Individual Motivation Factors in Agile Teams

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Summary

Research questions:	Do people in agile organizations experience a higher fulfillment of intrinsic motivational needs? Does the fulfillment of motivational needs depend on companies' agile maturity?
Methods:	By means of an online survey, a quantitative study with members of agile and traditional project teams was conducted and hypotheses were tested. The main target groups were project team members in industry in the German-speaking ("DACH") region.
Results:	The considered intrinsic motivation factors affiliation, acknowledgement, purpose, growth, autonomy, and performance were assigned a high importance by the participants. The agile maturity of companies, which is derived from the organizational elements strategy, structure, processes, leadership, and corporate culture, has a greater influence on the fulfillment of the motivational needs than the change from traditional project management to an agile project management method such as scrum. With an increase in agile maturity, the fulfillment of the six pre-defined individual motivational needs also increases.
Structure of the article:	Introduction; Literature review; Research questions & methods; Empirical results; Conclusions; About the author; Bibliography

Introduction

According to a study conducted by the IBE Institute on behalf of Hays AG in Germany, Austria and Switzerland, in 2018, 51% of the respondents (N=1036) stated that the topic "agile organization" is important or very important to their companies. Furthermore, 69% of the participants expect that the importance will even increase between 2019 and 2021 (Eilers, Möckel, Rump, & Frank, 2018). The reasons for this lie in the increasing complexity and dynamics of the market, faster development, digitalization, and globalization (Fischer, Weber, & Zimmermann, 2017).

Agile organizations are characterized by a high and fast adaptability of products, processes and, above all, employees and their skills to changing surrounding conditions and market situations (Eilers, Möckel, Rump, & Frank, 2018).

In order to achieve this, traditional organizations need to be adapted and developed. One of the best-known adaptations in agile transformations, and often the starting point, is the implementation of the agile project management method Scrum (Häusling et al., 2019).

One question that has received little attention in science so far is how this change affects the individual motivation of employees. The present study considers the fulfillment of intrinsic motivational needs in agile project teams.

The following literature review contains the theoretical aspects of motivation and intrinsic motivation factors and the aspects of agile organizations. Relevant hypotheses are formed from the essences of the literature review, which are then tested. The focus is on the comparison between members of agile project teams and traditional project teams. The article concludes with a discussion and a conclusion of the results.

Literature Review

Motivation

Kleinbeck and Kleinbeck (2009) describe motivation as the psychological state of people, which is characterized by the direction, intensity, and persistence of human behavior. The term "direction" describes what a person wants to achieve or avoid, the term "intensity" describes how energetically and intensively the person works towards achieving a goal, and the term "persistence" describes how persistently the person maintains his or her efforts. Motivation itself is nothing substantial, since it is not observable, but inferred from various observable facts (Mertel, 2006).

In science, motivation theories deal with the emergence and effects of the theoretical construct of motivation described above on human behavior (Fröhlich, 2002). In this context, they are divided into content-related theories and process-oriented theories. The process-oriented concepts explain how motivation arises formally (detached from need contents) and how motivation influences behavior (Drumm, 2012). Content theories, in contrast, deal with the central motivational content and the work characteristics assigned to it (Schuler, 1993). The content theories usually contain also procedural elements, but the approaches of content theories and process theories remain largely unrelated (Drumm, 2012).

Although this study considers intrinsic motivational needs, which are mainly based on relevant content theories, this does not dispense with the need to consider the procedural mechanism of motives and motivation. In the following section, these will be explained before the formation of intrinsic motivation factors is addressed.

Motives and Motivation Factors

In science, it is assumed that motivation is triggered and controlled both by the existence of needs and by perceived possibilities of fulfilling the needs (Fröhlich, 2002). The so-called 'motives' are derived from these needs. We speak of a 'motive' when isolated needs in a certain situation are picked out. These can be, for example, thirst, hunger, need for power, or the need for affiliation (Graumann, 1969).

Human behavior is very complex and therefore can usually not be explained by single motives. Often, however, attempts are made by scientists to make these simplifications in order to find explanations for practical actions (Drumm, 2012).

A common distinction of motivation in scientific literature is the division into intrinsic and extrinsic motives and motivation (Kleinbeck & Kleinbeck, 2009). Intrinsic motivation means that the person finds an incentive in the matter, which motivates him or her and fulfills a need. It means that the activity itself satisfies the person and makes them happy.

In the work context, this is referred to as an intrinsic work motive (Herzberg, 1966).

Extrinsic work motives are the opposite and result from the desire for e.g. money, security, or prestige. This type of work motivation can be generated, for example, by material incentives such as wages and bonuses (Comelli & Rosenstiel, 2009).

Here, it becomes clear that the design of the organization and the work itself play an essential role in determining which intrinsic and extrinsic motives of the employees are fulfilled (Kleinbeck & Kleinbeck, 2009).

According to Comelli and Rosenstiel (2009), a certain behavior, which includes the performance of an employee, results from the four cornerstones of empowerment and obligation, situational enabling, individual skills, and individual desire. The latter also includes individual motivation.

Especially an increase in intrinsic motivation can lead to an increase in employee performance and productivity (Desjardins, 2020) and also in satisfaction and well-being, resulting in a low rate of illness and fluctuation (Schmitt, 2016).

Amabile (1996) has shown that the type of job can determine which motivation factors have a positive influence on work performance, and the effect on motivation must be taken into account when designing the organization, workflows, and processes as well as leadership and reward systems. Since the professions and job profiles of employees within an industrial company vary greatly, individual considerations are necessary.

Dan Ariely (2008) distinguishes two different type of working styles and the effect of motivational needs. When a job is dominated by routines and requires only mechanical skills, e.g. a production team member working on an assembly line, whose main task is to execute previously defined work steps, and the level of autonomy is very limited, it is mainly the extrinsic motivation factors (e.g. higher pay or reward) that can have a positive effect on the performance. In contrast, if the task is heuristic and requires flexible problem-solving, inventiveness, or conceptual thinking, e.g. an engineer working in an engineering department with a high level of autonomy, here, the consideration of intrinsic motivation factors is of predominant importance (Ariely, 2008). An extrinsic incentive could have the potential to weaken or even replace the intrinsic motivation factors (Desjardins, 2020). For example, a pre-announced reward can limit creativity and thus performance (Amabile, 1996).

Intrinsic Motivation Factors

Derived from the well-known work motivation theories, the following six intrinsic motivation factors have been identified: affiliation, acknowledgement, autonomy, growth, purpose, and performance. They are based especially on the work of Maslow (1954) (Hierarchy of Needs), Alderfer (1972) (Existence-Relatedness-Growth Model), Herzberg (1959) (Two-Factor Theory), McClelland (1992) (Achievement Motivation) and Deci and Ryan (1985) (Self-Determination Theory).

The motivation factors developed in the different theories overlap partially or complement each other. Differences can be seen in the theories regarding the dominance or "equality" of these factors. Maslow uses the shape of a pyramid to define the hierarchy of factors and classifies them into "deficit motives" for the lower four levels (physiological needs, safety needs, belonging need, self-esteem) and growth motives for the fifth level, self-actualization (Maslow, 1954). As long as a need is not fulfilled, the lower down the hierarchy, the more dominant it is. After fulfillment, the next-higher level is activated (Mertel, 2006). However, it is important to note that the needs of one category are largely fulfilled before the needs of the next-higher category are perceived as existing. Maslow claims that once a need is satisfied, it no longer triggers any motivation to act (Drumm, 2012).

A major difference between Alderfer's (Existence-Relatedness-Growth Model) theory and Maslow's theory is that needs are not arranged in a hierarchy, but rather on a continuum (Alderfer, 1972). Furthermore, lower needs do not have to be satisfied first for higher needs to gain motivational power, and fulfilled needs can still have an active effect (Mertel, 2006).

Herzberg (1959) also sees no hierarchical differences between the factors in his Pittsburg study. But he distinguished 16 variables influencing job satisfaction and motivation into two categories with different directions of action, namely the so-called "satisfiers" and "dissatisfiers". Satisfiers (later also called "motivators") are factors that satisfy intrinsic work motives and thus lead to an increase in job satisfaction and motivation to perform. In contrast, their absence is neutral, and dissatisfaction does not occur. Dissatisfiers (later also called "hygiene factors") are factors which at best help to avoid dissatisfaction with work, but which cannot convey satisfaction. If they are missing, they convey dissatisfaction (Herzberg, 1959). A compensatory effect between motivators and hygiene factors can be ruled out (Drumm, 2012).

Affiliation

The concept of affiliation is primarily derived from McClelland's theory (Koestner & McClelland, 1992), but other theories also include similar terms, as Maslow (1954) with the motive class of belongingness. Alderfer (1972), Deci and Ryan (1980) use the term relatedness. Regardless of the exact choice of term, it describes the need to have a sense of belonging, as is the case within the family, for example. However, this need can also be of great importance in a professional context. At the heart of this factor is the effort to establish, maintain, or restore positive relationships with others. One of the fundamental characteristics of the need for affiliation is that its fulfillment depends on a process of sharing or reciprocity (Alderfer, 1972). People who have this need are extraordinarily strong and attach great importance to working with others in a spirit of trust (Koestner & McClelland, 1992).

The need for belonging is negatively correlated with the need for power. In interpersonal relationships, these needs are very opposite. Although both can coexist, one of the needs is likely to dominate (Veroff, 1992).

Acknowledgement

Desjardins and Baker (2013) use the term acknowledgement in their Leadership Tasks Model. The explanation for this comes from popular personality theories. For example, Carl Rogers (1961) describes that children behave the way that parents like them to behave, and the more they get their parents' acknowledgement, the more they feel loved. If they do not receive proper recognition for their behavior, they feel less loved. According to Rogers (1961), the reason lies in a fragile self-concept that we rely on. This seems to be a self-protection mechanism that prevents us from becoming overconfident. In earlier times, this self-protection mechanism led to a high probability of extinction. Rogers (1961) claims that humans strive to strengthen the positive self-concept.

According to Henry Murray (1938), the drive for people to strive for success is, in addition to the need for achievement, the need for recognition. But it is important to consider that in order to create a lasting feeling of acknowledgement, it is necessary for not only the person's current performance to be acknowledged, but also the person themself. This requires the formation of personal relationships (Desjardins, 2020). Maslow (1954) uses the terms "esteem" and "ego", Herzberg (1966) the term "recognition".

Autonomy

Another motivation factor is the autonomy that an organization grants its employees. This describes the degree of freedom in the design of work processes and the responsibility for decision-making accorded to employees. Although autonomy is highly correlated with other motivation factors, it is also an independent factor (Geiselhardt, 2018). Deci and Ryan (1985) call it the need for self-determination. By this, they mean that one has the capacity and the opportunity to make choices, and that decisions are not made by external pressures, such as rewards or contingencies, or other perceived reinforcements.

Growth

The need for growth forms part of many theories of motivation. Maslow (1954) and Alderfer (1972) called it 'growth', Herzberg (1966) 'advancement' and 'growth', and Deci & Ryan (1980) 'competence'. The motivation to grow steadily can be explained by socio-biological aspects and comes from the time when the probability of survival was strongly linked to the person's abilities (Desjardins, 2020).

Woodwoth (1958) constitutes the motivation factor with the need for having an effect or being effective in one's interaction with the environment. White (1959) declared that there is an inherent satisfaction in exercising and extending one's capabilities. He referred to the energy behind this activity and to the corresponding feeling of efficacy. This energy is particularly noticeable in children, who often choose tasks that exceed their previous abilities. They develop an energy to experiment with, learn, and adapt what they have learned, and to use their new abilities (Danner & Lonky, 1981). Also, children feel bored when this effect is absent after constant repetition (Deci & Ryan, 1985). Rogers (1961) assumes that all people have the need for self-actualization in order to develop their full potential.

In Maslow's theory, the need for growth, as part of self-actualization (Maslow, 1977), can only become dominant when all the deficit motives are satisfied. Self-actualization also includes aspects such as self-reliance, present-centeredness, and spontaneity (Deci & Gagné, 2005). The motivation of growth is directly related to autonomy, since skills and abilities increase its possibility (Chandler, Piaget, & Inhelder, 1969).

Purpose

The need for purpose and meaning as a motivation factor is only partially covered in classical content theories (Desjardins, 2020). Maslow (1954) uses the concept of self-actualization to describe how people try to implement a self-defined way of living. Other scientists find the purpose more in the concept of valence (Vroom, 1964) and value (Latham & Locke, 1991), which must be linked to the work goal in order to create the motive to achieve it (Desjardins, 2020). An illustration of this motivational effect of purpose, detached from the work context, is life purpose. This seems to have a positive influence on performance and well-being, and it is a source of strength to survive psychologically challenging situations (Frankl, 2000). The need to give purpose to activities is particularly important because it is a trigger for human behavior. People reject behavior that does not produce a valuable outcome in the perception of the person. This is a sociobiological barrier. It is therefore necessary to provide a reason why certain things need to be done (Desjardins, 2020).

Although the perception of the purpose of work creates a strong motivational force, it is challenging to generate a sense of purpose, since people are required to act in a way that creates value for the company but not necessarily for the individual (Desjardins, 2020).

Performance

McClelland (1992) defined performance motivation by "the need for achievement", in which he describes a certain competitive behavior. This motive is understood to mean that employees strive for performance and success (Mertel, 2006). It is relevant to the person's change behavior and is directed towards continuous improvement of performance (Mertel, 2006). An individual assumes that a person interacting within a group is worth as much as what he or she can achieve, typically compared to others. Therefore, the pursuit of achievement is part of creating and maintaining a sense of worth, which is an overriding goal of an individual (Covington, 2009).

Herzberg (1966) also uses the term achievement. It should be noted that the perception of one's own performance is a subjective assessment. By achieving individual performance goals, the employee gains a feeling of satisfaction. Thus, performance leads to satisfaction and not vice versa (Porter & Lawler, 1968). The experience of the feeling of satisfaction and self-efficacy through the perception of performance can

subsequently trigger the setting of even higher goals (Latham, G.P., Locke, E.A., & Fassina, 2002). Goals therefore also have an energizing function. It should be noted that high goals have a more energizing effect than lower goals (Latham, G.P., Locke, 2002). It is decisive that the person has committed themself to the goal on the basis of self-perceived significance (Klein, Wesson, Hollenbeck, & Alge, 1999). If a goal is important (has a value) for the person, then it seems to make no difference whether it is self-defined or assigned (Latham, Locke, & Erez, 1988).

McClelland's expectation-valence model states that the tendency of an employee to tackle a task with the will to succeed depends on the strength of the employee's performance motive, the subjective probability of success, and the valence or attractiveness of that success or reward (Mertel, 2006). Weinert (1992) describes the performance motive as one of the key motives for leaders and managers. He associates it with the constant desire to be better than the competition, to achieve difficult goals, or to solve complex problems.

Agile Organizations – Agility in a business context

The term "agility" in the corporate context has existed for almost 70 years, and there have been numerous attempts to explain it in different facets and forms (Fischer et al., 2017c). Fischer, Weber, and Zimmermann (2017b) defined four central aspects in their research project for the core understanding of agility in practice – speed in processes and fast learning, adaptability, customer focus, and attitude, the agile mindset. In this context, adaptability means the ability of an organization to continuously adapt to its complex, turbulent, and uncertain environment at high speed (Dove, 2001). It is essential that companies themselves anticipate change in order to remain viable and competitive (Häusling et al., 2019).

In an exploratory study, the motives for companies to deal with the topic "agility" were analyzed. They were divided into reasons "from the outside", the environment, and "from the inside", the organization itself (Fischer, Weber, & Zimmermann, 2017a).

From the outside (environment):
The global market and the competition are dynamically changing. One example is the digitalization of the market, the products and the processes, which requires further development of the organization in order to

cooperate with agile customers and suppliers. The companies expect a greater involvement of customers and a more flexible approach to the market. Another point is the changing expectations of applicants and future employees, to ensure appropriate hiring. The companies would like to increase their attractiveness as an employer as a more agile company (Fischer, Weber, & Zimmermann, 2017a).

From inside (organization):

The requirements from outside cause an increased complexity within the organization. An agile approach is expected to counteract this, by a new error culture with faster learning and higher speed in the processes, better results in innovation activities, and more transparency in general. As well as external applicants, the own employees have the need for a non-hierarchical collaboration. A more employee-oriented culture is expected to create more openness and higher job satisfaction and motivation (Fischer, Weber, & Zimmermann, 2017a).

There now follows a description of what "agility" means for the organization itself and its elements in detail. Companies that aim to become more agile often start by implementing agile processes, such as agile project management. In contrast, companies that have been dealing with the topic of agility for a long time focus mainly on corporate culture (Fischer, Weber, & Zimmermann, 2017b).

Elements of an agile organization

In the following section, the five organizational elements strategy, structure, processes, leadership, and corporate culture are now described in an agile context. In the respective description of the elements of the organization, a comparison between traditional and agile organizations is drawn. It must be considered that there is no clear "black and white" division between the two organizations, and that hybrid forms are often found in companies (Häusling et al., 2019). The separate consideration here serves to clarify the differences. Furthermore, a complete change to an agile organization does not make sense for every company and must be considered on a case-by-case basis (according to e.g. the market and its customers, the culture, and legal regulations) (Häusling & Kahl, 2018).

Strategy

Strategy is the long-term direction and scope of the organization, which achieves advantages for the company in a changing environment through its configuration of resources and competences with the aim of fulfilling stakeholder expectations (Peters, 2018).

For decades, the achievement of economic goals was at the top of most companies' strategies. They were focused on maximizing profits by increasing sales, minimizing costs, and increasing efficiency (Häusling, Römer, & Zeppenfeld, 2019). In doing so, they aligned their strategy with the strengths of the organization and then turned their attention to the environment (e.g. market). This is known as an inside-out perspective (Häusling, Römer, & Zeppenfeld, 2019).

A crucial difference with agile organizations is that they consistently place the customer and the customer's benefit at the center of their strategy. In doing so, the company always orients itself according to the conditions of the market and continuously discusses what the customer needs and how customer satisfaction can be increased. This is referred to as an outside-in perspective (Häusling & Kahl, 2018).

The conviction behind this is that economic success comes as a result of achieving customer benefit and customer satisfaction. To achieve this, it is crucial to know the market very well, to have close relationships with customers, and to be able to identify and satisfy needs as quickly as possible. This change of perspective is often linked to changes in processes and structures, often resulting from pressure from the environment, e.g. the customer (Häusling & Kahl, 2018).

Processes

The term "process" refers to the totality of interacting processes within a system, formal or informal (Berwanger, 2018). A single process has an input, coming from input sources, the activity itself, and an output with receivers. Input and output can be material or immaterial (ISO, 2019).

The adaptation of processes and procedures is one of the most visible changes in an agile transformation for outsiders. Building on the customer-centricity derived from the strategy, the customer is actively involved in the process, enabling better and faster collaboration with the goal of increasing customer satisfaction (Fischer et al., 2017a).

The processes surrounding project management are very

famous targets for agile transformation, with the so-called waterfall method being applied to traditional project management. This method involves first planning the various project phases in their entirety before the successive processing of the phases is begun (Gloger & Häusling, 2011).

For this procedure to be successful, it is necessary that all tasks, general conditions, and eventualities are known at the beginning of the project. It is usually not possible to react flexibly to changing circumstances (Maximini, 2013).

It has been shown that traditional project management reaches its limits with the increasing complexity of market and customer needs (Häusling & Kahl, 2018).

The agile approach differs from the traditional approach by allowing organizations to better adapt to and satisfy market requirements through an explorative approach and the incremental development of solutions. For the customer focus, agile teams work with short process loops (iterations). In addition to a long-term product vision, agile teams only plan the next iteration in detail, so that short-term adjustments are possible (Häusling & Kahl, 2018).

The basic idea of these iterations is that after each cycle a presentable (intermediate) product (a so-called increment) is created that can be presented to the customer. By timely feedback, it can thus be processed in the next iteration (Häusling, 2018).

This agile approach can therefore also be a key to reducing complexity and errors by working in small cycles with frequent reflection phases (Fischer et al., 2017a).

The processes of an agile organization should support the self-organization of the team. While in traditional companies the department and its individual processes were often the main focus, in an agile organization the team and its processes are the center of attention, always with the goal of achieving maximum customer satisfaction (Werther & Bruckner, 2018).

The team is equipped with far-reaching decision-making power and generates constant transparency of its actions and progress via process-related elements (Werther & Bruckner, 2018).

A prominent example of agile processes is the project management method "Scrum" (Böhm, 2019). Scrum has its origins in the early 1990s in the software industry and is a process framework within which different processes and techniques are used to manage the work on products.

It is a method that is particularly suitable for complex projects (Sutherland & Schwaber, 2017b). According to Stacey (1996), the term complexity describes an interplay of technology and requirements, each with a moderate to strong uncertainty.

Examples of such projects include research and development of technologies, products, and their extensions (software and hardware) (Sutherland & Schwaber, 2017a).

The typical roles within a Scrum Team are the product owner, the development team, and the scrum master. There are detailed descriptions for these roles. Among other things, these descriptions also define the corresponding responsibilities so that the team's self-organization is strengthened (Sutherland & Schwaber, 2017a).

According to Sutherland and Schwaber (2017a), the necessary values for scrum are commitment, courage, focus, openness, and respect, which the team must embody and live. Only in this way are the scrum pillars of transparency, review, and adaptation served, enabling those involved to build trust in each other.

This agile process framework, which provides the space for innovation and development, requires employees who have a fundamental interest in contributing their ideas, improving things, or developing something new (Gloger & Häusling, 2011).

Structure

The intention of formal organizational structures is to secure the processes in an organization and the achievement of strategic goals (Nerdinger et al., 2019).

In traditional organizations, it is usual to find organizational structures with strict hierarchies, with the management at the top (Häusling & Kahl, 2018).

This is usually the result of a task analysis and synthesis and is presented in the form of an organizational chart. A formal plan is used to regulate the cooperation of the members of an organization and to coordinate the various activities (Nerdinger, Blickle, & Schaper, 2019).

Examples of traditional organizational structures are the line organization or the matrix organization (Nerdinger et al., 2019).

Especially in traditional line organization, a hierarchical management structure is encountered, and the departments form a kind of "silo", which makes cross-departmental cooperation more difficult. Similarly, this organizational form does not reflect the customer focus

required by the strategy of agile organizations (Häusling & Kahl, 2018).

In order to meet the requirements of customer-centricity, agile organizations are also changing their organizational form. In practice, two forms of organizations are encountered in particular – the function-oriented matrix structure and the agile network organization (Häusling & Kahl, 2018).

The functional matrix organization includes a hierarchical organizational structure with the corresponding departments, but the employees work together in cross-functional, customer-centric teams. These cross-functional team members work as exclusively as possible with this team and sit physically next to each other, so that the interfaces between departments no longer represent a barrier (Werther & Bruckner, 2018).

In comparison, the agile network organization does not have an organizational structure but follows a process organization structure. Here, too, team members work cross-functionally and self-organized in order to generate a specific product or create customer benefits. If possible, all necessary competencies are represented by the team members. If certain functions are not permanently represented in the team, they can be requested for the duration of the project or the required task. In general, the teams are not necessarily permanently 'assembled' in a certain constellation, but only as long as it makes sense from the customer's point of view. After the completion of a project, a team can be dissembled, and the members can collaborate in new constellations (Häusling et al., 2019).

Leadership

The role of managers and leaders plays an important role for two reasons. On the one hand, managers are those who have to promote, support, and shape the transformation and change and not to block it; on the other hand, change also requires a different understanding of the role of leadership (Gloger & Roesner, 2017).

The traditional understanding of leadership includes hierarchical differences in the collaboration due to the asymmetrical social relationships of superiority and subordination (Bartscher, 2018). This was often characterized in the past by being predominantly reduced to a subject-oriented leadership style, which means that the work content is much more focused on the operational tasks than on employee-centered leadership (Lang, 2014).

Topics such as the targeted development of employees are not given extraordinary importance. Decisions are primarily made top-down, and the responsibility remains with the managers, who thereby further strengthen their privileges and power (Gloger & Roesner, 2017).

In agile organizations, this understanding of leadership roles changes. Leaders try to provide the best possible working conditions for the employees so that they can bring their maximum performance into the organization. Thus, the targeted and strength-oriented development and also the strength-based deployment of employees take on a completely different priority (Werther & Bruckner, 2018).

The aim is to enable employees to act in a self-organized and self-responsible manner. The word "empowerment" is often used in this context. This is characterized by responsibility for decisions being transferred to the teams because they often have the better technical expertise and are better able to assess the situation. They are therefore more effective and can respond faster than managers do (Häusling & Kahl, 2018).

It can be observed that the transferred responsibility increases the quality awareness of the employees and their satisfaction and motivation (Fischer et al., 2017a).

Häusling and Kahl (2018) define three essential tasks for managers in agile organizations. These are to give orientation, to develop oneself, teams, and individuals, and to create a framework for self-organization and self-responsibility. In order to fulfill these tasks, Häusling and Kahl (2018) defined eight competencies, these being agile methodological competence, transformation competence, communication skills, team competence, results competence, self-management skills, leadership skills, entrepreneurial-integrative thinking, and action competence.

Corporate culture

According to Krulis-Randa (1990), corporate culture is the totality of traditional, changeable, time-specific values, attitudes, and norms that shape the behavior of all employees and the appearance of the company (corporate identity). This dimension is therefore "intangible" on the one hand, but extremely important on the other, because an agile transformation can only be lived by the people themselves, with their values and attitudes (Iivary & Iivary, 2011).

Fischer, Weber, and Zimmermann (2017) define the

following seven factors that make up an agile attitude and thus shape agile organizations – collaboration with all at eye level, independent of role and status, willingness to change, openness, responsibility, appreciative interactions, transparency, and reflection.

Communication and its structures are given a central role. While in traditional organizations "one-way communication" predominates, where only the higher level exerts influence on the one below, an agile organization is characterized by a distinct communication and feedback culture in the form of dialogues (Förster & Wendler, 2012).

The creation of transparency and openness requires a distinct culture of trust between all members of the organization, regardless of their departmental affiliations. This is usually not present in traditional organizations with a pronounced silo thinking, as internal competitive behavior counteracts this (Häusling et al., 2019).

In agile organizations, it is trust that forms the basis for eliminating the strict rules that force employees to act and may make them inefficient and their replacement by jointly agreed principles that give employees some kind of guidance and more freedom in their daily lives (Werther & Bruckner, 2018).

Another famous element of an agile organization is the error culture. While in traditional organizations the principle of error avoidance, with strict control and safeguarding measures, prevails, so that possible errors do not result in personal sanctions and loss of face (Häusling & Kahl, 2018), errors in agile organizations are allowed and not negatively affected, as they can be the basis of new insights and enable situations for learning (Fischer et al., 2017a). In addition to a strong basis of trust, this requires the assumption of responsibility, openness in dealing with mistakes, and learning through reflection (Häusling & Kahl, 2018). Only a trustful error culture in agile organizations makes it possible for the employee to take on more responsibility (Fischer et al., 2017a).

Research Questions & Methods

The goal of this study is to investigate the fulfillment of the motivational needs of people in agile teams. To accomplish this task, two hypotheses have been developed, which will be examined in more detail with the results of an online survey so that conclusions can be drawn. The author makes use of the possibility of a comparison between agile and traditional project teams in order to highlight differences and thus show the changes stemming from agile transformations. Two different factors are considered – on the one hand, the author compares "officially" named agile project teams with traditional project teams, and, on the other, an assessment of agility is based on the characteristics of the organization itself, independent of the type of project management. The two hypotheses are described below.

Hypothesis 1 (H1): Members of agile project teams have a significantly higher fulfillment of individual motivation needs than those in traditional project management teams.

This hypothesis H1 does not consider the correlation with agile maturity, but analyzes the differences in the fulfillment of needs between agile and traditional project teams, regardless of whether these teams consider their company as agile. When companies decide to become more agile, they often start by implementing agile project management methods. As described above, agile project management belongs to the organizational element "processes" and represents only one of five elements. Nevertheless, an isolated implementation of new processes is not very target-oriented, which means that further adjustments are often made relating to a stronger employee orientation. Therefore, it is expected that the motivation factors of agile project teams will be better fulfilled than those of traditional project teams.

Hypothesis 2 (H2): Employees' fulfillment of their motivational needs correlates with their assessment of the agile maturity of the company.

As described above, a central element of agile transformations is employee orientation. Through the agile mindset, the changed way of leadership (employee-centered leadership) as well as process-related implementations, more responsibility is transferred to the employees, with the managers supporting the employees and the organization in their tasks. The term "servant leadership" describes the changed leadership role. In the author's opinion, the strengthening of self-organization that goes hand in hand with this change should have the potential to increase the fulfillment of employees' motivation factors.

Methodology

The hypotheses have been verified with a quantitative research approach in the form of an online survey. In the following section, the field of investigation, the methodology of the study, and the empirical results are presented and later discussed.

The main target group of the present study are employees from different engineering and support departments in the sector, whose main activity lies in agile project management, here scrum, or in traditional project management. During the survey, it turned out that many participants selected a role in both agile and traditional project management, when asked about their activities.

The survey participants came from the author's network and were contacted via personal channels and network platforms. The largest proportion, 48 out of 103 participants, are employed by an international company in the construction industry with headquarters in central Europe.

The online survey was conducted exclusively in German and was distributed to participants from the German-speaking region ("DACH" – Germany, Austria, and Switzerland) because the cultural background could affect the personal importance attributed to the different motivation factors.

Survey Questionnaire

The online questionnaire consists of 27 questions and assessments, which are divided into five areas – business sector of the company (1 question), information about the person's professional activity (3 questions), agile maturity of the company (11 evaluations), personal importance attached to the motivation factors (6 evaluations), and personal fulfillment of motivational needs (6 evaluations).

The first two areas, information about the business sector of the company and information about the professional activity, are used to record nominal values. Since the focus of this survey is on project team members in the industry, these questions aim to separate participants from outside the industry and participants whose main activity is not project related. These survey participants have been excluded from further analysis. The second section is specially designed to gather information (as nominal values) about the participants' professional activities in order to classify and filter them in the data analysis and verification of the hypotheses by their role in project teams.

In the third area, the evaluation of the company's agile maturity, the participants were asked to rate a total of 11 statements using a 5-point Likert-type scale (*Scale values: 1=not at all true, 2=rather not true, 3=partly true, 4= rather true, 5=true to the full extent*). These answers were used as ordinal values in the data analysis and are assigned to the 5 organizational elements by averaging (mean). The statements for the evaluation are part of an evaluation scheme used for agile maturity in companies (Seidel, 2020). The wording of the statements was adapted to this survey and supplemented by further statements based on findings of the literature review.

For the fourth and fifth area – personal importance attached to the motivation factors and fulfillment of motivational needs – the 5-point Likert-type scale is also used in order to gain ordinal values for the data analysis. For this purpose, one statement per motivation factor and area was made. They are uniformly structured as follows: "It is particularly important to me that [description of motivation factor]" for the fourth area, and "My need for [description motivating factor] is fully met" for the fifth area.

Analytical Procedure

Ordinal variables based on the 5-point Likert scale were used in the individual questions for the results of the evaluation of agile maturity, personal importance of motivation factors, and fulfillment of motivational needs. For further processing of the ordinal variables, they were transformed into arithmetic means as metric scale variables. In the later testing of the hypotheses, the individual values or the statistical values were compared within a group or between groups, or checked for correlations. Various methods were used for this purpose.

A T-Test analysis was used to compare mean values between two groups and an ANOVA analysis for the comparison of more than two groups. In both cases, a Levene test for variance homogeneity preceded. If the significance value is $p>.05$, homogeneity of variances is given. Otherwise there is a violation of variance homogeneity, which would preclude a T-Test or ANOVA analysis. In the analysis of variance, the differences between the groups are considered significant if $p<.05$.

When checking variables for correlations, two cases are distinguished in this paper. When testing two metric scale values, the bivariate method Pearson correlation is used, and when testing two ordinal values or one ordinal and

one metric scale value, the bivariate method Kendall's τ correlation is used. Although the Kendall's τ correlation, like Spearman's rho correlation, is based on the principle of the rank correlation coefficient, the ranking is sorted by both variables and thus a higher accuracy is expected than with Spearman's rho, since several "connected ranks" can be expected for individual variables (Reinboth, 2016). Both, the Kendall's τ correlation and the Pearson correlation are preceded by the test for normal distribution, which excludes a correlation of values if necessary. The normal distribution is checked by using the Shapiro-Wilk method. Variables that have a significance of *p>.05* are considered as normally distributed. A correlation test with a sample size of *N>30* allows the correlation methods to be applied even if the significance of the normal distribution *p<.05*. According to Cohan (1988), the coefficient r for the Pearson correlation is interpreted as follows: There is a weak correlation at *|r| = .10*, a moderate correlation at *|r| = .30* and a strong correlation at *|r|=.50*. In Kendall's τ method, the coefficients are interpreted in such a way that values *t>0* show a monotonic correlation in the same direction, *t ≈ 0* show no monotonic correlation, and *t<0* show an opposite monotonic correlation (Reinboth, 2016). With both methods, a correlation is significant at the *p=0.01* level (2-tailed).

Empirical results

A total of 113 people took part in this survey during the period from March 1 to April 6, 2020. Ten people stated that project management did not account for at least 60% of their working time and were therefore not further considered in the evaluation. Thus, 103 persons were considered for the analysis. If a classification is made by the type of project management, 25 persons from agile project management, 58 persons from traditional project management, and 20 people who are active in both agile and traditional project management took part.

In the data analysis, the participants were on the one hand considered as a total collective and, on the other, allocated to the three groups "agile Project management (PM)", "traditional PM", and "agile and traditional PM". The following table, Table 1, shows the results of the descriptive statistics (mean (M), standard deviation (SD)) of the survey for the overall collective and respective groups.

When looking at the results, it is noticeable that the agile maturity is rated higher by participants from agile project management *(M=3.57, SD=.52)* than by participants from traditional project management *(M=3.38, SD=.57)* or by those who are active in both *(M=3.36, SD=.42)*. For the agile project management group, the organizational element "structure" was rated lowest *(M=3.32, SD=.66)*, whereas for the other two groups the element "process" has the lowest results *(M=3.09, SD=.76; M=2.92, SD=.48)*. The average importance of the motivation factors has only values *> 4* for both the total collective *(M=4.36 SD=.36)* and the respective groups *(M=4.34, SD=.38; M=4.19, SD=.32)*. In the following section, the two hypotheses will be tested with the survey results.

Table 1

Variables of interests of the total collective and of the groups according to project management type

		Total			Members of agile PM			Members of traditional PM			Members of agile and traditional PM		
		N	M	SD	N	M	SD	N	M	SD	N	M	SD
Agile Maturity	Strategy	103	3.85	.76	25	3.86	.80	58	3.92	.72	20	3.65	.81
	Structure	103	3.28	.81	25	3.32	.66	58	3.21	.88	20	3.43	.75
	Process	103	3.14	.72	25	3.43	.75	58	3.09	.76	20	2.92	.48
	Leadership	103	3.41	.91	25	3.62	.82	58	3.34	.98	20	3.38	.76
	Culture	103	3.43	.78	25	3.62	.77	58	3.35	.83	20	3.43	.61
	(total)	103	3.42	.53	25	3.57	.52	58	3.38	.57	20	3.36	.42
Importance of Motiv. Factor	Affiliation	103	4.33	.69	25	4.52	.59	58	4.31	.73	20	4.15	.67
	Acknowledgement	103	4.36	.54	25	4.36	.64	58	4.43	.53	20	4.15	.37
	Purpose	103	4.27	.65	25	4.48	.59	58	4.28	.64	20	4.00	.65
	Growth	103	4.57	.59	25	4.72	.54	58	4.52	.60	20	4.55	.60
	Autonomy	103	4.35	.71	25	4.56	.58	58	4.26	.78	20	4.35	.59
	Performance	103	4.25	.72	25	4.48	.59	58	4.26	.74	20	3.95	.72
	(total)	103	4.36	.36	25	4.52	.28	58	4.34	.38	20	4.19	.32
Fulfillment of Motiv. Needs	Affiliation	103	4.07	.68	25	4.00	.76	58	4.02	.66	20	4.30	.57
	Acknowledgement	103	3.68	.91	25	3.60	.91	58	3.66	.89	20	3.85	.99
	Purpose	103	3.51	.78	25	3.40	.76	58	3.60	.82	20	3.40	.68
	Growth	103	3.84	.87	25	3.84	1.03	58	3.86	.80	20	3.80	.89
	Autonomy	103	4.10	.80	25	3.96	.93	58	4.17	.75	20	4.05	.76
	Performance	103	3.58	.98	25	3.64	1.08	58	3.59	.90	20	3.50	1.10
	(total)	103	3.80	.58	25	3.74	.65	58	3.82	.55	20	3.82	.58

Hypothesis 1 (H1): Members of agile project teams have a significantly higher fulfillment of individual motivational needs than members of traditional project management teams.

Here, a comparison of the survey results is made between participants from agile and traditional project management. Participants who are active in both project management types are not considered. The descriptive statistics, see Table 1, show that the group of participants from traditional project management has higher values for motivation factors overall, but also for each individual factor, except for the factor performance. In the next step, a T-test was performed to compare the results. The result of the Levene's test for equality of variances shows that the significance level of *p=.05* is exceeded for each factor and thus a variance homogeneity is given. The differences between the groups are greatest for the factors autonomy (*MD=-.21, p=.28*) and purpose (*MD=-.20, p=.29*). The factors affiliation (*MD=-.02, p=.92*), acknowledgement (*MD=-.06, p=.80*), growth (*MD=-.02, p=.92*), and performance (*MD=.05, p=.81*) show just small differences between the groups. All differences are not significant (as *p>.05*).

Table 2

Independent Samples Test of the fulfillment of motivational needs for participants from agile and traditional project management.

	t	df	Sig. (2-tailed)	MD
Affiliation	-.10	81	.92	-.02
Acknow-ledgement	-.26	81	.80	-.06
Purpose	-1.06	81	.29	-.20
Growth	-.11	81	.92	-.02
Autonomy	-1.10	81	.28	-.21
Performance	.24	81	.81	.05

It therefore cannot be confirmed that the members of agile project management experience better fulfillment of motivational needs either as a whole or as individual factors, except for the factor performance (but not significantly). The hypothesis H1 is therefore rejected.

Hypothesis 2 (H2): Employees' fulfillment of their motivational needs correlates with their evaluation of the agile maturity of the company.

This hypothesis is tested in two steps. In the first step, the results of the total collective are tested. In the second step, the analyses of the respective groups "Agile Project Management" and "Traditional Project Management" follow.

For the first step, the results of the fulfillment of motivational needs (in total) and the evaluation of agile maturity have been calculated, put into context, and checked for correlation.

Figure *1*

Interdependence between the fulfillment of motivational needs and agile maturity (total collective)
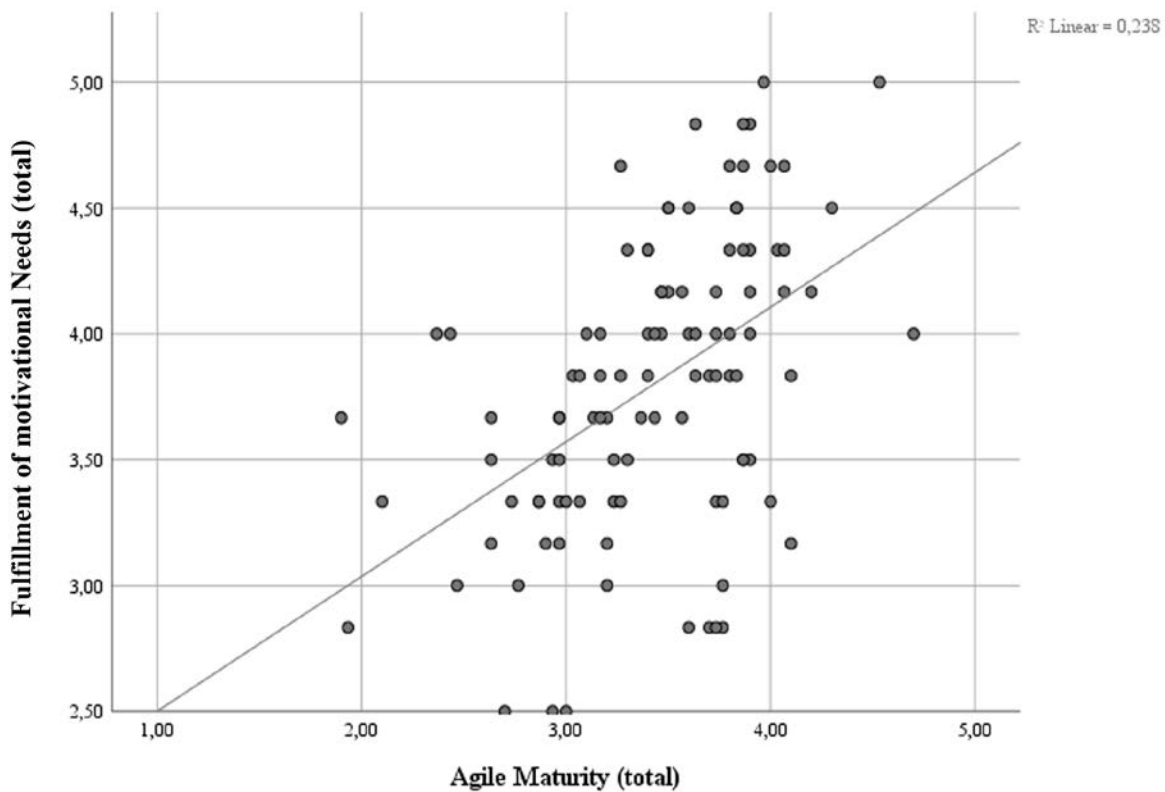
The test of normal distribution using the Shapiro-Wilk method showed that the variable "Fulfillment of motivational needs (total)" is normally distributed, *p=.232* (as *p>.05*), the variable "Agile maturity (total)" not, *p=.041* (as *p<.05*). A correlation analysis is still possible, since the number of values is *N>30*. As both variables are metric scale variables, the Pearson method is used for correlation analysis. This showed that the variable "Fulfillment of motivational needs (total)" correlates moderately positively (*as 0.3 < r < 0.5*) with

the variable "Agile maturity (total)" according to the evaluation criteria of Cohan (1988), $r = .488, p < .001$. Subsequently, the individual motivation factors were also examined for their correlation with agile maturity (total). Since the ratings of the six motivation factors are ordinal variables, Kendall's τ method is used. The result of the analysis, as shown in Table 2, indicates that the factors purpose (*r=.363, p<.001*) and growth (*r=.326, p < .001*) correlate moderately positively with agile maturity, the factors affiliation (*r=. 256, p<.001*), acknowledgement (*r=.264, p<.001*), autonomy (*r=.235, p=.002*), and

performance (*r=.267, p<.001*) correlate weakly positively.

In the second step, the individual consideration of the two groups of participants from agile and traditional project management is conducted according to the above procedure. The test of normal distribution using the Shapiro-Wilk method showed that variable "Fulfillment of motivational needs (total)" of both groups is normally distributed, *p=.892* and *p=.139* (as *p > .05*), the variable "Agile maturity (total)" of agile project management is also normally distributed, *p=.892*, but not for the group of traditional project management, *p=.013* (as *p< .05*). A correlation analysis is still possible for the traditional project management group, since the number of values is *N>30*. The Pearson method showed that the variable "Motivational needs (total)" correlates moderately positively (as *0.3 < r < 0.5*) with the variable "Agile maturity (total)" for both groups according to the evaluation criteria of Cohan (1988), *r=.488, p=.013* for

agile project management and *r=.476, p<.001*. The results of Kendall's τ analysis of the individual motivation factors for the two groups "agile project management" and "traditional project management" are shown in Table 3. The analysis shows that in all cases there is a weakly to moderately positive correlation between the individual motivation factors and agile maturity. A comparison of the two groups of participants reveals differences in the characteristics of the correlations. In the "agile project management" group, the strongest correlations are found in the motivation factors performance (*r=.357, p=.023*), growth (*r=.336, p=.034*), and autonomy (*r=.300, p=.059*), while the weakest correlation is found in the factor affiliation (*r=.063, p=.695*). In the group "traditional project management", the strongest correlations are found with the factors affiliation (*r=.430, p<.001*) and purpose (*r=.384, p<.001*), while the weakest correlation is with the motivation factor performance (*r=.181, p=.077*).

Table 3

Kendall's τ correlation between the fulfillment of respective motivational need and agile maturity (total); total collective

		Agile Maturity (total)	Affiliation	Acknowledgement	Purpose	Growth	Autonomy	Performance
Agile Maturity (total)	Correlation	1	.256**	.264**	.363**	.326**	.235**	.267**
	Sig. (2-tailed)		.001	<.001	<.001	<.001	.002	<.001
	N	103	103	103	103	103	103	103

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4

Kendall's τ correlation between the fulfillment of respective motivational need and agile maturity (total); for the groups "agile project management" and "traditional project management"

			Affi-liation	Acknow-ledgement	Purpose	Growth	Auto-nomy	Perfor-mance
Agile PM	Agile maturity (total)	Correlation coefficient	.063	.267	.194	.336*	.300	.357*
		Sig. (2-tailed)	.695	.092	.231	.034	.059	.023
		N	25	25	25	25	25	25
Traditional PM	Agile maturity (total)	Correlation coefficient	.430**	.283**	.384**	.289**	.193	.181
		Sig. (2-tailed)	<.001	.006	<.001	.005	.064	.077
		N	58	58	58	58	58	58

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Thus, the hypothesis H2 can be confirmed with both considerations, the total collective and the respective groups, since the correlation between the variables "fulfillment of motivational needs (total)" and "agile maturity (total)" is in each case significant. The individual motivational needs do correlate, but partly not significantly, with agile maturity.

Conclusions

This study focuses on the interaction of four elements – the personal importance attached to the motivation factors and the fulfillment of the respective needs, the occupation of the employee, and the agile maturity of the company. At this point, it should be emphasized once again that in reality is no "black and white" distinction between agile and traditional companies and management approaches. There are mixed forms. However, the separation is necessary to clarify the differences.

The motivation factors and motivation mechanisms described in the literature review imply a dependence on work content and on the design of the organizational elements strategy, structure, processes, leadership, and corporate culture. In particular, the description of agile organizations with a stronger employee focus leads to the expectation that personal needs will be better met. This in turn is relevant for the success of organizations. Regardless of whether they are agile or traditional organizations, in the end it is the people who design the organizational elements and live them on a daily basis. The elements of an agile organization must be understood correctly and adapted to the respective company. For example, the process framework scrum also bears the danger that due to shared leadership between the product owner, the scrum master, self-leadership by the team and (probably) the existing leaders in matrix organizations, the leadership elements could "dilute" and thus fall behind, which in traditional organizations were united in one function, and with good leadership could be better fulfilled and thus lead to higher motivation.

But when is a person part of an agile team? If the person has both a scrum role and rates the company as very agile, this question is easy to answer. It becomes more difficult if a person is part of a scrum team but does not consider the company to be very agile, or if the person is involved in traditional project management but considers the company to be very agile. As we have seen in this paper, the differences mentioned above correspond to reality. Thus, both factors are relevant for the empirical part of this study. Another finding was that a total of 20 of the 103 participants are active in both types of project management. This contradicts the agile approach of being able to concentrate as fully as possible on one team and one project. Thus, the author expects that the characteristics of the two types of project management become blurred for these persons and that especially the peripheral processes (e.g. support processes, such as controlling, quality assurance) linked to the projects are

predominantly perceived as obstructive, since different processes have to be conducted. It could indicate that the companies are undergoing change from the traditional method to the agile method, and it is expected that the person might find it difficult to adopt the new attitude of an agile working environment, since both working environments exist in parallel.

In the survey, the importance of the motivation factors was rated highly on average in all groups. This speaks for the relevance of the selected motivation factors in the work context. By further analyzing the data, it is noticeable that agile project teams do not consider the company significantly more agile than participants from traditional project management. However, this could have been expected, since the implementation of agile project management methods in companies is often the first step in a transformation. Thus, there seems to be evidence that the introduction of scrum or other agile processes has a limiting influence on the actual agility of a company. Although the present study has its limitations due to the conduct of a quantitative study with a strong focus on participants from engineering and technical support departments in the "DACH" region, this study gives companies the opportunity to think about the fulfillment of the six individual motivational needs and to promote them in a targeted manner. This is independent of whether the company is in the midst of agile transformation, whether such a transformation has been completed, or whether none has yet started. For companies that have set themselves the goal of becoming more agile, this study shows the importance of further

developing the five organizational elements strategy, structure, process, leadership, and corporate culture. An exclusive consideration of the processes with the introduction of scrum has its limitations in increasing the intrinsic motivation of the employees. If the company instead works on all organizational elements and takes the motivation factors into account, an increase in the intrinsic motivation of the employees can be achieved. In order to apply the advantages of an agile approach and to enable employees to feel the benefits, it is not recommended to allow employees work in both types of project management at the same time.

About the author

After completing an apprenticeship as a chemical technician, Philipp Arndt began studying process engineering, completing a bachelor's degree in the subject. He gained his first practical experience as an engineer in a chemical factory. While working, Philipp gained a master's degree in industrial engineering. With the subsequent job change to a transformation manager in phases of restructuring, Philipp developed a passion for organizational matters. He expanded his experience in several leadership positions after moving to an international company in the construction industry in 2016. In 2018, he decided to complement his knowledge and skills with an MBA in International Business Management and Leadership at the Professional School of Business and Technology at Kempten University of Applied Sciences, which he successfully completed in 2020.

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