



Systemic Project Management and the Impact on Soft Factors in the Organisation

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Abstract

Traditional project management has long focussed on the three factors of time, cost and scope. Building on systems thinking, systemic project management offers a holistic framework that incorporates psychological and sociological aspects into project planning and implementation. It considers the dynamics and unpredictability of human factors and their interactions in project environments. The question is whether the problems that project managers are confronted with daily are consistent with systemic assumptions and can be solved using its methods. What framework conditions need to be considered to implement systemic methods in today's modern project organisation? The novelty of this work is that the research was conducted within the complex project organisation of the automotive industry, which is characterised by complex communication structures and many parallel projects. The strong focus on the automotive sector in the context of the rapidly developing global market and increasing competitive pressure enables the study to deliver industry-specific findings with broader applicability. Based on qualitative focus group interviews with experienced project managers from the automotive industry, the analyses show improvements in communication and team dynamics as key benefits of systemic approaches. The study develops a conceptual framework model for the integration of soft factors with systemic tools and provides practical recommendations for implementation in complex project environments. The results contribute to the further development of project management and offer practitioners realisable strategies for increasing project effectiveness from a systemic perspective.

Keywords Systems thinking · Project management · Focus groups · Automotive

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Introduction

Rapidly changing markets, technologies, social interests and the enormous pressure of global competition are factors that constantly influence today's automotive industry from the outside (Meredith and Shafer 2022). The complexity of the environment also increases the complexity of the organisation itself. Companies must adapt dynamically and quickly to new circumstances. Projects are an important tool for responding to the dynamics of the environment. Projects can be defined as structured endeavors aimed at creating unique products or services or achieving strategic goals (Calderon-Tellez et al. 2024). Considering all these factors and circumstances it becomes clear that projects are complex entities with many variables and chains of effects (Mitrovic et al. 2020).

The systemic approach offers a more holistic view, enabling project managers to better integrate into the project environment, involve stakeholders, and understand the interdependencies in the social system of the organisation. This allows project managers to keep the "people" factor together and motivate them to achieve high performance, addressing the deficits caused by quick decision-making under time pressure (Gehr et al. 2018). Systemic project management combines systems theory and project management, offering a holistic perspective on complex projects. It emphasizes interdependencies and interactions with people, complementing modern approaches (Haynes and Alemna 2022). While there is an upward trend in systemic research, the practical application of this complex theoretical construct remains challenging, with a lack of in-depth research on its organisational effects (Midgley 2023).

This is where the present research comes in. The aim is to examine the applicability and effectiveness of systemic project management approaches in complex project environments in the automotive industry. Based on a systematic literature review and a conceptual framework, key shortcomings of classical approaches are identified, the potential contributions of systemic methods are discussed, and the resulting research gaps are specified. In particular, the research addresses the questions of why targets are missed from a classical and systemic perspective, what effects systemic methods have on soft factors, and what organizational prerequisites are necessary to ensure their acceptance and effectiveness.

This work thus makes both a theoretical contribution to refining systemic approaches in project management and provides practical added value for organizations seeking to achieve sustainable improvements in collaboration, decision-making and project results in highly complex environments.

Conceptual Framework

Foundation of Systemic Project Management

Systemic project management is a holistic approach that views projects as complex social systems interacting with a dynamic environment. It integrates principles of systems thinking into project planning and implementation, focusing on the integration of soft factors, continuous development, and the role of the systemic project manager. This approach aims to create a cycle of continuous optimization, where practical experience informs systemic research, and new systemic thinking expands perspectives in project management. This is

particularly relevant in highly dynamic industries such as the automotive industry, where projects run in parallel, are subject to high time pressure and are characterised by uncertainty (Calderon-Tellez et al. 2024).

The central elements of systemic project management and their interactions are shown in Fig. 1. On this basis, the following sections explain the theoretical concepts that directly lead to the research gap identified in the introduction. The aim is to establish the conceptual connection between systemic thinking and project management, with a particular focus on the role of soft factors, communication and systems thinking in complex project environments.

Today, projects are often understood as social systems that cannot be controlled linearly, but are characterised by emergent dynamics, interdependencies and uncertainty (Midgley 2023). (Nachbagauer et al. 2020) describes projects as open social systems that are characterised by non-linear processes, unpredictability and complex communication structures. **Modern project management** should therefore no longer be understood as a purely rational control instrument, but as a reflexive, socially embedded practice that reacts to dynamic environments.

Successful project managers today require a diverse skill set, including the ability to develop and maintain a clear vision, critical thinking to address challenges, and a flexible approach to working methods. They need power skills such as collaborative leadership, innovative thinking, communication, purpose-orientation, and empathy to work effectively with stakeholders. Additionally, business acumen and functional as well as industry-specific knowledge are essential for informed decision-making and strategic alignment (Karanja and Malone 2022).

Systemic perspectives do not replace modern project management, but rather complement it by providing a deeper understanding of the social dynamics and communication patterns that shape project outcomes (Marciniak 2023).

Classic project management approaches traditionally focus on hard facts such as time, costs and scope. However, this purely technical perspective falls short as it does not take sufficient account of complex social dynamics. As a result, **soft factors** are increasingly

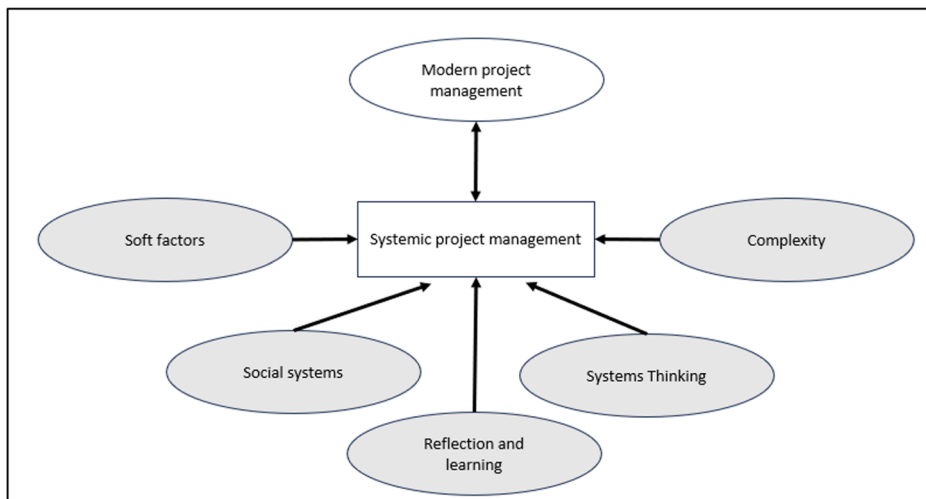


Fig. 1 Elements of systemic project management and its interactions. Source: Own processing based on (Song 2011)

taking centre stage in complex projects. These include aspects such as behaviour, corporate culture, communication, team dynamics, motivation and management style. These factors significantly determine how effectively collaboration and decisions are made in the project (Gehr et al. 2018).

As (Goleman 2019) shows with his concept of emotional intelligence, project managers need skills such as empathy, self-awareness and relationship management to successfully lead teams, resolve conflicts and create a productive project climate. Social leadership not only enables better cooperation, but also the handling of uncertainties, conflicts and organisational barriers.

Complexity in projects is characterised by uncertainty, a multitude of interlinked elements, changing requirements and dynamic environmental influences. Modern projects are often characterised by non-linear interactions, limited predictability and emergent behaviour (Geraldi et al. 2011). This complexity requires a management approach that goes beyond linear planning logic and supports flexible, adaptive decision-making processes (Elia et al. 2021).

Social Systems arise from the interactions and feedback between their elements and their environment; their behaviour cannot therefore be explained in linear terms (Malyshkin et al. 2021; Zarghami and Dumrak 2021). In such systems, decisions not only influence processes, but also change the system dynamics themselves. Understanding projects as social systems illustrates why purely linear management approaches are often insufficient and why social factors contribute significantly to project success (Lies 2020). Systemic project management takes up this perspective by systematically incorporating social and psychological dynamics, thereby broadening the view beyond purely structural factors (Meredith and Shafer 2022).

Systems Thinking refers to a way of thinking that views projects not as isolated entities, but as parts of a larger social and organisational structure. The focus is on interactions, feedback loops and the insight that behaviour in complex systems cannot be explained in linear terms (Reynolds & Holwell (Retired), 2020). Instead of reducing uncertainty, systems thinking accepts complexity as an integral part of management and promotes flexible, adaptive decision-making processes.

The concept combines hard systemic approaches such as system dynamics, which analyse underlying mechanisms and structures, with soft approaches such as soft system's methodology, which takes subjective perspectives, interests and conflicts into account (Jackson 2006; Winter and Checkland 2003). This combination is referred to as critical systems thinking and forms an essential basis of systemic project management, shown in Fig. 2. (Checkland and Poulter 2020).

Systemic Project Management combines the building blocks described above into an integrative approach that takes a holistic view of projects. It assumes that project organisations are social systems whose behaviour is shaped by communication, interactions and feedback (Calderon-Tellez et al. 2024). Instead of pursuing linear control logic, systemic project management focuses on relationships, complexity, motivation and team-related dynamics, cre-

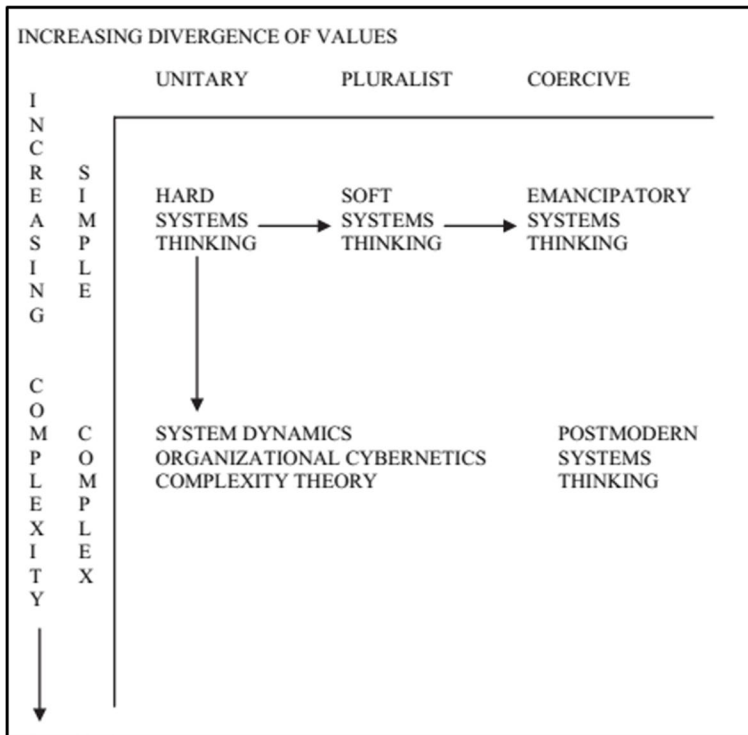


Fig. 2 Development of applied systems thinking. Source: (Jackson 2006)

ating conditions in which learning, adaptation and self-organisation become possible (Lies 2020; Song 2011). In doing so, it expands classic project management-oriented methods to include social and psychological perspectives and supports project managers in understanding complex situations, recognising interactions and initiating constructive change through communication (Gehr et al. 2018).

The Role of the Systemic Project Manager arises directly from the social complexity of modern projects: they must understand and reconcile different perspectives, assumptions and expectations without assuming complete predictability (Song 2011; Thomas and Mengel 2008). Traditional competency models reach their limits here, which is why current frameworks such as the PMI PMCDF or the IPMA ICB 4.0 increasingly emphasise communicative, reflective and social skills, such as self-reflection, conflict resolution, situational leadership and the promotion of joint meaning-making within the team (Cicmil et al. 2006; Crawford 2005). Systemic project management therefore sees the project management role less as a planning and control function and more as a moderating, reflective and adaptive process support function that assists teams in complex change situations and influences the system through communication (Checkland and Poulter 2020; Drechsler et al. 2010). Numerous systemic methods have been developed based on these requirements. The most important of these methods are presented in the following Chap. 2.2.

Systemic Methods

Systemic research provides a variety of practical methods that aim to reveal and specifically influence social dynamics, feedback loops and needs within projects. For this study, based on a literature review, those methods were selected that are particularly suitable for mapping soft factors, communication, team dynamics and reflexive decision-making processes (Gehr et al. 2018; Paucar-Caceres et al. 2022). This selection served as a practical basis for the experts in the focus groups to assess the potential effects of systemic approaches in everyday project work (see Table 1).

Reflective questions and active listening promote perspective shifts and help to identify unspoken expectations and conflicts at an early stage (Marciniak 2023). Force field analysis makes promoting and inhibiting forces in the project environment transparent and supports a common understanding of risks and interactions (Schwaninger 2020). Team reflection and collective learning strengthen the adaptability of social systems through continuous feedback loops and promote a constructive approach to mistakes (Coccia 2023; Hartwig et al. 2020). In addition, systemic visualisations such as relationship maps make informal structures and dependencies visible and enable a better understanding of their influence on communication and decisions (Midgley and Rajagopalan 2021).

The following example illustrates the creative application of various systemic methods in practice. The combination of methods is also referred to as methodological pluralism (Midgley 2023). Project managers are often under time pressure and oversee several projects at the same time. They often fall back on specifications. This is also the case in project initiation. To carry out the kick-off of the project, it is necessary to clarify requirements, goals and specifications in advance. Fixed checklists are often used for this purpose, which mainly contain hard factors (Project Management Institute, 2021). A check of soft system perspectives or the integration of soft factors is pushed into the background. The additional use of force field analysis supports systemic thinking and integrates soft system perspectives. Together with the project team, it is analysed how the goal can be achieved, which elements serve as a driving force and which elements hinder the progress of the project. The force field analysis is a helpful tool to gain a better understanding of the dynamics of a change and to take appropriate measures to successfully implement the change. Systemic questions should be asked during meetings to get members thinking. The members should also express personal opinions: what motivates and what leads to blockages. What personal experiences have the departments gained from past projects? What is important for the team and the organisation? Within the individual phases, the project managers should continuously reflect on the entire project with the team. In this way, the project manager should constantly reflect on and evaluate the progress of the project and the state of the team. Systemic project management does not give clear instructions but attempts to create conditions that enable an effective holistic approach to the project. Numerous methods and examples of combinations of methods can be found in the literature (Marciniak 2023). The systemic project manager must use systemic thinking to decide which method to use in the respective project phase based on the complexity of the situation (Midgley and Rajagopalan 2021).

Table 1 Intervention-Tool-Matrix. Source: own processing based on (Gehr et al. 2018)

Chapter and intervention/tool	All project phases	Initialization	Definition	Planning	Steering	Finalization
Reflecting Team	x					
Trial and Error	x					
Metaphors	x					
Planning pendant	x					
Initial and follow-up discussions	x					
Relationship barometer	x					
Active listening	x					
Interactivity	x					
Use of systemic questions	x					
50 questions to clarify the order	x					
Icebreaker		x				
Paradoxical intervention		x	x			
Planning the procedure		x				
Force field analysis		x	x			
Organization chart			x	x	x	x
Team roles			x			
Definition of terms		x	x			
Newspaper articles			x	x	x	
Definition of dependencies			x	x		
Formation of a work team				x		
Intercultural comparison				x		
Team identity and rituals				x	x	x
Use of positive and solution-oriented language					x	
Lateral solution finding					x	
Give and take					x	
Power user					x	x
Lessons Learned						x
Project retrospective						x

Findings & Goals

Studies show that in projects, especially in the automotive industry, soft factors such as communication, motivation, trust and psychological needs are often insufficiently considered, which is reflected in low stakeholder satisfaction and recurring conflicts and wrong decisions (Albert 2020; Meredith and Shafer 2022). Global and virtual collaboration further exacerbates these deficits, as social bonds and informal coordination channels are often lacking. At the same time, psychological skills such as stress management and decision-making

ability are considered increasingly central to project success (Filipova and Balco 2022). From a systemic perspective, neglecting such social dynamics leads to decisions being made mechanistically under time pressure and important feedback being ignored, a constellation that promotes undesirable developments (Barbalho et al. 2022; Mitrovic et al. 2020).

Systemic methods that consciously incorporate social and psychological factors offer the potential to reduce these shortcomings of traditional project management approaches. Due to growing organisational complexity, interest in systemic approaches has increased significantly in recent years (Haynes and Alemna 2022). Nevertheless, their actual impact in practice, especially in the industrial environment of the automotive industry, remains largely unexplored (Midgley 2023). The literature therefore points to a clear empirical research gap and recommends qualitative studies to evaluate the impact of systemic methods in everyday organisational life (Bengtsson et al. 2018). At the same time, systemic project management is a demanding discipline that requires in-depth knowledge of systems theory; without adequate training, there is a risk of misuse and unrealistic expectations (Midgley and Lindhult 2021). In addition, the introduction of systemic approaches can be associated with considerable resources, which often makes companies hesitate in view of limited evidence (Son 2022).

Against this backdrop, the following key research question arises: What impact do systemic methods, particularly in the context of project organisation in the automotive industry, have on the shortcomings of traditional project management approaches? Three sub-questions are formulated to answer this main question:

1. How do project managers' explanations for missed targets differ when viewed from a classical versus a systemic perspective?
2. What specific effects do selected systemic methods have on communication, decision-making behaviour and other soft factors in automotive project environments?
3. What organisational prerequisites and stakeholder groups are necessary to successfully implement systemic approaches and ensure their acceptance?

This research approach makes it possible to empirically examine the systemic perspective in terms of both content and organisation, thereby specifically addressing the gap between systemic theory and practical project management practice (Johnston et al. 2020).

The main goal of this research is to promote the understanding and application of systemic management in project management by formulating the principles of the systemic approach, assessing their suitability for real-world challenges, and examining their impact through a qualitative research approach to demonstrate the applicability and effectiveness of systemic management approaches in project management. In addition, organisational prerequisites are identified that enable the successful and accepted introduction of systemic approaches. Furthermore, the study contributes to the further development of systemic research by highlighting potential, limitations and future research needs.

Methodology

This research is based on a qualitative analysis and case study that specifically analyses scientific work to develop the conceptual framework and thus the research questions and research objectives. This approach was chosen because qualitative analyses generate

general statements from the collection of experiences of individuals or groups, from which conclusions about a context are then derived (Bazen et al. 2021). The research follows a structure based on four consecutive main areas (see Fig. 3). These consist of conceptual framework, analysis, results and critical reflection (Elia et al. 2021).

The literature search forms the foundation of the conceptual framework and includes the collection of information from internet sources, the formulation of search terms and the use of several databases to identify relevant peer-reviewed literature. The search terms build by keywords from the fields of project management, systems thinking, systemic thinking, complexity and the automotive industry. This process initially yielded 620 articles from peer-reviewed journals and conference proceedings (Haynes and Alemna 2022). A three stage selection process was used to refine this dataset, including the use of Zotero to remove duplicates, categorise the entries and read the headings (Hermanu et al. 2022; Trif et al. 2022). The final core literature of 70 articles was coded both inductively and deductively using the MAXQDA tool. The tool's advanced analysis function allowed the codes to be synthesised to summarise the key messages (Yin and Fernandez 2020). The entire process is visualised in Fig. 4.

Focus Groups and Content Analysis

The core task of the analysis phase is to review the four formulated research questions and evaluate the benefits of systemic methods in the automotive context. The focus group method was chosen for this purpose. The method is suitable because the experiences, assessments and opinions of experts can be collected in a joint workshop. This reduces the time and effort involved, as not every expert has to be interviewed individually. The motivation to discuss topics in the group also increases. The group dynamic can lead to many more answers and activities than in an individual interview (Geampana and Perrotta 2024).

The survey was conducted in a medium-sized company, as the research is to be continued in the organisation in the future. The company is a global automotive supplier for powertrain components. The project management is structured according to classic approaches and works according to the stage-gate principle. The projects are divided into 5 phases: Team development and definition, design validation, process development, process validation, series start-up support. At the end of a stage/phase, the Project Management Office (PMO)

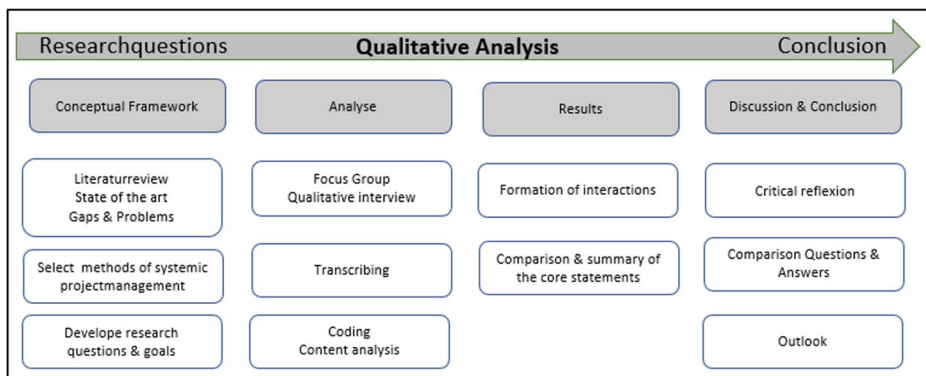


Fig. 3 Methodology approach. Source: Own processing based on (Elia et al. 2021; Yadav 2022)

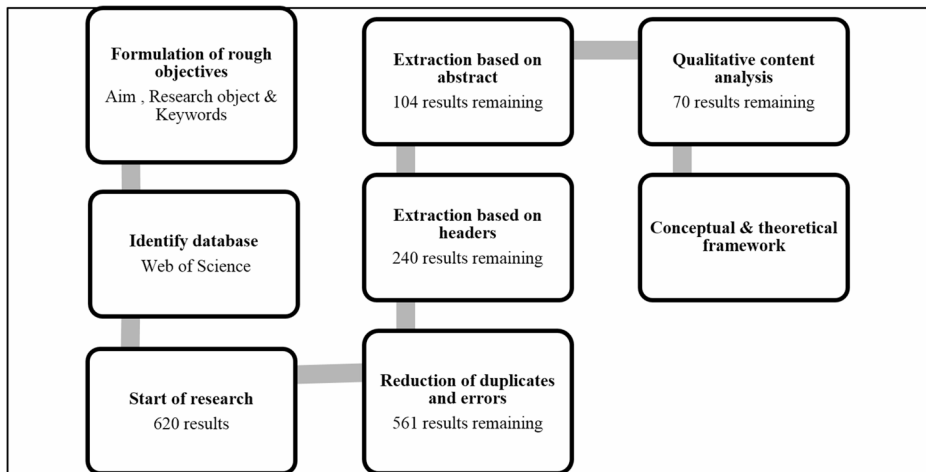


Fig. 4 Review protocol based on Prisma. Source: Own processing based on (Wang et al. 2022)

checks whether the performance targets have been met. Within the phases, the project managers must report critical points and potential risks to the Management Board.

The science project was presented in a lightning round attended by all the company's project managers. After the presentation, each project manager could decide in a survey whether they were interested in participating. The following criteria were used to select the participants: position as project leader or project manager, at least five years of professional experience and projects already supervised from initiation to the start of series production. This was to ensure that the discussion generated qualitative statements with a high potential for answering the research questions. To give participants the opportunity to familiarise themselves with the methods and approaches of systemic project management, a handout was prepared in advance. Microsoft Teams offers advantageous tools such as recording mode, direct transcription and the whiteboard. In this way, the research questions were developed step by step and answered and evaluated by the experts in a joint discussion (Kaiser, 2021). The selected subjects who met the criteria consisted of 6 project managers from each of the locations America (Group 1) and Europe (Group 2) with a total of 12 participants. Due to the long distance, the focus group was conducted digitally via teams (Gunawan et al. 2022).

The next step of the analysis is based on a detailed content analysis following (Busetto et al. 2020). The recording in Microsoft Teams was automatically transcribed. To obtain a suitable overview of the large amount of data, it is necessary to code and summarise the statements using MAXQDA. The program enables the data sets to be coded and the core statements to be visualised systematically and clearly. In addition, all data is centralised and a variety of visualisation tools are available to the user (Miseliunaite et al. 2022).

Three steps were carried out during the analysis. Double reading and precise interpretation of the statements with matching paraphrases. The code system is formed by a deductive or inductive process. In practice, these are often combined to utilise the advantages of both methods for the research work. Deductive coding forms a code list based on the research questions. Inductive coding expands the code list with key terms from the participants'

statements. This ensured that both theoretical constructs and industry specific practical experiences were reflected in the analysis (Takaffoli et al. 2022).

Synthesis and Critical Reflection

In the synthesis, the core statements are compared to recognise certain interactions and correlations. Building on this, logical connections such as a hypothesis in quantitative studies are emphasised in a critical reflection and compared with the existing knowledge in the literature. The primary contribution and value of this type of review lies in the ability to develop new conceptualisations or extend existing ones by identifying and highlighting gaps in knowledge between the existing data and the research findings (Johnston et al. 2020).

During the analysis and evaluation of the data, following (Liamputtong and Rice 2020) and (Busetto et al. 2020), the criteria of credibility, confirmability and transferability of qualitative research were always attempted to be met. Credibility refers to the certainty that the data are collected and interpreted correctly so that the results and conclusions accurately reflect and represent the real situation. Confirmability attempts to show that the results and interpretations of the findings are not the product of the researchers' imagination but are clearly linked to the data. Transferability means that the theoretical knowledge that the researchers have gained from qualitative research can be transferred to other, similar people, groups, or environments.

Results

A total slot of 120 min including a break of 10 min was scheduled for each focus group. Before the start of the recordings, the participants were informed about the aim of the research project (see comparative Chap. 2.4). The discussion topics in the interviews and the codes are organized according to the research questions in Chap. 2.3. Current situation, systemic methods and acceptance of systemic methods. The code system is shown in Table 2. These main categories are based on the research questions from the deductive part of the code system. The inductive part originates from the statements and conclusions of the participants and is presented as a sub-category. The two focus group interviews resulted in a total of 451 codes. The results for the main categories are presented below and are substantiated and verified by selected expert quotes (Takaffoli et al. 2022).

Current Situation in Project Management

The experts discuss the current situation and their focus in projects. The first answers in both groups are the completion of the project within the agreed time frame and budget. To achieve this, it is important to create a clear structure, set priorities and divide the tasks into small subtasks. The goal is to deliver what was promised to the customer and the company, on time, within budget and in good quality to satisfy the customer. It is emphasized that project managers make sure that resources are available to complete the tasks. This is often seen as problematic. The highest frequency is in the statements about communication, as shown also by the number of codes in Table 2.

Table 2 Code system focus group Interviews. Tool: MAXQDA (24.3.0)

Categories & Codes		Frequency Summary & Conclusion
1 Current Situation		
1.1 Important Things & Focus		
Goals	12	Delivering on customer and company promises in terms of on-time, on-budget, and good quality delivery. Importance of transparent communication, delegation, and team motivation. Need to adapt to team strengths and weaknesses to build an effective team.
Team motivation	8	
Satisfaction	6	
Resources	3	
Risk management	3	
Clear Responsibility	4	
Communication	15	
1.2 Meetings		
Face to Face	19	Benefits of face-to-face meetings vs. virtual meetings, including building relationships and avoiding multitasking. Advantages of virtual meetings in terms of efficiency
Pro & Contras virtual Meetings	29	
Kind of Meetings you have	18	
1.3 Important Skills as a Project leader		
Hungry Humble Smart	8	Key qualities for a successful project manager: hunger, humility, and intelligence.
Stress Resistance	3	
Soft Skills	9	Importance of soft skills like flexibility, cultural adaptability, and communication.
Leadership	6	
Experience	6	Focusing on facts, understanding personal situations, and constructively managing conflicts.
Dealing with People	4	
Challenging	1	Navigating team dynamics. Reflecting, asking questions, and maintaining constructive tension. Addressing personal issues that can affect team member performance
Learning	1	
Decisiveness	5	
1.4 Gaps & Problems		
Handling with Soft Facts	34	Resource management and team member availability. Hasty decision-making, lack of communication, and team dynamics. Working too fast without proper planning. Underestimating risks and problems. Emotional decision-making. Lack of task understanding and knowledge
Handling with conflicts	20	
Failures	33	
Wrong Decision	38	
2 Systemic Methods		
Understanding	12	Values in adopting a systemic approach. Need for a gradual, tailored implementation process. Misinterpretations, organizational structures and misalignment between different groups. Soft skills, active listening, and adapting communication styles are crucial for successful projects. Requires understanding team dynamics, emotional factors. It can help with team building, feedback, and long-term planning
Fulfilling Gaps	29	
Pros & Contras	33	
3 Acceptance for Systemic Methods		
Measurables	5	Importance of demonstrating the tangible benefits of new approaches. Sharing of experiences rather than just presenting theoretical advantages. Highlight the need for top management to actively promote the approach. To provide training and encouragement to the team. Successful implementation requires a holistic understanding. Stress the importance of building buy-in and commitment from the company.
Factors	51	
Stakeholders	36	
Total Codes	451	

The experts underline the importance of transparent communication and a clear understanding within the team about the delegation of tasks and responsibilities. The focus is always on increasing the effectiveness of communication. The experts value having a motivated team and building a good relationship between the team, adapting to the strengths and weaknesses of the team and molding the team accordingly. It is important that the team understands how everyone's work affects the team as a collective. Teamwork and risk management are factors in achieving these goals.

The next discussion is about the efficiency of meetings and the current situation in which many meetings, are taking place virtually. Some participants prefer face-to-face meetings as they believe that participants are less distracted and can concentrate better on the conversation. It is argued that virtual meetings are faster and more interactive as you can quickly switch between different computers and data. Some experts also criticize the fact that many participants do not actively take part in virtual meetings and instead engage in other tasks. It is pointed out that relationships and personal contacts are important, especially in project management. Constant virtual meetings can have a negative impact on the relationship. The experts favor face-to-face meetings but agree that around 75%–90% of meetings currently take place via Teams.

In both focus groups, a simulation of an application for the position of project manager was carried out. One person was selected at random to represent the employer. All other experts now had the chance to apply for the position with short statements about their most important skills. This simulation was designed as a reflexive organization of the discussion, enabling the group to mirror its own expectations and assumptions about the role of project managers, which is a core element of systemic perspectives.

Both groups mentioned psychological characteristics such as willingness to learn, decision-making ability, stress resistance, experience and leadership. A high frequency is given by Group 1 to the aspect "Hungry-Humble-Smart". Hungry here means that the person has the desire to be successful and work hard. Humble means that they are aware that they do not know everything and need help. Smart here means not only intelligent, but also situationally smart and emotionally intelligent. It is about understanding the situation and adapting. It is important to understand and be able to apply the tools and processes. Group 2 often emphasizes soft skills. These include social skills such as empathy, adaptability to different cultures and flexibility. Personality and behavior in dealing with other people are also crucial. It is about building trust and maintaining a good relationship with team members. It is important that the project manager is a team player and stands up for his or her employees. The ability to adapt and, if necessary, circumvent rules and guidelines to achieve the goal is also considered important. Overall, it is about finding a balance between trust and performance and creating a positive working atmosphere.

The next part of the discussions focused on gaps and problems in the current situation. The experts were asked why they had made the wrong decisions in the project in the past. Some of the experts stated that misunderstandings in communication between different project members were the cause. As a result, priorities were misjudged, or the task was not understood. Another statement is that risks and problems were underestimated, and you were later confronted with the disadvantages. Many of the experts also emphasize that the current time pressure and thus the stress and emotions lead to wrong decisions. It is also discussed that a wrong decision was made due to incorrect or incomplete information and a lack of knowledge in the past. According to current expert opinion, wrong decisions cannot

be avoided, but they offer a learning opportunity to continuously develop the organization. To stimulate further discussion, the experts were asked what other reasons for missed targets and failures in their projects were. A frequently mentioned reason is communication and the motivation of the team. The experts also highlight failures due to a lack of standards and a deficit in the management of resources. Sometimes work is done too quickly without paying attention to the details, which can lead to errors. It is therefore important to make the right decisions based on correct information.

To complement the section on the current situation, the experts discussed how they currently deal with soft factors in their day-to-day work and how they take them into account. It is often mentioned that people should be careful when expressing criticism or addressing differences of opinions. Project managers need to build trust with the team. Employees have different needs and the aim is to understand and respond to them. It is also pointed out that there are always things going on in employees' private lives that they do not share. Understanding should be shown when an employee is in a bad mood. A family atmosphere is particularly important for the experts to strengthen relationships and improve trust. A concrete example of this is also presented here. An expert from Group 1 takes his experience as a youth coach and establishes it in project management. As a result, he has a high reputation and is very popular among colleagues. The experts also mention the conflict resolution process as a social element. Project managers must act as mediators and behave impartially. Small talk, face-to-face discussions and reflective questions are said to resolve conflicts. Group 1 emphasizes that conflicts are not bad per se and that it is important to keep them constructive. As a program manager, it is important to mediate between the different groups and find compromises.

Evaluation of Systemic Methods

At the end of the first section, the key statements on the current situation were recorded and presented to the experts using an interactive whiteboard. This was intended to give the experts the opportunity to reflect on what had been discussed to apply it specifically to the systemic methods in the next subject of discussion. This reflective step itself already mirrors a systemic approach, as it enables the group to observe and reinterpret its own communication and decision-making structures before moving forward (Simon 2024).

The second section of the focus group discussion focused on the practical evaluation of various systemic approaches and methods. The handout, which was provided to the participants a few days before the interview, also served as an assistance and basis for discussion. The handout presented the basics of systemic project management and described the systemic methods. The experts had the task of specifically assessing the extent to which systemic views have an impact on everyday working life, contribute to problem-solving and what advantages the application of systemic methods could have. The special feature is that the experts had no or very few points of contact with systemic approaches. However, the experts in both groups confirmed that the systemic approaches and the objectives of systemic project management are clearly understandable and that they can follow the basic assumptions. For the participants, the systemic framework is a kind of new fad that is controversial to the current assumptions. Some of the participants in Group 1 stated that they already consider aspects of systems theory in their daily work.

The literature, see Chap. 2, points to a gap in the practical research of systemic concepts in organizations. The big question that arises from this is what impact does systemic project management have on the social system of the organization? The following assessment by the experts provides an initial approach to this question. Both groups were asked whether systemic concepts and methods could solve problems in the current situation. From the systemic methods, the experts see cooperation and support within the project management team as the core objective. It is underlined that soft skills such as empathy and interpersonal relationships play an important role and that the application of systemic methods can help to improve these factors. However, it is also pointed out that there may still be gaps, especially if other groups or managers do not have the same priorities. The experts agree that the application of systemic methods can help to partially close these gaps, but that there are also factors such as hard facts that need to be considered. There is a risk that the methods may not be properly understood and may be misapplied. This can lead to a premature negative judgement of systemic concepts. In this discussion, the experts also highlight that some methods such as the planning pendant or reflective questions are used unconsciously in practice.

To further stimulate the discussion on the topic of impact and problem-solving, the experts were asked about the advantages and disadvantages of systemic methods. The experts were also asked to provide specific estimates of the gaps that can be closed with systemic project management. Overall, it was concluded that systemic methods can be helpful in terms of communication and human interaction, but they must be applied carefully to achieve the desired results. This shows that the right method or combination depends on the person and situation. Not everyone reacts in the same way to certain interventions. For example, asking the wrong questions could have a negative impact on the social system and therefore jeopardize team stability. The various methods used by experts are discussed below. The systemic approaches to team development and feedback loops are particularly favored by Group 2 and, according to the experts, should be practically relevant. These approaches are intended to keep the team's emotions under control. Group 1 focusses on the fact that some approaches can prevent risks. The trial-and-error and active listening methods are mentioned as examples. This systemic approach makes it possible to actively recognize risks or critical relationships in the system before decisions are made and implemented. Group 1 also makes it clear that it is difficult to understand metaphors in a systemic context. The interpretation of metaphors can help to better understand the information, but there are cultural differences that lead to the same metaphor having a different meaning. In general, according to both groups, when used correctly, systemic methods can lead to a better understanding of the opinions and feelings of the team and the entire social system, as well as supporting the organization. These advantages only come into effect if the entire organization is systemically oriented, otherwise the approaches are not accepted and barriers arise. A final opinion is that soft factors are chaotic and dynamic. To analyze the overall impact of this is only possible if the systemic approaches are practically applied and tested. This shows that an assessment is only possible to a limited extent.

Framework Conditions for Systemic Approaches in the Organisation

The last part of the interview covers the framework conditions that need to be considered in order to integrate systemic approaches into the organization. The literature in Chap. 2 shows that the effectiveness of systemic approaches cannot be verified directly in practical

application. Any change requires money and time. These are resources that are only available to the organization to a very limited extent. In the beginning, the experts were asked which factors lead to the acceptance of new concepts. The organization focuses on measurable variables. Costs and time savings usually must be demonstrated to accept such measures. However, the experts assume that the organization can be encouraged to change step by step with a good story. To do this, it is important to reflect that hard factors alone do not lead to the success of the organization. The people involved must understand exactly what is behind the systemic approach to accept it. Training and implementation in a small test field could show what successes can be achieved with the approaches without having to demonstrate direct cost savings. It takes time to gain experience and apply the methods successfully. A tool is only as good as the person who uses it correctly. However, the aspect of becoming a role model for systemic management and applying the mindset and approaches consistently resonated strongly with both groups. If we want it, we must do everything we can to make this concept work in our organization. If we are not convinced of it ourselves, we cannot convince others.

As a result of the last section, the experts are asked who needs to be convinced of the concepts and who the stakeholders are to integrate the systemic approach into the social system. The experts agree on this. Formal approval is given by strategic management, which can be convinced by a good story, concrete examples and a test, as described above. This creates synergies. Top management then also serves as a driving force to convince the rest of the organization of the positive aspect. Stakeholders, however, are all affected team members; everyone must pull in the same direction and be motivated to integrate this way of thinking into everyday working life. According to the experts, project management is the best role model for consistently applying systemic approaches in general.

Discussion

Critical Reflection

The first part of the discussion starts with a summary and description of the subject of the study. The core of the discussion is a consideration of whether and to what extent the statements in the literature correspond to the opinions of the experts from the interview. In the case of discrepancies, further sources independent of the field are analyzed, which confirm or contradict the experts' statements. The second part examines whether the statements and results answer and concretize the research questions (Jackson 2024).

This research paper deals with systemic project management and analyses the effects of systemic project management on soft and hard factors within the complex project organization of the automotive industry, characterized by global teams, multiple complex projects, and high regulatory demands. The conceptual framework of this research describes the deficits and problems of project management from the perspective of systemic research. Whether and to what extent these gaps can be closed by systemic project management has not yet been researched in depth (Midgley 2023). The qualitative analysis and case study based on focus group interviews represents an initial approach. The discussion topics in the interviews include team motivation, resources, communication, dealing with conflicts,

methods and acceptance of systemic methods in the organization. In the following, the results are compared with the core statements from the literature.

The literature defines several problem areas for the current situation. The literature states that 50% of stakeholders in project management are dissatisfied because the focus is usually only on hard factors (Albert 2020). The experts' first response that the focus is to complete the project on time and within budget and to satisfy the customer. To do this, it is important to create a clear structure, set priorities and divide the tasks into small subtasks. This could confirm the statement in the literature, but the experts emphasize with a high frequency the importance of transparent communication and clear understanding within the team about the delegation of tasks and responsibilities. A motivated team and a good relationship between team members are also important to successfully complete tasks. Teamwork and risk management are crucial to achieving goals. According to the experts, soft factors are considered in day-to-day work by building trust in the team, understanding employee needs and resolving conflicts constructively. A familiar atmosphere is important to strengthen relationships and improve trust. The experts see the project manager as a mediator who mediates between different people and finds compromises. In practice, the focus is on the hard factors, but soft factors are also considered and have a high priority in project management. This insight is particularly important in the automotive sector, where several development and production projects run in parallel, so that a systemic perspective is particularly important to avoid missing targets. Modern project management already shows analogies to the systemic approach. Project management today should emphasise both soft and hard factors. Project managers should think holistically and coordinate processes reflectively (Project Management Institute, 2021).

A study has shown that young project managers often have major problems with their projects because they lack soft skills. The higher the level of experience, the greater the consideration of soft factors in everyday life. This confirms the high importance of soft factors in project management (Hefley and Botton 2021). One problem with the lack of social bonding is that meetings usually only take place virtually. From a systemic perspective, digital meetings lead to further deficits in the soft factors (Meredith and Shafer 2022). Experts are divided when it comes to meetings. Some favor face-to-face meetings, as participants are less distracted and can concentrate better on the conversation. Others argue that virtual meetings are faster and more interactive. However, it is criticized that many participants do not actively take part in virtual meetings and instead devote themselves to other tasks. The experts confirm the statements in the literature that regular virtual meetings have a negative impact on the relationship. A study in the field of management showed that psychological characteristics and positive life choices are the most important factors in the assessment of employees (Filipova and Balco 2022). In a simulation of an application for the position of project manager, both groups emphasize psychological characteristics such as willingness to learn, decision-making ability, stress resistance, experience, and leadership. Group 1 responded with a high frequency to the "Hungry-Humble- Smart" aspect, while Group 2 frequently emphasized soft skills such as empathy, adaptability to different cultures and flexibility. Both groups confirm the importance of social values in project management. However, a gap arises from the fact that these characteristics are disregarded due to the daily time pressure and enormous complexity in automotive projects (Barbalho et al. 2022).

In addition, the feedback in the social system is not considered. Decisions are made too quickly, with a lack of knowledge and experience (Son 2022). According to the literature,

the wrong decisions lead to conflicts between team members. Project managers then try to find compromises that lead to further wrong decisions (Furda et al. 2022). About this problem area, the experts discuss the reasons for wrong decisions. These include misunderstandings in communication, underestimation of risks, time pressure, lack of knowledge and incorrect or incomplete information. However, according to the experts, wrong decisions offer learning opportunities to continuously improve processes. A frequently cited reason for missed targets is communication and team motivation. The experts also confirm that they must find compromises in the context of conflicts, but not with the awareness of making a wrong decision. Regarding the literature, the experts have comparable views on the problems and gaps in project management. From a systemic perspective, the problem could be that project managers know too little about system behavior, otherwise do not understand the structure of their social system and do not take soft factors sufficiently into account to promote the motivation of the team. As a result, feedback is not taken into account, decisions are made incorrectly, and the system does not deliver the desired output. The non-systemically orientated research work by (Livesey 2020), which confirms the above points, has similar views. An extensive Delphi study showed that the problems in project management depend not only on the characteristics of the project, but also on soft factors and interpersonal skills. These include wrong decisions due to incorrect judgements, experience and knowledge, communication and understanding as well as responsibility for the team. A positive aspect, though, is that attempts are made to learn from negative consequences to deal with situations better in the future. This shows the character of a learning organization and cybernetic attributes in the organization studied (Lies 2020).

The second section of the focus group discussion deals with the practical evaluation of systemic approaches and methods in project management. The experts assess the extent to which systemic views have an impact on everyday working life, contribute to problem-solving and what advantages the application of systemic methods could have. The experts have had no to very few contact points with systemic approaches but confirm that the systemic approaches and the objective of systemic project management are clearly understandable and that they can follow the basic assumptions. According to the literature, systemic approaches are gaining more and more interest as they promise to be better able to deal with increasing dynamics and complexity (Haynes and Alemna 2022). Systems theory with all its facets is a complex theoretical construct but sounds promising in terms of practically applicable concepts such as systemic project management. The big problem, however, is that the effects on organizations have not yet been researched in depth. The systemic-based literature points to the gap in the practical experience of systemic concepts in organizations (Midgley 2023). Based on the experts' assessments, systemic methods can be helpful in communication and human interaction, but they must be applied carefully to achieve the desired results. The assessment of the experts is that only the right combination of methods for the appropriate situation can guarantee the success of systemic measures. This necessity is also reflected in the literature and is referred to as methodological pluralism. The combination of systemic methods enables better control, administration, management of subsystems, diagnosis and analysis of organizational problems and provides the necessary information and knowledge about the structure in the context of the social system organization (Midgley and Rajagopalan 2021).

The systemic approaches to team development and feedback loops are particularly favored and, according to the experts, should be relevant in practice. The experts emphasize

that some methods, such as the planning pendant or reflective questions, are already used unconsciously in practice. According to both groups, the use of systemic methods can help to achieve a better understanding of the opinions and feelings of the team and the entire social system to support the organization. These advantages only come into effect, though, if the entire organization is systemically oriented, otherwise the approaches are not accepted in the project team and barriers arise. A final opinion of the experts is that soft factors are chaotic and dynamic and the effects of them only become visible when the systemic approaches are practically applied and tested. A similar view and conclusion can also be found in the literature on Industry 4.0, for example. It is described that there are few to no studies on the practical use of systemic concepts in the field of Industry 4.0, yet estimates have shown that sustainability goals and a better handling of change and complexity can be achieved through their application. It is also recommended in this example to apply the theoretical methods in further studies to investigate the impact on social systems. The work confirms that an optimal output is only achieved when all persons involved are systemically orientated (Sony and Naik 2020).

A major point of criticism in the literature is that systemic management is a complex theoretical construct and requires extensive training that consumes a lot of time and money. It is therefore difficult to convince companies to pursue such approaches (Son 2022). The results of the focus groups confirm the problem. Following Luhmann's systems theory, these framework conditions must be embedded as expectations within the organizational communication system, otherwise they will not achieve sustainable acceptance (Luhmann 2024). To convince the management level of the organization examined, measurable variables such as cost and time savings must be demonstrated. However, the experts establish some ideas to support this change. It is argued that hard factors alone do not lead to the success of the company, and that it is important to develop this understanding within the organization. A good story and presentation of the concepts could convince the stakeholders to implement the approaches in a small experimental group. This allows the organization to gain experience and demonstrate possible successes with systemic approaches. According to the experts, the focus should be on the stakeholders in the management position, as top management should serve as the driving force to convince the rest of the organization of the positive aspect. Stakeholders are all affected team members who must pull in the same direction and be motivated to integrate this way of thinking into their day-to-day work. In the interview, the project management department is described as the best role model for consistently applying systemic approaches.

In the automotive context, however, additional stakeholders such as directors, production managers, and quality leaders must be addressed, as their approval directly influences the feasibility of systemic integration across the entire value chain (Oberer and Erkollar 2018). There are also further examples in the literature that reflect this statement. Companies use project management expertise to implement new systems and concepts in the organization as part of change management (Furda et al. 2022). Project managers are therefore suitable for taking a step-by-step approach to the start of a systemic entrepreneurial future. Analysis through a systemic lens makes it clear that acceptance is not just a management decision but is anchored in organisational communication as the institutionalisation of expectations. This means that the success of systemic project management depends less on the approval of new concepts and more on whether the system thinking is stabilised and reproduced within the communicative structures of the organisation (Luhmann 2024).

Comparison and Further Investigation

To respect the criteria of qualitative research and to gain a better understanding of the research, it is important to contextualize results. The second part of the discussion aims to summarize and compare the research questions with the research answers. This enables a direct comparison between the literature and the results of the analysis. It is examined whether the focus group discussion has answered the research questions or whether further investigation is required (Liamputtong and Rice 2020).

Overall, the results of the three sub-questions show that systemic methods offer suitable starting points for addressing key shortcomings in traditional project management practices in the automotive industry. The experts confirm both the systemic explanations for missed targets and the potential range of effects of systemic methods but emphasise the importance of organisational prerequisites for their successful implementation. This means that the main research question is answered positively overall, although further empirical studies on the practical effects of systemic approaches remain necessary.

1. How do project managers' explanations for missed targets differ when viewed from a classical versus a systemic perspective?

The company analyzed in this study follows classic approaches based on the stage/gate principle in project management. The experts selected in the interview have years of experience and have already coordinated large projects. Despite the classic approach, the experts rate the soft factors as very important and try to integrate them into their day-to-day work. Regarding the systemic perspective, the experts have comparable conclusions about failures and missed targets in project management. Misunderstandings in communication, underestimated risks, time pressure, lack of knowledge and information are emphasized. In comparison to the literature, it can be assumed that the system behavior and structure is not understood and that incorrect decisions are made as a result. The result shows that the project managers have synergies with systemic thinking. The soft system perspective is considered very important. Not understanding interactions can also indicate a deficit in the hard system perspective. The system dynamics method is suitable for this. In a further study, the complex structures can be modelled using system dynamics (SD). Based on (Zolfagharian et al. 2021), the SD method helps to understand the interaction of the elements and the associated output. This can sensitize project managers to make reflective decisions as they have a greater understanding of the feedback and system behavior in the complex social system.

2. What specific effects do selected systemic methods have on communication, decision-making behaviour and other soft factors in automotive project environments?

One special feature is that the experts have had no or only very few touchpoints with systemic approaches. The assessment in the interview was therefore purely technical and without any personal inclination towards systemic aspects. The experts primarily see the benefits in communication and dealing with the team. Some of the methods are already used unconsciously in practice. It is highlighted that the right method or combination must be applied to a specific situation. According to the statements of both groups, it is quite difficult to assess the effects of systemic methods without practical application. The experts suggest applying

selected systemic approaches in practice and then evaluating the new situation qualitatively to obtain more precise statements on the effects.

3. What organisational prerequisites and stakeholder groups are necessary to successfully implement systemic approaches and ensure their acceptance?

The experts confirm that it is difficult to convince companies to pursue systemic approaches. One framework condition is that the importance and advantages of these approaches are clearly understood at management level. A clear understanding of its advantages at management level and a step-by-step approach using pilot groups with measurable success indicators are key prerequisites for building acceptance. In the automotive industry in particular, gradual integration along the entire value chain is necessary, as systemic changes affect all project phases. From a systemic perspective, acceptance only arises when systemic thinking is anchored in organisational communication and continuously reproduced in everyday work (Luhmann 2024). Key stakeholders include top management, executives, quality managers and project managers, who act as mediators and role models (Furda et al. 2022; Oberer and Erkollar 2018). For future steps, it is recommended to first test the effect of systemic methods in small teams and to develop evidence-based arguments to convince other stakeholders.

Limitation

The limitations of this work consist of several aspects. The first aspect relates to the available data and information. The literature research provides works that are freely accessible in the individual databases. Aspects from fee-based works have not been included in this scientific paper. Another aspect is the limitation of the research area. The interview was conducted in 2 groups, which only came from one company but from 2 different regions. Following (Grama-Vigouroux et al. 2023), an extension to other companies and regions can provide further important results that expand the current statements. The coding and interpretation of the interview material was carried out by two persons. In a systemic context, this is referred to as a blind spot. Here, the interests and views of the analyst can affect the selection and interpretation of the statements. (Casimir et al. 2022) therefore recommends using several coders, reviewers and evaluating the results consistently.

Conclusion

The literature on systemic research provides numerous methods and approaches for integrating systemic perspectives into project work. The contribution of this research is to compare current findings from the automotive industry with systemic assumptions and to demonstrate that systemic project management can only unfold its full potential when it is anchored in communication structures across the organisation. The qualitative analysis shows that project managers in the automotive sector identify similar causes of undesirable developments as described in systemic research, particularly regarding communication issues, overlooked interdependencies, risk handling and time pressure. Although experts consider systemic methods valuable for strengthening trust, empathy and cooperation, they

emphasise that their actual impact can only be reliably assessed through practical application in pilot projects.

Acceptance of systemic approaches requires clearly recognisable benefits, gradual integration along the value chain and the continuous practice and communication of systemic thinking in everyday organisational interactions. The results of this study should therefore serve as a foundation and motivation for the practical application of systemic approaches, with each organisation selecting context-appropriate methods and placing people and social dynamics at the centre of project work.

This research paper makes a substantial contribution by not only situating systemic thinking within the theoretical discourse of project management, but also empirically demonstrating its practical relevance in the context of the automotive industry and clearly outlining the prerequisites for successful organisational implementation. Together, these insights support both scholars and practitioners in further developing systemic approaches and applying them purposefully in complex project environments.

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Declarations

Human Ethics Not applicable.

Consent to Participate All participants provided informed consent to participate in the study.

Clinical Trial Registration Not applicable.

Competing Interests The authors declare no competing interests.

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