responsibility, and communication mainly taking place within departments. This is represented by very limited connections between the departments and by a tree-like structure that replicates the top-down and bottom-up information flows. The **divisional structure**, on the other hand, organizes teams according to products, regions, or markets, for example. It is simulated through a central management level and by strongly interconnected sub-networks.

The **matrix structure** combines elements of the functional and divisional models, which is illustrated by overlapping communication networks that reflect multiple responsibilities. This structure enables both horizontal and vertical communication and encourages collaboration. With its flexible, informal connections, the **network structure** is simulated by a highly decentralized and random network of agents. The dense network without hierarchy promotes rapid exchange.

The **team-based structure** relies on autonomous groups, which are represented in the model by closely linked clusters. They are only networked with other teams to a limited extent, which promotes flexibility but can make communication between the teams significantly more difficult. The **horizontal structure** has a flat hierarchy and is based on direct communication. It is illustrated by a star network with even connections between the agents and a central node as a coordination base.

Overall, the various structures are designed to reflect the real communication and decision-making processes of each structure as accurately as possible. The interactions between the agents and the exchange of information were modeled accordingly. Communication processes in organizations are significantly influenced by the effects of dissatisfaction and overall organizational efficiency, making these factors central to the modeling approach.

Simulation Parameters

The model uses simulation parameters to analyze the distribution of information and the decision-making processes in different organizational structures. The following parameters define the simulation framework and allow the examination of how organizational structures, individual factors, and, above all, employee dissatisfaction influence information flow and decision-making.

Simulation Duration and Repetitions: The simulation runs over $T = 50$ time periods to observe agent behavior and structural dynamics. To ensure reliable results, each scenario is repeated 20 times, and the average of the results is calculated to reduce random fluctuations.

Number of Agents and Interactions: The simulation contains $N = 10$ agents for each of the six organizational structures.

Model Parameters: The decisive parameters that influence agent behavior are:

- **Softmax parameter (τ):** controls the ratio between explorative and exploitative decision behavior of the agents.
- **Learning rate (ϕ):** determines how quickly agents adapt their behavior based on new experiences.
- **Conformity weight (w):** indicates how much agents prefer social conformity pressure to their own experiences.

- **Dissatisfaction factor (α):** models how dissatisfaction affects agents' willingness and behavior to communicate by reducing the influence of social conformity. As a result, dissatisfied agents become less receptive to external input, which changes the dynamics of information flow within the organization.

Initial Conditions and Environmental Scenarios: The agents' initial states are chosen randomly to simulate a wide variety of decision-making processes. Two states – Status Quo and Change – are used to examine different environmental situations with different payoff structures in order to examine the impact of structural differences on decision-making.

Agent Behavior

The behavior of agents is influenced by individual experiences, social dynamics, and their level of satisfaction. Agents decide between two states: status quo and change. Their decisions are shaped by past outcomes, relationships with other agents in the network, and individual satisfaction.

Individual experience: Agents learn from their experiences with either maintaining the status quo or opting for change. Positive outcomes encourage similar future choices, while negative ones increase their openness to alternatives.

Social influence: The decisions of other agents in the network influence behavior through the communication channels defined by the respective organizational structure. This influence is controlled by the conformity parameter (w): higher values strengthen the network influence, while lower values promote autonomy.

Satisfaction and information exchange: The satisfaction parameter α regulates the willingness to communicate. Dissatisfaction can change communication behavior, thereby limiting the flow of information within the network.

Dissatisfaction and Information Sharing

The model simulates the influence of dissatisfaction on information exchange within a network and aims to replicate the real-world phenomenon that dissatisfaction can lead to a reduction in the willingness to communicate. This can slow down the spread of new ideas and the adaptation to change within an organization. Dissatisfaction is modeled by the parameter α , which affects the likelihood that agents will

share information or adapt to group behavior. An increase in dissatisfaction reduces the frequency of communication and promotes agents' isolation tendencies, which affects information flow.

A higher level of dissatisfaction may cause agents to participate less in group dynamics, leading to slower adoption of new ideas. This can create clusters of differing perspectives or fragment decision-making within the organization. The framework aims to illustrate how dissatisfaction affects the effectiveness of information sharing and decision-making, and how individual attitudes can shape the flow of information.

In the model, dissatisfaction is expressed by a reduction of the social influence on the decision-making behavior of agents. Technically, this is achieved through a weighting mechanism controlled by the parameter α : as dissatisfaction increases ($1 - \text{satisfaction}$), the impact of social influence on an agent's preferences decreases. Dissatisfied agents are less likely to adopt the opinions of others and instead rely more heavily on their own previous experiences. This does not actively block communication, but simulates a lower receptiveness to external stimuli. The mechanism allows to simulate realistic withdrawal tendencies, such as those caused by demotivation, mistrust, or overload.

The simulation can be run with both activated and deactivated effects of dissatisfaction in order to systematically explore the differences between stable and disrupted communication environments. However, it is important to note that dissatisfaction can be artificially switched on or off in the model, whereas in reality, it is usually regarded as a given framework condition. The purpose of the model is therefore not to eliminate dissatisfaction, but to examine which structural settings can help organizations deal with it constructively.

Simulation Process

The model's simulation process examines how different organizational structures influence information flow and decision-making. Each simulation begins by mapping the six organizational structures into communication networks, with nodes representing agents and edges representing their communication links. The simulation runs for each structure over 50 periods, after which each agent evaluates, based on its own experience and the influence of the network, whether to adopt a new state or maintain its current strategy. These decisions are driven by a softmax function, updating the

attractiveness of the options at each step. Factors such as the payoff structure of the organization, dissatisfaction, and the weight of conformity versus individual experience are considered.

In order to analyze the effects of dissatisfaction, each structure was simulated both with and without the activated dissatisfaction mechanism. This allows for a systematic comparison of system behavior under conditions of full receptiveness versus reduced social influence. During each period of the simulation process, the metrics adoption rate, standard deviation, and final agreement level (convergence) are calculated for all six organizational structures to analyze the speed and extent of decision alignment. To ensure robustness, the simulations are run ten times for each structure, and the results are averaged to reduce random fluctuations. This approach yields results that reflect the typical behavior of each structure.

Model Validation

To ensure the reliability and practical relevance of the model, two main approaches for validation were used: logical consistency and comparison with empirical studies.

The algorithms and parameters of the model were assessed to ensure that they correctly reflect the underlying theoretical concepts. In particular, the satisfaction and dissatisfaction functions were examined to see if they produce intuitively understandable changes in agent behavior according to organizational and social science theories. The different organizational structures and their most important characteristics were modeled and simulated as realistically as possible. Central simulation results were compared with findings from empirical studies on organizational dynamics and information distribution. For example, it was analyzed whether hierarchical structures actually exhibit slower information dissemination, while network or team-based structures promote faster coordination between agents. These observed similarities confirm the model's ability to realistically depict real organizational processes. Hence, this validation approach ensures that the model is both theoretically well-founded and practically relevant, and delivers reliable results.

Limitations

Although the model provides valuable and reasonable insights into the influence of organizational structures and agent satisfaction on information dissemination, it has some limitations. For example, it is based on the assumption that agents make their decisions in a highly simplified, uniform way, with

the main sources of deviation being satisfaction levels and structural effects. In reality, however, individual characteristics such as personal preferences, willingness to take risks, or cognitive biases may have a stronger impact and significantly shape the decision-making process.

Furthermore, due to the simplification of the model, it simulates only a relatively small number of agents ($N = 10$). Larger networks might show different patterns, especially regarding the speed of information dissemination or the influence of dissatisfaction clusters. Therefore, future research could provide more detailed insights into the different structures in larger organizations by upscaling the model. In addition, the model does not take into account external influences such as market conditions or technological developments, nor does it consider psychological and interpersonal factors. Nevertheless, these can have a considerable influence on decision-making processes and information flows.

Overall, the results should therefore be seen as an abstract representation that could form the basis for more realistic findings in future research with larger networks, dynamic structures, and more detailed behavioral models.

4. Results

The following section presents the key findings of the study. First, an analysis was made on how different organizational structures affect the flow of information. In a second step, the influence of dissatisfaction was examined to determine how it alters information flow and whether certain structures are more resistant or more vulnerable to it. This is particularly relevant from a corporate perspective, as it raises the question: “How vulnerable is an organization to dissatisfaction?”

The model is intended to address the following research questions:

- Which organizational structure promotes the most efficient flow of information?
- How does this flow of information change when dissatisfaction comes into play?
- Are there organizational structures that serve as a buffer against dissatisfaction, or do some structures rather act as a fire accelerator?
- Which organizational structures are highly resilient to dissatisfaction?

To answer these questions, the results without the influence of dissatisfaction are presented to analyze the performance of each structure in terms of information flow. Subsequently, the effects of dissatisfaction on this process are analyzed, focusing on which structures prove particularly robust or vulnerable. Finally, the key findings are summarized, and their practical implications for organizations are discussed.

4.1 Overview and Key Metrics

To analyze the impact of organizational structure on information flow, a set of metrics was defined that allows for easy identification of differences between structures and evaluates their efficiency and adaptability. The key metrics include:

- **Agreement Level (Convergence):** This measure represents the degree of agreement between the agents in a structure after 50 time periods. A high value indicates effective internal communication and decision-making, as it shows that the agents' standpoints are aligned. A low level of convergence, on the other hand, indicates a more fragmented structure with persistent differences in opinions.

- **Change Adoption Rate:** This rate indicates the proportion of agents who have accepted a change at the end of the simulation. It indicates the extent to which a structure allows new information or innovations to spread. A high value means that new ideas spread quickly, while a low value indicates that existing patterns are difficult to change.
- **Standard Deviation (SD) of Agreement and Change Adoption:** The standard deviation indicates the extent to which the results vary between the simulation runs. A low standard deviation means that the structure delivers consistent results. A high deviation indicates that the behavior of the agents varies greatly, which may indicate a higher degree of uncertainty or instability within the structure.

These metrics form the basis for evaluating how the different structures process information. High convergence indicates efficient decision-making, but can limit adaptability. In contrast, a high change adoption indicates openness to innovation, although often at the expense of stability. This balance becomes crucial under conditions of dissatisfaction, when some structures stick rigidly to decisions while others adapt more flexibly, yet sometimes in a less controlled manner. The evaluation of these values helps to reveal patterns in information flow and structural resilience.

4.2 Information Flow in Different Organizational Structures

Now that the key metrics have been examined in more detail, the influence of the various organizational structures on information flow in organizations and the underlying dynamics are analyzed using these measurements. Particular focus is placed on the final agreement level (convergence) and the change adoption rate, which provide insights on how quickly decisions are made and how adaptable a structure is. This comparison, focused on information flow, makes it easier to identify the differences in terms of communication between the organizational structures. The influence of dissatisfaction on this process will be considered at a later stage.

Agreement Level (Convergence)

Without taking dissatisfaction into account, there are clear differences between the individual structures in their performance regarding information flow.

Convergence, which indicates the extent to which agents agree on a joint decision at the end of the simulation, reaches its highest value in the horizontal structure at 0.65. This suggests that the flat hierarchy and decentralized communication channels of the horizontal structure enable fast and comprehensive coordination among agents. The standard deviation (0.102) is relatively high. This may indicate that in some runs, rapid agreement is reached, while in others, opinions are more divided.

Table 1. *Agreement level (convergence) without the influence of dissatisfaction.*

Organizational Structure	Convergence	Standard Deviation
Horizontal Structure	0.650	0.102
Network Structure	0.635	0.079
Functional Structure	0.625	0.113
Team-Based Structure	0.620	0.087
Divisional Structure	0.580	0.051
Matrix Structure	0.565	0.079

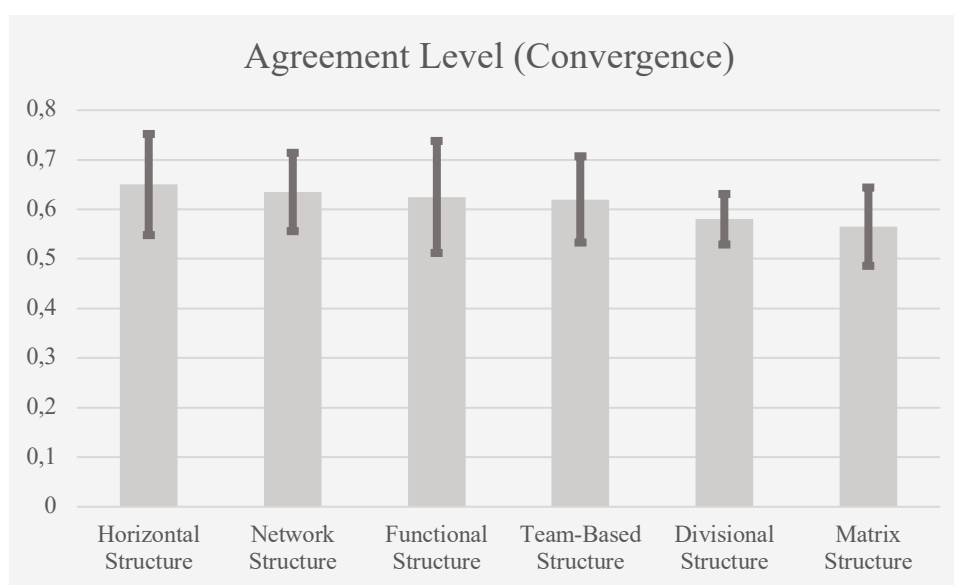
Note. Own work.

The network structure performs similarly well in terms of convergence. With a value of 0.635, this suggests that its highly decentralized and flexible communication channels also support rapid collective decision-making. The relatively low standard deviation of 0.079 indicates consistent results across simulation runs.

At 0.625, the high degree of convergence of the functional structure shows that hierarchical communication channels can also lead to a high convergence level and thus enable effective coordination and standardization of decisions. However, the individual period results show a higher variability (SD 0.113), suggesting that hierarchical communication channels do not always function equally efficiently. They may depend on the number of decision-making levels and the interactions between the individual departments. The high degree of centralization and the different influences of the various hierarchical levels could further explain the higher standard deviation. With a convergence value of 0.62, the team-based structure produces similar results. However, the standard deviation of 0.087 reflects more stable results, which could reflect the close collaboration and collective decision-making processes within the teams. The slightly varying convergence values between the simulation periods could be due to the exchange between the teams not always being equally efficient.

In the convergence value comparison between the structures, the divisional and matrix structures performed the poorest. The rather low convergence of 0.580 in the divisional structure could be the result of silo thinking, caused by separate business units and the associated reduced exchange between departments. Although convergence is comparatively low, the standard deviation of 0.051 indicates very constant results over the individual periods. The lowest convergence of all structures (0.565) in the matrix could be due to multiple reporting lines and overlapping decision-making processes in this

Figure 4. *Agreement level (convergence) without the influence of dissatisfaction.*



Note. Own illustration.

organizational form. These hierarchies may lead to agents receiving conflicting signals, making it more difficult to establish a clear consensus. The relatively low variability (SD 0.079) suggests that these effects occur consistently throughout the simulation periods.

Change Adoption Rate

As the simulation results have already revealed interesting aspects with regard to convergence, a more detailed look is now taken at how the agents accept new information and adapt to changes. As before, the results of the simulation are presented, excluding the influence of dissatisfaction.

As the table containing the change adoption rate values shows, the functional structure performed best with a value of 0.525. This could be an indication that the clear hierarchical lines of communication and the specialized functional units facilitate the adoption of new information. Notable is the very high

variability between the simulations (SD 0.167), which could be due to differing reactions to changes between the individual specialized departments.

Table 2. *Change adoption without the influence of dissatisfaction.*

Organizational Structure	Change Adoption Rate	Standard Deviation
Functional Structure	0.525	0.167
Horizontal Structure	0.520	0.181
Network Structure	0.515	0.156
Divisional Structure	0.500	0.095
Matrix Structure	0.495	0.102
Team-Based Structure	0.490	0.148

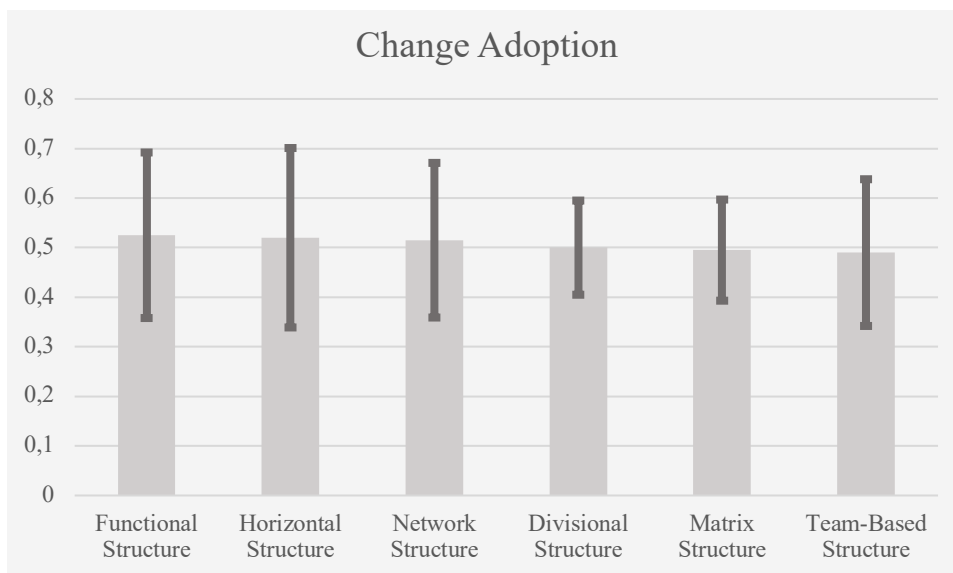
Note. Own work.

The horizontal structure reaches a similarly high value for change adoption (0.52). The flat hierarchy and direct communication channels are likely to facilitate the exchange of new ideas and their acceptance. Although change adoption in the horizontal structure is quite fast, it is extremely inconsistent with a standard deviation of 0.181 – the highest variability of all structures. A possible cause could be the lack of influence of a central unit, which makes the acceptance of changes more dependent on the individual agent factors.

The decentralized and flexible communication channels of the network structure enable efficient distribution of new information and are likely to be the main reason for the fairly good change adoption of 0.515. However, this structure also exhibits high volatility with a standard deviation of 0.156, which could indicate the special role of key agents in the network. For example, if central nodes adopt changes quickly, the system can adapt quickly as well. If highly connected agents are hesitant to adapt, it could slow down the overall change adoption. The divisional structure scores an average change adoption of 0.5 and, compared to the previous structures, shows a low standard deviation of 0.095. The moderate change adoption could be due to the semi-autonomous divisions, which may make cross-divisional communication more difficult. The lower standard deviation could be an indication that the individual divisions operate very consistently.

The matrix' rather weak performance in change adoption (0.495) compared to the other structures could be explained by several typical characteristics of this organizational form. For example, complex decision-making processes require greater coordination and can accordingly slow down adaptation. Furthermore, information overload, along with the high coordination effort, could contribute to lower

Figure 5. *Change adoption without the influence of dissatisfaction.*



Note. Source: own work.

adoption rates and make decision-making more difficult for the entire organization. With a standard deviation of 0.102, the matrix structure shows quite stable results compared to the other structures.

With a value of 0.49, the team-based structure has the lowest change adoption of all organizational structures examined. One possible explanation is that although close team structures promote collaboration, they can also make it more difficult for new ideas to spread. In addition, the focus of the teams could be more on internal processes rather than on adapting to broader organizational changes. Another possible reason is the limited communication between the teams, which means that innovations are not implemented uniformly. The fairly high standard deviation of 0.148 indicates that adaptability within the teams varies, which could be due to differences in their networking and internal dynamics.

4.3 The Impact of Dissatisfaction on Information Flow

After analyzing the performance of the individual organizational structures in terms of information flow, the influence of dissatisfaction within the various structures will now be examined. The focus remains on convergence (final agreement level) and change adoption rate, as changes in individual decision-

making processes and structural adaptability are to be expected. A comparison with the previous results without dissatisfaction is therefore essential to identify shifts and possible patterns across the structures when dissatisfaction is taken into account.

Agreement Level (Convergence)

As before, the results for agreement level (convergence) under the influence of dissatisfaction are presented first, with the structures listed in order of performance in the following table.

The matrix structure shows the best performance under dissatisfaction, achieving a convergence value of 0.8 and relatively stable results ($SD = 0.084$). This is particularly noteworthy, as it had previously shown the weakest result without dissatisfaction (convergence of 0.565) – marking the strongest improvement among all structures. One possible reason for this might be an increased adaptation of dissatisfied employees, who search for majority opinions more quickly to reduce uncertainty.

Table 3. *Agreement level (convergence) with the influence of dissatisfaction.*

Organizational Structure	Convergence	Standard Deviation
Matrix Structure	0.800	0.084
Network Structure	0.710	0.094
Divisional Structure	0.710	0.104
Team-Based Structure	0.685	0.091
Functional Structure	0.685	0.135
Horizontal Structure	0.615	0.096

Note. Own work.

Furthermore, despite its multiple layers, the matrix structure offers clear responsibilities that urge dissatisfied employees to follow the more stable and established decision-making channels. In addition, dissatisfied employees could contribute to a lower diversity of opinions if they align with a stable position to avoid conflicts.

Both the network and the divisional structure were also able to significantly increase their convergence value under the influence of dissatisfaction, both reaching an agreement level of 0.71. A possible reason for the network structure's better performance (previously showing a convergence of 0.635) could be the strong networking of this decentralized, flexible organizational form, which allows dissatisfied agents to follow the lead of other agents and quickly align their opinions. Through this group dynamic,

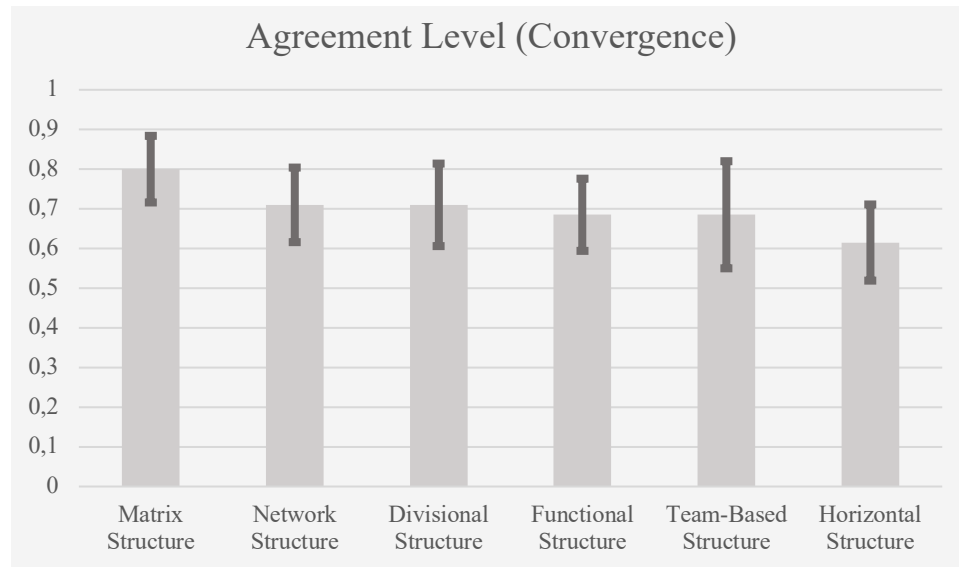
network effects could increase the willingness to adapt and thus spread new information more quickly. Although the standard deviation has slightly increased to 0.094 compared to the simulation without dissatisfaction, the results are still stable.

Due to the influence of dissatisfaction, the divisional structure shows an even greater jump in performance and raises its convergence value from 0.58 to 0.71. This could be explained by more efficient decision-making processes when dissatisfaction leads to a reduction in internal tensions and a push for joint solutions. Dissatisfaction could also reduce the previously mentioned silo thinking in this structure. Even though convergence has increased significantly, it is essential to note that the results vary substantially between the simulation periods, and the standard deviation has more than doubled from 0.051 to 0.104.

The team-based and functional structures achieve the same convergence value of 0.685, which means that both forms of organization can significantly increase their performance under the influence of dissatisfaction. The increase in the team-based structure from 0.62 to 0.685 could be due to the close cooperation within the teams, which puts more pressure on making joint decisions. Other reasons for the higher agreement level could include close networking, direct communication, and high flexibility. The standard deviation remains relatively stable, changing only slightly from 0.087 to 0.091. The functional structure also recorded a notable increase in convergence from 0.625 to 0.685, which could be a result of its clear hierarchy and the fact that it specifically addresses dissatisfaction through centralized control. The standard deviation increased from 0.113 to 0.135 compared to the simulation without the influence of dissatisfaction, indicating greater uncertainty in the decision-making processes and higher variability compared to the other structures.

The only organizational form performing worse under the influence of dissatisfaction than without is the horizontal structure, with a convergence of 0.615 (down from 0.65). Possible causes for the negative influence of dissatisfaction are the lack of central control and the fundamentally decentralized decision-making process, which can prolong discussions and make clear decisions more difficult. Furthermore, dissatisfaction could lead to divergent opinions, which consequently complicate the decision-making process. Despite the significantly poorer convergence, the standard deviation remains relatively stable and even slightly decreases from 0.102 to 0.096.

Figure 6. *Agreement level (convergence) with the influence of dissatisfaction.*



Note. Own illustration.

Change Adoption Rate

Dissatisfaction also has a significant influence on the change adoption rate and enables most organizational structures to significantly improve their results in this area. This suggests that, depending on the structural characteristics, dissatisfaction can often catalyze change. In the table below, the results of the simulation with dissatisfaction are ranked according to performance, and the most important aspects are then summarized.

Regarding the change adoption rate, the matrix structure also achieves the best results and increases its value from 0.495 to 0.8 compared to the simulation without the influence of dissatisfaction. With a change adoption rate of 0.8 and a standard deviation of 0.084, it thus reaches exactly the same values as for convergence. The reasons for the improved performance are therefore likely to be similar and mainly due to clear responsibilities despite structural complexity, quick adaptation among dissatisfied employees, and reduced opinion diversity caused by dissatisfaction.

Interesting results also emerge for the network and divisional structures, which both achieve identical values for change adoption and convergence, as well as for their respective standard deviations. Both show a strong change adoption rate of 0.71. While the network structure has a standard deviation of 0.094 and therefore significantly more stable results than in the simulation without dissatisfaction, the divisional structure shows slightly higher variability (SD: 0.104). The network structure presumably

benefits from strong interconnectedness and network dynamics, which allow dissatisfied agents to join majorities more quickly and increase overall adaptability. In the divisional structure, the reduced silo thinking and the urge to find joint solutions are likely the main reasons for the good results.

Table 4. *Change adoption with the influence of dissatisfaction.*

Organizational Structure	Change Adoption Rate	Standard Deviation
Matrix Structure	0.800	0.084
Network Structure	0.710	0.094
Divisional Structure	0.710	0.104
Functional Structure	0.685	0.135
Team-Based Structure	0.655	0.136
Horizontal Structure	0.515	0.149

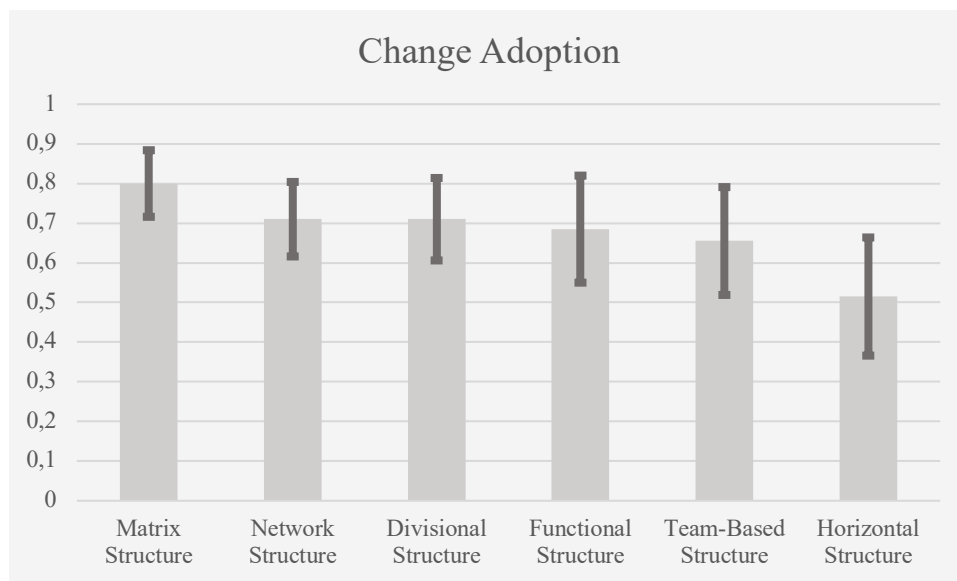
Note. Own work.

Similarly, the functional structure achieves the same value for change adoption as for convergence (0.685), including an identical standard deviation (0.135). This indicates a clear increase in change adoption when dissatisfaction is present. Although the standard deviation remains high compared to the other structures, it decreases significantly compared to the simulation without dissatisfaction. The improved performance of the functional structure under these conditions could be due to its clear hierarchies, which may lead dissatisfied employees to align more with their superiors' opinions.

Although the team-based structure still ranks at the lower end of the performance scale compared to the other organizational forms, it was able to significantly raise its change adoption rate from 0.49 to 0.655. Possible reasons include social pressure within teams encouraging adaptation, dissatisfied members driving change more actively, and increased internal communication facilitating the spread of new ideas. While the standard deviation decreased to 0.136 (previously 0.148), it remains relatively high, which indicates a varying willingness to change across simulation runs.

While the horizontal structure had the second-highest change adoption rate in the simulation without dissatisfaction, it is the only organizational form that shows a decline in performance under the influence of dissatisfaction, with the change adoption rate slightly decreasing from 0.520 to 0.515. This could be due to the absence of a central decision-making authority and clearly defined responsibilities within the flat hierarchy. As a result, uncoordinated reactions may occur, which are reflected in both the low change adoption rate and the high variability (SD: 0.149).

Figure 7. *Change adoption with the influence of dissatisfaction.*



Note. Own illustration.

5. Discussion

The research results presented above highlight how different organizational structures influence information flow and adaptability, particularly in the presence of employee dissatisfaction. Matrix and network structures, for instance, perform particularly well under conditions of dissatisfaction, whereas horizontal and functional structures perform best in stable conditions. Dissatisfaction thus emerges as a decisive factor for agreement level and change adoption. The following section aims to contextualize the simulation findings within existing literature and theoretical frameworks and to discuss their practical implications for organizational design and management.

5.1 Summary of Key Findings

This study investigates the impact of different organizational structures on internal information flow and structural adaptability. Particular attention is given to the role of employee dissatisfaction, which is modeled as an adjustable factor in the agent-based simulation.

In the absence of dissatisfaction, the horizontal structure achieves the highest agreement level. The network, functional, and team-based structures also perform well, while the divisional and matrix structures yield weaker results. Regarding the change adoption rate, the values are relatively close, with the functional, horizontal, and network structures leading. The divisional, matrix, and team-based structures show slightly lower adoption rates.

Adding the influence of dissatisfaction to the model reveals several significant changes. Firstly, almost all structures achieve better convergence results – except for the horizontal structure, which emerges as the weakest performer under these conditions. The matrix structure shows the highest agreement level, making it the most stable structure, whereas it previously had the lowest convergence without the influence of dissatisfaction. The network, divisional, team-based, and functional structures, which perform very similarly, were all able to improve their convergence and thus their adaptability. The structures show similar patterns when it comes to change adoption under dissatisfaction. Interestingly, all structures exhibit identical or very similar values to their agreement levels, which generally indicates a high degree of flexibility and adaptability to change. Only the horizontal structure performs even worse and remains the poorest performing structure.

Overall, the simulation results reveal several key insights and patterns: employee dissatisfaction emerges as a driver of change and acts as a catalyst for improvements in both agreement level and change adoption rate, especially in dynamic structures (e.g., matrix, network structure). Regarding the trade-off between stability and adaptability, it is noteworthy that horizontal and functional structures are stable in the absence of dissatisfaction but respond less flexibly to change. In contrast, network and matrix structures are characterized by high adaptability. A striking finding is that the matrix structure evolves from the weakest to the strongest performing structure once dissatisfaction is introduced. Conversely, it is surprising that horizontal structures handle dissatisfaction relatively poorly, indicating a lack of flexibility.

5.2 Interpretation of Findings

The results of this study provide valuable insights into the interactions between organizational structures, internal information flow, and the role of employee dissatisfaction. In the following, central patterns and correlations are analyzed, the research questions are revisited, unexpected results are discussed, and the findings are placed in the context of existing theories.

5.2.1 Key Patterns in the Data

The simulation results revealed several noteworthy correlations and patterns regarding the relationship between organizational structure, information flow, and employee dissatisfaction. For instance, the simulation, focused solely on the information flow within individual structures, excluding other factors, shows that flat structures have a particularly good information flow. In contrast, hierarchical structures, such as divisional and matrix models, perform worse and exhibit lower agreement levels.

In this context, it is important to emphasize that the model does not examine how dissatisfaction arises or can be prevented. Rather, it assumes that dissatisfaction already exists within the system, comparable to a real organization in which it cannot simply be switched off. The aim is therefore to identify which structures are better equipped to handle this situation.

Particularly noteworthy are the changes that occur under the influence of dissatisfaction: the matrix structure suddenly becomes the best-performing structure in terms of both convergence and change adoption. This could indicate that highly networked structures with multiple lines of communication

(such as the matrix and network structures) are better able to absorb dissatisfaction and prevent an interruption in the information flow. In contrast, the previously strong-performing horizontal structure suffers a significant decline in both convergence and adoption rate. The absence of hierarchy and formal coordination may hinder adaptability when dissatisfaction is present.

Since the other four organizational structures also show a noticeable improvement in convergence - similar to the matrix structure – the question arises as to how dissatisfied agents behave in the simulation. One possible explanation is that dissatisfied agents in the model are less susceptible to social influence and may partially withdraw from collective decision-making processes. Somewhat paradoxically, this can result in fewer conflicting opinions in the system and a faster emergence of consensus among the remaining active agents.

A similar pattern can be observed in the analysis of the adoption rate: without the influence of dissatisfaction, the functional, horizontal, and network structures exhibit slightly better adaptability than the other structures, although the differences between them are relatively small. Under the influence of dissatisfaction, the matrix, network, and divisional structures significantly improve their adaptability. While all other structures experience a considerable increase in change adoption, the horizontal structure shows a slight decline. This may be due to its limited resilience to the dynamics triggered by dissatisfaction. For organizations, this suggests that when dissatisfaction exists in the system, whether caused by frustration, overload, or other factors, it is primarily highly networked structures that can act as buffers. The matrix structure is particularly noteworthy, as its numerous connections appear to ensure that sufficient information continues to circulate within the system, even if individual agents become less willing to communicate.

Overall, the results indicate that dissatisfaction, if present in the system, does not necessarily lead to instability. Rather, networked structures (such as matrix or network) prove to be particularly adaptable under such conditions. Structures with multiple alternative communication channels appear to ensure that sufficient information continues to circulate even when individual agents are less receptive to external influences.

The simulation thus highlights a central trade-off: while flat structures are particularly efficient under stable conditions, networked structures demonstrate greater robustness and adaptability in the face of disrupted communication.

5.2.2 Answering the Research Questions

In the following, the central research questions of this thesis are examined in light of the simulation results. Each question is considered individually, discussing whether the results align with expectations and what implications can be derived. The underlying approach is not: “How can dissatisfaction be prevented?” - but rather: “Assuming dissatisfaction already exists - which structure helps maintain the organization’s ability to act?”

Which organizational structure promotes the most efficient flow of information?

Without the influence of dissatisfaction, the horizontal structure achieves the highest agreement level and a high change adoption rate. However, once dissatisfaction is introduced, the matrix structure shows the best performance in both agreement level and change adoption. These results suggest that simple, direct communication systems, like those found in horizontal structures, are particularly effective under stable conditions. However, as soon as the receptiveness to external information is reduced, which is (as modeled by dissatisfaction), multidimensional structures such as the matrix gain importance.

How does this flow of information change when dissatisfaction comes into play?

As soon as dissatisfaction is introduced, information flow improves in almost all structures, most notably in the matrix structure, which shifts from being the weakest to the strongest. The horizontal structure, on the other hand, suffers most negatively impacted by dissatisfaction and is the only one to decline in both agreement level and change adoption. The fact that nearly all structures perform better under the influence of dissatisfaction is surprising and was not anticipated. One potential explanation is that the withdrawal of dissatisfied agents reduces resistance, allowing the remaining agents to align their opinions more quickly, especially in highly interconnected structures.

Are there organizational structures that serve as a buffer against dissatisfaction, or do some structures rather act as a fire accelerator?

Almost all structures act as a buffer against dissatisfaction and show improved agreement levels and higher adoption rates under its influence. The only exception is the horizontal structure, which,

especially compared to the other structures, acts more like a fire accelerator. The model suggests that structures with little formal control, such as the horizontal structure, are particularly vulnerable under pressure. They lack the coordinating mechanisms necessary to compensate for a reduced willingness to communicate.

Which organizational structures are highly resilient to dissatisfaction?

The matrix structure shows the highest resilience to dissatisfaction, where resilience in this context refers to the ability to maintain or even improve performance under adverse conditions. The network, divisional, team-based, and functional structures also show improved results when dissatisfaction is present. The horizontal structure is the only one that exhibits no resilience to dissatisfaction, showing declines in both agreement level and change adoption. In practical terms, this means that organizational structure becomes the decisive lever. While dissatisfaction itself may not be directly controllable, its consequences can be either absorbed or amplified depending on the structural framework.

5.2.3 Theoretical Implications

The following section places the simulation results in the context of existing research and theoretical frameworks. It begins with a focus on information flow in different organizational structures under stable conditions. Subsequently, the effects of dissatisfaction on information flow are examined in comparison with the literature. Finally, the unexpected influence of dissatisfaction on both agreement level and change adoption is discussed with regard to existing theoretical perspectives.

Information Flow in Different Organizational Structures

With regard to the flow of information, the model shows that, without the influence of dissatisfaction, the horizontal structure achieves the highest agreement level and also performs well in terms of change adoption rate. The network, functional, and team-based structures also deliver relatively strong results, while the divisional and matrix structures perform weaker across both metrics.

These findings are consistent with established organizational design theory. Richard L. Daft (2021), a leading expert in the field of organizational structure and information processing, emphasizes that an organization's structure has a direct impact on the flow of information and the quality of decision-making. According to Daft, decentralized structures (e.g., network and team-based structures) enable

faster and more flexible information flows by promoting lateral communication and collaboration across departmental boundaries. The simulation results, particularly the strong performance of the horizontal structure, support Daft's statement that flat hierarchies facilitate rapid information exchange. Likewise, the strong performance of the network and functional structures aligns with his theory that decentralized structures are particularly effective in supporting efficient information flow (Daft, 2021).

A similar pattern emerges when comparing the results of this study with those of Mintzberg (1980), who distinguishes five basic types of organizational structures, including the simple structure and the adhocracy. Adhocracy, in particular, is considered flexible, adaptable, and decentralized, and is typically characterized by flat hierarchies, lateral communication, and rapid information flow. In the simulation, the strong performance of the horizontal and network structures reflects key characteristics of the adhocracy described by Mintzberg, as both exhibit comparably low levels of formal hierarchy and enable cross-functional collaboration. Mintzberg's framework therefore provides theoretical support for the argument that flexible, decentralized structures are particularly suitable for fostering efficient information flow (Mintzberg, 1980).

In addition, Joseph and Sengul (2025) provide a comprehensive overview of key theoretical perspectives on information processing, coordination, and structural fit in their systematic review of current organizational theory. They emphasize that flat structures are particularly conducive to communication, adaptability, and innovation, which aligns well with the strong simulation results of the horizontal structure in terms of information flow and adoption rate. Furthermore, Joseph and Sengul highlight the importance of aligning organizational structure with informational needs to ensure effective information management within organizations (Joseph & Sengul, 2025).

Information Flow in Different Organizational Structures with Dissatisfaction

Following the comparative literature review of information flow under stable conditions, this section analyzes the model dynamics under the influence of dissatisfaction. As highlighted in previous chapters, dissatisfaction does not lead to a general destabilization within the organizational structures. On the contrary, most structures surprisingly show improved outcomes in both agreement level and change adoption. The matrix structure, in particular, stands out: while it performs poorly under stable conditions, it becomes the best-performing structure when dissatisfaction is introduced. The network, divisional,

functional, and team-based structures also show notable improvements and converge at similarly high performance levels. Only the horizontal structure deviates from this general trend, showing a decline in both metrics and emerging as the weakest structure overall.

This unexpected tendency can be explained by a central mechanism in the model: dissatisfied agents are less receptive to social influence, that is, they are less affected by the decisions of others. As a result, information processing becomes more fragmented when dissatisfaction is high, and not all communication channels are utilized equally. Structures with multiple, redundant communication channels, such as matrix or network structures, clearly have an advantage in maintaining information flow under such conditions.

Given the improved performance of most structures in the face of dissatisfaction, it is particularly insightful to consider the concept of organizational resilience. In the literature, resilience is defined as the ability of organizations to detect unexpected challenges at an early stage, respond flexibly, and adapt successfully (Weick & Sutcliffe, 2015). Resilient organizations are therefore able to operate effectively under surprising and uncertain conditions (Lengnick-Hall et al., 2011), which may help explain the simulation results in which dissatisfaction tends to enhance performance. However, the results reveal significant differences in how resilient the different structures are to dissatisfaction. In the simulation, the matrix and network structures show the greatest improvement and benefit especially from their high degree of internal connectivity, multiple communication channels, and flexible decision-making processes. These findings are supported by the literature, which emphasizes that highly networked structures are particularly adaptive due to their ability to rapidly transmit information (Burns & Stalker, 1994). The matrix structure, in particular, is considered highly resilient thanks to its multidimensional communication flows and is seen as an effective way to reduce resistance to change (Galbraith, 1971).

Although not quite as pronounced, the functional, team-based, and divisional structures also improve under the influence of dissatisfaction. Although functional structures are often considered bureaucratic in the literature, they can still provide a stable and coordinated foundation for adaptation processes in certain contexts (Daft, 2021). Team-based structures, defined by close collaboration and high autonomy within teams, show good resilience due to rapid internal coordination and strong social cohesion (Katzenbach & Smith, 2005). The divisional structure is known for its decentralized decision-making

and flexibility, which allows for quick responses to market changes and thus contributes to its resilience (Bergmann & Garrecht, 2021; Black & Bright, 2019). These attributes are likely to help the divisional structure improve its performance in the simulation under dissatisfaction.

The horizontal structure is the only one that performs worse under the influence of dissatisfaction. As previously discussed, the adhocracy described by Mintzberg (1980) shares key characteristics with the horizontal structure. These results are therefore somewhat surprising, as adhocracy typically supports an efficient flow of information. A possible explanation for the weaker performance could be the difficulty in managing dissatisfaction due to the absence of formal hierarchy and control mechanisms. According to Bundy et al. (2016), clear and centralized leadership plays a critical role, particularly in times of crisis. In the horizontal structure, with its decentralized decision-making and high employee autonomy, such centralized leadership is lacking. Compared to the matrix structure, it becomes clear that when few central communication paths exist, and these are impaired by dissatisfaction, the likelihood of effective information flow throughout the system decreases.

Since the results generally show a performance increase due to the dissatisfaction factor, it is important to take a closer look at the construct of dissatisfaction and explore possible explanations for these surprising findings. In the literature, dissatisfaction is usually regarded as a risk factor, disruptive or destabilizing, that is often associated with conflict, demotivation, decreased performance, and employee turnover (Spector, 2022; Koys, 2001). Moreover, dissatisfied employees may engage in counterproductive work behavior (CWB), which can further amplify negative consequences (Yean et al., 2022). However, Spector (2022) also emphasizes that the effects of dissatisfaction are context-dependent and not necessarily exclusively negative; under certain conditions, dissatisfaction can serve as a trigger for positive change. This more nuanced view of employee dissatisfaction aligns with the simulation's surprising results, which show improved performance across most organizational structures when dissatisfaction is present.

However, the question arises as to how these surprising simulation results can be explained and supported by existing literature. One possible approach is the well-known two-factor theory by Frederick Herzberg (1993), which states that dissatisfaction is triggered by insufficiently fulfilled hygiene factors (e.g., salary, working conditions, breaks). The second factor comprises motivators (e.g., recognition,

responsibility, influence), which are responsible for satisfaction and can increase employees' willingness to perform. When applying Herzberg's 2-factor theory to the model, it becomes evident that the hygiene factors are not optimally fulfilled due to the existing dissatisfaction. Nevertheless, performance increases can be observed in most structures, both in agreement level and in change adoption. This could indicate that these structures enable access to motivators such as responsibility, participation, and influence. The matrix structure, for example, might achieve such high effectiveness because it allows for a high level of employee involvement and decision-making. Herzberg's theory thus supports the assumption that dissatisfaction alone does not necessarily reduce performance. Rather, with the right motivators in place, it can even trigger positive change. Based on this perspective, it could be argued that dissatisfaction itself is not the decisive factor, but rather the conditions within the various organizational structures and how they respond to dissatisfaction.

5.2.4 Surprising Results

Undoubtedly, the most surprising finding of this study is that the influence of the dissatisfaction factor does not lead to general destabilization, but rather results in an increase in performance across almost all structures. The expectation was that dissatisfaction would increase resistance within the individual structures. However, the results show that adaptation becomes significantly easier. In the traditional literature, dissatisfaction is typically described as a disruptive factor that negatively affects performance and cooperation. Negative consequences such as conflict, reduced performance, and demotivation are frequently emphasized (Spector, 2022; Koys, 2001). Contrary to this conventional perspective, the simulation results reveal higher agreement levels and improved change adoption in most structures. While the literature includes more nuanced views of dissatisfaction and acknowledges that it can also have positive effects, such as serving as an impulse for change (e.g., two-factor theory), the extent of its positive impact observed here is surprising and calls for further investigation. In particular, the question of which conditions must be present for dissatisfaction to have a beneficial effect could be highly relevant for future research.

This general tendency is particularly evident in the matrix structure, which shows the most significant fluctuation in performance. While, contrary to assumptions, it performs poorly under stable conditions, it develops into the structure with the highest change adoption and agreement level when dissatisfaction

is present. It can reasonably be assumed that the matrix structure's strong internal networking and multidimensional communication channels facilitate a rapid flow of information. However, the fact that this effect only becomes apparent under the influence of dissatisfaction remains surprising. One possible explanation could be a form of resilience mechanism that enhances adaptability under pressure or in the presence of disruptive factors (e.g., dissatisfaction), thereby enabling a more effective response to change. Strong internal networking and mutual trust among employees may also positively influence resilience in times of crisis.

It is also surprising that the most interconnected network structure does not achieve the best results. Although it significantly improves both agreement level and change adoption rate under the influence of dissatisfaction, its flat hierarchy and flexible communication would have suggested even stronger results. One possible explanation for the slightly weaker results compared to the matrix structure could lie in its decision-making process: Due to the high number of communication channels and the absence of a formal hierarchy, it may be more difficult to make quick and well-coordinated decisions. The flexibility and openness that are advantageous under stable conditions could become a hindrance when dissatisfaction is present – especially when clear, directional decisions are needed. Even though the network structure offers a high degree of flexibility, it may lack the clear decision-making mechanisms that are more prominent in the matrix structure.

The flexible, flat structures that benefit the network structure would also have been expected to give the horizontal structure an advantage over the other structures. However, the exact opposite was the case: despite ideal conditions for fast information flow, the horizontal structure is the only one that performs worse as soon as the dissatisfaction factor comes into play. One possible explanation is that the high level of autonomy and decentralized decision-making make it difficult to react quickly and in a coordinated way when dissatisfaction arises. This could be due to the lack of redundant communication channels that might otherwise absorb disruptions caused by dissatisfied employees. While the matrix structure remains stable even if individual channels fail, thanks to its multiple alternative communication paths, the horizontal structure's information is at risk of collapsing if key individuals withdraw or become inactive.

5.3 Practical Relevance for Organizations

This thesis offers both theoretical insights and practical guidance for shaping organizational structures and decision-making processes. In this section, the core findings are discussed in light of existing theories, and their relevance for organizational practice is highlighted. The goal is to outline actionable options for organizations and show how the insights gained can support the further development of current management approaches.

Contribution to Existing Research & Theory

The findings support key principles of organizational design theory, particularly the critical role of structural fit for ensuring an effective flow of information. They also reinforce central assumptions of Herzberg's two-factor theory: even when hygiene factors (e.g., satisfaction) are lacking, performance declines can be mitigated if motivators such as responsibility and autonomy are present. Accordingly, the simulation results align with core ideas from resilience research, which emphasize that decentralized structures and high interconnectivity enable effective responses to uncertainty. At the same time, the study challenges the traditional understanding of dissatisfaction as a purely negative force. Instead, the model suggests that dissatisfaction may serve as a warning signal or even as a catalyst for structural adaptation and change.

New Theoretical Insights

A particularly interesting new insight is that the horizontal structure, which is traditionally regarded as especially attractive and flexible in the literature, proves to be especially vulnerable to dissatisfaction in the model. This suggests that flexibility does not automatically mean resilience. The findings indicate that a lack of hierarchy and formal coordination can become a liability when internal tensions arise, particularly when dissatisfied individuals withdraw from decision-making processes and no alternative communication channels exist. In contrast, the matrix structure, often associated with high complexity and role conflicts, performs unexpectedly well under conditions of dissatisfaction. This leads to an intriguing theoretical hypothesis: structural ambiguity may enhance flexibility in times of instability. Structural interconnectivity, meaning the presence of multidimensional communication channels, appears to function as a buffer against destabilizing factors such as dissatisfaction. This finding offers

valuable potential for the further development of existing theories on organizational adaptability and resilience.

Practical Relevance for Organizations

The results indicate that dissatisfaction should not generally be viewed as a disruptive factor, but can instead serve as a valuable signal for innovation – provided that organizations implement targeted feedback and reflection processes. Matrix and network structures demonstrate resilience to internal tensions, as they integrate diverse perspectives and support participative decision-making. However, for this potential to be fully realized, communication, individual accountability, and coordination must be actively fostered – especially during periods of internal tension or dissatisfaction. In flat structures in particular, it is essential to clearly define roles, responsibilities, and decision-making channels to maintain operational effectiveness under pressure.

Organizational Design Considerations

The simulation results suggest that organizations operating in volatile, complex, or uncertain environments should deliberately emphasize multidimensional communication and networked decision-making processes. For companies with flat or team-centered structures, it is particularly important to establish clear and binding rules and decision-making in times of crisis or conflict. Additionally, implementing early warning systems to detect dissatisfaction at an early stage can be highly beneficial. Such systems may include mood barometers or structured feedback loops. Ideally, these signals should not only be identified but also systematically processed through dedicated committees that capture impulses for change and feed them back into the organizational design.

5.4 Limitations of the Study

Like any scientific work, this study is subject to certain limitations that are important for appropriately interpreting the results. The aim was to use an agent-based model to investigate structural dynamics in the context of dissatisfaction. To identify clear patterns, the model was developed under *ceteris paribus* conditions – that is, both external factors (e.g., market behavior, cultural conditions, technological developments) and internal factors (e.g., number of agents, model parameters, simulation runs) were

held constant. This intentional reduction in complexity enabled a focused analysis of the effects of specific organizational structures and decision-making logics.

However, this very simplification also limits the extent to which the results can be generalized to real organizations. In particular, individual differences among employees, such as personal preferences, psychological traits, cultural backgrounds, or cognitive biases, were not considered in the model, although they significantly influence decision-making behavior in practice. The homogeneous modeling of agents represents a deliberate methodological simplification of complex dynamics, as all agents follow identical decision rules. Furthermore, the model is based on a relatively small number of agents ($N=10$), which restricts the transferability of the results to larger, more heterogeneous, or more complex organizations. Larger networks, for example, could exhibit different patterns of information dissemination or more pronounced effects of dissatisfaction.

Psychological, interpersonal, and informal factors, such as group dynamics, trust, or power relations, were also not taken into account. In practice, however, these aspects play a decisive role in the development and management of dissatisfaction. Furthermore, the model does not allow for a differentiated representation of organizational cultures or industry-specific characteristics, but instead constitutes an abstract and generalized framework. As such, the transferability of the findings to a specific organizational context requires further empirical validation.

Furthermore, the model is unable to capture creative solutions as they occur in real organizations. Long-term effects, such as cultural change or learning processes within an organization, could also not be considered for methodological reasons. The agents' behavior was limited to predefined decision rules, meaning that spontaneous developments and novel, spontaneously arising behaviors could not be simulated.

These limitations stem from the chosen modeling logic, but at the same time enable a focused analysis of specific mechanisms. Despite these constraints, the model contributes to a better understanding of fundamental structural dynamics, particularly in the context of dissatisfaction. The results should be viewed as abstract findings that provide theoretical guidance and can offer targeted impulses for future research or organizational development. They form a solid foundation for further studies that expand the model, validate it empirically, or supplement it with more realistic behavioral assumptions.

5.5 Suggestions for Future Research

The findings of this study offer several valuable starting points for future research aimed at deepening and expanding the insights gained. A logical next step would be to extend the model beyond the *ceteris paribus* conditions used in this work and incorporate greater environmental complexity. Future simulations could explore how external influences, such as market fluctuations, technological advancements, or crisis scenarios, affect different organizational structures. This would enable a more comprehensive understanding of structural resilience under real-world conditions.

Furthermore, the agent modeling could be made more heterogeneous. While all agents in the current model follow the same decision-making rules, future models could introduce different agent types with varying preferences, risk tolerances, or cultural backgrounds. Such differentiation would allow for a more realistic depiction of individual behavior and internal diversity within organizations.

Another promising direction for future research is the scaling of the model. Since the current simulations are based on a small number of agents ($N = 10$), it would be useful to explore how the observed patterns change in larger and more complex organizations – particularly in terms of information flows and the spread of dissatisfaction within subgroups or clusters.

Another important avenue for future research involves understanding the reasons behind the varying structural performances under conditions of dissatisfaction. One possible explanation is that dissatisfied agents may withdraw or reduce their level of engagement, which in turn could ease the burden on specific communication channels. A closer examination of these dynamics, especially the potential of dissatisfaction to act as a self-regulating mechanism, could offer a valuable addition to existing research.

In addition, there is significant potential in further developing the model to account for psychological and informal factors. Aspects such as trust, power relations, peer influence, or emotional dynamics could be integrated to better capture the complexity of real-world organizational behavior. Empirical studies, ranging from case studies to surveys or mixed-methods approaches, could play a key role in validating the simulation findings and evaluating their practical relevance.

6. Conclusion

This study set out to examine how employee dissatisfaction can disrupt organizational information flows. To this end, an agent-based model was developed in Python to simulate the effects of dissatisfaction across different organizational structures. The focus was placed on how these structures respond to dissatisfaction and how this, in turn, influences information flows under both stable and unstable conditions.

Although not all organizational structures handle dissatisfaction in the same way, the simulation results clearly demonstrate that dissatisfaction does not necessarily lead to a decline in performance. On the contrary, under certain conditions, it can even enhance performance. In stable conditions without dissatisfaction, the horizontal structure performs best. However, when dissatisfaction is introduced into the simulation, matrix and network structures prove to be the most resilient – especially the matrix structure, which transforms from the weakest to the strongest performer. A likely explanation for this lies in the high number of communication channels, which ensure continued information flow even when some agents become less responsive. Particularly noteworthy is the sharp performance decline of the horizontal structure under dissatisfaction. This underscores the critical role of structural design in maintaining stable information flows during times of internal tension. These findings point to the decisive role of organizational structure in shaping whether dissatisfaction acts as a disruptive force or becomes a catalyst for positive change.

The central research questions can therefore be answered as follows: The most efficient information processing occurs under stable conditions in horizontal structures. In contrast, in unstable scenarios marked by dissatisfaction, strongly networked structures (especially the matrix) perform significantly better. Surprisingly, dissatisfaction does not necessarily destabilize the system. Rather, under appropriate structural conditions, it can even lead to quicker agreement and a greater willingness to change. Matrix and network structures appear to act as buffers against dissatisfaction, while the horizontal structure functions more like an accelerant. This highlights that an organization's ability to absorb dissatisfaction structurally is a major contributor to resilience.

The model's core mechanism is based on the assumption that dissatisfied agents become less receptive to social influence. Instead, they rely more heavily on personal experience and gradually disengage from

collective decision-making processes. This reduced receptivity changes opinion formation within the system, leading to negative consequences in less networked structures, but producing stabilizing effects in multi-layered, more resilient systems. It is important to note that the model does not assume that dissatisfaction can be controlled or prevented. Rather, it should be understood as an inherent condition to which organizations can respond by deliberately designing their structure, highlighting structure as a key lever in addressing dissatisfaction effectively.

In practical terms, this means that when dissatisfaction is already present in the system, structural design becomes one of the few managerial levers available to maintain functional communication, decision-making ability, and willingness to change. Research indicates that, especially in dynamic or conflict-prone environments, organizations benefit more from highly networked, multidimensional communication structures than from purely flat or autonomous ones. The findings suggest that such configurations can help sustain resilience in the face of internal tensions.

This thesis contributes to the theoretical discourse on organizational resilience by emphasizing the central role of structural design in managing employee dissatisfaction. It challenges the common assumption that dissatisfaction is purely negative and offers new perspectives on how organizations can deal with it constructively. At the same time, classic models such as Herzberg's two-factor theory are supported, highlighting that motivating conditions like responsibility and participation can stimulate performance even when dissatisfaction exists. The results demonstrate that dissatisfaction does not necessarily need to be minimized but can be harnessed functionally with the right structural setting.

It is important to note that these insights are based on an abstract simulation model and should not be generalized to real-world contexts without careful interpretation. Nevertheless, they provide a solid foundation for further empirical research and practical considerations on structural design in tense, uncertain, or conflict-ridden contexts. Future studies might expand on this work by applying the model to larger organizations, incorporating more nuanced psychological and interpersonal factors, or empirically testing the model's assumptions through case studies or surveys. Exploring how specific structures in various sectors or cultural contexts support constructive management of persistent dissatisfaction would be especially valuable.

References

- Ahmady, G. A., Mehrpour, M., & Nikooravesh, A. (2016). Organizational Structure. *Procedia, Social and Behavioral Sciences*, 230, 455–462. <https://doi.org/10.1016/j.sbspro.2016.09.057>
- Allan, B. (2007). Supervising and leading teams in ILS. *Facet*.
- Anicich, E. M., Fast, N. J., Halevy, N., & Galinsky, A. D. (2016). When the Bases of Social Hierarchy Collide: Power Without Status Drives Interpersonal Conflict. *Organization Science* (Providence, R.I.), 27(1), 123–140. <https://doi.org/10.1287/orsc.2015.1019>
- Arnold, H. J. and Feldman, D. C. (1986). *Organization Behavior*, New York: McGraw- Hill.
- Ashkenas, R., Ulrich, D., Jick, T., & Kerr, S. (2002). *The Boundaryless Organization: Breaking the Chains of Organizational Structure*. Jossey-Bass.
- Barney, Jay B. Griffin, Ricky W (1992). *The Management of Organization*, Boston: Houghton Mifflin Company.
- Bartunek, J. M., Huang, Z., & Walsh, I. J. (2008). The development of a process model of collective turnover. *Human Relations*, 61(1), 5–38. <https://doi.org/10.1177/0018726707085944>
- Barwise, J., & Seligman, J. (1997). *Information Flow: The Logic of Distributed Systems*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511895968>
- Bazerman, M. H., & Moore, D. A. (2013). *Judgment in managerial decision making* (8th ed.). Wiley.
- Benitez, M., & Medina, F. J. (2021). A work-unit level analysis of employees' well-being and service performance in hospitality industry. *Current Psychology*, 41(2), 1043–1056. <https://doi.org/10.1007/s12144-021-01707-6>
- Bento, F., Tagliabue, M., & Lorenzo, F. (2020). Organizational silos: A scoping review informed by a behavioral perspective on systems and networks. *Societies* (Basel, Switzerland), 10(3), 56. <https://doi.org/10.3390/soc10030056>
- Bergmann, R., & Garrecht, M. (2021). *Organisation und Projektmanagement*. Springer. <https://doi.org/10.1007/978-3-662-63754-8>
- Bergh, D. D., Ketchen, D. J., Orlandi, I., Heugens, P. P. M. A. R., & Boyd, B. K. (2019). Information asymmetry in management research: Past accomplishments and future opportunities. *Journal of Management*, 45(1), 122–158. <https://doi.org/10.1177/0149206318798026>
- Bernards, B. (2023). Do visionary and servant leaders reduce cognitive uncertainty of professionals? A study of team-based settings in public organizations. *Public Management Review*, 25 (6), 1059–1081. <https://doi.org/10.1080/14719037.2021.2005326>
- Bisen, V., & Priya. (2009). *Business communication*. New Age International Ltd.
- Black, J. S., & Bright, D. S. (2019). *Organizational Behavior*. OpenStax.

- Bloom, N., Garicano, L., Sadun, R., & Van Reenen, J. (2014). The distinct effects of information technology and communication technology on firm organization. *Management Science*, 60 (12), 2859–2885. <https://doi.org/10.1287/mnsc.2014.2013>
- Blundel, R., & Ippolito, K. (2008). *Effective organisational communication: Perspectives, principles and practices*. FT Prentice Hall.
- Booker, C. (2020). *Groupthink: A Study in Self Delusion*. London: Bloomsbury Continuum. <http://dx.doi.org/10.5040/9781472959065>
- Browder, R. E., Dwyer, S. M., & Koch, H. (2024). Upgrading adaptation: How digital transformation promotes organizational resilience. *Strategic Entrepreneurship Journal*, 18(1), 128–164. <https://doi.org/10.1002/sej.1483>
- Buck, J., & Villines, S. (2007). *We the People: Consenting to a Deeper Democracy, A Guide to Sociocratic Principles and Methods*. Sociocracy.info Press.
- Bundy, J., Pfarrer, M. D., Short, C. E., & Coombs, W. T. (2016). Crises and Crisis Management: Integration, Interpretation, and Research Development. *Journal of Management*, 43(6), 1661–1692. <https://doi.org/10.1177/0149206316680030>
- Burns, T., & Stalker, G. M. (1994). *The management of innovation* (Rev. ed.). Oxford University Press
- Canales, R., & Nanda, R. (2012). A darker side to decentralized banks: Market power and credit rationing in SME lending. *Journal of Financial Economics*, 105 (2), 353–366. <https://doi.org/10.1016/j.jfineco.2012.03.006>
- Canary, H. & McPhee, R. (2011). *Communication and organizational knowledge: Contemporary issues for theory and practice*.
- Canary, H. (2011). *Communication and organizational knowledge: Contemporary issues for theory and practice*. Florence, KY: Taylor & Francis.
- Chandler, A. D. (1969). *Strategy and structure: Chapters in the history of the Industrial Enterprise*. M.I.T. Press.
- Chin-Chung, C., Tian, D., & Croucher, S. M. (2017). Intercultural Communication and Organizations. In *Global Perspectives on Intercultural Communication* (1st ed., pp. 270–314). Routledge. <https://doi.org/10.4324/9781315716282-26>
- Cohen, S. G., & Bailey, D. E. (1997). What makes teams work: Group effectiveness research from the shop floor to the executive suite. *Journal of Management*, 23 (3), 239–290. <https://doi.org/10.1177/014920639702300303>
- Daft, R. L. (2021). *Organization Theory and Design* (13th ed.). Cengage Learning.
- Davar, S. C. & RanjuBala. (2012). Relationship between Job Satisfaction & Job Performance: A Meta-analysis. *Indian Journal of Industrial Relations*, 48(2), 290–305.

- Denyer, D. (2017). Organizational Resilience: A summary of academic evidence, business insights and new thinking. BSI and Cranfield School of Management, 5, 8–25.
- Dietz, J., Mötzling, S., Wolf, S., Kochhan, C., & Schunk, H. (2019). Interne Kommunikation in kleinen und mittleren Unternehmen: Eine qualitative Analyse in Print- und Digitalunternehmen. Springer Fachmedien. <https://doi.org/10.1007/978-3-658-24552-8>
- Duchek, S. (2020). Organizational resilience: A capability-based conceptualization. *Business Research*, 13(1), 215–246. <https://doi.org/10.1007/s40685-019-0085-7>
- Einwiller, S., Klöfer, F., & Nies, U. (2008). Mitarbeiterkommunikation. In M. Meckel & B. F. Schmid (Eds.), *Unternehmenskommunikation* (pp. 221–260). Gabler. https://doi.org/10.1007/978-3-8349-9883-5_4
- Eppler, M. J., & Mengis, J. (2004). The Concept of Information Overload: A Review of Literature from Organization Science, Accounting, Marketing, MIS, and Related Disciplines. *The Information Society*, 20(5), 325–344. <https://doi.org/10.1080/01972240490507974>
- Galbraith, J. R. (1971). Matrix organization designs: How to combine functional and project forms. *Business Horizons*, 14(1), 29–40. [https://doi.org/10.1016/0007-6813\(71\)90037-1](https://doi.org/10.1016/0007-6813(71)90037-1)
- Groeneveld, S., & Kuipers, B. S. (2014). Teamwork in the Public Cage: Antecedents of Self-Management of Teams in Public Organizations. *Academy of Management Proceedings*.
- Hall, E. T. (1989). *Beyond culture*. Doubleday.
- Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis. *Journal of Applied Psychology*, 87(2), 268–279. <https://doi.org/10.1037/0021-9010.87.2.268>
- Hébert-Dufresne, L., St-Onge, G., Meluso, J., Bagrow, J., & Allard, A. (2023). Hierarchical team structure and multidimensional localization (or siloing) on networks. *Journal of Physic, Complexity*, 4(3), 35002. <https://doi.org/10.1088/2632-072X/ace602>
- Herzberg, F. (1993). *Motivation to Work* (1st ed.). Routledge. <https://doi.org/10.4324/9781315124827>
- Hofstede, G. (2002). *Culture's consequences : comparing values, behaviors, institutions and organizations across nations*(2. ed., 4. [print.]). SAGE Publ.
- Home III, J. F., & Orr, J. E. (1997). Assessing behaviors that create resilient organizations. *Employment Relations Today*, 24(4), 29–39. <https://doi.org/10.1002/ert.3910240405>
- Ivancevich, J., Konopaske, R., & Matteson, M. (2007). *Organizational Behavior and Management*. McGraw-Hill Irwin.
- Jacobs, R., & Solomon, T. (1977). Strategies for enhancing the prediction of job performance from job satisfaction. *Journal of Applied Psychology*, 62, 417–421. <https://psycnet.apa.org/doi/10.1037/0021-9010.62.4.417>

- Jacoby, J., Speller, D. E., & Berning, C. K. (1974). Brand Choice Behavior as a Function of Information Load: Replication and Extension. *The Journal of Consumer Research*, 1(1), 33–42. <https://doi.org/10.1086/208579>
- Joseph, J., & Gaba, V. (2020). Organizational structure, information processing, and decision-making: A retrospective and road map for research. *The Academy of Management Annals*, 14(1), 267–302. <https://doi.org/10.5465/annals.2017.0103>
- Joseph, J., & Sengul, M. (2025). Organization Design: Current Insights and Future Research Directions. *Journal of Management*, 51(1), 249–308. <https://doi.org/10.1177/01492063241271242>
- Kahneman, D. (2011). *Thinking, fast and slow*. Farrar, Straus and Giroux.
- Kappes, A., Harvey, A. H., Lohrenz, T., Montague, P. R., & Sharot, T. (2020). Confirmation bias in the utilization of others' opinion strength. *Nature Neuroscience*, 23(1), 130–137. <https://doi.org/10.1038/s41593-019-0549-2>
- Katzenbach, J. R., & Smith, D. K. (2005). The Discipline of Teams. *Harvard Business Review*, 83(7/8), 162–171.
- Keathley, J., & Harrington, H. J. (2020). *Structuring your organization for innovation*. Quality Press.
- Keathley, J.D. & Harrington, H. J. (2020). *Structuring Your Organization for Innovation*. ASQ Quality Press.
- Kornhauser, A. (1965). *Mental health of the industrial worker: a Detroit study*. New York, NY [u.a.]: Wiley.
- Koys, D. J. (2001). The Effects of Employee Satisfaction, Organizational Citizenship Behavior, and Turnover on Organizational Effectiveness: A Unit-Level, Longitudinal Study. *Personnel Psychology*, 54(1), 101–114. <https://doi.org/10.1111/j.1744-6570.2001.tb00087.x>
- Lencioni, P. M. (2006). *Silos, politics and turf wars: A leadership fable about destroying the barriers that turn colleagues into competitors*. Jossey-Bass: San Francisco, CA, USA.
- Lengnick-Hall, C. A., Beck, T. E., & Lengnick-Hall, M. L. (2011). Developing a capacity for organizational resilience through strategic human resource management. *Human Resource Management Review*, 21(3), 243–255. <https://doi.org/10.1016/j.hrmr.2010.07.001>
- Linnenluecke, M.K. (2017). Resilience in Business and Management Research: A Review of Influential Publications and a Research Agenda. *International Journal of Management Reviews*, 19: 4–30. <https://doi-org.uaccess.univie.ac.at/10.1111/ijmr.12076>
- Lunenburg, F. C. (2010). *Formal Communication Channels: Upward, Downward, Horizontal, and External*.
- Mader, F. (2016). *Der Informationsfluss im Unternehmensverbund* (1st ed., Vol. 30, p. XXXVI, 598). Mohr Siebeck.
- Magpili, N. C., & Pazos, P. (2018). Self-managing team performance: A systematic review of multilevel input factors. *Small Group Research*, 49 (1), 3–33. <https://doi.org/10.1177/1046496417710500>
- Malenko, N. (2023). *Information Flows, Organizational Structure, and Corporate Governance*. NBER Working Paper No. w31209.

- Mills, J. C., Forshaw, C., Bratton, J. (2006). *Organizational Behaviour in a Global Context*. Vereinigte Staaten: University of Toronto Press.
- Mintzberg, H. (1980). Structure in 5's: A synthesis of the research on organization design. *Management Science*, 26 (3), 322–341. <https://doi.org/10.1287/mnsc.26.3.322>
- Moore, D. A., & Healy, P. J. (2008). The Trouble with Overconfidence. *Psychological Review*, 115(2), 502–517. <https://doi.org/10.1037/0033-295X.115.2.502>
- Mumby, D. K., & Kuhn, T. (2019). *Organizational Communication: A Critical Introduction* (2nd Edition). Los Angeles, CA: Sage
- Neuberger, O., Allerbeck, M., & Ulich, E. (1978). *Messung und Analyse von Arbeitszufriedenheit : Erfahrungen mit dem "Arbeitsbeschreibungsbogen (ABB)"* Bern Stuttgart Wien: Verlag Hans Huber.
- Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. *Review of General Psychology*, 2(2), 175–220.
- Parker, G. G., Van Alstyne, M. W., & Choudary, S. P. (2016). *Platform Revolution: How Networked Markets Are Transforming the Economy and How to Make Them Work for You*. W. W. Norton & Company.
- Petty, M. M., McGee, G. W., & Cavender, J. W. (1984). A Meta-Analysis of the Relationships between Individual Job Satisfaction and Individual Performance. *The Academy of Management Review*, 9(4), 712–721. <https://doi.org/10.2307/258493>
- Podnar, K. (2015). *Corporate communication: a marketing viewpoint* (1st ed.). Routledge.
- Richmond, V. P., McCroskey, J. C., McCroskey, L. L. (2005). *Organizational Communication for Survival: Making Work, Work*. United States: Pearson/Allyn & Bacon.
- Rosenstiel, L. von, & Nerdinger, F. W. (2011). *Grundlagen der Organisationspsychologie : Basiswissen und Anwendungshinweise* (7., überarb. Aufl.). Stuttgart: Schäffer-Poeschel.
- Rubenstein, A. L., Eberly, M. B., Lee, T. W., & Mitchell, T. R. (2018). Surveying the forest: A meta-analysis, moderator investigation, and future-oriented discussion of the antecedents of voluntary employee turnover. *Personnel Psychology*, 71(1), 23–65. <https://doi.org/10.1111/peps.12226>
- Schlick, C. M., Bruder, R., & Luczak, H. (2010). *Arbeitswissenschaft*. Springer Berlin Heidelberg.
- Schneider, B., Hanges, P. J., Smith, D. B., & Salvaggio, A. N. (2003). Which comes first: Employee attitudes or organizational financial and market performance? *Journal of Applied Psychology*, 88(5), 836–851. <https://doi.org/10.1037/0021-9010.88.5.836>
- Skrastins, J., & Vig, V. (2019). How Organizational Hierarchy Affects Information Production. *The Review of Financial Studies*, 32(2), 564–604. <https://doi.org/10.1093/rfs/hhy071>
- Somers, S. (2009): Measuring Resilience Potential: An Adaptive Strategy for Organizational Crisis Planning. *Journal of Contingencies and Crisis Management*, 17: 12-23. <https://doi.org/10.1111/j.1468-5973.2009.00558.x>

- Spector, P. E. (2022). *Job Satisfaction: From Assessment to Intervention*. Routledge.
<https://doi.org/10.4324/9781003250616>
- Stiglitz, Joseph, E. (2002). "Information and the Change in the Paradigm in Economics ." *American Economic Review* 92 (3): 460–501.
- Tushman, M. L., & Nadler, D. A. (1978). Information processing as an integrating concept in organizational design. *Academy of Management Review*, 3(3), 613-624.
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185(4157), 1124–1131. <https://doi.org/10.1126/science.185.4157.1124>
- van Riel, C. B. M. (1995). *Principles of Corporate Communication*. Prentice Hall.
- Verma, P., Sharma, R. R. K., Kumar, V., Hsu, S. C., & Lai, K.-K. (2022). Identifying organizational variables for the implementation of horizontal strategy in conglomerates. *Benchmarking: An International Journal*, 29(5), 1703–1733. <https://doi.org/10.1108/BIJ-01-2020-0002>
- Vogus, T. J., & Sutcliffe, K. M. (2007). Organizational resilience: Towards a theory and research agenda. *IEEE International Conference on Systems, Man and Cybernetics*, 3418–3422.
<https://doi.org/10.1109/ICSMC.2007.4414160>
- Wankhade, L., & Dabade, B. M. (2010). Information asymmetry and management of quality uncertainty and quality perception. *Springer*. <https://doi.org/10.1007/978-3-7908-2195-6>
- Weick, K. (1995). *Sensemaking in Organizations*. Thousand Oaks, CA: Sage Publications.
- Weick, K. E., & Sutcliffe, K. M. (2015). *Managing the Unexpected - Sustained Performance in a Complex World* (3rd Edition)(Third edition.). John Wiley & Sons.
- Wilke, A., & Mata, R. (2012). Cognitive Bias. In *Encyclopedia of Human Behavior* (Second Edition, Vol. 1, pp. 531–535). Elsevier Inc. <https://doi.org/10.1016/B978-0-12-375000-6.00094-X>
- Williams, T. A., Gruber, D. A., Sutcliffe, K. M., Shepherd, D. A., & Zhao, E. Y. (2017). Organizational response to adversity: Fusing crisis management and resilience research streams. *The Academy of Management Annals*, 11(2), 733–769. <https://doi.org/10.5465/annals.2015.0134>
- Warren, N. A. M. (2018). *Organization design: simplifying complex systems* (Second edition.). New York: Routledge.
- Yean, T. F., Johari, J., Yahya, K. K., & Chin, T. L. (2022). Determinants of Job Dissatisfaction and Its Impact on the Counterproductive Work Behavior of University Staff. *SAGE Open*, 12(3).
<https://doi.org/10.1177/21582440221123289>