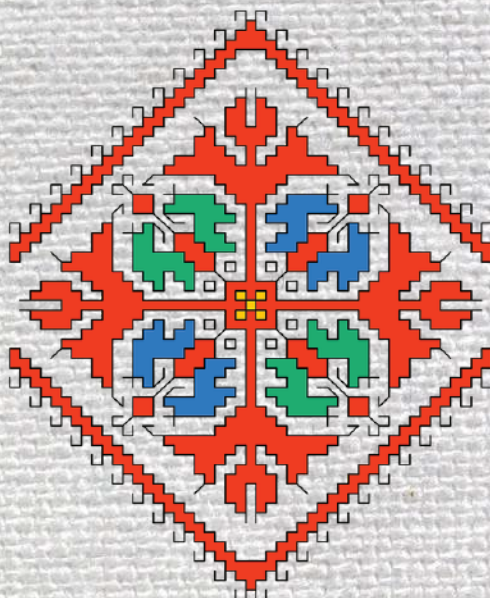


Образование, научни изследвания и иновации



Education,
scientific research
and innovation

**ОБРАЗОВАНИЕ, НАУЧНИ ИЗСЛЕДВАНИЯ
И ИНОВАЦИИ**

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Съдържание**Contents*****История и археология******History and Archaeology***

От истерията до ноципластичната болка:
историята на функционалните телесни
оплаквания през XIX, XX и XXI век
Оливер Манфред Адам

6

From Hysteria to Nociplastic Pain:
the History of Functional Somatic
Symptoms in the 19th, 20th and 21st Centuries
Oliver Manfred Adam

***Обществени комуникации
и информационни науки******Public Communications and Information
Sciences***

Женско амбидекстрално лидерство
Селина Хел

12

Female Ambidextrous Leadership
Selina Hehl

Фактори за успех при жените на
ръководни позиции
Натали Кристин Вайс

19

The Success Factors for Women in
Management Positions
Nathalie Christin Weiß

Организация и управление на информацията,
свързана с въздействието на метеорологичните
фактори върху приема на пациенти в
болниците
Денис Комоса

25

Organization and Management of Information
Relating to the Impact of
Meteorological Factors on Hospital
Inpatient Admissions
Dennis Komossa

Действай уверено: цифрово обучение за
приобщаване на деца с епилепсия
Щефани Волф

33

Act with Confidence: Digital Training
for the Inclusion of Children with Epilepsy
Stephanie Wolf

Технологични промени в промишлеността: AI
като отговор на недостига на квалифицирана
работна ръка
Тобиас Дикс

37

Technological Change in Industry:
AI as the Answer to the
Shortage of Skilled Labour
Tobias Dix

Оценка на дружества по метода на
мултипликатора в германското наследствено
право – част III/III
Георг Мартин Аман

42

Business Valuation Using the Multiplier Method
in German Inheritance Tax Law – Part III/III
Georg Martin Amann

Информатика и компютърни науки***Informatics and Computer Sciences***

Visual Basic for Applications като стратегически
инструмент за крайни потребители в ерата на
компютрите
Херберт Бергер

49

Visual Basic for Applications as a Strategic Tool
in the Age of End User Computing
Herbert Berger

Национална сигурност***National Security***

Потенциал и рискове на изкуствения
интелект при управлението на операционния
риск в банките
Флориан Бекер

54

Artificial Intelligence Potential
and Risks in Operational
Risk Management in Banks
Florian Becker

Ефективност на административнонаказателната отговорност при незаконното строителство в защитени територии <i>Радослав Михайлов</i>	61	Effectiveness of Administrative Liability for Illegal Construction in Protected Areas <i>Radoslav Mihaylov</i>
Актуално		Current Topics
Стратегии за адаптация на алпийските зимни дестинации към климатичните промени през зимата <i>Михаел Ланг</i>	66	Adaptation Strategies of Alpine Winter Destinations to Climate Change in Winter <i>Michael Lang</i>
Управление на информационните процеси в органи на местното самоуправление <i>Андреа Хере</i>	71	Management of Information Processes in a Local Authority <i>Andrea Herre</i>
Продължаващата актуалност на Visual Basic for Applications (VBA) в компаниите: анализ на основните причини <i>Херберт Бергер</i>	78	The Continuing Relevance of Visual Basic for Applications (VBA) in Companies: a Root Cause Analysis <i>Herbert Berger</i>
Налагане на сътрудничество? Родители на хронично болни деца, попаднали сред противоречиви очаквания на училището <i>Щефани Мария Волф</i>	83	Cooperation as an Imposition? Parents of Chronically Ill Children Caught Between Conflicting School Expectations <i>Stephanie Maria Wolf</i>
Анализ на потребността от изследвания на подхода на заинтересованите страни ("Stakeholder approach") за оптимизиране на управлението на служителите <i>Йорг Майер</i>	88	Analysis of the Demand for Research on the Stakeholder Approach to Optimise Employee Management <i>Jörg Meyer</i>
Формиране на здравословни навици за поддържане на устойчиво отслабване и стабилизиране при затлъстяване <i>Кристиане Барбара Реми</i>	93	Healthy Habit Formation to Support Sustainable Weight Stabilisation in Obesity <i>Christiane Barbara Remy</i>
Стратегии за адаптация на австрийския туризъм към демографските промени в Германия <i>Михаел Ланг</i>	98	Adaptation Strategies of Austrian Tourism to Demographic Changes in Germany <i>Michael Lang</i>
Основни принципи в използването на кръстословиците като дидактически инструмент за изучаване на езици <i>Ясена Чантова</i>	103	Basic Principles in Using Crossword Puzzles as a Teaching Tool for Learning Languages <i>Yasena Chantova</i>
Административнонаказателната отговорност по ЗУТ: анализ на проблемите и перспективи за нормативно усъвършенстване <i>Радослав Михайлов</i>	107	Administrative Penal Liability Under the Spatial Development Act: Issues, Approaches and Prospects for Improvement <i>Radoslav Mihaylov</i>

**FROM HYSTERIA TO NOCIPLASTIC PAIN:
THE HISTORY OF FUNCTIONAL SOMATIC SYMPTOMS
IN THE 19TH, 20TH AND 21ST CENTURIES**

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Abstract: *This article examines the development of functional pain diagnoses in the 19th, 20th and 21st centuries – from hysteria to somatoform disorders to the concept of nociplastic pain. On the basis of a literature review, historical, classificatory and neurobiological perspectives are used to show how the understanding of functional somatic symptoms has changed. The analysis follows the development of trauma-psychological and psychodynamic concepts through descriptive-classificatory approaches to neuroscience-based models such as central sensitization. Despite all the conceptual changes, the clinical findings remain largely constant: patients suffer from real, chronic pain without demonstrable organic causes at the site of the symptom. The article shows that although central sensitization and nociplastic pain can be regarded as scientific advances in the sense of objectifiable correlates, they also represent a semantic re-framing of known phenomena. However, these developments have not yet led to a noticeable improvement in clinical care.*

Keywords: *Chronic Pain; Nociplastic Pain; Somatoform Disorders; Central Sensitization; Hysteria*

INTRODUCTION

Functional somatic symptoms are among the most clinically and theoretically challenging phenomena in medicine and clinical psychology. Despite the lack of organic findings, those affected sometimes report severe physical symptoms, such as chronic pain, fatigue or gastrointestinal complaints, which massively impair their quality of life and lead to high health economic costs (Gaskin and Richard 2012).

The interpretation and labeling of such symptoms have been subject to conceptual and terminological shifts over the last 150 years. For example, modern categories such as somatoform disorders, psychogenic pain disorder or nociplastic pain have emerged from the initially dominant concept of hysteria. The aim of this article is to trace the development of these diagnostic categories. The focus is on the question of whether the new concepts such as nociplastic pain or central sensitization are genuine scientific advances – or rather a reframing of known phenomena. The role of psychotherapy is also scrutinized: as the first form of treatment, it has remained a constant, albeit ambivalent, component of the therapeutic response to functional pain, despite all the changes in diagnostic systems.

RESEARCH METHODOLOGY

This article is based on a narrative literature review. The aim was to trace the medical and psychological discourses that led to the gradual replacement of the concept of hysteria and the establishment of modern diagnoses. German and English-language specialist publications from the history of medicine, psychology and science were included. Key conceptual texts as well as classification manuals such as the *Diagnostic and Statistical Manual of Mental Disorders* (DSM), review articles and critical discussions of the development of diagnoses of functional symptoms were taken into account. The literature was selected on the basis of its relevance and its contribution to the reconstruction of conceptual history.

RESULTS

19th century

In the 19th and early 20th century, hysteria was considered an explanatory model for a variety of physical and psychological complaints that could not be medically explained by organic findings (Veith 1965; Mentzos 2004). Jean-Martin Charcot, one of the most important neurologists of the 19th century, initially under-

stood hysteria as an inherited and incurable neurological disease (Fiedler 2006) – without any detectable organic lesions, but with real, somatic symptoms that simulated an organic ailment, such as paralysis, seizures or stomach pain. From around 1880, he distinguished another form, which he called traumatic neurosis or hystero-neurosis and attributed to psychological triggers, in particular traumatic events such as experiences of violence, railroad accidents or other extreme stress situations. He interpreted the resulting symptoms as functional disorders that were therapeutically accessible and treatable through hypnosis (Fischer-Homberger 1971; Fiedler 2006). During this treatment, he attempted to reproduce the trauma-related symptoms by re-enacting the original triggering scene in a state of hypnotic trance. This was intended to facilitate the abreaction of the traumatic affects and thereby alleviate or resolve the symptoms – a “cathartic method” that was later developed further by Janet, Freud and Breuer.

At the end of the 19th century, the French physician and psychologist Pierre Janet further developed the trauma-psychology-based concept of hystero-neurosis. In an approach comparable to today’s diathesis-stress model, he understood hysteria as an expression of subconscious “fixed ideas” that can arise in hereditarily and organically predisposed individuals as a result of traumatic experiences or psychologically stressful life circumstances (Ellenberger 2005; Fiedler 2006). Such experiences are associated with overwhelming emotions and catastrophizing thoughts and, if they overwhelm the psychological ability to integrate, are automatically split off from the conscious mind for self-protection and shifted into the subconscious, where they develop a psychological life of their own (Dobmeier and Kapfhammer 2001; Heim and Bühler 2022). Janet described this process as dissociation or as a narrowing of the field of consciousness (Hart and Friedmann 2022) – an autoregulatory but dysfunctional coping mechanism in cases of psychological overload. He understood the “hysterical” phenomena, including anaesthesia, amnesia and movement disorders, but also muscle pain and severe insomnia, as functional disorders, as symbolic manifestations of fixed ideas (Ellenberger 2005; Janet and Nicolas 2007).

Among other things, Janet developed what is known as “psychological analysis”, a diagnostic and therapeutic procedure for uncovering fixed ideas. He mainly employed hypnosis, in which the patient expressed their split-off memories and emotions through “automatic writing” or “automatic speech” (Ellenberger 2005). He discussed the content thus brought to light with the patient in an awake state in order to initiate a therapeutic process of cognitive and emotional processing aimed at dissolving these fixed ideas – a process he called liquidation. If the patient succeeded in working off the emotions associated with the frightening memories and integrating the experience into their personal identity, the “hysterical” symptoms lost their function and often disappeared completely (Heim and Bühler 2022).

Freud initially took up the concepts developed by Janet that “hysterical” symptoms such as paralysis or pain were due to psychologically stressful experiences (Freud 1999). These were often childhood traumas, particularly sexual abuse (Freud 2006a). Together with Josef Breuer, he held the view that “hysterical” symptoms are symbolic somatic representations of such traumatic experiences. These were repressed from consciousness, but remained psychologically active in the unconscious and discharged in the form of somatic complaints – a process he referred to as conversion. However, Freud considered not only external traumas, but also internal psychological conflicts, particularly of a sexual nature, to trigger “hysterical” symptoms. Freud understood conversion as an unconscious defense mechanism in which psychological arousal is transformed into physical symptoms in order to keep the affects associated with the traumatic experience or the inner psychological conflict, such as fear, shame or anger, in the unconscious (Freud 1999; Kapfhammer 2001).

Based on this understanding, Freud and Breuer developed a cathartic treatment method that aimed to use hypnosis to make the unconscious memories conscious and enabling the abreaction of repressed affects (Freud 2006b). However, as not all patients could be hypnotized or the effect remained limited, Freud increasingly used the method of so-called free association.

20th century

With the introduction of the structural model, Freud (2017) no longer interpreted hysteria primarily as the result of repressed traumatic experiences, but as an expression of inner psychological conflicts between the psychological instances of id, ego and superego. The “hysterical” symptoms were now seen as compro-

mises: unconscious impulses of the id – usually of a sexual or aggressive nature – came into conflict with the moral demands of the superego or the reality demands of the ego. In order to overcome this conflict unconsciously, the ego resorts to the defense mechanism of conversion. In treatment, Freud established psychoanalysis as a method for making unconscious conflicts conscious and working through them via free association, dream interpretation and transference analysis. The aim was no longer just to get rid of repressed affects, but to gain insight into the conflictual structures of the personality itself.

The Hungarian-American physician and psychoanalyst Franz Alexander emphasized that unresolved emotional conflicts could have a direct effect on the body via the autonomic nervous system, even without symbolic content. This mechanism, which he referred to as vegetative neurosis or organ neurosis (Alexander 1950), is now called somatization as opposed to conversion (Boll-Klatt 2018). The underlying conflicts did not necessarily have to be repressed or completely unconscious, but the patient could be diffusely aware of them without being able to process them adequately. According to Alexander, chronic back pain or headaches without organic findings would therefore be physiological side effects of the emotions associated with such unprocessed conflicts.

This expanded understanding of psychodynamically explainable body symptoms was incorporated into the DSM-I (American Psychiatric Association 1952). There, the collective diagnosis of hysteria was replaced by a more differentiated classification of psychologically induced bodily symptoms: These included *conversion reaction* as a subcategory of *psychoneurotic disorders*, which continued the classic Freudian conversion hysteria, and *psychophysiologic autonomic and visceral disorders*, which corresponded to psychosomatic disorders as defined by Alexander. The latter category included the *psychophysiologic musculoskeletal reaction*, which was understood to mean chronic back pain, muscle tension, myalgia or tension headaches – provided that emotional factors were considered to be the triggering cause. Migraine, in turn, was classified as a *psychophysiologic cardiovascular reaction*, recurring abdominal pain in the context of the irritable colon as a *psychophysiologic gastrointestinal reaction*.

Although the DSM-II did not bring any fundamental conceptual innovations in the understanding of psychogenic body symptoms, the term hysteria was reintroduced – this time in the form of the category *hysterical neurosis*. However, it was increasingly called into question in the wake of growing criticism of its vagueness, its stigmatizing character and its lack of diagnostic reliability. This development culminated in the publication of the DSM-III (American Psychiatric Association 1980). The term “hysteria” was now definitively avoided and the new, superordinate category of *somatoform disorders* was introduced: *Somatization disorder* as a subcategory included multiple, long-lasting physical complaints without organ pathology, including pain conditions such as abdominal or back pain. For the first time, pain was recorded as *psychogenic pain disorder* within *somatoform disorders*. This diagnosis described severe and long-lasting pain, the cause of which was assumed to be psychological.

In the DSM-IV (Saß et al. 1998) the *psychogenic pain disorder* of the DSM-III was replaced by the *pain disorder*. In contrast to DSM-III, an explicit distinction was now made between psychological and medical influencing factors as well as a combination of both: For example, a *pain disorder associated with psychological factors* could be diagnosed, in which psychological factors were considered the exclusive cause of the pain. This differentiation followed the descriptive-phenomenological orientation of the DSM-IV, which dispensed with theoretically founded, particularly psychodynamic interpretations and instead concentrated on observable symptoms and clinical criteria.

21st century

With the introduction of *somatic symptom and related disorders* in the DSM-5 (Falkai et al. 2018), *pain disorder* was abandoned and replaced by a simplified but broader diagnostic system. The focus was no longer on the absence of a somatic cause, but on the extent of psychological stress, functional impairment and maladaptive cognitions in dealing with somatic complaints – regardless of whether there was a medical cause or not. This represents a paradigm shift: Mental disorders with physical symptoms were no longer defined primarily by differentiating them from organic illnesses, but by the psychological experience and behavior of the person affected. Symptoms previously diagnosed as *pain disorder* can now be recorded under the term *somatic symptom disorder with predominant pain* if the pain symptoms are accompanied by

excessive thoughts, feelings or behavior as defined by the core diagnostic criteria.

The consistently descriptive classification of the DSM-5 deliberately dispenses with aetiological assumptions – an approach that increases the reliability of diagnostic decisions, but at the same time does little to explain the underlying pathophysiological mechanisms. In clinical practice, however, purely descriptive criteria reach their limits, especially when chronic pain is understood not only as a symptom but also as an independent pathophysiological process – and also with regard to the question of how it should be treated. This is because therapeutic decisions generally require an understanding of the disease mechanisms.

Against this background, a concept that formulates an explanatory approach for chronic, organically unexplainable pain beyond classificatory systems is gaining in importance: nociplastic pain (Kosek et al. 2016; Fitzcharles et al. 2021). This refers to pain that cannot be explained by tissue damage (nociceptive) or a lesion of the somatosensory nervous system (neuropathic), but is due to impaired pain processing in a hypersensitive CNS. Typical examples of this are fibromyalgia syndrome, chronic back pain and headaches or irritable bowel syndrome. Nociplastic pain is closely related to central sensitization, a neurobiological mechanism in which the CNS can generate pain independently even without a peripheral trigger (Harte et al., 2018).

Numerous studies indicate that central sensitization is closely linked to traumatic childhood experiences (Chandan et al. 2020). People with chronic pain conditions are significantly more likely to report emotional, physical or sexual abuse in childhood. This connection has also been proven experimentally: Studies in animal models show that animals exposed to early life stress developed typical features of central sensitization, including hyperalgesia, allodynia, increased activity in pain-processing brain areas such as the amygdala and anterior cingulate cortex, impaired function of endogenous pain inhibition, and dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis (Pierce and Christianson 2015). These findings show that childhood trauma may be causally involved in the development of central sensitization and thus nociplastic pain.

Patients with nociplastic pain usually only benefit to a very limited extent from analgesic medication (Fitzcharles et al. 2021). Therefore, psychotherapeutic methods are recommended as part of a multimodal treatment concept – including cognitive behavioral therapy (CBT), mindfulness- and acceptance-based approaches and psychodynamic methods. However, a Cochrane review showed that CBT achieved only minor improvements in pain intensity and psychological distress; the evidence for other methods is also limited to date (Williams et al. 2020).

CONCLUSIONS

The analysis shows that the path from hysteria to the modern category of nociplastic pain should be understood less as a conceptual revolution and more as a gradual shift in diagnostic paradigms. Despite terminological changes, the clinical core remains the same: People suffer from real, often disabling pain for which no adequate correlate can be found in organic medicine. However, this does not mean that this pain has no biological basis. On the contrary, neuroscientific findings reveal functional and structural alterations in the CNS as well as in centrally regulated neuroendocrine systems. The biological correlate of nociplastic pain is therefore not located at the site of the perceived pain, but rather in the CNS and in neuroendocrine structures involved in the development, maintenance, and modulation of chronic pain. These findings demonstrate that psychological experience is mirrored in biological processes. In this respect, the concepts of nociplastic pain and central sensitization constitute scientific progress – particularly with regard to the description, objectification, and destigmatization of functional pain.

Central sensitization is gaining importance in current pain research because it combines biological, psychological and social aspects in an integrative model. At the same time, numerous studies show that psychosocial factors such as early childhood trauma, chronic stress or dysfunctional coping patterns can contribute significantly to the development of this condition. Psychosocial factors thus appear as “neuroplastically stored experience”, as a biography that has become physical. Nevertheless, the therapeutic reality remains sobering for many sufferers, as the research findings have not yet led to fundamentally new treatment approaches. Many patients with nociplastic pain continue to receive psychotherapy – a procedure that was already used in the early case studies of Janet and Freud as a central treatment approach for functional complaints.

Unfortunately, psychotherapeutic interventions for the treatment of chronic pain show only low average efficacy in current meta-analyses. However, meta-analyses are based on aggregated data and provide average effect estimates that can conceal individual courses: Some patients benefit, while others hardly benefit at all, and still others even experience a deterioration. It is therefore not enough to rename chronic pain without organ pathology –individualized research is also needed that goes beyond average effect estimates and systematically investigates which interventions actually work for which patients under which conditions.

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ОТ ИСТЕРИЯТА ДО НОЦИПЛАСТИЧНАТА БОЛКА: ИСТОРИЯТА НА ФУНКЦИОНАЛНИТЕ ТЕЛЕСНИ ОПАКВАНЯ ПРЕЗ XIX, XX И XXI ВЕК

Резюме: Тази статия разглежда развитието на функционалната диагностика на болката през XIX, XX и XXI век – от истерията през соматоформните разстройства до концепцията за ноципластичната болка. Въз основа на литературен преглед, чрез исторически, класификационни и невробиологични перспективи се показва как се е променило разбирането за функционалните телесни оплаквания. Анализът проследява развитието от травматично-психологически и психодинамични концепции през описателно-класификационни подходи до неврологично обосновани модели като централната сенсибилизация. Въпреки всички терминологични промени клиничните констатации остават до голяма степен непроменени: пациентите страдат от реални, хронични болки без доказуеми органични причини на мястото на възникване. Статията показва, че централната сенсибилизация и ноципластичната болка могат да се считат за научни постижения в смисъл на обективизируеми корелати, но в същото време представляват семантично преформулиране на известни феномени. Досега обаче тези развития не са довели до осезаемо подобрене в клиничното лечение.

Ключови думи: хронична болка; ноципластична болка; соматоформни разстройства; централна сенсибилизация; истерия

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ОБЩЕСТВЕНИ КОМУНИКАЦИИ И ИНФОРМАЦИОННИ НАУКИ
PUBLIC COMMUNICATIONS AND INFORMATION SCIENCES

FEMALE AMBIDEXTROUS LEADERSHIP

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Abstract: *Gender in the context of ambidextrous leadership, a leadership style that is highly relevant in today's business environment (Kafetzopoulos, 2022), is extremely understudied to date. There is almost no research differentiating between male and female ambidextrous leaders (for one exception, see Zuraik et al., 2020). This study is the first to thoroughly investigate female leaders' experiences as ambidextrous leaders. It qualitatively explores how women view their identity as female leaders against the backdrop of traditional gender and leader stereotypes and the extent to which they engage in opening and closing leader behaviors. 12 female leaders from high technology industries were interviewed. Interviews were semi-structured and analyzed through template analysis. Most importantly, it became apparent that most women described their leader identity through a mixture of both agentic and communal attributes, with a tendency to focus on the agentic pole. Also, most women described their leader behaviors as a mixture of both opening and closing leader behaviors, with the emphasis more on opening leader ones.*

Keywords: *Ambidextrous Leadership; Female Leadership; Agentic; Communal; Gender Stereotypes*

INTRODUCTION

Gender and Leadership

Traditional stereotypes of leadership can be traced back to the “think manager–think male” phenomenon that emerged in the early 1970s (Schein, 2001). It exposed that characteristics commonly ascribed to successful middle managers were more similar to those characteristics perceived as typical of men rather than those typical of women (Schein, 2001; Sczesny, 2003). Thus, one should be aware that, in traditional terms, leadership was seen as something “masculine” and women were not considered to possess the necessary qualities for effective leadership (implicit leader theories; Lord et al., 2020).

Social role theory (Eagly, 1987) is fundamental when talking about gender-related issues in leadership. Considering the social category of sex (Eagly et al., 2020), social gender roles refer to consensual beliefs about characteristics that men and women possess (Eagly, 1987; Eagly & Wood, 2012). More precisely, men are believed to possess more agentic attributes whereas more communal attributes are ascribed to women (Eagly & Karau, 2002). Therefore, the male gender stereotype is characterized as agentic and the female gender stereotype as communal (Eagly et al., 2020). In essence, agentic attributes center around the individual and their resolute will and strength whereas communal attributes are more oriented towards interactions with others, tolerance, and cooperation (Eagly, 1987; Eagly & Karau, 2002).

Role congruity theory (Eagly & Karau, 2002) is an extension of social role theory (Eagly, 1987). It looks at the (in)congruity between gender roles and other social roles individuals perform (Eagly & Karau, 2002). When an individual enacts another social role that matches their gender role, congruity emerges (Ferguson, 2018). However, when the other social role mismatches one's gender role, this results in incongruity. Eagly and Karau (2002) demonstrated the (in)congruity between gender roles and leader roles and emphasized its relevance for the domain of female leadership.

As “leaders are thought to have more agentic than communal qualities” (Eagly, 2007), also underpinned by the “think manager–think male” phenomenon (Schein, 2001), effective leaders are pictured in mainly agentic terms (Tremmel & Wahl, 2023). This also means that the male gender stereotype aligns with the leader stereotype. As a consequence, men experience congruity when they perform a leader role (Eagly & Karau, 2002; Ferguson, 2018). In contrast, women who enact leader roles are confronted with role incongruity.

On the one hand, female leaders are expected to fulfill their stereotypical female gender role and

therefore display communal attributes (Chikwe et al., 2024). On the other hand, however, they are also expected to fulfill their leader role which is stereotypically characterized by male and agentic attributes. These contradictory expectations and the resulting tension between agency and communion have been referred to as “double bind” (Chikwe et al., 2024; Zheng et al., 2018). This double bind dilemma represents a challenge for both female leaders’ behaviors and their identity understanding (Chikwe et al., 2024).

Even though the social roles of men and women in society have changed, at least to some degree, (Eagly et al., 2020; Haines et al., 2016), the traditional gender stereotype of men as agentic is still prevalent today (Eagly et al., 2020). Furthermore, there is mixed evidence regarding a change in the traditional stereotype of women as communal. Some findings indicate a more balanced female stereotype (i.e., communal and agentic; Berkery et al., 2013; Griffiths et al., 2018) while other findings support the stability of solely communal attributes (Eagly et al., 2020). Moreover, although communal attributes are increasingly considered for effective leadership and some scholars have even talked about “a female leader(ship) advantage” (Eagly, 2007; Rosette & Tost, 2010), it remains unclear to what extent this perspective is prevalent. Other scholars have argued that today’s leader stereotype is still determined in solely agentic terms (Koenig et al., 2011; Zuraik et al., 2020).

Ambidextrous (Androgynous) Leadership

An androgynous person has both stereotypically masculine (i.e., agentic) and feminine (i.e., communal) characteristics and thus integrates both gender poles (Bem, 1974; Way & Marques, 2013). The idea of androgyny can also be adapted to the domain of leadership and is referred to as androgynous leadership (Chikwe et al., 2024; Powell & Butterfield, 1979). Androgynous leaders are, on the one hand, decisive, controlling, and assertive (i.e., agentic) while on the other hand, they also show concern for their employees, are cooperative, and tolerant (i.e., communal; Chikwe et al., 2024). The concept of androgynous leadership is particularly promising with regard to female leadership. In specific, it has been proposed that androgynous leadership may help women to overcome the double bind dilemma (Chikwe et al., 2024; Kark et al., 2012).

Ambidextrous leadership encompasses a leader’s engagement in two distinctive, yet complementary leadership activities, namely opening and closing leader behaviors (Rosing et al., 2011; Zacher & Wilden, 2014). Opening leader behaviors refer to leader behaviors that increase the variability of employees’ behaviors and result in their exploration activities (e.g., experimentation, discovery, risk taking; Rosing et al., 2011; Rosing & Zacher, 2023). In contrast, closing leader behaviors relate to leader behaviors that decrease the variability of employees’ behaviors and initiate their exploitation activities (e.g., focus on control, standardization, corrective actions, routines; Kafetzopoulos, 2022; Rosing et al., 2011). An ambidextrous leader flexibly switches between both leader behaviors dependent on the situation (Rosing et al., 2011).

The author suggests that ambidextrous leadership, due to its complementary behavioral poles, can be conceptualized as an androgynous leadership style. More specifically, the author assumes that closing leader behaviors are similar to stereotypical male (i.e., agentic) attributes whereas opening leader behaviors resemble stereotypical female (i.e., communal) attributes. As closing leader behaviors aim to decrease employees’ behavioral variance (Rosing et al., 2011), the leader must exhibit agentic attributes such as dominance, directness, assertiveness, and control. The leader’s command counts and employees must act in accordance with it. On the other hand, as opening leader behaviors intend to increase employees’ behavioral variance (Rosing et al., 2011), the leader must display more communal attributes such as gentleness, soft-spokenness, cooperation, and tolerance. In light of this androgynous reasoning, it is particularly interesting to consider female leaders’ experiences as ambidextrous leaders.

RESEARCH METHODOLOGY

The sample focus of this qualitative study was on female leaders confronted with particularly high needs for ambidextrous leadership. For this aim, the researcher conducted interviews with female leaders from high-tech companies that must increasingly strive for innovation while at the same time save costs and efficiently use their resources (Kassotaki, 2022). Participants were recruited from the researcher’s professional and private networks. A study recruitment advert and an information consent sheet were utilized.

Interview participants ranged from 31 to 60 years and worked in various fields, such as telecommunications, pharmaceutical industry, and power tolls industry.

The interview was semi-structured. This means that pre-defined questions serve as a guide (i.e., interview guide), but are asked naturally, can be adapted, and spontaneous follow-up questions can also be implemented (Magaldi & Berler, 2020). In terms of interview content, two elements were most crucial: (1) Each interviewee was shown two circles, each filled with eight trait words (Abele et al., 2008). One circle thereby comprised agentic traits and the other communal traits. The interviewee was asked which traits they embody most as a leader. (2) Each interviewee was confronted with two boxes, each filled with seven leader behaviors (Rosing et al., 2011). One box thereby comprised opening leader behaviors and the other closing leader behaviors. The interviewee was asked which behaviors best describe their leader behaviors.

As the researcher is from Germany and lives in Austria, most of her professional and personal contacts have German as their mother tongue. Thus, all interviews were conducted in German. All interviews were recorded, transcribed, and relevant quotes translated into English. For the analysis process, template analysis was used. It ensures a high level of structure while at the same time allows flexibility to adapt to the unique characteristics of a specific study (King, 2012). Characteristic for template analysis is a coding template with themes derived from a subset of data, which is then applied to the further data while undergoing revision and refinement (Brooks et al., 2015), until the final template is generated. This final template reflects the central themes the researcher identified in the data (Brooks et al., 2015; King 2004).

RESULTS

For this publication, only the main results are presented including the relevant extracts of the final template and some interview quotes (number refers to the interviewee). For a comprehensive overview, refer to my dissertation.

Agentic and Communal Traits

3.	Agentic and Communal Traits
3.1	Leader Identity
3.1.1	Agentic
3.1.2	Communal
3.1.3	Hybrid (Both)
3.2	Ideal Leader
3.3	Leader Switch
3.3.1	Situation-Sensibility
3.3.2	Employee-Sensibility
3.3.3	Employee Perceptions
3.3.3.1	Leader Credibility
3.3.3.2	Leader Authenticity
3.3.4	Supporting Factors
3.3.4.1	Value Orientation
3.3.4.2	Communication
3.3.4.3	Experience
3.3.4.4	Exchange
3.3.4.4.1	Mentorship
3.3.4.4.2	Feedback
3.3.4.4.3	Peer Support
3.3.4.5	Self-Regulation
3.3.4.5.1	Breaks
3.3.4.5.2	Reflection
3.3.4.5.3	Journaling
3.4	Private Identity
3.4.1	Similar
3.4.2	Different

Fig. 1. Extract Final Template: Agentic and Communal Traits

For their leader identity, the great majority of participants reported either a slight focus on agentic traits (six participants) or an even balance between agentic and communal traits (five participants). Most striking, across both groups, participants emphasized the importance of both types of adjectives (i.e., agentic and communal), for example:

You have to be understanding, but also assertive. You have to understand, you always have to find a consensus. You can't see things in black and white. You have to find the golden middle. (No. 8)

Participants underpinned this by expressing huge disadvantages that arise if a leader embodies only one of the two poles. On the one hand, it was outlined that a too strong focus on the agentic side can overlook human factors as *"I am no longer acting in a human way but rather so rationally that I lose sight of the*

surrounding context.” (No. 9), likely to result in the realization “Oh, whoops, I lost them along the way.” (No. 3). On the other hand, participants also said that leaders ought to be careful to not focus too much on communal traits since leaders “might not be taken as seriously because you appear so approachable.” (No. 2). In sum, there was agreement that a too strong focus on only one side brings great risks, as summed up here:

If you're only understanding, you won't get anything done; nothing moves forward. [...] And on the left (agentic), there's the type who doesn't notice anything about what's going on with other people. (No. 8)

Remarkably, there was one participant who only expressed agentic traits and another participant that only declared communal traits for their leader identity. These two responses seem to conflict with all other answers. But only at first glance. In another question, participants were asked how they would distribute agentic and communal traits for a hypothetical *ideal* leader. Here, both these participants expressed an equal distribution (i.e., 50:50), once again underpinning the importance of an agentic–communal balance.

Ambidextrous Leadership

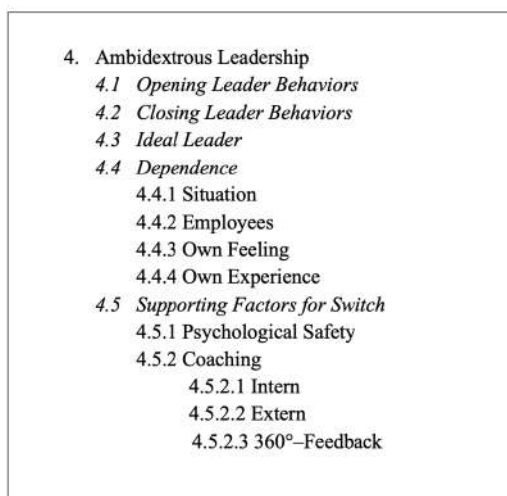


Fig. 2. Extract Final Template: Ambidextrous Leadership

Most remarkably, no participant reported more closing leader behaviors than opening leader behaviors with regard to their own leader behaviors. In fact, the opposite was the case. 10 participants reported to engage in more opening leader behaviors than in closing leader behaviors (three of them even reported only opening leader behaviors). The remaining two participants expressed an even balance between both leader behaviors. Overall, participants tended to particularly emphasize the importance of opening leader behaviors, for example:

I believe that an organization can only grow if you trust your employees, give them the freedom to think independently [...] and allow them to take risks from time to time. (No. 4)

Nevertheless, most participants stated that, even though the emphasis should be on opening leader behaviors, some closing leader behaviors are also necessary. Said differently, it was expressed that both leader behaviors should supplement each other, for instance:

The left side [opening] is effective because I allow more of how someone else approaches things. The right side [closing] is effective because it provides orientation. (No. 1)

Furthermore, participants explained that a too narrow focus on only one behavioral type comes with disadvantages:

On the left [opening] is a potential disadvantage that you don't get things to the finish line [...]. On the right side [closing], I think it's restrictive, employees won't grow, there's no room for creativity. (No. 4)

On the right [closing], innovation never happens [...] nothing new will emerge, not really anything creatively new, and the left side [opening] can of course also become a cost explosion. (No. 8)

Notably, although most participants acknowledged that, to a certain extent, closing leader behaviors should be integrated for effective leader behavior, many participants expressed to not feel fully comfortable with these behaviors. For instance, participants critically outlined that closing leader behaviors feel too much like “micromanagement” (No.7) and that these behaviors are “all associated with power, with fear, with sanctions. It’s like treating people like little children.” (No. 5).

IMPLICATIONS

Theoretical Implications

The study adds to our understanding of the female gender stereotype within the context of social role theory (Eagly, 1987) and modern leadership. Traditionally, the female gender stereotype is characterized as communal and the male gender stereotype as agentic (Eagly et al., 2020). However, over the last years, scholars have found indications that the female gender stereotype has changed and is now characterized by a mixture of communal and agentic attributes (Berkery et al., 2013; Griffiths et al., 2018). Nonetheless, not all evidence is in line with this and it has also been claimed that the female gender stereotype is still solely communal (Eagly et al., 2020; Haines et al., 2016). The present study supports the first view, indicating that most women describe their female leader identity as communal *and* agentic. It even goes one step further by implicating that the focus in this communal–agentic mixture is tendentially on the agentic side. In addition, this study is the first to specifically examine ambidextrous leadership for female leaders. It suggests that female leaders engage both in opening and closing leader behaviors, with a focus on opening leader behaviors.

Practical Implications

As ambidextrous leaders flexibly switch between two behavioral poles (Rosing et al., 2011), ambidextrous leadership is best able to meet modern business demands (Kafetzopoulos, 2022). In the present study, female leaders were revealed to exhibit this behavioral duality (i.e., opening and closing leader behaviors; with a focus on the former). Thus, organizations should strengthen female leaders’ engagement in ambidextrous leadership. For instance, human resources manager and leadership development trainers should put effort into developing leadership trainings and coaching programs for female ambidextrous leadership.

First, this might generally help to reinforce these leader behaviors among female leaders. Second, such programs could set a specific focus on female leaders’ engagement in closing leader behaviors. The study results revealed that many female leaders still do not feel fully comfortable with engaging in closing leader behaviors. It is likely that female leaders just need more support to confidently engage in closing leader behaviors. Therefore, tailored training and coaching programs could help women become more secure with these behaviors (Zuraik et al., 2020). The more equally comfortable female leaders feel with both leader behaviors, the better they can integrate them and flexibly switch between them without experiencing any emotional disadvantages.

CONCLUSION

This study qualitatively explored how women view their identity as female leaders against the backdrop of traditional gender and leader stereotypes and the extent to which they engage in opening and closing leader behaviors (i.e., ambidextrous leadership). Most importantly, it became evident that most women characterized their leader identity through a mixture of both agentic and communal attributes, with an emphasis on the agentic pole. In addition, most women described their leader behaviors as a mixture of both opening and closing leader behaviors, with a focus on opening leader behaviors.

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ЖЕНСКО АМБИДЕКСТРАЛНО ЛИДЕРСТВО

Резюме: Полът в контекста на амбидекстралното лидерство – лидерски стил, който е изключително актуален в днешната бизнес среда (Kafetzopoulos 2022), досега е изключително слабо проучен. Почти липсват изследвания, които да разграничават амбидекстралните лидери мъже и жени (за едно изключение виж Zuraik et al. 2020). Настоящото изследване е първото, което задълбочено проучва опита на жените лидери като амбидекстрални лидери. То изследва качествено как жените възприемат своята идентичност като жени лидери на фона на традиционните стереотипи за пола и лидерите и до каква степен те участват в поведение на отварящи и затварящи лидери. Интервюирани са 12 жени лидери от високотехнологични индустрии. Интервютата са полуструктурирани и анализирани чрез шаблонен анализ. Най-важното е, че става ясно, че повечето жени описват своята лидерска идентичност чрез смесица от агентурни и комунални атрибути, като тенденцията е да се фокусират върху агентурния полюс. Също така повечето жени описват поведението си на лидер като смесица от отварящи и затварящи лидерски поведения, като акцентът е по-скоро върху отварящите лидерски поведения.

Ключови думи: амбидекстрално лидерство; женско лидерство; агентурно; комунално; полови стереотипи

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ОБЩЕСТВЕНИ КОМУНИКАЦИИ И ИНФОРМАЦИОННИ НАУКИ
PUBLIC COMMUNICATIONS AND INFORMATION SCIENCES

THE SUCCESS FACTORS FOR WOMEN IN MANAGEMENT POSITIONS

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Abstract: *Women have never had more rights than they do today. Nevertheless, the road to equality is far from over, as women are still underrepresented in management positions. However, studies show that diverse teams are more successful. Although women's suffrage celebrated its 100th birthday in 2018, gender equality has not yet been fully achieved. A survey of 29 OECD countries (Organisation for Economic Co-operation and Development) shows where women experience the best equality in the world of work. Iceland, Sweden and Norway occupy the top three places, while Germany is in 21st place. But what factors help women to advance in management positions? On the one hand, there are individual factors such as self-motivation, a high level of self-confidence and assertiveness. In addition, organisational framework conditions such as transparent processes and flexibility play a key role in a women-friendly career. Finally, social factors are important; there are few role models for women. The role of women is often still viewed traditionally, especially as soon as children are born. This publication is based on a literature review and provides an overview of the current situation of gender equality and the various success factors for women in leadership.*
Keywords: *Equal Rights; Successful Women; Proportion of Women; Leadership Position; Success Factors*

INTRODUCTION

According to Article 3 (2) of the German Basic Law, „Men and women shall have equal rights. The state shall promote the effective realisation of equal rights for women and men and shall work towards the elimination of existing disadvantages. No one shall be disadvantaged or favoured because of his or her sex, descent, race, language, homeland and origin, faith, religious or political views.”

Women have never had more rights than they do today. Although the social framework for equal rights and the legal basis in Germany has never been better, the road to equality is far from over (Mahlstedt 2021). Women are still underrepresented in management positions today. Yet studies show that diverse teams are more successful. According to the McKinsey report „Diversity wins - How inclusion matters” from 2020, companies with a proportion of women in top management of over 30% show significantly better financial results than those with a proportion of 10-30% (Wölfl 2022).

This study analyses the success factors that support the success and advancement of women in management roles. In the context of this work, management positions that are associated with authority to issue instructions, personnel responsibility and responsibility for results are included (Scherer/Süß 2016). The aim of this study is to discuss key success factors. Firstly, the challenges faced by women in the past are examined, and then the proportion of women in management positions in various countries and sectors is concretised.

Finally, this publication analyses the success factors of women in management positions; both individual and organisational as well as social factors.

RESEARCH METHODOLOGY

The publication is based on a literature review and mainly refers to the situation in Germany, but provides an international overview. The scientific research includes books, online articles, journals and studies.

RESULTS

Definition of women in management positions

Women in management positions include those who are part of lower, middle and top management. These include, for example, division managers, directors, group leaders, board members, managing directors

or women in similar roles (Parnow 2022 as cited in Habermann-Horstmeier et al. 2007).

Challenges of the past

In the past, there was no discussion of equality between men and women. Even though the Constitution of the Federal Republic of Germany (FRG) was passed in 1949:

1. *"All people are equal before the law."*
2. *"Men and women have equal rights."*
3. *"No one shall be discriminated against or favoured because of their gender, origin, race, language, country of origin, faith, religious or political beliefs No one shall be discriminated against because of their disability."* (Kahl-Passoth 2017)

Despite these laws, the reality was different:

- Until 1958, the husband was able to terminate his wife's employment contract without her consent.
- Until 1958, the husband had the sole right of control over his children and wife.
- Women were not allowed to open their own account at the bank until 1962.
- Women were not considered legally competent until 1969.
- If a woman wanted to work, she had to clarify this with her husband before 1977 in the former FRG.
- In 1994 the law on names was changed: since then it has been possible to keep your own name when you get married.
- Rape within marriage was not penalised until 1997. (Kahl-Passoth 2017)

With this autonomous women's movement, women organised themselves into smaller groups to share their experiences in society and develop their own roles. Female workers began to take to the streets and defended themselves against wage discrimination through strikes. The first women's refuge in West Germany was opened in 1976 in what was then West Berlin, where abused children and women found help and protection. For the first time, "violence against women" received public attention. Up to this point, this was a huge problem that nobody wanted to recognise - especially as the women affected kept silent out of a sense of shame. In the 1980s, political parties and trade unions took up the cause of equality for women for the first time, and in 1986 the first female minister for women in the FRG was elected in the Christian Democratic Union of Germany (CDU).

Article 3(2) of the German Basic Law was amended eight years later to read as follows: *"The state shall promote the effective realisation of equal rights for women and men and shall work towards the elimination of existing disadvantages."* (Kahl-Passoth 2017). Various federal agencies and public-law institutions were obliged by this Women's Promotion Act in 1994 to appoint a women's representative for 200 or more employees.

In 2006, protection against discrimination on the grounds of ethnic origin, gender or age, ideology, religion, disability or sexual orientation was extended to the labour market by the General Equal Treatment Act (Kahl-Passoth 2017).

Equal rights for women

"Equality brings us all forward, not just women. And it needs all of us to make progress. Much has been achieved, but mission accomplished? Unfortunately, not." (Von Der Leyen 2019).

Do women have the same rights as men today? Women's suffrage celebrated its 100th anniversary in 2018; one might assume that gender equality has been fully achieved. This is by no means the case, at the latest when women have children or want to advance professionally (Kahl-Passoth 2017). The question of how to meet the demands of the job and the needs of children is not just a question for single mothers. The number of day-care places is still insufficient and there is a lack of flexible employers. In many companies, the male-dominated understanding of work still dominates: the employee should be available to the company at all times; women with children have hardly any opportunities for advancement here (Kahl-Passoth 2017).

In recent years, there has only been a slow increase in the proportion of women in management positions. An important milestone for increasing the proportion of women in senior management positions in Germany is the "Act on Equal Participation of Women and Men in Management Positions in the Private and Public Sector" (FüPOG) of 2015 (Rybnikova/Lang 2021). This law applies to supervisory board positions in "parity co-determined" and listed companies in Germany and requires a gender quota of 30 per cent. Although only

100 companies are affected by this, the proportion of women in Germany's 200 largest companies has increased as a result (Rybnikova/Lang 2021).

Nevertheless, this regulation does not ensure equality between men and women, which is particularly evident in the gender pay gap. The differences in salaries between the two genders are particularly serious at management level. According to the German Institute for Economic Research, the gross salaries of women in management positions were 30 per cent lower men's salaries between 2010 and 2016 (Holst/Marquardt 2018).

Proportion of women in management positions

About 10 years ago, the gender quota was introduced to get more women into top positions in Germany. Today, the proportion of women on German management boards is higher than ever before, according to the consulting and auditing firm EY. As of 1 January 2025, one in five board members of German DAX companies is female. A comparison of the last 10 years shows a significant increase: in 2015 there were only 25 female managers, whereas in 2025 there will be a total of 136. Despite the positive development, Ev Bangemann, Head of Division at EY, still sees a lot of room for improvement in the area of gender roles and women in leadership: *"Despite the progress we are definitely seeing: For women, the path to the management level - whether middle management or top management of companies - remains rocky. It has also been proven that women take longer to reach top positions, but stay there for a shorter time than men. In order to change this permanently, we need, among other things, to be more open to new and more emphatic types of leadership, such as those often practised by women. However, we can also see that quotas alone are not enough; sustainable measures are needed that start earlier, such as sponsorship programmes or promotions to parental or part-time roles, in order to show that companies are backing and supporting their female managers"* (Dpa/Amerland 2025).

The annual Glass-Ceiling-Index (GCI) by "The Economist" in the 29 OECD countries shows where women experience the best and worst equality in the professional world. Ten different indicators such as salary, childcare, university education and proportion of management positions are taken as a basis. Here, too, it is clear that significantly fewer women are represented in management positions (Schwing 2024). Northern European countries, above all Iceland, offer the best conditions for women - in comparison, Germany is in 21st place (Schwing 2024 according to The Economist Group). The following figure shows the development of the GCI from 2016 to 2023.

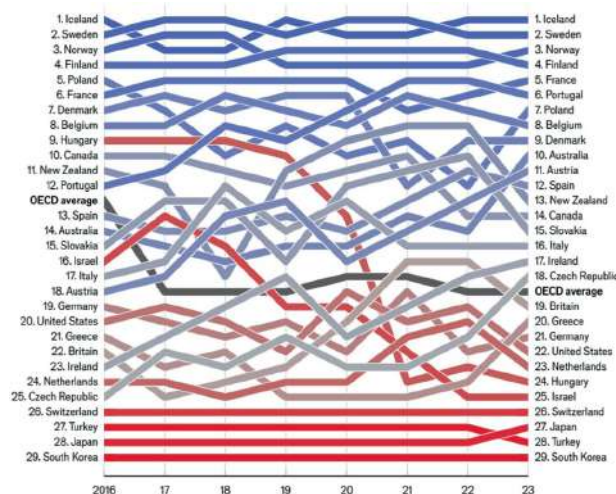


Figure 1. Glass-Ceiling Index 2024 (The Economist Group 2024)

This chart shows that Iceland, Sweden, Norway, Finland and Poland round off the top 5 countries for the index. The northern countries in particular are especially good at promoting women to university degrees, securing a career including promotion to senior positions and often offer more flexible working time models. In contrast, Turkey, Japan and South Korea bring up the rear, which is mainly due to the fact that women in Asia are still expected to choose between having a child or a career (The Economist Group 2024).

If things continue at this pace in Germany, gender parity on German boards will be achieved in 2053.

The figure below shows the development over time.

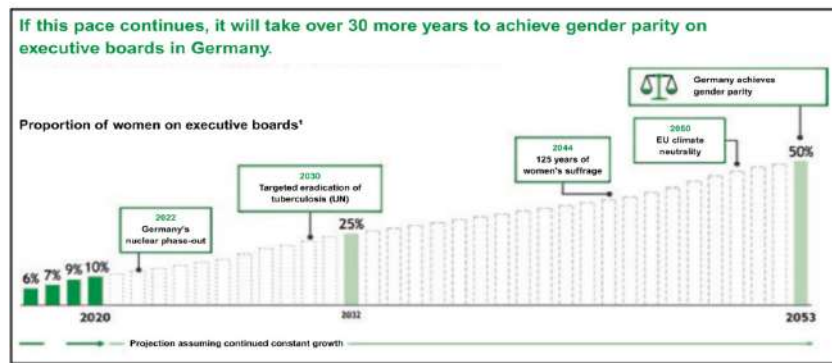


Figure 2. Proportion of Women on Executive Boards in Germany

Proportion of women in various sectors

An analysis by the World Economic Forum (2022) has shown that a total of 31% of all women worldwide hold a management position. However, this percentage varies considerably within different industries. On the one hand, some sectors have a high proportion of women, including industries such as personal services and well-being (45%), education (46%) and non-governmental and membership organisations (47%). In contrast, there is no gender parity in other sectors such as energy (20%), manufacturing (19%) and infrastructure (16%) (Schwing 2024).

Success factors for women in leadership

Nowadays, the career opportunities for women in Germany are better than ever before. On the one hand, because we have a changed labour market that is struggling for committed talent and, on the other hand, because of the law on women's quotas from 2015. As a result, women in leadership are increasingly in the foreground. It is more worthwhile than ever for women to look at their own individual strengths and career goals. A clear definition of what you want is important. Most women are able to define exactly what they don't want - but only a few are able to concretise their own strengths and determine how best to use them for their own career (Mahlstedt 2021). Deutsche Bahn commissioned the one-year research project, 'Success Factor Diversity', conducted by Master's students, to investigate what is important to female (potential) managers in an employer. The most important requirements for employers, as identified by the women surveyed (n = 363), are:

1. development opportunities in career and expertise,
2. an appropriate income,
3. necessary work equipment,
4. flexible working time models and
5. a secure job (students of the Master's programme "Communication Management" 2021).

For women to be successful in leadership, there are 3 main factors that have a major influence.

Individual factors

The fundamental motivation behind leadership is key to becoming a successful manager. This is particularly evident when a new management position becomes vacant and no one with the appropriate qualifications applies for it. „*The individual drive to embark on a leadership career and take on leadership responsibility in a professional context*“ (Felfe et al. 2012, as cited in Elprana et al. 2016) is what constitutes leadership motivation.

Women in particular can easily name what they don't want. They are sure that they *don't* want “*a half-day job on a 450-euro basis where nothing is paid into the pension*”. However, when it comes to precisely formulating their own strengths and how they can best utilise them for their career, many women find it difficult. One factor that contributes to becoming a successful female manager is taking stock of your own situation. This involves being clear about your goals and strengths, as well as identifying who can provide support.

Awareness of the different roles in which women find themselves also provides a basis for success. It is impossible to fulfil all roles 100%: Colleague, daughter, mother, wife, friend, sister, godmother, team leader, parent spokesperson and so on. You can only do justice to one role by focussing on it and taking it seriously. A suitable question that women should ask themselves is: *“How can I organise my environment so that I have enough time for my own career?”* Delegation and handing over responsibility is essential so that women can focus on their own careers.

In addition, a high level of self-confidence and strong assertiveness form the basis for a successful career as a woman. *“Coach yourself, otherwise no one will coach you”* is the motto. It can also be useful to accelerate change processes with the help of a coach.

In order to become a successful manager as a woman, it is also useful to have role models. Networks for exchange at eye level or learning from other successful women are another important building block. (Mahlstedt 2021).

Organisational factors

The framework conditions and the commitment of a company play a significant role in the promotion of women in professional life. Women are demonstrably more likely to decide in favour of a career if they are supported by their company. Therefore, women who want to pursue a career should choose a company that is geared towards promoting women

If company conditions change in favour of women and their opportunities for advancement, employees are forced to rethink, which initiates a cultural change. Permeability, flexibility and transparent processes form the basis for a “women-friendly” career. Employers need to think about flexible working time and location models, restructure hierarchies and levels and make management positions available to part-time employees.

For some years now, there has been a great deal of room for manoeuvre for companies: while women want to work more, many men would like to reduce their working hours in order to take on some of the childcare, for example. A wide range of options such as working from home, sabbaticals and recognising parental leave as years of work experience are particularly important here. In addition, banal everyday help such as the option of taking food from the canteen or a laundry and ironing service in the company could have a significant impact, so that employees and child carers are relieved of household chores. Some of these models are already being successfully implemented as “Campus” in Silicon Valley (Lutz 2018).

Social factors

Social framework conditions should enable women to decide for themselves whether and to what extent they want to pursue a career. Nevertheless, the role of women in Germany is often still viewed in a very traditional way, especially when women become mothers and are responsible for the majority of childcare. Most women in Germany stay at home for the first three years after giving birth and then opt for a part-time model. It depends above all on the mother’s own priorities as to how important family and career are valued, but it is often clear that the traditional understanding of roles is still deeply ingrained in many. This makes it difficult to make a neutral decision on the extent to which one’s own career should be pursued even with children. The self-image of young women - as with everyone plays an important role here. Many women are very insecure when it comes to their own career and have never considered their own personal career goals. It is particularly important that women reflect on their individual career goals and their role as a mother at an early age. The use of role models is demonstrably one of the most important instruments for actively promoting women (Lutz 2018).

In addition, the introduction of the women’s quota has led, among other things, to some women being afraid of being labelled as a “token female”. It helps when companies actively work to break down stereotypes (Lutz 2018).

CONCLUSION

To summarise, the work makes it clear that although women today have more rights than ever before, there is still no equality in the professional world. Women are still underrepresented in management

positions in particular, which is due to social and structural obstacles.

Important success factors include not only individual characteristics such as assertiveness and motivation, but also organisational conditions such as transparent processes and flexibility. Ultimately, society's view of the role of women remains an important factor, especially in terms of balancing work and family life. Far-reaching changes are needed at individual, organisational and societal level in order to further promote equality in management positions

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ФАКТОРИ ЗА УСПЕХ ПРИ ЖЕНИТЕ НА РЪКОВОДНИ ПОЗИЦИИ

Резюме: Жените никога не са имали повече права, отколкото днес. Въпреки това пътят към равенството е все още дълъг, тъй като жените все още са недостатъчно представени на ръководни позиции. Проучвания обаче показват, че разнообразните екипи са по-успешни. Въпреки че през 2018 г. се навършиха 100 години от даването на право на глас на жените, равенството между половете все още не е напълно постигнато. Проучване в 29 страни от ОИСР (Организация за икономическо сътрудничество и развитие) показва къде жените се ползват с най-голяма равнопоставеност в света на труда. Исландия, Швеция и Норвегия заемат първите три места, докато Германия е на 21-во място. Но кои са факторите, които помагат на жените да напредват в ръководни позиции? От една страна, има индивидуални фактори, като самомотивация, високо самочувствие и увереност. Освен това организационните рамкови условия, като прозрачни процеси и гъвкавост, играят ключова роля за кариерата на жените. Накрая, социалните фактори са важни; има малко ролеви модели за жените. Ролята на жените често все още се разглежда по традиционен начин, особено след раждането на деца. Тази публикация се основава на преглед на литературата и предоставя обзор на настоящата ситуация по отношение на равенството между половете и различните фактори за успех на жените на ръководни позиции.

Ключови думи: равни права; успешни жени; дял на жените; ръководни позиции; фактори за успех

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ОБЩЕСТВЕНИ КОМУНИКАЦИИ И ИНФОРМАЦИОННИ НАУКИ PUBLIC COMMUNICATIONS AND INFORMATION SCIENCES

ORGANIZATION AND MANAGEMENT OF INFORMATION RELATING TO THE IMPACT OF METEOROLOGICAL FACTORS ON HOSPITAL INPATIENT ADMISSIONS

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Abstract: *This study examines the organization and management of information in connection with the effects of meteorological factors on the frequency and reasons for inpatient hospital admissions. The hospital is a complex organization whose medical treatment services for patients are influenced either by internal factors, such as available resources, or by external factors, for example, the weather. The aim is to analyze the information and communication process, which is important for hospital management and influenced by external environmental factors such as the weather. The study is conducted at the two sites of the Alfried Krupp Hospital in Essen using data from the period January 2012 to July 2024. Based on a total of 477,099 standardized patient and service data records as well as the weather data of the City of Essen, a quantitative, inductive research approach is chosen. The analysis shows that colder temperatures correlate with an increase in the number of inpatient admissions. This increase is particularly evident in elective, planned admissions and emergency admissions. In contrast, occupational accidents increased in number at warmer temperatures. However, no anomalies were found in cases of violence- or accident-related events. The study results nevertheless indicate a slightly significant relationship between weather and patient admissions. For hospital management, this still leads to important implications regarding the information and communication process. This process, as well as the development of an appropriate information system, forms the basis for the management of personnel and resource planning. A future study should develop an information model for hospitals that systematically links various external and internal factors from data sources.*

Keywords: *Information management; hospital management; hospital organization; meteorological influencing factors; hospital admissions; climate impacts on healthcare*

INTRODUCTION

Hospitals are medical institutions within the healthcare system in which diseases, ailments, or physical injuries of persons are treated by medical, nursing, and therapeutic services (§ 2 para. 1 KHG). These treatments are offered and performed in hospitals 24 hours a day, every day of the year. For this purpose, capacities must be maintained, the utilization of which is often subject to strong demand fluctuations. In particular, the time of treatment of emergency patients is unknown in advance. In contrast, planned patients visit the hospital at a previously determined treatment time (cf. Ostwald/Neumeyer 2023, 87). Treatments can be provided as full inpatient, partial inpatient, or outpatient services. In full inpatient services, patients remain in the hospital for at least one night. In partial inpatient services, treatments are limited to the daytime, while patients spend the night in their personal environment. In outpatient services, treatments relate only to an hourly stay of patients in the hospital, which does not require an overnight stay, neither on the night before nor on the night after the treatment (cf. Behrends/Vollmöller 2020, 60).

In present times, hospitals in Germany, due to their economic orientation, are considered service enterprises (cf. Goepfert 2013, 32). The economization process of German hospitals began in the 1980s through reforms in health policy. These reforms became necessary in order to reduce the high healthcare expenditures in hospitals by applying market-economy-oriented approaches (cf. Flintrop 2014, A1930). Health expenditures in Germany amounted to € 474.1 billion in 2021, corresponding to 13.2% of the German gross domestic product (cf. Destatis 2023). Since 1972, hospital financing in Germany has been based on a dual system between operating and investment cost reimbursement according to § 17b para.

1 KHG. Operating cost reimbursement finances patient treatment including the use of infrastructure. After several reforms, this has been done since 2004 by means of case-based lump-sum payments (cf. Klauber/Geraedts 2020, 191). These case-based lump sums are standardized nationwide in Germany and are represented by an annually updated catalog of case flat rates as well as a remunerative base case value (cf. Behrends/Vollmöller 2020, 13). Through investment cost reimbursement, the federal states in Germany finance the hospital construction and medical-technical equipment. However, due to tight public budgets, the federal states have not fully met this investment obligation in the past. As a result, hospitals had to finance the necessary investments in construction and medical-technical equipment through their own or external funds, which, in turn, had to be co-financed from the revenues of operating cost reimbursements (cf. Graumann/Schmidt-Graumann 2016, 52).

The financial pressure and the importance of economization, in combination with the fixed case-based financing in hospitals, lead to the necessity that personnel and infrastructural capacities are optimally utilized through process and information control. Thus, the relevance of a structured information process has significantly increased in hospitals over the past decades. An indicator of optimal process and information control is a high occupancy rate of beds (cf. Hentze/Kehres 2010: 316). To be able to manage the process and information related to bed capacity utilization, it is important that dependencies in bed occupancy are known. A focus lies on the dependency of weather on the number of patient admissions, particularly emergencies. The proportion of emergency admissions in hospitals averages around 45% nationwide (cf. Klauber/Wasem 2021: 46). Weather-related dependency has, also with regard to future weather developments, an enormous impact on hospitals. Weather describes the actual state of the Earth's atmosphere, measured by weather elements such as temperature, wind, precipitation, snow, or cloud cover (cf. Wetter.com 2024).

The aim of the study is to examine the external influence of meteorological factors on the information and communication process in hospitals. From this, anomalies and patterns depending on weather factors should become evident, enabling conclusions to be drawn about typical patient admissions. The study results, in combination with weather forecasts, can serve as a basis for strategic information and decisions, for example, in patient management or personnel planning.

RESEARCH METHODOLOGY

The research on the weather-related influence on the information and communication process in hospitals is carried out at the two sites of the Alfried Krupp Hospitals. The Alfried Krupp Hospitals are located in the industrial city of Essen with a long history. The Krupp company, known for its steel and armaments industry, decided in 1870 to build its own hospital with approximately 100 beds for employees next to the cast steel factory. In 1920, the hospital was opened to all patients. During the Second World War, the hospital site had to be relocated to the city center of Essen due to artillery fire, but operations there could not be maintained (cf. Brüggemeier 1990). In 1963, the last sole owner of the Krupp company, Alfried Krupp von Bohlen und Halbach, commissioned the construction of a new hospital building. The building, which is still in use today, was opened in August 1980 with 560 beds and has since borne the name "Alfried Krupp Hospital" (cf. H. O. Wörner 1974, 840–842). Through a merger, the Protestant Hospital Lutherhaus Essen has been part of the Alfried Krupp Hospitals, both medically and economically, since January 2008, with 320 beds. The Essen districts are now included in the name: Alfried Krupp Hospital Rüttenscheid and Alfried Krupp Hospital Steele (cf. Hesse 2008). For the study, a total of 480,000 anonymized, standardized diagnostic and case data from both hospitals, with 18 different medical departments, from the period January 2012 to July 2024, are available. The standardized datasets consist of over 100 variables that include general data on patients and hospitals as well as treatment services and billing-relevant information. Weather data for the city of Essen for the same period (January 2012 to July 2024) are also available, provided as hourly and daily outputs of weather elements: temperature in degrees Celsius measured at a height of 2 meters, wind speed in kilometers per hour, precipitation and snow measured in centimeters, and cloud cover indicated as sunshine in minutes.

The measurement times of the data include all inpatient admissions from 01 January 2012 to 31 July 2024. This corresponds to 4,596 days, consisting of 657 Mondays, 657 Tuesdays, 657 Wednesdays, 656 Thursdays, 656 Fridays, 656 Saturdays, and 657 Sundays. In addition, 140 public holidays of the federal

state of North Rhine-Westphalia are included, namely thirteen times New Year's Day, thirteen times Good Friday, thirteen times Easter Monday, thirteen times Labor Day, thirteen times Ascension Day, thirteen times Whit Monday, thirteen times Corpus Christi, twelve times German Unity Day, one Reformation Day, twelve times All Saints' Day, and twelve times each for the first and second days of Christmas. Furthermore, 1,077 vacation days are included, consisting of 167 Easter vacation days, 15 Whitsun vacation days, 552 summer vacation days, 152 autumn vacation days, and 191 Christmas vacation days. In addition, there are 490 traditional, religious, or other special days, including thirteen times the Islamic Feast of Breaking the Fast, thirteen times Christmas Eve, thirteen times the Islamic Feast of Sacrifice, thirteen times Holy Saturday, thirteen times Easter Sunday, 399 days of Ramadan, thirteen times Rose Monday, and thirteen times New Year's Eve. The database of inpatient patients means that patients stayed at least one night and therefore remained in the hospital for at least one additional day (cf. Behrends/Vollmüller 2020: 60).

The study of the weather-related influence on the information and communication process in hospitals is conducted using a quantitative research method, as a large amount of data and information must be collected and analyzed so that the extensive data collections lead to a representative result (cf. Genau 2019). The quantitative research method is carried out using the inductive approach, because currently there is too little research and literature on the weather-related influence on inpatient admissions in hospitals. Thus, original research with its own hypotheses is conducted. The associated data analysis is performed using the analysis and evaluation tools IBM SPSS Statistics and Microsoft Excel. The first measuring instrument is descriptive statistics, which provide a description of the data through a frequency analysis. Components of frequency include measures of location, dispersion, and correlation. Measures of location include, for example, the calculations for the mean (1), also known as the average, and the sum (2), as the addition of all values (cf. Studyfix 2024).

$$\bar{X} = \frac{\alpha_1 + \alpha_2 + \dots + \alpha_n}{n} \quad (1)$$

$$n = \sum_{k=1}^n k = \frac{n(n+1)}{2} \quad (2)$$

Measures of dispersion include ranges such as the minimum (3), the smallest value in the dataset, and the maximum (4), the largest value in the dataset (cf. Studyfix 2024):

$$\max(x_1, x_2) = \frac{x_1 + x_2 + |x_1 - x_2|}{2} \quad (3)$$

$$\min(x_1, x_2) = \frac{x_1 + x_2 - |x_1 - x_2|}{2} \quad (4)$$

A measure of association between two variables includes, for example, the calculation of the Pearson correlation coefficient (5). The Pearson correlation coefficient yields values between -1 and +1. When the value is less than zero, there is a negative relationship between the two variables. When the value is greater than zero, there is a positive relationship. The closer the value is to zero, the weaker the relationship between the two variables (cf. Studyfix 2024).

$$r_{xy} = \frac{s_{xy}}{s_x \cdot s_y} \quad (5)$$

The quality criteria of validity, reliability, and objectivity are ensured for quantitative research. Validity is given because the data used correspond to a legal standard in Germany. Hospitals in Germany are required under § 21 para. 1 KHEntgG to transmit their performance data on an annual and quarterly basis (cf. InEK 2024). Reliability is maintained because, due to the use of standardized data and the analysis tools IBM SPSS Statistics and Microsoft Excel, a repetition of the research results is possible. Objectivity is guaranteed because the data are used unchanged, so that standardization is preserved and mathematically

established tests and calculations are performed.

For the investigation of the weather-related influence on the information and communication process in hospitals, research questions and hypotheses are formulated:

Does weather have any influence on the number of patient admissions?

Null hypothesis H_0 = There is no relationship between the number of patient admissions and the weather.

Alternative hypothesis H_1 = There is a relationship between the number of patient admissions and the weather.

Does weather have any influence on the reasons for patient admissions?

Null hypothesis H_0 = There is no relationship between the reasons for patient admissions and the weather.

Alternative hypothesis H_1 = There is a relationship between the reasons for patient admissions and the weather.

RESULTS

The sample for the study on the weather-related influence on the information and communication process in hospitals comprises a total number of $n = 477,099$ cases. The number of cases consists of the site Alfried Krupp Hospital Steele with $n_1 = 148,425$ and the site Alfried Krupp Hospital Rüttenscheid with $n_2 = 328,674$.

The temperature measured in degrees Celsius ($^{\circ}\text{C}$), can be grouped into intervals. The range of temperatures during the evaluation period from 01 January 2012 to 31 July 2024 lies between less than or equal to -10°C and greater than $+35^{\circ}\text{C}$. For the statistical representation, an interval of five degrees Celsius is chosen. From the evaluation period mentioned above, a 4,596-day result, which can be assigned to the intervals according to their average daily temperatures. For n_1 , an increase in the total number of patient admissions is evident in the colder temperature intervals between 0 to -4°C and $+1$ to $+5^{\circ}\text{C}$, with an average of 42.8 and 40.5 daily patient admissions. The same applies to the reasons for admission. The reasons for admission can be divided into elective, planned admissions (column no. 1), occupational accidents (column no. 2), traffic, sports, or other accidents (column no. 3), indications of external violence (column no. 4), emergency admissions (column no. 7), and integrated care through cooperation agreements with general practitioners or rehabilitation facilities (column no. 41). Elective and emergency admissions increase in the colder temperature intervals. This indicates an increase in treatments due to colder temperatures. In the other temperature intervals, the total average daily patient admissions range between 37.0 and 39.4. For the admission reasons “occupational accidents” and “integrated care”, an increase in average daily admissions with rising temperature is visible. In contrast, for “traffic, sports, or other accidents” as well as “indications of external violence”, no abnormalities can be detected, since the average number of admissions across all temperature intervals remains at 0.0 (cf. Table 1).

Table 1. Average Daily Patient Admissions by Temperature Interval (Location A)

Interval	Days	1	41	n1
$> -10^{\circ}\text{C}$	1	28,0		43,0
-9 to -5°C	19	25,1		36,9
-4 to 0°C	128	28,9		42,8
$+1$ to $+5^{\circ}\text{C}$	559	26,7		40,5
$+6$ to $+10^{\circ}\text{C}$	872	25,2		38,7
$+11$ to $+15^{\circ}\text{C}$	753	25,9		39,4

+16 to +20 °C	696	25,5	39,2
+21 to +25 °C	226	25,3	38,5
+26 to +30 °C	28	23,9	37,2
+31 to <+35 °C	1	24,0	37,0

Comparable to n_1 , an increase in total patient admissions is also observed in n_2 in the colder temperature intervals from 0 to -4 °C and $+1$ to $+5$ °C, with averages of 91.3 and 89.8 patients per day. The finding of increased patient admissions in colder temperature intervals can also be transferred to the admission reason “elective patients”. Emergency patients show little variation across the temperature intervals. A similar picture appears for the other reasons for admission, occupational accidents, traffic, sports, or other accidents, indications of external violence, and integrated care, as the average daily admissions remain at the same level (cf. Table 2).

Table 2. Average Daily Patient Admissions by Temperature Interval (Location B)

Interval		1	2	3	4	7	41	n2
> -10 °C	1	74,0	0,0	0,0	0,0		1,0	92,0
-9 to -5 °C	19	51,3	0,4	0,1	0,0		0,2	80,4
-4 to 0 °C		62,8	0,3	0,0	0,0+		0,1	91,3
+1 to +5 °C		60,3	0,4	0,0	0,0		0,1	89,8
+6 to +10 °C		57,3	0,4	0,0	0,0		0,1	86,9
+11 to +15 °C		58,8	0,3	0,0	0,0		0,1	88,2
+16 to +20 °C		58,5	0,4	0,0	0,0		0,2	88,5
+21 to +25 °C		58,2	0,4	0,0	0,0		0,1	88,4
+26 to +30 °C	28	58,2	0,4	0,0	0,0		0,1	85,6
+31 to +35 °C	1	58,0	0,0	0,0	0,0		0,0	89,0

The Pearson correlation coefficient test is used to investigate a possible relationship between the weather-related influence and the number of patient admissions. The basis of the study consists of the aggregated data from both sites, $n = 477,099$. Using the independent variable “Fallzaehler” (case counter), the relationship is examined with the dependent variables on the admission day: “AufnTAGTempMean” (average temperature), “AufnTAGWindMean” (average wind speed), “AufnTAGSonne” (sunshine duration), “AufnTAGRegen” (amount of rain), and “AufnTAGSchnee” (amount of snow).

The study results show that for the number of patient admissions, the average temperature with -0.013 , average wind speed with -0.002 , sunshine duration with -0.005 , amount of rain with 0.002 , and amount of snow with -0.007 are statistically slightly significant. The p-values of significance (two-tailed) are 0.000 for all variables except precipitation, which has a p-value of 0.146, thus higher than the significance level of 5 % or $\alpha = 0.05$. This means that for the variable precipitation, no significant relationship exists. For the other weather variables, a minimal correlation is visible but appears negligible. The null hypothesis, stating that there is no relationship between the number of patient admissions and the weather, cannot be rejected. Thus, no relevant relationship exists between the number of patient admissions and the weather variables (cf. Table 3).

Table 3. Correlation Between Number of Admissions and Weather

Pearson-Correlation	-0,013	-0,002	-0,014	0,002	-0,007
Sig. (2-tailed)	0,000	0,000	0,000	0,146	0,000
n					

The Pearson correlation coefficient test is also used to examine whether a weather-related influence exists on the reasons for patient admissions. The data basis again consists of $n = 477,099$, from which the relationship between the independent variable “AufnGrundZusatz” (reason for admission) and the dependent, already known variables “AufnTAGTempMean”, “AufnTAGWindMean”, “AufnTAGSonne”, “AufnTAGRegen” and “AufnTAGSchnee” is investigated.

The study results show that for the reasons for admission, the average temperature with 0.008, the average wind speed with 0.009, and the sunshine duration with 0.005 are slightly significant, but only a very weak correlation exists. In addition, the p-values of significance (two-tailed) for the three dependent variables are 0.000 and 0.001, smaller than the significance level of 5 % or $\alpha = 0.05$. These values are not meaningful and indicate no correlation. This means that the null hypothesis that there is no relationship between the reason for admission and weather-related temperature, wind speed, or sunshine duration cannot be rejected. The reasons for admission depending on the amount of rain and snow are 0.002 and -0.001 , not significant, and there is no correlation at such low values. The p-values of significance (two-tailed) are 0.202 and 0.692, greater than the significance level of 5% or $\alpha = 0.05$. Hence, no statistically measurable relationship exists. The null hypothesis that there is no relationship between the reason for admission and precipitation or snowfall cannot be rejected. Overall, there is no relevant relationship between the reasons for patient admissions and the weather variables (cf. Table 4).

Table 4. Correlation Between Admission Reasons and Weather on Admission Day

Pearson-Correlation	0,008	0,009	0,005	0,002	-0,001
Sig. (2-tailed)	0,000	0,000	0,001	0,202	0,692
n					

CONCLUSIONS/DISCUSSION

The study on the investigation of the weather-related influence on the information and communication process in hospitals is carried out using the example of the two sites of the Alfried Krupp Hospitals Rüttenscheid and Steele in Essen. The research is based on 477,099 anonymized and standardized patient data records from the period January 2012 to July 2024, as well as weather data from the City of Essen for the same period. In addition to temperature, other weather elements such as wind, precipitation, snowfall, and cloud cover (or sunshine hours) are analyzed. The study follows a quantitative, inductive research approach, as there is still little literature or research on the relationship between weather and the information and communication process in hospitals. The objective is to identify relationships between weather conditions and the information and communication process, in particular the information on admission frequencies and reasons for admission. In view of future weather developments, it is important for hospitals to know whether there is any relationship between patient admissions and weather conditions. With the help of this information, hospitals can align and utilize their personnel and infrastructural capacities optimally through process and information control. Unlike other enterprises in Germany, hospitals cannot individually adjust the prices of their services. Hospital financing in Germany is based on a case-based lump-sum system, which determines the selling prices per treatment service annually. To keep costs as low as possible in relation to the predetermined selling prices and thus possibly achieve a profit, processes and capacities

must be optimally utilized. For analysis and evaluation, descriptive statistics and the Pearson correlation coefficient are applied using the tools IBM SPSS and Microsoft Excel.

The quality criteria validity, reliability, and objectivity are ensured through legally standardized data sources that are used in unchanged form with established analysis and evaluation tools.

The results of the study show that a small difference in the number of patient admissions occurs across various temperature intervals. This slight increase in patient admissions is particularly evident at colder temperatures between 0 and +5 °C at both sites. When differentiated by reasons for admission, this mainly concerns elective, planned admissions as well as emergency admissions. Occupational accidents and integrated care, on the other hand, show an increase at warmer temperatures. Admission numbers for traffic, sports, or other accidents, as well as for external violence, remain unchanged. The difference in the number of patient admissions can possibly be explained by the geographical location of the two Alfried Krupp Hospitals in the city of Essen. The city of Essen is located in the federal state of North Rhine-Westphalia, in the western part of the Federal Republic of Germany. North Rhine-Westphalia lies in the northern hemisphere and thus experiences moderately warm average weather conditions. This results in mild winters and moderately warm summers, which may generally lead to higher numbers of patient admissions. Overall, the study results, based on correlation analyses, do not indicate any noteworthy temperature dependence. Although the results using the statistical test of the Pearson correlation coefficient show that slight relationships exist between patient admissions and certain weather variables, these are hardly or not at all significant. Thus, the null hypothesis that there is no relationship between the reasons for patient admissions and the weather remains valid.

The analysis shows that no significant relationships can be identified between weather factors and information on inpatient admissions. However, this very finding highlights the organizational importance of the information and communication process. Hospitals require mechanisms to use data from various sources not only to explain influences but primarily to structure and control decision-making processes within a functioning information and communication system. The hospital is a complex organization whose medical treatment services for patients are influenced by various factors, as illustrated by the example of meteorological influences. This complexity arises from the interaction of organizational structures, technical infrastructures, and management-related decision-making processes, all of which are encompassed by the information and communication process as central elements. This information and communication process must permeate all organizational areas to establish a transparent decision-making foundation at all departmental and hierarchical levels. In this way, information needs can be anticipated, and relevant data can be provided and communicated in an appropriate form.

A future follow-up study should develop an information model for hospitals that systematically links external and internal factors from various data sources. For this purpose, meteorological, demographic, internal operational, as well as date- and calendar-related variables should be integrated. Such information management can become a decisive component in transforming a hospital into a learning organization.

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ОРГАНИЗАЦИЯ И УПРАВЛЕНИЕ НА ИНФОРМАЦИЯТА, СВЪРЗАНА С ВЪЗДЕЙСТВИЕТО НА МЕТЕОРОЛОГИЧНИТЕ ФАКТОРИ ВЪРХУ ПРИЕМА НА ПАЦИЕНТИ В БОЛНИЦИТЕ

Резюме: Настоящото изследване разглежда организацията и управлението на информацията във връзка с влиянието на метеорологичните фактори върху честотата и причините за хоспитализациите. Болницата е сложна организация, чиито лечебни услуги за пациентите се влияят както от вътрешни фактори, като наличните ресурси, така и от външни фактори, например времето. Целта е да се анализира информационният и комуникационен процес, който е от значение за управлението на болницата и е повлиян от външни фактори на средата, като климатичните условия. Изследването е проведено в двете локации на болница „Алфрид Круп“ в град Есен, като се използват данни за периода от януари 2012 г. до юли 2024 г. Въз основа на общо 477 099 стандартизирани записа на пациенти и услуги, както и метеорологичните данни на град Есен е избран количествен, индуктивен изследователски подход. Анализът показва, че по-ниските температури корелират с увеличаване на броя на хоспитализациите. Това увеличение е особено изразено при плановите и спешните приеми. За разлика от това трудовите злополуки се увеличават при по-високи температури. Въпреки това не са установени аномалии при случаи на насилие или инциденти. Резултатите от изследването все пак показват слабо значима връзка между времето и броя на хоспитализациите. За управлението на болницата това води до важни последици по отношение на информационния и комуникационен процес. Този процес, както и разработването на подходяща информационна система формират основата за управлението на персонала и планирането на ресурсите. Необходимо е да бъде разработен информационен модел за болниците, който систематично да свързва външни и вътрешни фактори от различни източници на данни.

Ключови думи: управление на информацията; болничен мениджмънт; болнична организация; метеорологични фактори на влияние; хоспитализации; климатични въздействия върху здравеопазването

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ОБЩЕСТВЕНИ КОМУНИКАЦИИ И ИНФОРМАЦИОННИ НАУКИ
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**ACT WITH CONFIDENCE: DIGITAL TRAINING FOR THE INCLUSION
OF CHILDREN WITH EPILEPSY**

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Abstract: *The inclusion of chronically ill children in schools presents educational professionals with complex challenges, particularly with regard to emergency situations, medical responsibility and legal uncertainties. In this context, digital training offers significant potential for strengthening professional confidence – provided it is accessible, professionally sound and structurally anchored. This article analyzes the conditions under which digital training can strengthen pedagogical action in dealing with children with health vulnerabilities. Based on a conceptual approach, requirements for content, technical design, legal protection and institutional embedding of digital formats are identified. The results show that digital training is effective when it is adaptive, practical and continuously updated – and when it becomes part of an inclusive quality development process. In this way, it makes a central contribution to the realization of participation and educational equity in everyday school life.*

Keywords: *Inclusion; Epilepsy; eLearning; Health Education; Teacher Training*

INTRODUCTION

Children with chronic illnesses face particular challenges in the education system – not only medically, but also structurally. Whether epilepsy, diabetes, asthma or rare metabolic disorders: These diagnoses entail specific requirements that go far beyond the purely pedagogical daily routine. For professionals, this means a high level of responsibility in medically relevant situations, in contact with parents and in dealing with uncertainty. However, this is precisely where there are serious gaps – not because of unwillingness, but because there is a lack of practical, accessible and institutionally anchored support.

Dealing with health vulnerability becomes a systemic challenge, particularly in the school and early education sector: Who is allowed to administer medication? How do you react in an emergency? What data may be documented? What legal framework conditions apply – and who is responsible? Educational professionals are often alone with these questions, while at the same time they are expected to live an inclusive attitude and accompany all children safely.

Digital training is increasingly being discussed as a solution in this area of conflict. It promises flexibility, individual adaptation and rapid availability. However, for it to be more than just a technical offering, it must be structurally embedded, didactically well thought out and legally sound. This article examines the conditions under which digital training can actually strengthen pedagogical action in the context of chronic illnesses – and which criteria it must fulfill in order to become the basis for successful inclusion.

RESEARCH METHODOLOGY

The aim of this conceptual contribution is to design digital training in such a way that it contributes to the confidence of educational professionals in dealing with chronically ill children. The focus is on the question of what conditions must be met for digital training to actually have a structural effect. This is less about individual content and more about the systematic design of learning processes that are geared towards the real requirements of everyday working life.

The starting point is the need for specific knowledge at the interface between medicine, law and education. The lifetime prevalence of epilepsy – one of the most common neurological disorders in children – is around three to four percent (Pfäfflin, 2011). Dealing with affected children at school regularly presents professionals with challenging situations – particularly with regard to emergencies, medication and dealing

with parents. However, many institutions do not have systematically prepared material that specifically addresses these situations.

Digital learning opportunities offer the possibility of bundling relevant information and making it accessible. This shows that it is not enough to simply provide content. Rather, it must be structured, contextualized and didactically prepared in such a way that it can actually be used in everyday working life. A modular structure that allows short, thematically focused learning units is considered particularly effective – especially when content is prepared interactively and encourages self-reflection (Turnbull et al., 2020).

Another key factor is the technical usability of digital training. Platforms must be designed in such a way that they are accessible, mobile and intuitive to use. In particular, adaptive systems that record learning progress and suggest tailored content are seen as forward-looking. They can help to reduce uncertainties in a targeted manner and enable individual learning paths (Turnbull et al., 2020). At the same time, care must be taken to ensure that these systems remain compatible with pedagogical work structures – for example through connectivity to existing platforms or low-threshold access options.

Legal clarity is another methodological cornerstone. Many professionals are unsure of their responsibilities when dealing with medically relevant situations. Uncertainty about permitted actions – such as administering emergency medication – can lead to hesitant or evasive behavior. Digital training should explicitly address the applicable legal regulations and link them to specific scenarios for action (Dumeier et al., 2017).

Finally, the institutional integration of continuing education is crucial. Only if digital learning formats are understood as part of professional development and are promoted organizationally – for example through time off, mandatory modules or accompanying reflection phases – can they have a lasting effect. The decisive factor is not only access to knowledge, but also the structural willingness to understand learning as a continuous component of pedagogical quality assurance.

RESULTS

The systematic analysis of digital training in dealing with chronically ill children makes it clear that uncertainty, information gaps and a lack of structures represent significant barriers to inclusive pedagogical action. Specific challenges are particularly apparent when dealing with epilepsy: the condition is associated with an increased risk of emergencies, while at the same time many educational professionals lack the necessary knowledge and legal basis to act safely in an emergency (Dumeier et al., 2017).

One key finding concerns the legal dimension. Many professionals express uncertainty with regard to their responsibility when administering emergency medication. This uncertainty is not unfounded, as institutional standards are lacking in many places or are inadequately communicated. In fact, the duty to provide assistance arises both from Section 323c StGB (Federal Ministry of Justice, 2024) and from social court case law. The Dresden Social Court (Sozialgericht Dresden, 2019) ruled that the administration of emergency medication approved for lay use by educational staff is permissible and even mandatory in an emergency - provided the use is prepared and supervised.

This is where digital training comes in: It can prepare information on basic medical principles, legal responsibilities and organizational processes in a targeted manner and convey it at a low threshold. Formats that create legal clarity increase confidence and reduce the risk of passive or hesitant behavior in an emergency. It is crucial that not only laws are cited, but that specific case constellations, responsibilities and response procedures are explained (Deutsche Gesetzliche Unfallversicherung, 2021).

Another finding concerns the technical and structural design of learning platforms. Digital training is perceived as helpful if it is intuitive to use, flexibly available and technically accessible. Learning platforms must filter content according to individual needs, save learning statuses and enable repetition – especially when topics such as emergency intervention, medical care or data protection are addressed. Adaptivity and personalization are considered key success factors (Turnbull et al., 2020).

In this context, it is also clear that digital training must be designed to be accessible – not only in terms of content, but also technically. Read-aloud functions, subtitles, simple language and high-contrast design are fundamental requirements to ensure that the courses are also accessible to professionals with sensory

or learning impairments. Particularly in facilities with multi-professional teams, this can make or break participation.

Updating digital content is also a key result of the analysis. Outdated or incorrect information can have serious consequences in a healthcare context. It is therefore necessary to regularly review digital training from a professional perspective, integrate new legal developments and systematically incorporate feedback from practitioners. This applies in particular to the changing approval situation for medicines, new requirements of the funding bodies or changed procedures for interdisciplinary cooperation (Deutsche Gesetzliche Unfallversicherung, 2021).

In terms of didactic design, practical and interactive formats have particularly positive effects. Training concepts that practice practical actions - such as the use of an emergency kit or the simulation of an epileptic seizure – have been shown to lead to a demonstrably higher level of competence. In a study on the training of educators, 97% of participants stated that they felt more confident in dealing with affected children after a video-based practical unit (Dumeier et al., 2017). Digital media offer additional opportunities here: Step-by-step videos, interactive case analyses and adaptive test modules not only promote knowledge, but also self-efficacy. Another key finding is the importance of institutional framework conditions for the impact of digital training. Even high-quality content has little impact if it is not integrated into everyday working life. Lack of time, lack of equipment or lack of support from managers are seen as frequent obstacles. To counteract this, further training should be recognized as part of professional development and structurally anchored – for example, through fixed time slots, mandatory modules or integration into quality development processes (Booth & Ainscow, 2017).

The analysis also shows that educational professionals particularly value digital offerings when they address real challenges in everyday life. Formats that show concrete steps to take in the event of a seizure, provide guidelines for discussions with parents or enable the legal classification of specific situations are rated as particularly helpful. Digital tools that support this – e.g. mobile seizure protocols, medication agreements or individually configurable emergency plans – significantly increase the transfer into practice. Data protection aspects were also identified as important in the analysis. Many educational professionals are unsure about what information on chronic illnesses may be documented, passed on or stored digitally. Clear rules, comprehensible responsibilities and technical standards are needed here – such as role-based access rights, encryption and training on legal principles (Deutsche Gesetzliche Unfallversicherung, 2021).

In summary, digital training can make a significant contribution to inclusion in schools – provided it is relevant to practice, technically accessible, legally secure and organizationally embedded. The decisive factor is not only what is taught, but how and under what conditions. Only when professionals feel confident, are able to act in an emergency and can rely on institutional support will the basis for inclusive practice be created that actually does justice to children with chronic illnesses.

CONCLUSIONS/DISCUSSION

The results of the analysis make it clear that digital training can be a key tool for supporting inclusive practice – provided it is more than just a technical add-on. Particularly when dealing with chronically ill children, such as those with epilepsy, there are clear deficits in terms of confidence, institutional support and interdisciplinary coordination between educational professionals. The existing uncertainties are not an expression of individual deficits, but are structural in nature: due to a lack of regulations, inadequate communication between education and health and an unclear legal framework.

Digital training has the potential to close these gaps. It can combine legal knowledge, medical principles and pedagogical skills, make them flexibly accessible and systematically update them. However, the prerequisite for this is that it is accessible, suitable for everyday use and professionally sound. A key success factor lies in dovetailing with the real fields of action: Learning content must not only be informative, but also practically applicable — for example by presenting emergency procedures, sample documents or typical conversation situations with parents.

Another key aspect is the structural anchoring within the institution: digital training must not be based on individual voluntariness, but should be understood and promoted as part of institutional quality development. This includes not only technical equipment and time resources, but also a culture that understands learning

as part of a professional attitude — and in which managers actively support continuing education.

Successful inclusion in the context of chronic illnesses requires educational professionals to be professionally informed, legally protected and emotionally supported. Digital training can contribute to this — not as a substitute for personal reflection or peer-to-peer exchange, but as a complementary foundation. It provides information, structures knowledge and strengthens confidence in one's own actions. For this to succeed, it requires not only suitable content, but also political and organizational framework conditions that enable participation at all levels.

Inclusion begins with knowledge — but it needs structures that translate this knowledge into responsibility. Digital training can do just that if it is professionally designed, used in a binding manner and continuously developed. This can turn uncertainty into confidence — and goodwill into actual participation.

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ДЕЙСТВАЙ УВЕРЕНО: ЦИФРОВО ОБУЧЕНИЕ ЗА ПРИОБЩАВАНЕ НА ДЕЦА С ЕПИЛЕПСИЯ

Резюме: Приобщаването на хронично болни деца в училищата поставя пред педагогическите специалисти сложни предизвикателства, особено по отношение на спешни ситуации, медицинска отговорност и правна несигурност. В този контекст цифровото обучение предлага значителен потенциал за укрепване на професионалната увереност – при условие че е достъпно, професионално обосновано и структурно закрепено. В тази статия се анализират условията, при които цифровото обучение може да укрепи педагогическите действия при работа с деца с уязвими здравни състояния. Въз основа на концептуален подход са определени изисквания към съдържанието, техническото проектиране, правната защита и институционалното внедряване на цифровите формати. Резултатите показват, че цифровото обучение е ефективно, когато е адаптивно, практично и непрекъснато актуализирано – и когато става част от всеобхватен процес на развитие на качеството. По този начин то допринася съществено за реализирането на участието и образователната справедливост в ежедневието на училището.

Ключови думи: епилепсия; електронно обучение; здравно образование; обучение на учители; приобщаване

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ОБЩЕСТВЕНИ КОМУНИКАЦИИ И ИНФОРМАЦИОННИ НАУКИ
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**TECHNOLOGICAL CHANGE IN INDUSTRY:
AI AS THE ANSWER TO THE SHORTAGE OF SKILLED LABOUR**

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Abstract: *The skilled labor shortage in the German industry, coupled with the demographical change, will be, and already is, a challenge for today's companies. Artificial intelligence (AI) could show new patterns and approaches to address these problems. AI can optimize production processes, reduce employees' workload and increase competitiveness. At the same time, its introduction harbors risks such as high investment costs, de-skilling and cultural challenges when integrating international specialists. One key solution is upskilling employees through AI-supported learning processes that close skills gaps and enhance adaptability to technological change. International examples, such as the application of AI in the Chinese telecom industry and Saudi healthcare, illustrate the potential of these technologies to overcome social and economic barriers. The text shows how a strategic combination of technology, talent management and interdisciplinary collaboration can create a sustainable solution to the challenges of the modern world of work.*

Keywords: *AI; Artificial Intelligence; Industry 4.0; Skilled Labor; Demographic Change*

INTRODUCTION

German companies face significant challenges due to demographic change and the growing shortage of skilled labor in industrial occupations. However, introducing artificial intelligence and machine learning into production processes can be a promising approach to tackling these problems (Vladova, Teichmann and Heuts, 2021).

The increasing use of AI has far-reaching effects on the labor market and can also potentially lead to a massive loss of jobs (Heinen, Heuer and Schautschick, 2017). However, operational reality shows that the transformation of the world of work through AI is much slower and less disruptive than often depicted in economic forecasts (Giering, 2021). The integration of AI into production processes is costly. The effort required to create an ethical, GDPR-compliant AI that also offers data security combined with the data desert or poor data quality in heterogeneous companies presents many companies with challenges (Rebstadt et al., 2022). Only companies that can estimate the investment outlay or are not afraid of risky investments or missteps can afford to "try out" AI at large companies such as BMW, FORD or Siemens. AI has been introduced to streamline quality management processes or reduce employees' workload, often without releasing employees (Bundesministerium für Wirtschaft und Klimaschutz, 2023). Such conversions usually lead to changes in activities. This can lead to a de-skilling, a reduction in the employee's activity, e.g. from a doer to an observer of the AI, or it can lead to an up-skilling, where the employee goes from being a doer to a determiner who programs the AI. Similar to an employee who goes from being a welder to programming a welding robot.

As shown in (Giering, 2021), the transformation of the world of work through AI will be much slower and less disruptive than often assumed in economic forecasts. Furthermore, empirical studies show that employees certainly have the potential to successfully help shape the use of AI/ML in companies. However, managers often see major hurdles here and initially tend to look at their employees for supposed deficits (Pfeiffer, 2020). To successfully implement AI in production processes, it is therefore crucial to incorporate the skills and experience of employees and actively involve them in the transformation process (Pfeiffer, 2020).

RESEARCH METHODOLOGY

The transformation of technology and innovation are the driving forces behind industry development and are crucial for competitiveness and innovation. AI represents a groundbreaking technology that has high attention over the last few years. Saudi Arabia is a clear example of this, with AI improving healthcare and increasing efficiency in public services. With the help of machine learning, diseases can be diagnosed more precisely, and patients can receive better care. AI also facilitates interaction between citizens and authorities by automating processes, such as virtual assistants and chatbots. It is not for nothing that Saudi Arabia has strategically invested in AI research and education, positioning itself as a pioneer in the region and promoting economic diversification to achieve these improvements (Kamasa and Wahab, 2021). The telecommunications industry in China is another prime example of technological transformation. Here, government support and an entrepreneurial spirit of innovation have led to significant progress. Companies such as Huawei and ZTE have benefited from systematic government support that encourages strategic partnerships and investment in 5G infrastructure and improving existing technologies. These initiatives have propelled China to the forefront of telecommunications equipment manufacturing, solidifying its position in global markets (Yu and Wu, 2021). Nevertheless, the government's involvement extends beyond advanced technologies. A case in point is the traditional piano manufacturing industry in the Deqing region of China. Here, tax incentives and innovation promotion have helped to achieve technological progress in established industries. Nevertheless, the integration of highly qualified skilled labor and the development of local technologies remains a challenge. Technological transformation in such sectors shows that process and product innovations can also increase efficiency gains and market shares in traditional industries (Alshammery, 2023). Technological transformation is, therefore, not only a technical process but also a social and political one. It requires close cooperation between governments, companies and research institutions to promote sustainable innovation. Countries such as Saudi Arabia and China demonstrate through their different approaches how strategic investments and political measures can transform entire industries and contribute to the long-term economic development of a country. It is not only generative AI that creates images or texts based on human input, but it is also used in industry. Automating AI, which intervenes in production processes, monitors them, adapts them, and sometimes carries them out independently, is already established in practice. Interviews show that large companies such as FORD, BMW, SIEMENS and Deutz currently use automated AI, primarily in quality assurance. One example is the recognition and evaluation of welding and soldering processes in near real-time. Soon, this could eliminate time-consuming X-ray inspection of welded joints and significantly streamline quality management processes. The technological transformation of industry shows that AI is more than just a technological innovation; it plays a crucial role in a broad change that impacts economic, social, and political dimensions alike. Using AI to tackle skills shortages. By 2035, around 13 million people from the baby boomer generation, i.e. the population born between 1946 and 1964 after the Second World War, will retire in Germany alone ("Population development and age structure," 2023). This development will profoundly impact the labor market, as the next generation will be unable to compensate for these losses. Only around 50% of the retiring labor force is estimated to be replaced (Schäfer and Marten, 2021). The figures alone are alarming but do not reflect the whole problem. The loss of labor is not just about quantity but also about skills. There is not simply a shortage of 50% welders or 50% carpenters - instead, there is a change in the world of work. While specific skilled trades are becoming less important or less popular, the demand for jobs in new, technology-driven sectors is increasing. Office and IT jobs, in particular, are gaining in popularity, while traditional skilled trades appear less attractive (Bundesinstitut für Berufsbildung, 2024). The next generation would, therefore, have to work much more on average to make up for the shortfall - an unrealistic scenario. Alternatives such as increased recruitment of skilled workers from abroad offer short-term solutions but raise new questions. Cultural and language barriers pose challenges that require the full integration of these workers. The situation is further complicated by a Europe-wide skills shortage, increasing EU competition. The hesitation of many companies to embrace new technologies like artificial intelligence (AI) is making it tougher to tackle the skills shortage we are facing. Large companies only show interest in integrating AI if a return on investment (ROI) can be expected within two years ('Winning With AI', 2019). This short-term mindset may seem sensible from a business perspective, but it slows down

innovations that could be crucial in the long term to counteract the shortage of skilled labor. An example is the application of artificial intelligence in manufacturing, where automation and optimization of processes can significantly ease burdens. Given the current circumstances, a reassessment emphasizing long-term strategies is essential. In addition to integrating foreign workers and promoting novel technologies, there is a need to prioritize the training and retraining of existing workers. Artificial intelligence plays a crucial role in development by creating new models for upskilling, in which workers are specifically prepared for more challenging tasks. Such approaches could not only help alleviate short-term burdens but also ensure the long-term competitiveness of the German industry.

AI-SUPPORTED SOLUTIONS FOR THE SKILLS GAP

A sustainable and ethically justifiable solution to counteract the shortage of skilled labour is to qualify existing employees from production or other areas where AI is already being used for more demanding tasks. This upskilling can be combined explicitly with existing talent management and not only creates new prospects for employees but also strengthens the innovative power of companies. Artificial intelligence (AI) is a key player, as it can be used both as a tool for process optimization and as a learning companion for qualification (Aggarwal, 2023). AI's transformative impact is notably visible in production. Tools powered by AI facilitate learning experiences that are greatly improved through immediate feedback and customized learning paths. Recommendations adjust based on learners' preferences, abilities, and advancement. This approach boosts efficiency while fostering a sense of responsibility and motivation among employees (Smith, 2021). Learning processes become faster and more effective as they are specifically tailored to the needs of the individual, and AI helps to democratize access to skills by closing gaps in the recruitment and training market (Aggarwal, 2023). A major significance of AI in the upskilling process is its capacity for data-driven accuracy, enabling precise skill assessment and focused resource allocation. Incorporating AI-driven learning systems in the workplace has greatly improved employee learning and closed skill gaps. This preparation is crucial due to the rising demand for AI experts and the focus businesses have on automation and data-informed decisions.

Critical examples show companies can strengthen their internal competencies through AI-supported upskilling and increase employee satisfaction. Combining the analytical power of AI with human ambition is revolutionizing skills management. Employees are no longer just integrated into the work process as users but as active creators of AI systems. For example, a welder will become the programmer of the welding robot, which he previously only operated, through targeted further training (Meier, Seufert and Guggemos, 2019). This symbiosis of human potential and technological innovation makes AI the cornerstone for creating a dynamic, future-orientated workforce. In a fast-moving and changing industrial landscape, this is an indispensable prerequisite for securing companies' long-term competitiveness and, simultaneously, sustainably combating the shortage of skilled labor. Therefore, AI is becoming a solution to current challenges and a driver of long-term transformation in the world of work (Breitinger et al., 2019).

CONCLUSION

Integrating artificial intelligence (AI) into production processes has created significant opportunities for economic growth and operational efficiency. Notable corporations like BMW and Siemens have demonstrated the strategic use of AI-assisted quality control and process monitoring, illustrating its potential to enhance productivity while ensuring employment stability. Nonetheless, small to medium enterprises often lag behind because AI investments entail significant costs and risks, usually prioritizing immediate profitability. A critical factor in successfully implementing AI is the development of the workforce's skills. In this context, AI can serve as both a technical tool and a learning companion by offering personalized learning paths and real-time feedback. The abovementioned factors have been shown to promote skill development, motivate employees, and instil a sense of responsibility. By implementing targeted training programs, skilled workers can be integrated into strategic roles. This approach has shown to be effective in alleviating the long-term shortage of skilled labor while boosting the industry's capacity for innovation. This approach has proven effective in alleviating the long-term shortage of skilled labor while enhancing the industry's capacity for innovation. However, it's important to note that the shortage of skilled labour

remains a complex problem that cannot be addressed solely by artificial intelligence in isolation. Cultural, linguistic, and structural hurdles, especially when recruiting international specialists, require additional measures. Cultural, linguistic and structural hurdles, mainly when recruiting international specialists, require additional measures. At the same time, companies need to place greater trust in the potential of their employees and actively involve them in the transformation process. A sustainable solution can only be found through technological progress, strategic talent management and interdisciplinary collaboration. AI plays a significant role as an efficiency-increasing tool and a booster for innovation and development.

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ТЕХНОЛОГИЧНИ ПРОМЕНИ В ПРОМИШЛЕНОСТТА: АИ КАТО ОТГОВОР НА НЕДОСТИГА НА КВАЛИФИЦИРАНА РАБОТНА РЪКА

Резюме: Недостигът на квалифицирана работна ръка в германската индустрия, съчетан с демографските промени, ще бъде и вече е предизвикателство за днешните компании. Изкуственият интелект (ИИ) може да покаже нови модели и подходи за справяне с тези проблеми. ИИ може да оптимизира производствените процеси, да намали работното натоварване на служителите и да повиши конкурентоспособността. В същото време въвеждането му крие рискове, като високи инвестиционни разходи, понижаване на квалификацията и културни предизвикателства

при интегрирането на международни специалисти. Едно от ключовите решения е повишаването на квалификацията на служителите чрез поддържани от ИИ процеси на обучение, които преодоляват пропуските в уменията и подобряват адаптивността към технологичните промени. Международни примери, като например прилагането на ИИ в китайската телекомуникационна индустрия и саудитското здравеопазване, илюстрират потенциала на тези технологии за преодоляване на социалните и икономическите бариери. Текстът показва как стратегическата комбинация от технологии, управление на таланти и интердисциплинарно сътрудничество може да създаде устойчиво решение на предизвикателствата на съвременния свят на труда.

Ключови думи: ИИ; изкуствен интелект; индустрия 4.0; квалифицирана работна ръка; демографски промени

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ОБЩЕСТВЕНИ КОМУНИКАЦИИ И ИНФОРМАЦИОННИ НАУКИ
PUBLIC COMMUNICATIONS AND INFORMATION SCIENCES

**BUSINESS VALUATION USING THE MULTIPLIER METHOD IN GERMAN
 INHERITANCE TAX LAW — PART III/III**

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Abstract: *This scientific article on company valuation using multipliers is the third and final part of a series (Amann, 2025a; 2025b) and builds on previous studies. The third part explains and assesses the most important enterprise value (EV) and equity value multipliers (EQV) in detail. The article then analyses non-operating assets in the context of company valuation using multipliers, as well as examining how the company's income and earnings taxes, and the personal income taxes of the shareholders, influence the outcome of company valuations. Company valuation using multipliers is generally recognised by the courts, meaning that, in accordance with § 11 (2) sentence 2 clause 1 of the Valuation Act, it is possible to achieve a reduction in inheritance or gift tax. A critical conclusion follows.*

Keywords: *Enterprise value; Equity value; Sales; EBITDA; EBITA; EBIT; Company valuation using multipliers*

INTRODUCTION

As Löhnert and Böckmann (2023, p. 881 and p. 887 ff.) and Amann (Amann 2025a; 2025b) noted, both enterprise value (EV) and equity value multiples (EQV) are used for company valuations. As outlined in the introduction from Amann (Amann 2025a, p. 19; Amann 2025b, p. 50 f.), the following applies: According to Olbrich and Frey (2023, p. 479) and Ernst, Schneider and Thielen (2018, p. 228), whether the EV or the EQV must be used to determine a multiplier depends on the **reference value** applied, because the reference value (in the denominator) ultimately determines the valuation (in the numerator).

RESEARCH METHODOLOGY

This scientific article concludes the **three**-part series (Amann, 2025a; 2025b) and builds on previous studies by explaining and evaluating practice-relevant EV and EQV multipliers. It then analyses non-operating assets in the context of company valuation using multipliers, considering the influence of taxes on the company's income and earnings, as well as the personal income taxes of the shareholders, on the result of company valuation using multipliers. Company valuation using multipliers is generally recognised by the courts, meaning that, in accordance with § 11 (2) sentence 2 clause 1 of the Valuation Act (BewG¹), it is possible to achieve a reduction in inheritance or gift tax. A critical conclusion on company valuation using multipliers is provided at the end.

RESULTS

SALES MULTIPLIER (ENTERPRISE VALUE / SALES)

Below, the sales multiplier is calculated as follows by Ernst/Schneider/Thielen (2018, p. 235). See also the introduction in Amann (Amann 2025a, p. 19; Amann 2025b, p. 50, p. 52):

$$\text{Enterprise Value / Sales} = \frac{\text{Enterprise Value}}{\text{Sales}} \quad (1)$$

The turnover of a company is the figure least influenced by different accounting methods and accounting policies, which means that valuation comparisons can be made quite quickly, as no complex adjustments to the turnover figure are usually necessary (Seppelfricke 2020, p. 314).

The first step is to define revenue, which raises the question of **when** revenue arises or is realised, which depends on the applicable accounting standard; according to § 252 (1) no. 4 clause 2 of the of the German Commercial Code (HGB²), sales is only realised at the time the service is rendered, which is

usually before the invoice is issued. Differences may also arise, for example, due to the different treatment of long-term construction contracts; under German Commercial Code, these are accounted for using the completed contract method (late revenue recognition only upon handover), internationally according to the percentage-of-completion method (earlier revenue recognition with progress of construction), on the **other hand** there is the question of **what** is realised as revenue, this varies depending on the industry, so if you want to compare companies on the basis of revenue, the structure and delimitation of revenue should be filtered out precisely to ensure that comparability is actually given (Ernst/Schneider/Thielen 2018, p. 234).

In comparison to the other multipliers, the sales multiplier can also be used for companies that are **temporarily** unprofitable, i.e. have negative values for EBIT, for example, although it must be critically analysed whether these are short-term losses or losses to be expected in the future (Schacht/Fackler 2005b, p. 251).

On the other hand, sales are only very rough indicators of value creation for the company's investors, as the value of the company can be **destroyed** despite high sales if the profit figures following sales are negative (Seppelfricke 2020, p. 314).

The sales-based multiples valuation therefore has the disadvantage that it completely neglects the earning power of the company, which can be problematic because the value of a company lies not in the sales generated but in its earning power, so the calculated values should be checked (Ernst/Schneider/Thielen 2018, p. 234).

One advantage for smaller companies is that it is easy to obtain figures, as sales figures are usually available, unlike profit figures (Schacht/Fackler 2005b, p. 251).

According to *Ernst, Schneider and Thielen* (2018, p. 235), also presented in *Amann* (Amann 2025a, p. 22 f.; Amann 2025b, p. 50), different sales multiples of the peer group companies are formed in practice, sales are set both in relation to **equity value** [price/sales ratio (P/S ratio = market capitalisation : sales; inconsistent, as the reference figure sales of the peer group company is generated from total capital, meaning that sales should not be set in relation to equity but in relation to total capital (P/S ratio assumes that there are no interest-bearing liabilities)] and in relation to **enterprise value** [EV/sales = enterprise value: sales; consistent, as the reference value sales of the comparable company is set in relation to total capital (total capital = market value of equity excluding non-operating assets plus interest-bearing net debt)].

In this context, *Schacht and Fackler* (2005b, p. 247), also in *Amann* (Amann 2025b, p. 50), note that other well-known representatives of equity value multiples are the price/earnings ratio and the price/book value ratio.

EBITDA MULTIPLE (ENTERPRISE VALUE / EBITDA)

The EBITDA multiple is calculated as follows (Ernst/Schneider/Thielen 2018, p. 236; Amann 2025b, p. 50 and overview p. 52):

$$\text{Enterprise Value/EBITDA} = \frac{\text{Enterprise Value}}{\text{EBITDA}} \quad (2)$$

The sales multiplier is not meaningful in the beverage industry, for example, if the peer companies inflate their sales through low-margin fruit juice trading and this increases sales but not necessarily the margin (Schacht/Fackler 2005b, p. 252).

The EBITDA multiplier completely ignores depreciation and amortisation, making it particularly suitable for comparisons between companies in a sector with similar capital intensities (Seppelfricke 2020, p. 297; Schacht/Fackler 2005b, p. 252).

In comparison to sales, different accounting and valuation methods have a greater impact on EBITDA, as expenses are also taken into account in EBITDA compared to the isolated consideration of sales. For example, in the case of construction companies, long-term construction contracts under IFRS and the percentage of completion method lead to significantly earlier profit realisation than under German Commercial Code and the completed contract method, which then also leads to a different EBITDA. Furthermore, different utilisation of accounting policy leeway, for example in the recognition and reversal of provisions, also

impairs the comparability of the EBITDAs of different companies or the decision whether to rent or buy has an impact on the amount of EBITDA, as renting leads to expenses that have already reduced EBITDA, whereas a purchase leaves EBITDA unaffected due to depreciation and possibly interest payments and only has an impact on a reduction in the subsequent EBIT or EBT (earnings before taxes) (Ernst/Schneider/Thielen 2018, p. 236; Amann 2025b, p. 50).

The calculation of EBITDA is not standardised in the various international accounting standards, which is why the uncritical adoption of reported EBITDA results can pose a comparability problem, as some companies report “adjusted EBITDA” instead of EBITDA in their published annual financial statements, where, for example, expenses for legal disputes, restructuring, severance payments and so on have been “adjusted” (Seppelfricke 2020, p. 297).

One advantage over the sales multiples is that the enterprise value/EBITDA multiple takes into account a company’s ability to generate profits and, compared to the other earnings multiples, the influence of accounting and valuation methods is still the lowest with the enterprise value/EBITDA multiple, in particular accounting differences relating to depreciation and goodwill amortisation are eliminated. Therefore, this “adjustment” makes the EBITDAs of different companies relatively comparable with each other, but the flip side of this is that the “strength” – elimination of accounting differences – can also prove to be a “weakness”, as the **EBITDA multiple** ignores the different economic **asset intensity** by **neglecting depreciation and amortisation** (Ernst/Schneider/Thielen 2018, p. 236).

Obtaining information on EBITDAs is more difficult for companies than obtaining sales figures (Schacht/Fackler 2005b, p. 252).

EBITA MULTIPLIER (ENTERPRISE VALUE / EBITA)

The EBITA multiplier is calculated as follows (Ernst/Schneider/Thielen 2018, p. 236; Amann 2025b, p. 50, p. 52):

$$\text{Enterprise Value/EBITA} = \frac{\text{Enterprise Value}}{\text{EBITA}} \quad (3)$$

In comparison to the EBITDA presented above, depreciation of property, plant and equipment is deducted from EBITA, while amortisation is goodwill amortisation that has not yet been deducted from EBITA (Schacht/Fackler 2005b, p. 253).

In the transition from EBITDA to EBITA, the depreciation and amortisation policy and the different depreciation and amortisation standards add a further element that influences accounting policy, as the comparability of EBITA with EBITDA is more limited due to different depreciation and amortisation methods (straight-line, declining balance and so on) and amortisation periods, but there is no (longer) a problem with different asset intensities, because **EBITA** is an earnings figure **after depreciation of property, plant and equipment and other intangible assets but before deduction of goodwill amortisation**, because goodwill was paid once in the past but does not have to be procured again in the future and is not subject to wear and tear in the usual sense, the economic view is often taken that EBITA reflects the company’s true performance better than EBIT (Ernst/Schneider/Thielen 2018, p. 237).

EBIT MULTIPLIER (ENTERPRISE VALUE / EBIT)

The EBIT multiple is calculated as follows (Ernst/Schneider/Thielen 2018, p. 238; Amann 2025b, p. 50, p. 52):

$$\text{Enterprise Value/EBIT} = \frac{\text{Enterprise Value}}{\text{EBIT}} \quad (4)$$

EBIT is regularly recognised and published in international financial statements (Seppelfricke 2020, p. 295).

According to *Ernst, Schneider and Thielen* (2018, p. 238), EBITA and EBIT vary due to goodwill

amortisation, as these are regulated differently in the individual accounting standards.

Schacht and Fackler (2005b, p. 253) state that in international financial statements, it must be noted that the accounting or subsequent measurement of goodwill may differ from German accounting in terms of amortisation and that these effects on EBIT must be corrected in order to obtain a comparable data basis or EBITA should be used.

THE FAIR VALUE OF NON-OPERATING ASSETS IN THE COMPANY VALUATION WITH MULTIPLES

According to *Castedello* (2014, Chapter A para. 220), capitalised earnings value methods in accordance with IDW S 1³ (e.g. Institut der Wirtschaftsprüfer (IDW) S 1 in the 2008 2021 version) and DCF methods determine the business value as the present value of the future financial surpluses from the operating **and** non-operating assets (*Castedello* 2014, Chapter A para. 220). The business valuation using multiples is not mentioned, although this was explained in the previous paragraphs 206-219 of the Auditors' Handbook (*Castedello* 2014, Chapter A para. 206-219), so the question arises as to whether this means that the non-operating assets are excluded (*Castedello* 2014, Chapter A para. 206-219).

According to *Horn* (2023, p. 626), existing tangible assets must be valued separately, which probably means that they should not be excluded (*Horn* 2023, p. 626).

According to *Wollny* (2012, p. 234), non-operating assets must **also be** valued separately in the business valuation using multiples and added to the final business value (also the introduction in *Amann* (*Amann* 2025a, p. 19) and the results (*Amann* 2025a, p. 22 f.)).

Since neither the legal text of § 11 Valuation Act nor the literature [*Wassermann* (2010, p. 188) points out exaggeratedly: “Which company value applies now? Perhaps the arithmetic or the geometrically degressive average value or the lowest value? Does the turnover multiplier or the EBIT multiplier apply?”; the solution can be found in § 11 (2) sentence 2 clause 2 of the Valuation Act: The buyer valuation method for determining the purchase price comes into play)] takes a different view, the taxpayer can choose the value that is most favourable to him.

This applies to the business assets (lowest business value → turnover or EBIT multiplier) and must therefore also apply to the non-operating assets, i.e. the non-operating assets can either be recognised at the **liquidation value** (generally the lowest value) using the DCF/IDW S 1 method **or** at the **fair market value** in accordance with sections 199-203 Valuation Act.

The business values of all valuation methods can only “meet at eye level” if the value of the **non-operating assets** has also been added according to all methods and the **taxes on the company's income and earnings and those of the shareholders** have also been **deducted** when determining the liquidation value.

TAXES ON THE COMPANY'S INCOME AND EARNINGS AND THOSE OF THE SHAREHOLDERS

Even if, according to *Ernst, Schneider and Thielen* (2018, p. 11), the reference values (denominators) dominate the valuation of shares in companies or businesses with multiples, the crucial question concerns the numerator of the multiplier because, as already explained in *Amann* (*Amann* 2025a, p. 20; p. 22 f. and p. 24 and *Amann* 2025b, p. 50 f.), small and medium-sized companies are generally **not** traded on the stock exchange (e.g. DAX). Therefore, in order to determine (the numerator of the multiplier) the EV of the peer group companies or the EQV of the peer group companies, a company valuation according to the DCF method or the IDW S 1 method must first be used, as also described in the introduction to *Amann* (*Amann* 2025a, p. 19 and p. 24; *Amann* 2025b, p. 50). **Taxes on the income and earnings of the company and the shareholders** must also be deducted. If the enterprise value of the comparable companies in the numerator is then divided by the reference value of the comparable companies, the result is the multiplier of the comparable companies. Only then can this multiplier be transferred to the reference value of the company to be valued at by multiplication using the comparable company multiplier just determined and the provisional company value calculated.

For the valuation of the **operating** assets in the (numerator of the) multiplier of the comparable

companies, both the taxes on income and earnings of the comparable companies and those of the shareholders must be deducted and the same procedure must be followed for the non-operating assets of the company to be valued.

CASE LAW ON THE COMPANY VALUATION WITH MULTIPLES

The *Federal Court of Justice* (judgement of 06.02.2008 - XII ZR 45/06, BeckRS 2008, 3513 (para. 19)) states in its judgement of 06.02.2008, adopted by the literature (König 2023, p. 1685 et seq.), explains that the business valuation with multipliers, which determines the business value on the basis of the turnover multiplier, is also called the turnover method in the literature and dominates the legal business valuation, for example in the case of freelance practices; usually a separate determination of net asset value **and** “goodwill according to the turnover method” takes place, which in total then result in the practice value, whereby the valuation methods laid down in the guidelines of the respective professional organisations (e.g. medical association) are usually used, which case law has largely followed (e.g. Federal Court of Justice judgement of 06.02.2008 - XII ZR 45/06, BeckRS 2008, 3513 (para. 19); König 2023, p. 1685 f.).

CONCLUSION

This academic article on company valuation using multiples comes to the following seven conclusions:

1. The **sales multiplier** better forms a mathematical fraction of EV and sales instead of the EQV, as the sales were generated by the equity and debt capital of the company and not just by the equity. It is relatively independent of different accounting and valuation methods, but completely neglects the earning power of the company.
2. The **EBITDA multiplier** forms a mathematical fraction of EV and EBITDA. Although it takes into account the earning power of the company, it completely ignores depreciation on property, plant and equipment and thus disregards different economic asset intensities.
3. The **EBITA multiplier** forms a mathematical fraction of EV and EBITA. It takes into account depreciation of property, plant and equipment and thus different economic asset intensities, but this also increases the dependency on different accounting and valuation methods (dilution effect).
4. The **EBIT multiplier** is a mathematical fraction of EV and EBIT. It takes into account depreciation of property, plant and equipment and amortisation of goodwill, but this also increases the dependency on different accounting and valuation methods (dilution effect).
5. If the company values of all methods are to be on an equal footing, the value of the **non-operating assets** must also be added according to all methods, including the company valuation with multiples.
6. For the valuation of the operating assets in the (numerator of the) multiplier of the comparable company, both the **taxes on income and earnings** of the comparable company and those **of the shareholders** must be deducted and the same procedure must be followed for the non-operating assets of the company to be valued.
7. The business valuation with multipliers can be used to **reduce** the business value and consequently the inheritance or gift tax burden via § 11 (2) sentence 2 clause 1 of the Valuation Act.

CRITICAL APPRAISAL OF THE BUSINESS VALUATION WITH MULTIPLIERS

According to *Löhnert and Böckmann* (2023, p. 881), **various** multipliers (caused by different industries or reference values) are used; there is usually also a **range** in which they move, which is why the different multipliers lead to different company values (or company values from/to) (Ernst/Schneider/Thielen 2018, p. 225).

One way of narrowing down the range can be, for example, a selection or weighting based on comparison groups, median or **mean value formation** and exclusion of extreme values (Ernst/Schneider/Thielen 2018, p. 283 and p. 298).

Although multiples are based on the simple assumption that substitutes (must) be traded at identical prices, it must be taken into account that companies are complex and unique economic entities, which is why it will not always be possible to find “**perfect**” substitutes (comparable companies) for the company to be valued due to the diversity of the companies and even averaging or median formation cannot compensate for this (Seppelfricke 2020, p. 332).

The room for manoeuvre (Olbrich/Frey 2023, p. 489 with further references) in the application of multiples is manifold and in the case of multiples from the internet, literature or the use of industry multiples, for example, it often remains unclear where and how this room for manoeuvre was used, because each

valuation step involves discretionary decisions by the valuer that have an influence on the final enterprise value, according to *Ernst, Schneider and Thielen* (2018, p. 298), the room for manoeuvre or the discretionary decisions result, for example, from the following parameters

- Selection of the comparable companies;
- Selection of the valuation date;
- Selection of estimates;
- Recognition of the variables (e.g. minority interests, cash and cash equivalents) for the calculation of the EV of the peer group companies;
- Selection of the aggregation method for forming average values and composition and weighting of possible peer groups;
- Selection of the multiplier for the valuation by type and period and, if several multipliers are used, the weighting of the individual multipliers in relation to each other.

If the valuer avoids the not inconsiderable effort involved in determining (individual) multiples (Part I of the study: Carrying out / approaching the business valuation with multiples (Amann 2025a, p. 22)), it can also use industry multiples where the preparatory work for the purpose of determining the multiples has already been done for him (Olbrich/Frey 2023, p. 485 with further references).

The question of the (non-)consideration of non-operating assets or **taxes on the income and earnings of the company and the owners** is inherent in all company valuations at where multiples are used.

NOTES

1. BewG is an abbreviation of Bewertungsgesetz in German, which means Valuation Act.
2. HGB is an abbreviation of Handelsgesetzbuch in German, which means German Commercial Code.
3. IDW S 1 is a valuation standard published by the Institut der Wirtschaftsprüfer in Deutschland e.V. (IDW), the Institute of Public Auditors in Germany. It provides principles for conducting company valuations in a consistent and standardised manner.

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ОЦЕНКА НА ДРУЖЕСТВА ПО МЕТОДА НА МУЛТИПЛИКАТОРА В ГЕРМАНСКОТО НАСЛЕДСТВЕНО ПРАВО – ЧАСТ III/III

Резюме: Тази научна статия за оценката на компаниите с помощта на мултипликатори е третата и последна част от поредица (Amann, 2025a; 2025b) и се основава на предишни проучвания. Третата част обяснява и оценява подробно най-важните мултипликатори на стойността на предприятието (EV) и стойността на собствения капитал (EQV). След това статията анализира неоперативните активи в контекста на оценката на дружествата с помощта на мултипликатори, както и влиянието на данъците върху доходите и печалбите на дружеството и данъците върху доходите на акционерите върху резултатите от оценката на дружествата. Оценката на дружеството с помощта на мултипликатори е общопризната от съдилищата, което означава, че в съответствие с § 11 (2), изречение 2, клауза 1 от Закона за оценката е възможно да се постигне намаление на данъка върху наследството или даренията. Оттук следва критичен извод.

Ключови думи: стойност на предприятието; стойност на собствения капитал; продажби; EBITDA; EBITA; EBIT; оценка на дружеството с помощта на мултипликатори

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VISUAL BASIC FOR APPLICATIONS AS A STRATEGIC TOOL IN THE AGE OF END USER COMPUTING

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Abstract: *As organizations face increasing pressure to digitalize while coping with resource-constrained IT departments, End User Computing (EUC) has become a vital enabler for decentralized automation. Visual Basic for Applications (VBA), despite its age, remains a widely available and accessible scripting language for automating Microsoft Office processes – particularly in industrial settings. This paper examines VBA not only from a technical perspective but also through historical and organizational lenses. A literature-based analysis highlights VBA's emergence during the rise of EUC, its strategic entrenchment through decades of institutional use, and its role in enabling local innovation. At the same time, the study explores the inherent trade-off between efficiency and governance in EUC environments, outlining both risks and mitigation strategies. The findings demonstrate that VBA is not merely a legacy tool, but a resilient and cost-efficient asset that continues to bridge operational needs and limited IT capacity – provided it is embedded within a lightweight governance framework.*

Keywords: *Visual Basic for Applications; End User Computing; Low-Code Automation; Office Macros; Industrial Digitalisation; Governance; Shadow IT*

INTRODUCTION

In recent years, many organizations have witnessed the shift of digital solution development from central IT units to decentralised business functions. This trend is driven by increasing pressure to automate processes quickly, while IT departments remain focused on core infrastructure and enterprise-scale systems (Urbach and Ahlemann, 2016). Within this dynamic, End User Computing (EUC) has emerged as a viable mechanism for enabling business users to develop small-scale but impactful digital tools themselves.

Visual Basic for Applications (VBA) plays a central role in this context. It is integrated into Microsoft Office and enables the automation of individual tools. From a technical perspective, VBA requires no additional installation or administrative rights, making it especially attractive in corporate environments with restrictive IT policies. From a user perspective, it builds on the BASIC programming language (Jenkins, 2023) and is accessible even for non-developers.

Despite growing interest in low-code platforms like Power Automate, VBA remains widely used – particularly in operational settings where speed, integration, and familiarity are crucial. However, this prevalence is not adequately reflected in academic literature. To address this imbalance, the present study examines the strategic role of VBA in EUC through an analysis of scholarly research, technical manuals, and practitioner insights.

RESEARCH METHODOLOGY

This study follows a qualitative research design based on a structured literature review and conceptual analysis. The aim is to classify the role of VBA in the context of EUC and to critically examine its technical, historical, and organizational dimensions. Scientific publications, technical documentation (e.g., Microsoft Learn), practitioner sources (e.g., blogs, developer forums), and historical records on the evolution of end-user computing were analyzed.

Special emphasis was placed on the strategic implications of decentralized automation and the governance trade-offs it entails.

The source research was conducted via Scopus, Google Scholar, and selected grey literature. The selection criteria were thematic relevance, topicality, conceptual depth, and applicability to industrial contexts.

HISTORICAL BACKGROUND: VBA AND THE RISE OF END USER COMPUTING

VBA was formally introduced by Microsoft in 1993 as an extension of the Visual Basic ecosystem, initially embedded in Excel 5.0. Unlike external development environments, VBA was deeply integrated into Microsoft Office, offering users the ability to automate Office tasks directly within the familiar application interface. This integration represented a decisive step toward empowering end users in routine data processing, reporting, and administrative automation.

This trend toward decentralization aligns with observations by Urbach & Ahlemann (2016), who describe how business departments increasingly initiate and operate digital solutions independently from central IT, often through interdisciplinary collaboration. In this context, VBA emerged not only as a tool of convenience, but as an enabler of local innovation. Compared to traditional development environments like Visual C++ or Java, VBA offered a drastically lower barrier to entry, making it suitable for non-technical users.

In the years that followed, VBA maintained its relevance despite the emergence of modern alternatives such as Power Automate, JavaScript-based Office Scripts, and cloud-native platforms. Its continued presence is a result of its early adoption and widespread institutionalization across industry sectors. Thousands of macros, templates, and automated reports were developed over the past three decades and remain operational, deeply embedded in corporate workflows.

While VBA's syntax and editor have seen little modernization, its historical entrenchment ensures its strategic persistence. This path dependency highlights that the adoption of digital tools is not solely driven by technological superiority, but often by compatibility, habit, and risk aversion in operational environments (David, 1985; Arthur, 1989).

EFFICIENCY VS. GOVERNANCE: A STRATEGIC DILEMMA IN EUC ENVIRONMENTS

The deployment of VBA reflects a broader dilemma in digitalization strategies: balancing local autonomy with centralized control. While VBA enables users to rapidly automate processes, its use often circumvents IT governance structures, leading to undocumented, insecure, and non-maintainable code (Hermans et al., 2015).

González-Rojas and Lesmes (2016) provide a risk-based framework for managing EUC, highlighting the importance of lightweight governance such as code reviews, policy enforcement, and audit trails. Zimmermann et al. (2016) support this by noting that EUC can undermine data integrity and transparency if not properly governed.

On one hand, VBA empowers business users to develop automation solutions without relying on central IT. This self-sufficiency accelerates the development cycle, reduces response time for operational needs, and encourages innovation close to the process owners. In environments where IT departments are under pressure to deliver strategic projects, EUC tools like VBA fill a critical gap by enabling so-called “citizen developers” to take initiative (Hoogsteen & Borgman, 2022).

However, this agility comes at a cost. Decentralized development often lacks standardized documentation, security protocols, and lifecycle management. As a result, organizations risk accumulating opaque, poorly maintained solutions that fall outside IT visibility – a phenomenon commonly referred to as shadow IT. In the case of VBA, this risk is exacerbated by features such as the lack of version control, unprotected macro code, and the use of personal storage locations (Weber, 2024).

This tension reflects a broader organizational dilemma: the need to foster local autonomy without compromising corporate governance. According to Urbach and Ahlemann (2016), IT departments must find a balance between enabling innovation in the business units and ensuring the integrity, security, and maintainability of digital assets. For VBA, this entails the implementation of lightweight governance frameworks that do not hinder productivity but provide baseline safeguards.

Best practices for resolving this tension include:

- Requiring macro signing and digital certificates for critical files
- Introducing template libraries with preapproved code modules
- Conducting regular audits of VBA scripts across departments
- Offering training on modular coding, error handling, and security principles

Moreover, tools like the Rubberduck IDE enable static code analysis and version control integration, thus bringing professional software practices into the EUC domain. When combined with structured policy frameworks, these tools help mitigate the risks of shadow IT while preserving the flexibility that makes VBA valuable.

Ultimately, the tension between efficiency and governance in the context of VBA is not a binary choice but a design challenge. Organizations that treat VBA as part of a broader digital strategy – rather than as a legacy anomaly – can derive both operational benefits and strategic alignment.

RESULTS

VBA is a built-in component of Microsoft Office and is therefore widely available. According to empower & Nielsen (2020), approximately 85% of companies in Germany have Microsoft Office installed. However, this figure merely indicates the presence of the software – it does not provide any insight into the actual use of its integrated automation features, particularly the VBA programming language.

In fact, there is limited empirical research on how VBA is used in practice. Studies that systematically examine

its real-world application in businesses are rare. This lack of academic attention is also evident in scholarly databases: a Google Scholar search yields only around 28,000 results for “Visual Basic for Applications,” compared to over three million for “Python” at the time of writing. Even the more specific search for “Python” and “programming language” returns nearly 400,000 results. These numbers highlight the significant underrepresentation of VBA in academic discourse - despite its widespread practical use.

In contrast, practitioners consistently emphasize VBA’s ongoing relevance. Sources like Hamilton (2023) note that while VBA is frequently declared dead, it continues to play an important role in many organizations. This persistence is largely due to its deep integration into Microsoft Office, its low barrier to entry, and its immediate utility in everyday tasks. Although modern alternatives like Python, Office Scripts, or Power Automate are available, VBA remains the most widely used language for automating and extending Excel, according to Singhal (2025).

VBA is applied in a wide range of business contexts. There are sources on the use of VBA in finance, engineering, data analysis, reporting, and many other areas (Nahrstedt, 2012, 2023; Mehr and Mehr, 2015).

Typical use cases include form-based data collection (UserForms), automated email generation, file operations, and recurring tasks – often developed independently by business units without direct involvement from the IT department. Sources like Hamilton (2023) highlights that this ability to build pragmatic, self-contained solutions is one of the key reasons for VBA’s enduring role in business operations.

The advantages of VBA are reflected across academic, technical, and practitioner sources. Academically, VBA is frequently discussed in terms of its broad applicability: Sources like Nahrstedt (2012, 2023) and Mehr and Mehr (2015) document its use across diverse fields such as natural sciences, engineering, and business administration – particularly in controlling and reporting tasks. These examples illustrate VBA’s role as a cross-disciplinary tool in operational data processing and automation.

Technically, Microsoft highlights VBA’s native access to Office object models, allowing seamless automation without additional installations or dependencies (Microsoft, 2022). This tight integration makes it especially suitable for enterprise environments with strict IT policies.

From a practitioner viewpoint, the simplicity of VBA’s syntax – rooted in the BASIC language – is often cited as a key strength, particularly for non-programmers (Faust, 2019). Furthermore, the Rubberduck open-source IDE adds modern development features such as unit testing, code inspections, and refactoring tools, demonstrating that the VBA ecosystem continues to evolve and support professional software practices.

Limitations are equally well documented. Forums and blogs note the single-threaded nature and outdated development environment of Visual Basic Editor (VBE). Technically, the VBE lacks features like version control or collaborative editing.

Practitioners such as Baum (2023) address the inherent single-threaded limitation of VBA by recommending the use of compiled C++ dynamic-link libraries (DLLs) to offload performance-critical operations. This approach enables true multithreaded execution outside the VBA runtime and allows the development of high-performance, centrally maintained program libraries that can be called from within VBA procedures.

Governance and risk management are critical aspects of End User Computing (EUC), particularly when business users create automated solutions outside formal IT oversight. Hoogsteen and Borgman (2022) emphasize that such decentralized development often leads to the emergence of shadow IT, where applications are built and maintained without alignment with corporate IT policies or security standards.

In the context of VBA, several risk factors are frequently cited. One is the use of unsigned macros, which increases vulnerability to manipulation and malware – especially when files are shared across networks or via email. Another concern is the lack of documentation and version control, which can make critical automations difficult to maintain, audit, or transfer when personnel change.

Data security is also a concern when sensitive data is stored in unprotected or weakly protected files. Urtis (2014) illustrates that even password-protected Excel spreadsheet can be breached with relatively simple tools, undermining any false sense of security. These risks are well and underline the need for lightweight governance mechanisms even in EUC environments – such as macro signing, template standards, and basic training for business users.

Best practices such as modular code, naming conventions (Reddick, 1995), and structured error handling are recommended in academic sources (Weber, 2024), while technical tools like the Rubberduck add-in offer real-time inspections to enforce such standards. Practitioners commonly cite improved maintainability, onboarding, and compliance as reasons to introduce lightweight governance – even within decentralised EUC environments.

Complementary tools are often essential when VBA reaches its limits. Technically, Microsoft promotes Power Query as the preferred tool for data extraction and transformation, while Power Automate is positioned as a scalable workflow engine (Microsoft, 2024, 2025). Practitioner blogs and developer forums also suggest integrating VBA with external DLLs (Baum, 2023) or APIs to overcome performance or interoperability issues. Academically, these

hybrid approaches remain under-researched, which presents a gap for future empirical studies.

CONCLUSION

The findings of this study indicate that VBA plays a more strategic role in digitalisation efforts than is commonly acknowledged in academic literature. While Python, Power Automate, and Office Scripts dominate innovation discourse, VBA continues to serve as a core enabler of localised, low-cost automation for business users – particularly in industrial and operational environments.

From an academic standpoint, these observations align with prior conceptual analyses on the shift of IT responsibility to business units. Urbach and Ahlemann (2016) argue that the growing digitalization pressure has led to an increased role of non-IT departments in developing and operating their own digital tools – often without formal IT governance structures. Similarly, Hoogsteen and Borgman (2022) present case study evidence of rising EUC adoption through citizen development initiatives in various organizations, underscoring the decentralization trend from an empirical perspective.

At the same time, evidence points to clear limitations. Single-threaded execution, outdated development environments, lack of documentation, and poor governance are frequent issues. These findings align across all three source categories and must be taken seriously if VBA is to remain viable in modern business environments.

As a strategic implication, organisations are advised to move away from treating VBA as a short-term workaround or legacy burden. Instead, it should be integrated into EUC strategies with appropriate governance measures. These include macro signing, adoption of naming conventions (Reddick, 1995), training for business users (Weber, 2024), and the use of supporting tools (e.g. Rubberduck).

In conclusion, VBA continues to play a strategic role in bridging operational needs and IT capacity. When embedded in a broader EUC governance framework, VBA is not just “still alive” – it is fit for purpose.

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VISUAL BASIC FOR APPLICATIONS КАТО СТРАТЕГИЧЕСКИ ИНСТРУМЕНТ ЗА КРАЙНИ ПОТРЕБИТЕЛИ В ЕРАТА НА КОМПЮТРИТЕ

Резюме: Тъй като организациите са изправени пред нарастващ натиск да се дигитализират, докато се справят с ограничените ресурси на ИТ отделите, End User Computing (EUC) се превърна в жизненоважен фактор за децентрализирана автоматизация. Visual Basic for Applications (VBA), въпреки възрастта си, остава широко достъпен и лесно използваем скриптов език за автоматизиране на процесите в Microsoft Office – особено в индустриалната среда. Настоящата статия разглежда VBA не само от техническа гледна точка, но и през историческата и организационната призма. Анализът, базиран на литературни източници, подчертава появата на VBA по време на възхода на EUC, стратегическото му утвърждаване през десетилетия на институционална употреба и ролята му в насърчаването на местните иновации. В същото време проучването изследва присъщия компромис между ефективност и управление в EUC среди, очертавайки както рисковете, така и стратегиите за тяхното намаляване. Резултатите показват, че VBA не е просто остарял инструмент, а е устойчив и рентабилен актив, който продължава да преодолява оперативните нужди и ограничените ИТ капацитети – при условие че е вграден в лека рамка за управление.

Ключови думи: Visual Basic for Applications; компютърни технологии за крайни потребители; автоматизация с малко кодиране; макроси в Office; индустриална дигитализация; управление; сенчести информационни технологии

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ARTIFICIAL INTELLIGENCE POTENTIAL AND RISKS IN OPERATIONAL
RISK MANAGEMENT IN BANKS

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Abstract: Operational risks are the risk of losses resulting from inadequate or failed internal processes, people and systems, or from external events, including legal risks. They represent a significant type of risk for banks. At the same time, digitalization has a major influence on business models, processes and the internal structures of companies with artificial intelligence being one of the driving forces. This article aims to identify potential opportunities and risks of AI in the context of operational risk management. Methodologically, a literature analysis is used for this goal. Applications in the area of process automation or reporting are possible as well as frameworks for the early detection of risks. Various quality controls can be carried out in a more structured and efficient manner with AI. On the other hand, there are systematic challenges with regard to the quantity and quality of data as well as the other framework conditions for an introduction of AI in the company. Furthermore, various legal aspects remain unclear and harbor risks. Finally, AI applications harbor a whole range of IT risks that can only be mitigated to a limited extent. As a result, it is impossible to make a generalized statement as to whether the introduction of AI in operational risk management is sensible and expedient. The question must be decided on a case-by-case basis based on the existing requirements, resources and overall strategy.

Keywords: Operational Risk; Operational Risk Management; Bank; Artificial Intelligence

INTRODUCTION

According to Article 4 No. 52 of the Capital Requirements Regulation, operational risks are “the risk of losses resulting from inadequate or failed internal processes, people and systems or from external events, including legal risks”. Operational risks represent a significant type of risk for banks and have increasingly become the focus of attention in a dynamic risk environment, particularly in recent years due to regulatory changes and requirements. The implementation of operational risk management has accelerated considerably at many banks, partly as a result of the banking crisis in the mid-2000s. In retrospect, the considerable losses incurred by many banks can often be attributed to operational risks or loss events (Magpili et al. 2015, 3). Nevertheless, the literature shows that operational risks still receive significantly less attention than other types of risk (Berger et al. 2022, 2).

Simultaneously digitalization has a significant influence on business models, processes and the internal structures of companies (Kirmße 2017, 299). Overall, the banking system as such and therefore the individual institutions are becoming increasingly complex. Against the backdrop of previous developments, supplemented by the ongoing increase in regulation in the banking sector, there is currently no end in sight to the increase in complexity (Lister 2020, 21).

One example of this is the importance of artificial intelligence (AI) for companies, which offers sufficient explosive power to bring about far-reaching changes in established structures and business models (Hammerschmidt, A.; Hammerschmidt, R. 2017, 363). AI is not only a key driver of progress and innovation, but also entails potential risks. There appears to be a significant influence in the form of potential as well as risks and challenges (Cheng & Qu 2023, 1).

RESEARCH METHODOLOGY

This article’s findings on the potentials and challenges of AI in the context of operational risk management in banks mainly stem from a literature review. The literature was researched using various online databases. The attempt was to use sources that were as up-to-date as possible and that shed light on as many aspects of the topic as possible in order to initially obtain a comprehensive picture. The goal is to assess the current state of research and provide readers, particularly risk managers in banks, with a comparison of the potentials and risks of AI.

With regard to the use of AI in operational risk management, there are a large number of possible applications

and associated opportunities and risks. In order to be able to make an initial rough preliminary classification, a structured literature analysis was first carried out.

Table 1. Initial literature review

Author	Title	Research focus	Results
Gordijn, B. & ten Have, H. (2023)	ChatGPT: evolution or revolution?	What potential does ChatGPT have, what is possible with the application?	The automatic writing of even complex and scientific texts is possible.
Chen, C. et al. (2022)	FinBrain 2.0: when finance meets trustworthy AI	What are the challenges of using AI in the financial sector?	Traceability of results, operation and integrity of the application, security, robustness and data protection.
Kudinska, M. & Sobanova, J. (2022)	New Tendencies in Operational Risk Management in Banks: Challenges and Opportunities	What are the biggest challenges facing the operational risk management in the future?	The increasing importance of the loss database, combined with the fact that it is not always optimal in terms of quality and completeness. It also shows that it has not always been possible to identify risks at an early stage.
Baijal, R. (2021)	Identification, quantification and monitoring of operational risk	How is operational risk identified, monitored and quantified in companies?	Basically via the instruments risk assessment, key risk indicators and a database with loss and risk cases.
Giudici, P. & Raffinetti, E. (2021)	Explainable AI methods in cyber risk management	What stands in the way of the introduction of AI in the cyber risk management of financial institutions?	Regulation and explainability of the application, in particular the risk of a "black box".
Araz, O. et al. (2020)	Role of Analytics for Operational Risk Management in the Era of Big Data	What are the current developments in the operational risk management from a data analysis perspective?	Integration of different sources and tools is important for optimizing the operational risk management.
Milojevic', N. & Redzepagic, S. (2020)	Prospects of Artificial Intelligence and Machine Learning Application in Banking Risk Management	What impact will AI and machine learning have on the financial sector?	AI has the potential to optimize risk management and operational risk management in particular, but a successful introduction is a prerequisite.
Lyon, B. & Popov, G. (2017)	Communicating & Managing Risk: The Key Result of Risk Assessment	Is the risk assessment sufficient as a risk assessment tool?	No, a combination of different survey instruments is required to ensure appropriate risk management.

RESULTS

The opportunities and potential can basically be divided into three different categories each.

(1) Automations

The aspect of automation can in turn be divided into two subcategories. On the one hand, a systematic and well-founded risk analysis forms the basis for functional risk management (Vogt 2022, 321). For this reason, a comprehensive risk assessment is also a good starting point for possible process automation. The concept of risk assessments that are automated with the help of algorithms is not necessarily new. The first successful implementations of comparable technologies already exist in the legal field (Rizer 2022, 510). Since the risk assessment already determines which employees have to complete the questionnaire as part of the preparations, the entire process could be automated with the help of process automation.

The second point is the mandatory regulatory reporting of operational risks to the bank's Board of Directors. As reporting is of importance in the operational risk area, the question of the potential of automation in this context is obvious. Another typical application of AI is the broad field of speech recognition (Milkau 2022, 266). Text-based methods also appear to be gaining increasing acceptance, particularly in the field of business administration. A particular advantage here is the sheer speed with which texts can be written or analysed using AI (Buchkremer 2020, 41).

(2) Early risk detection

Since operational risk management often only has a very small internal database of loss events and this data also only looks at the past, it is also necessary to analyse and monitor the operational risks using forward-looking instruments (Hohe 2011, 35). A central task of operational risk management is the early recognition of changes in risk potential that could lead to losses. Systems with such an orientation are known as early warning systems and are generally based on key risk indicators. According to the definition of key risk indicators, these are recorded at regular intervals, which can be monthly or, as is usually the case, quarterly. With the help of AI, the early warning system can be improved overall, human errors can be identified in real time if necessary and the internal control system can be optimized in this context (Bi & Liang 2022, 10). While various use cases are already known in the area of fraud detection, it is now increasingly possible to use AI applications to analyse large amounts of data with regard to risks and risk concentrations. It is also now possible to automatically analyse repetitive processes in terms of their efficiency and number of errors (Aziz & Dowling 2019, 43). For example, control mechanisms based on company-internal, historical data are conceivable. Key risk indicators and other data sources can be analysed across the board and placed in an overall historical context using AI in order to identify problematic data and risks and to make possible predictions (Han & Liu 2022, 3). Furthermore, a link between different organizational units or information sources is also possible. AI applications are virtually predestined for networking multiple risks with each other and viewing them in aggregated form. This also applies to different types of operational risks (Thiebes & Winkhardt-Enz 2022, 3). Collaboration, coordination and interfaces within the organization itself provide the basis for an optimized operational risk management framework and the associated early warning system. In the long term, this in turn results in improved efficiency and performance of the overall organization (Gudauskienė & Mikalauskienė 2021, 29).

(3) Quality controls

The last major use case for AI relates to the automatic quality assurance of data and processes in the context of operational risk management. In the use case of the internal loss database in particular, methods for systematic data analysis can be used, for example using Benford's Law. In addition to the relevant framework conditions such as the affected business area, the date of occurrence and determination or a description of the cause, the loss amount and the amount of any repayments or reductions must also be recorded in the loss database (Hohe 2011, 26). Benford's Law states that lower digits occur more frequently in the first position of numbers than higher digits. The distribution is simple to calculate, scale-independent and applicable to any currency. Furthermore, no long data history is required. Data from different sources is also not required. Furthermore, the law does not require forward-looking information such as future cash flows, but already works with the current database (Grammatikos & Papanikolaou 2020, 120). It is precisely these circumstances that predestine the law for application in the financial sector (Kossovsky 2014, 29). The applicability of the law is not limited exclusively to the first digit of a number, but also to the digits in other places.

With the help of the law, all quantitative characteristics of the loss database can be checked automatically, significant deviations and inconsistencies can be recognized immediately and then become the subject of a more in-depth, manual check. Particularly in the case of large banks or when internal cases are supplemented by a large number of external cases, a point is quickly reached where an automated evaluation is helpful, as a manual analysis of the results becomes impossible due to the immense amount of data. This situation is exacerbated as soon as other sources of information such as a complaints or insurance database are included in the analysis.

Use cases beyond the claims database are also conceivable. Risk assessment also involves the collection of some

form of quantitative data, which can be checked according to identical parameters. The same applies to the key risk indicators already mentioned.

The same applies to the associated challenges and risks.

(1) Systemic risks

Before an existing risk management system can be optimized with the help of new technologies, the foundation must be of adequate quality. The risk management strategy and policy as well as the general guidelines must therefore provide a reliable and stable framework for further developing the operational risk management using AI (Brauweiler 2015, 5). The era of digitalization has ensured that an immense amount of data has been generated in the risk environment, much of which is not relevant. This circumstance has also contributed to the rapid development of AI applications (Knežević & Ristanović 2023, 5). Therefore, the search for suitable data is one of the biggest challenges when it comes to establishing AI as an effective tool in risk management. One way to enrich the internal database would be to exchange data with other banks. This is also practised in some places, for example via data consortia whose core business consists of collecting, anonymizing and processing operational loss events from various institutions and feeding them back to all institutions. The cultural hurdle that many banks face with regard to their loss and risk cases is often problematic. Operational risk cases in particular are often of an internal nature, result from procedural errors or similar and are not media-effective events for the masses. Many banks therefore treat these cases with a degree of secrecy, as internal weaknesses should not be disclosed to others via any data exchange (Li & Moosa 2015, 2053).

Another challenge in the implementation and use of AI is the staff responsible. There is currently still a lack of qualified personnel who are able to develop and implement such applications in the company. Studies show that in many places, staff were not yet ready or sufficiently prepared to work efficiently with the new applications during implementation. Training the relevant employees will take time (Aziz & Dowling 2019, 46). AI solutions require a high level of prior knowledge on the part of the user and deliver incorrect results if users act incorrectly (Fischer 2021, 22). To a certain extent, AI applications are a kind of black box if the staff do not have the necessary understanding to operate the application. As diverse as the possibilities of AI are, the applications are also complex and demanding in their design and function. Building an appropriate understanding of this is therefore anything but easy (Stein 2022, 1006). In addition, there is still a considerable resource problem in connection with AI applications at various levels. Smaller companies in particular often only have limited resources for information technology (IT) and therefore also for AI.

(2) Legal aspects

In addition to the challenges relating to the operational handling of AI, there are also a number of legal and regulatory challenges that need to be addressed in advance. Operational risk accounts for a not insignificant proportion of banks' risk capital, which is why it is increasingly the focus of supervision (Migueis 2019, 302). As technical innovations such as AI play an increasingly important role in banks and in operational risk, this topic will also increasingly become the focus of regulation. However, the fact that the definition of the term computer program or algorithm alone cannot be clearly delineated in the legal context illustrates the challenges involved (Grätz 2021, 54). AI systems consist of hardware, software and are usually trained with data. Incidentally, all of these components can also be procured externally. Several areas of law are therefore relevant in relation to AI. However, the challenges can be divided into two different categories: liability issues and data protection (Hartmann 2020, 47). The combination of complexity and unpredictability not only causes liability law issues, but also challenges in relation to other legal uncertainties. This shows, for example, that despite the basic existing legal framework, the specific regulations for AI still have gaps in certain areas, which can quickly become significant challenges and risks for companies (Gonzalez-Castane & Östberg 2022, 156).

AI poses a growing challenge for data protection. In principle, anonymous data from many individual people and companies is used to make predictions. In addition to its use in risk management, it is sometimes even used to make predictions about other people, for example with regard to purchasing power, gender, age and a number of other factors. There is therefore considerable potential for misuse in the context of this technology. A "black box", which sometimes exists between the input and output of the data, is difficult to justify in the highly regulated financial sector. To counter this problem, explainable applications are needed that make the functionality, intermediate steps and background of the results more understandable and comprehensible (Bussmann et al. 2021, 203).

Every company that plans to use, develop or place AI in its business area in the medium to long term should familiarize itself with the main features of AI regulations and prepare the governance accordingly. Due to the threat of severe sanctions, care must be taken now to consider the requirements and obligations of the AI Regulation in detail

when developing AI systems (Bülchmann 2022, 409).

(3) IT risks

IT and information security were identified as the third major risk. In modern organizations, IT is primarily concerned with two aspects: Innovations such as AI, which must be kept up with, and the security of IT systems, which must be guaranteed at all times (Sowa 2017, 5). Despite all the advantages and potential new technologies offer, they develop so quickly and unpredictably that establishing an IT security concept can sometimes prove difficult. Accordingly, it seems necessary to embed AI applications in digital ecosystems that are fully protected from all potential external threats and thus strengthen information security (Riecke, Vincke 2022, 283). Attackers have long been constantly changing and improving their efficiency and attack processes. AI applications are also being used more and more frequently. AI enables attackers to initiate their attacks on a larger scale, with a broader scope and considerably faster (Azeta et al. 2022, 2405). Studies show that although a significant proportion of all known attacks in companies are still carried out by internal employees, the number of external attacks is also increasing significantly due to the increasing networking and opening up of systems (Eckert 2013, 22). AI applications are subject to all the risks and dangers of manipulation and security to the same extent as any other IT system (Peylo 2020, 108). For this reason, companies also need suitable security measures to protect themselves from various types of attacks. This danger is further emphasised by the advancing networking of IT and the integration of AI applications. To a certain extent, AI is thus acting as a catalyst within the company, which significantly increases the existing dangers in terms of cyber risks (Schierbeck & Zängerle 2023, 215). Many efforts are already being made to make AI usable and secure on a large scale. Individual AI applications in the company must not be considered separately, but rather a security concept for the entire IT ecosystem is required (Brummel & Fliehe 2021, 447). At the end of the day, AI applications must be secured in the same way as other IT systems.

CONCLUSION

In addition to “classic” process automation, there is also potential for automating reporting in operational risk management. Another key aspect is the linking of various data sources. This refers not only to the loss database and risk assessment in the context of operational risk management, but also to related data sources whose results may well be relevant for operational risk management. Not only can synergies and comparisons be created, but risks and risk areas can also be identified at an early stage through appropriate linking. By comparing the internal claims database with other, comparable databases such as a complaints database or similar, the completeness can be improved and higher data quality guaranteed.

There is also a whole range of system-inherent risks. Very few banks have the quantity and quality of data required to set up a functional AI application internally. The majority of banks will therefore have to use external data, synthetic data or other workarounds to obtain a sufficient database. The internal decision-making processes of an AI are also very difficult to understand and the corresponding results may therefore not be fully explainable. A number of legal and regulatory challenges are also emerging. In addition to already familiar issues such as data protection, new requirements are currently being added. Overall, banks are still operating in a very new area in this context, and it is not yet possible to assess the actual reactions and handling of regulators and supervisors with any AI applications in operational risk management. Last but not least, the IT risks of an AI application must also be emphasised. Leaving aside the possibilities of AI on the part of external attackers, such an application must be integrated into the company’s existing system landscape. This creates a potential additional point of attack, which must also be covered accordingly from a cyber-security perspective.

When directly comparing the opportunities and risks, it is difficult to make a final judgement. The risks are certainly not negligible, but to a not insignificant extent these are expenses and challenges that would also exist with the introduction of many other IT applications. However, as this is such a new topic, there are still many unanswered questions regarding how to deal with it in practice, particularly with regard to regulatory requirements and the productive use of an AI application. On the other hand, it should be noted that although the potential is definitely there, it primarily serves to optimise operational risk management in banks. The use of AI in the company cannot significantly reduce risk; it merely changes the risk profile. Ultimately, it is therefore primarily a case-by-case decision as to whether the introduction of AI in operational risk management is sensible and expedient.

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ПОТЕНЦИАЛ И РИСКОВЕ НА ИЗКУСТВЕНИЯ ИНТЕЛЕКТ ПРИ УПРАВЛЕНИЕТО НА ОПЕРАЦИОННИЯ РИСК В БАНКИТЕ

Резюме: Оперативните рискове са рискът от загуби, произтичащи от неадекватни или неуспешни вътрешни процеси, хора и системи или от външни събития, включително правни рискове, и представляват значителен вид риск за банките. Същевременно цифровизацията оказва голямо влияние върху бизнес моделите, процесите и вътрешните структури на компаниите, като изкуственият интелект е една от движещите сили. Настоящата статия има за цел да идентифицира потенциалните възможности и рискове на изкуствения интелект в контекста на управлението на операционния риск. От методологична гледна точка за тази цел се използва литературен анализ. Възможни са приложения в областта на автоматизацията на процесите или докладването, както и рамки за ранно откриване на рискове. С помощта на ИИ може да се извършват различни проверки на качеството по по-структуриран и ефективен начин. От друга страна, съществуват системни предизвикателства по отношение на количеството и качеството на данните, както и на другите рамкови условия за въвеждане на ИИ в предприятието. Освен това различни правни аспекти остават неясни и крият рискове. И накрая, приложенията на ИИ крият цял набор от ИТ рискове, които могат да бъдат ограничени само до известна степен. В резултат на това е невъзможно да се направи обобщаващо твърдение дали въвеждането на ИИ в управлението на оперативния риск е разумно и целесъобразно. Въпросът трябва да се решава във всеки отделен случай въз основа на съществуващите изисквания, ресурси и цялостна стратегия.

Ключови думи: операционен риск; управление на операционния риск; банка; изкуствен интелект

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**ЕФЕКТИВНОСТ НА АДМИНИСТРАТИВНОНАКАЗАТЕЛНАТА ОТГОВОРНОСТ
ПРИ НЕЗАКОННОТО СТРОИТЕЛСТВО В ЗАЩИТЕНИ ТЕРИТОРИИ****Радослав Михайлов***Университет по библиотекознание и информационни технологии**Академия на Министерството на вътрешните работи*<https://doi.org/10.70300/WCFP9991>

Резюме: В настоящата статия се разглеждат проблемите, свързани с ефективността на административнонаказателната отговорност при незаконното строителство в защитени територии. Анализира се действащата правна уредба по Закона за устройство на територията и Закона за защитените територии, като се акцентира върху несъответствията между нормативните изисквания и практическото им прилагане. Изследват се трудностите, произтичащи от припокриване на компетентности, непоследователна съдебна практика и ограничен административен капацитет. На тази основа са предложени мерки за повишаване на ефективността на санкционната политика чрез нормативно прецизиране, подобряване на координацията между институциите и въвеждане на превантивни механизми, гарантиращи по-висока степен на правна сигурност и опазване на обществения интерес.

Ключови думи: административна отговорност; ефективност; незаконно строителство; правна сигурност; санкции; защитени територии

ВЪВЕДЕНИЕ

Административнонаказателната отговорност заема важно място в системата на публичноправните механизми за защита на обществения интерес и устойчивото развитие. В рамките на устройственото и екологичното регулиране тя служи като средство за превенция и санкциониране на дейности, които нарушават установените режими на териториално и природно опазване. Незаконното строителство в защитени територии представлява особено предизвикателство поради факта, че съчетава правни, технически и екологични аспекти и води до значими обществени и природни щети. Въпреки наличието на нормативна уредба в Закона за устройство на територията (ЗУТ) (Народно събрание 2021) и Закона за защитените територии (ЗЗТ) (Народно събрание 2023), практическото ѝ прилагане често се характеризира с неясни процедури, ограничена институционална координация и ниска санкционна ефективност.

Настоящата статия има за цел да изследва ефективността на административнонаказателната отговорност при незаконното строителство в защитени територии, да очертае основните проблеми в нейното прилагане, както и да предложи възможни решения за повишаване на правната предвидимост и административната ефективност в тази област.

**ПРАВНА РАМКА НА АДМИНИСТРАТИВНОНАКАЗАТЕЛНАТА ОТГОВОРНОСТ ПРИ
НЕЗАКОННОТО СТРОИТЕЛСТВО В ЗАЩИТЕНИ ТЕРИТОРИИ**

Административнонаказателната отговорност при незаконното строителство в защитени територии представлява специфичен елемент от публичноправната уредба, насочен към защита на природните ресурси и поддържане на устойчивото развитие. Правната ѝ основа се съдържа в Закона за устройство на територията (ЗУТ) (Народно събрание 2001), Закона за защитените територии (ЗЗТ) (Народно събрание 2023), както и в общите разпоредби на Закона за административните нарушения и наказания (ЗАНН) (Народно събрание 1999). Тези нормативни актове определят реда за установяване на нарушенията, компетентните органи, видовете санкции и процедурите за тяхното налагане и обжалване.

В контекста на защитените територии административнонаказателната отговорност има за цел да възпрепятства строителни дейности, извършвани без необходимите разрешения, в отклонение от предвижданията на устройствените планове или в противоречие със специалните режими за опазване. ЗЗТ съдържа редица забрани, свързани с промяна на предназначението на земи, извършване на строителство и въвеждане на инфраструктура, които могат да увредят природни или културни ценности. Нарушаването на тези забрани представлява административно нарушение и се санкционира съгласно разпоредбите на чл. 81 – 83 от закона, предвиждащи глоби и имуществени санкции за физически и юридически лица.

Съществено значение има и прилагането на ЗУТ, който урежда общия ред за разрешаване, контрол и

санкциониране на строителни дейности. При незаконно строителство в защитена територия компетентността на контролните органи се разпределя между Дирекцията за национален строителен контрол (ДНСК), Министерството на околната среда и водите (МОСВ), регионалните инспекции по околна среда и води (РИОСВ) и общинските администрации. Тази многослойност на правомощията често води до припокриване на функции и липса на яснота относно това кой орган следва да състави акта за установяване на нарушението и кой да издаде наказателното постановление (ДНСК 2019).

Правната рамка се допълва от подзаконови актове – наредби за устройствено планиране, контрол и мониторинг, както и от Наредбата за премахване на незаконни строежи на Министерството на регионалното развитие и благоустройството, които уреждат процедурите по премахване на обекти, изградени в нарушение на закона. Въпреки тази нормативна наситеност липсва достатъчна съгласуваност между специалните закони, което води до различно тълкуване и прилагане на санкциите. Често идентични случаи се третират по различен начин от отделните институции или съдилища, което подкопава принципа на правната сигурност и равнопоставеността на субектите пред закона.

В този контекст възниква необходимост от по-ясна, интегрирана и предвидима правна рамка, която да осигури ефективен контрол върху строителните дейности в защитени територии и да гарантира, че административнонаказателната отговорност изпълнява своята превантивна и възпираща функция. Само чрез съгласуваност между ЗУТ, ЗЗТ и ЗАНН може да се постигне реална защита на обществения интерес и природното наследство.

ПРОБЛЕМИ В ПРАКТИЧЕСКОТО ПРИЛАГАНЕ

Практическото прилагане на административнонаказателната отговорност при незаконното строителство в защитени територии се характеризира с редица съществени затруднения, които ограничават нейната ефективност. Един от основните проблеми е свързан с разпокъсаната институционална компетентност между контролните органи – МОСВ, ДНСК, РИОСВ и общините. Липсата на ясно разпределени функции и механизъм за координация често води до дублиране на проверки, различна оценка на нарушенията и забавяне на административните процедури. В резултат на това значителна част от нарушенията остават без реална санкция или приключват с отменени наказателни постановления.

Друг съществен проблем произтича от неяснотата на нормативните разпоредби относно критериите за определяне на тежестта на нарушението и размера на санкциите. Например в практиката се наблюдават различия при третирането на случаи на временни постройки, незаконно изградени огради или преместваеми съоръжения в защитени зони. Докато в някои случаи се прилага ЗУТ, в други се позовават на разпоредби на ЗЗТ или местни наредби, което води до непоследователност и противоречива съдебна практика. Съдилищата често отменят наказателни постановления поради непълно или неточно описание на нарушението, липса на доказателства или неправилна правна квалификация.

Особено проблематична е липсата на своевременна реакция и ефективен контролен капацитет. Проверките на място нерядко се извършват след завършване на строителството, когато премахването на незаконния обект изисква сложни и продължителни процедури. В някои случаи административнонаказателната отговорност се погасява по давност, поради забавено съставяне на актове или бездействие на компетентните органи. Това създава усещане за безнаказаност и подкопава доверието в административния контрол.

Допълнително усложнение представлява ограничената експертна подготовка на служителите, които осъществяват контролната дейност и съставят актовете за установяване на нарушения. Липсата на специализирани знания в областта на екологичното и устройственото право води до процесуални грешки, които често стават основание за съдебна отмяна на постановленията. В практиката се срещат случаи, в които актовете са изготвени без конкретно посочване на нарушената разпоредба или без достатъчно доказателства за местоположението на обекта и статута на територията.

Наблюдава се и липса на единна база данни и електронен регистър на извършените проверки, наложените санкции и изпълнението на принудителните мерки. Това затруднява проследяването на повтарящи се нарушения и анализа на ефективността на прилаганите санкции. В отделни случаи различни институции санкционират едно и също нарушение по различни процедури, което води до правна несигурност и риск от противоречиви решения.

Всички тези проблеми показват, че настоящият модел на административнонаказателна отговорност не осигурява достатъчна ефективност при предотвратяване и санкциониране на незаконното строителство в защитени територии. Без ясна нормативна уредба, компетентни контролни органи и координиран институционален подход санкционната система остава формална и трудно постига целите на закона – опазване на природните ценности и защита на обществения интерес (WWF България 2022).

ПОДХОДИ КЪМ УСЪВЪРШЕНСТВАНЕ НА ПРАВНАТА РАМКА

Подходите към усъвършенстване на правната рамка на административнонаказателната отговорност при незаконното строителство в защитени територии следва да се основават на принципите на яснота, предвидимост и ефективност. Първостепенна необходимост е прецизирането на съставите на административните нарушения, така че да се избегнат неяснотите относно границите между разрешена и забранена строителна дейност. Законодателят следва да формулира по-конкретни критерии, отчитащи както характера на нарушението, така и степента на въздействие върху природните ресурси и териториалния режим. По този начин ще се осигури по-справедливо прилагане на санкциите и ще се намали възможността за произволни тълкувания.

Съществено значение има и уеднаквяването на институционалната компетентност между органите, ангажирани с контрола – ДНСК, МОСВ, РИОСВ и общинските администрации. Необходимо е въвеждането на нормативно регламентирани механизми за координация и обмен на информация, включително чрез създаването на обща електронна система за регистриране на нарушенията и наложените санкции. Подобна система би позволила проследимост, отчетност и анализ на ефективността на контролната дейност в национален мащаб.

Друг подход е свързан с разработването на методически указания и стандартизирани вътрешни правила за действие на контролните органи. Те трябва да съдържат практически насоки за квалифициране на нарушенията, определяне на санкциите и прилагане на принудителни мерки. Подобни указания следва да бъдат разработени съвместно от МОСВ, МРРБ и ДНСК, като се осигурят тяхното редовно актуализиране и публичност. Това би довело до по-висока степен на професионализъм, предвидимост и еднаквост в административната практика.

Не по-малко важно е въвеждането на по-ефективни механизми за вътрешен и външен контрол върху дейността на органите, издаващи актове и наказателни постановления. Задължителното мотивиране на санкциите, проверката за законосъобразност преди издаването им и възможността за административен преглед биха допринесли за повишаване на качеството и стабилността на постановленията. Възможно е също така да се обмисли създаването на специализирани административни състави по дела, свързани със строителство в защитени територии, с цел формиране на последователна и предвидима съдебна практика.

Важен елемент от усъвършенстването на правната рамка е и развитието на превантивните механизми. Наред с наказателните санкции следва да се насърчава доброволното изпълнение чрез предупреждения, възможност за отстраняване на нарушенията в определен срок и предоставяне на консултативна помощ от страна на контролните органи. Така административната отговорност ще придобие не само репресивен, но и възпитателен и превантивен характер.

В този контекст усъвършенстването на правната рамка изисква цялостен и координиран подход, основан на съгласувани действия между законодателната, изпълнителната и съдебната власт. Само чрез яснота в нормите, професионализъм в контрола и единна институционална политика може да се постигне реална ефективност на административнонаказателната отговорност при незаконното строителство в защитени територии и да се гарантира устойчивото опазване на природното наследство.

ПРЕДЛОЖЕНИЯ ЗА ОБОГАТЯВАНЕ НА ПРАВНАТА РАМКА

С оглед на установените слабости в действащата нормативна уредба, обогатяването на правната рамка на административнонаказателната отговорност при незаконното строителство в защитени територии следва да се разглежда като стратегически процес, насочен към повишаване на ефективността и правната сигурност. Първостепенно значение има създаването на ясна класификация на нарушенията според тяхната тежест и обществена опасност. Така биха се осигурили по-добра индивидуализация на санкциите и пропорционалност между вида на нарушението и последиците за околната среда. Например минимални административни нарушения – като дребни отклонения от проект или временни съоръжения без съществено въздействие, следва да се разграничават от тежките случаи на строителство в резерват или национален парк.

Следва да се въведе и институционализиран механизъм за тълкувателни указания, изготвяни съвместно от Министерството на регионалното развитие и благоустройството (МРРБ), Министерството на околната среда и водите (МОСВ) и Върховния административен съд. Такива указания ще осигурят единно тълкуване на спорни разпоредби – например относно понятието „строителство с временен характер“ или „незначителна намеса в защитена територия“. Това ще намали противоречивата практика и ще улесни контролните органи при квалификацията на нарушенията.

Полезно би било също въвеждането на предупредителен механизъм за първо и малозначително нарушение, който да позволи издаването на писмено предупреждение вместо незабавно налагане на санкция. Подобна мярка би насърчила доброволното спазване на изискванията и би създала възможност за коригиране на поведението без прибегване до репресивни мерки. Този подход вече се прилага успешно в други сфери на

административното право и доказва своя превантивен ефект.

Необходимостта от създаване на централизирана електронна система за регистриране и проследяване на административните нарушения и санкции в защитени територии също е от ключово значение. Чрез такава система ще се осигурят прозрачност, публичен достъп до информация и възможност за статистически анализ на повторяемостта на нарушенията и ефективността на санкциите. Това ще позволи на институциите да реагират по-бързо и да координират своите действия, избягвайки дублиране и пропуски в контролната дейност.

Особено внимание следва да се отдели на подготовката и квалификацията на контролните органи. Въвеждането на специализирани обучения и сертификационни програми за служителите на ДНСК, МОСВ и общините би допринесло за повишаване на професионализма и за намаляване на процесуалните грешки при изготвяне на актове и постановления. Създаването на междудементствени експертни екипи, включващи юристи, архитекти, инженери и еколози, ще гарантира по-компетентна и балансирана оценка на нарушенията.

Във връзка с това активното участие на гражданите и неправителствените организации в процеса на контрол и обществено наблюдение би повишило прозрачността и доверието в прилагането на закона. Включването на обществени сигнали и наблюдение върху контролните процедури ще създаде условия за по-голяма отчетност на администрацията и реално прилагане на принципите на добро управление.

В обобщение, обогатяването на правната рамка изисква не само редакционни промени в нормативните актове, а системно институционално обновление, което да осигури балансирано взаимодействие между законодателството, контролната практика и обществения интерес. Само по този начин административнонаказателната отговорност може да изпълнява своята превантивна, възпитателна и защитна функция в контекста на опазването на защитените територии.

ИНТЕРДИСЦИПЛИНАРЕН ПОДХОД КЪМ ПРИЛАГАНЕТО НА НАКАЗАТЕЛНАТА ОТГОВОРНОСТ

Ефективното прилагане на административнонаказателната отговорност при незаконното строителство в защитени територии изисква интердисциплинарен подход, който да съчетава правни, технически, екологични и управленски знания. Този тип нарушения не се изчерпват единствено с юридическа оценка, а имат комплексен характер – те засягат природни ресурси, инфраструктура, обществени интереси и устойчивото развитие на териториите. Поради тази причина успешното им предотвратяване и санкциониране предполагат сътрудничество между различни експертни общности и институции.

В практиката често се наблюдават случаи, при които липсата на координация между юристи, инженери, архитекти и еколози води до непълна или неточна квалификация на нарушенията. Например изграждането на постройка в защитена зона може да изглежда формално допустимо според строителните норми, но да нарушава екологичните режими или изискванията за биоразнообразие. Подобни противоречия подчертават необходимостта от комплексна експертна оценка, която да отчита както правната, така и фактическата страна на нарушението.

Особено значение има включването на научната и професионалната общност в процеса на разработване на методики и критерии за оценка на нарушенията. Съвместната работа между Камарата на архитектите, Камарата на инженерите в инвестиционното проектиране и представители на екологичните организации би могла да доведе до създаване на стандартизирани формуляри и ръководства за оценка на строителни дейности в защитени територии. Това ще подпомогне контролните органи при квалификацията на нарушенията и ще ограничи субективизма в административната практика. Интердисциплинарният подход следва да обхваща и институционалното взаимодействие между органите, упражняващи контрол. Провеждането на съвместни проверки от страна на ДНСК, РИОСВ и общинските администрации ще позволи по-точна оценка на фактическите обстоятелства и ще намали вероятността от пропуски или дублиране на дейности. В допълнение, въвеждането на междудементствени експертни комисии при разглеждане на по-сложни случаи би гарантирало балансиран и обоснован подход при определянето на санкциите и мерките за възстановяване.

От особена важност е и развитието на образователни и квалификационни програми, насочени към служителите на контролните органи. Подготовката по теми като екологично право, управление на защитени територии и устройствено планиране би осигурила по-добро разбиране на взаимовръзките между отделните нормативни режими и би повишила професионалната компетентност на администрацията.

Интердисциплинарният подход следва да се разглежда не само като средство за по-прецизно прилагане на закона, но и като път към изграждане на обществено доверие в ефективността на административния контрол. Само чрез съчетаване на правната експертиза с техническо, екологично и социално знание може да се постигне устойчив модел на правоприлагане, който едновременно защитава природното наследство и

утвърждава принципите на правовата държава.

ЗАКЛЮЧЕНИЕ

Административнонаказателната отговорност при незаконното строителство в защитени територии има ключово значение за гарантирането на законността и опазването на природните ресурси. Анализът на действащата нормативна уредба показва, че въпреки наличието на ясно формулирани забрани и санкции практическото им прилагане остава нееднородно и с ограничена ефективност. Основните проблеми се свързват с разпокъсана институционална компетентност, неяснота на правните норми и липса на координация между контролните органи. Това води до несигурност в санкционната практика и до отслабване на превантивния ефект на административнонаказателната отговорност.

Постигането на по-висока ефективност изисква комплексен подход, насочен към нормативно прецизиране, укрепване на институционалния капацитет и развитие на междуетапно сътрудничество. Необходими са създаване на по-ясни критерии за квалифициране на нарушенията, въвеждане на електронна система за контрол и отчетност, както и усъвършенстване на превантивните механизми. Само чрез последователни законодателни и организационни промени може да се осигури реална защита на природните ценности и да се постигне баланс между обществен интерес, устойчивото развитие и правовия ред.

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EFFECTIVENESS OF ADMINISTRATIVE LIABILITY FOR ILLEGAL CONSTRUCTION IN PROTECTED AREAS

Abstract: *This article examines the issues related to the effectiveness of administrative liability for illegal construction in protected areas. The study analyzes the current legal framework under the Spatial Development Act and the Protected Areas Act, emphasizing the discrepancies between the normative requirements and their practical implementation. It explores the difficulties arising from overlapping institutional competences, inconsistent judicial practice, and limited administrative capacity. On this basis, measures are proposed to enhance the effectiveness of the sanctioning policy through legislative refinement, improved institutional coordination, and the introduction of preventive mechanisms that ensure a higher degree of legal certainty and protection of the public interest.*

Keywords: *administrative liability; effectiveness; illegal construction; legal certainty; protected areas; sanctions*

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ADAPTATION STRATEGIES OF ALPINE WINTER DESTINATIONS
TO CLIMATE CHANGE IN WINTER

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Abstract: Climate change presents a significant challenge for Alpine winter tourism, as rising temperatures and decreasing snow reliability - particularly in low and mid altitude areas - threaten the foundation of the snow-based recreational activities most in demand by current holidaymakers. This paper examines the adaptation strategies that Alpine winter destinations can adopt to mitigate the negative economic effects of climate change during the winter season. Based on an analysis of current academic literature, policy strategy papers and selected case studies from the Alpine region, the study derives recommendations for winter destinations across three altitude categories (average ski resort elevation below 1.000 m, up to 1.500 m, and above 1.500 m). The findings show that although technical solutions are widespread, their long-term sustainability is limited due to high energy and water consumption. In contrast, destinations that pursue integrated adaptation strategies – combining technical, economic, and institutional components – will demonstrate greater resilience in the future.

Keywords: Alpine Climate Change; Alpine Winter Tourism; Adaptation Strategies; Winter Destination Resilience

INTRODUCTION

Alpine tourism is a key economic driver (University of Vienna 2024) for many alpine regions. Entire villages and valleys have lived off these tourism revenues for nearly a century. Winter tourism in particular has been and continues to be one of the main sources of income in the Alps. According to the annual T-MONA survey by Austria Tourism (2023, 2024), the average winter guest in Austria spends EUR 221 per day, while the summer equivalent spends EUR 182. A similar distribution of visitor spending and economic importance of the winter season can be observed in the other alpine countries.

For generations, the primary source market for the Northern and Central Alps has been Germany. However, winter travel by Germans to the Alps has been declining for years. In 2015, Germans took 69.1 million holiday trips, of which 9.6 million occurred in winter. Only 1.7 million of these winter holidays were taken in the Alps. Ten years earlier, the figure stood at 2.5 million. Long-haul destinations and cruises have become increasingly popular alternatives during the winter months (Bausch et al. 2016). In addition to long-distance travel, the “wintry landscape with snow (...) ranks highest on the wish list of those interested in cold-weather winter holidays. More than two-thirds [of respondents] consider this especially important” (Bausch et al. 2016, p. 17). Classic ski holidays therefore remain the main travel motive among winter tourists.

In general, “a large proportion of [winter tourism] is linked to outdoor activities and is therefore highly sensitive to changes in the climate – particularly with regard to precipitation levels and temperature. Climate change thus has a significant impact on demand.” (Pröbstl-Haider et al. 2021, ch. 1, p. 1) Steiger & Trawöger (2011) likewise point out that “winter tourism (...) is considered one of the most vulnerable segments of the tourism industry in the context of climate change, due to its heavy reliance on snow.” Although in leading tourism regions such as Tyrol in Austria, three-quarters of ski areas are now equipped with snow-making facilities (Allianz in den Alpen 2025), long-term technical and, in particular, economic feasibility of artificial snowmaking is limited under the climate models currently forecast.

The rise in temperature in the Alps has been twice as high as the global average of 1.5% compared to pre-industrial levels. By the end of 2024, Switzerland had warmed by 2.9 °C, Austria by 3.1 °C, and Germany by 2.5 °C. Experts agree that, unless current half-hearted climate policies change, average annual temperatures in the DACH region will increase by a further 2 °C by the end of the century. In Switzerland, for instance, this has already led to a 60% reduction in glacier volume since 1850. Depending on the alpine region, vegetation periods have lengthened by two to four weeks, and there has been up to 60% fewer frost days since 1961. Snow days are also in decline. In areas below 800 m altitude, they have already decreased by 50%, and by 20% in areas below 2.000 m (Expertenforum Klima.Sport.Schnee 2025). Data from over 2.000 measurement stations in Germany, Austria, Switzerland, Italy, France, and Slovenia confirm in a long-term study a decline in snow volume of 8.4% per decade. Over the past 50 years, the length of the winter season at altitudes below 2.000 metres has shortened by 22 to 24 days (Matiu et al. 2021).

Reasons for the disproportionately high warming in the Alps compared to global temperature trends include the fact that land masses warm more rapidly than oceans, and that snow-covered areas, which reflect heat, melt earlier in spring. Due to higher temperatures, more water vapour is temporarily present in the atmosphere worldwide, leading to increased precipitation in the Alps – particularly in winter – but falling increasingly as rain rather than snow (Greenpeace 2025). As a result, the traditional (ski) winter season is inevitably becoming shorter and less snow-reliable (Expertenforum Klima.Sport.Schnee 2025).

RESEARCH METHODOLOGY

This paper was based on a qualitative research approach. The objective was to analyse and critically assess existing scientific findings, reports, and specialist publications on global climate change in general, as well as its specific impacts on winter sports in the Alps. The literature search was conducted using defined search terms and selection criteria. Relevant scientific databases, digital libraries, institutional websites, and subject-specific portals were consulted. The selection of literature was based on the following criteria:

- Relevance to the thematic focus “climate warming and winter sports in the Alps”
- Topicality (preferably publications from the past five years)
- Scientific quality and traceability of the data
- Regional relevance to the Alpine region

This paper does not claim to provide a comprehensive overview of all available data on the subject but focuses on scientifically sound, publicly accessible literature. Regional case studies (primarily from Austria and Switzerland) are treated as illustrative examples. An empirical investigation was not part of the methodology.

RESULTS

All evaluated studies clearly indicate a decline in snow cover duration as well as in natural snowfall. A study conducted by the OECD in 2017 shows in Table 1 below that, with a further temperature increase of +2 °C, only 66% of the winter sports areas considered snow-reliable in 2017 would still remain. In the event of a +4 °C warming – which is highly likely to occur by the year 2100 if current climate protection efforts remain unchanged – only 30% of Alpine ski areas would still be considered snow-reliable.

These data confirm the long-term decline of traditional skiing. However, guest surveys still show that Alpine winter holidaymakers primarily cite the snowy winter landscape as their main travel motive. This is closely followed by the desire for “a cosy accommodation (58%) [and the opportunity] to enjoy nature in peace (51%). Walks and hikes are the preferred activity (48%), followed by winter sports (40%). Guests also seek the cold and fresh mountain air (35%) or simply want to soak up the sun (32%). During periods spent indoors, rustic and authentic places to eat and drink are considered important (45%), ideally offering high-quality food and beverages typical of the winter season and the region (40%). Thermal baths and leisure pools (42%) are just as important to many as wellness and pampering services (34%)” (Bausch et al. 2016, p. 17).

Table 1. Current and Future Natural Snow Reliability of Alpine Ski Resorts by Country

Country	Number of Ski Resorts	Snow Reliability under Current Conditions (2017)			
Austria	228	199	115	47	
Switzerland	164	159	129	78	
Germany	39	27	11	5	1
France	148	143	96	55	
Italy	87	81	71	59	21
Total	666	609	404		

In general, it can be inferred that although winter sports remain a dominant travel motive, they are no longer irreplaceable. The demographic change of an aging society especially in the main source market Germany (Statistisches Bundesamt 2024) amplifies the trend towards winter hiking and cosy or increasingly barrier-free accommodation. In the future skiing may become a secondary activity in Alpine winter tourism. Additionally, there is a noticeable decline in interest in skiing among younger generations, due to the lack – or decreasing availability – of opportunities to practise the sport in the major urban source markets (Austria Tourism 2025).

Nonetheless, the fact remains that skiing continues to be in high demand today. Therefore, technological adaptation measures and behavioural adjustments (OECD 2017) are necessary from the perspective of ski lift operators and destination managers. It is difficult to make general recommendations for all winter sports destinations. The effects

of climate change on snow reliability and the touristic usability of the Alps are clearly dependent on the region and altitude. Based on a comprehensive evaluation of current literature, the following differentiated recommendations for action can be derived for winter sports destinations, taking into account their average altitude:

a) Winter destinations below 1.000 m average altitude:

Low-lying winter sports resorts are most affected by the decline in natural snow cover. According to Bergzeit (2025), the duration of snow cover at mid-altitudes around 1.000 m is expected to decrease by approximately 70% by the year 2100 in the absence of climate protection measures leaving on average only 30 days with natural snow cover.

In light of these developments, the middle-term survival of traditional ski resorts at these lower altitudes is not realistic. Artificial snowmaking also does not present a sustainable solution, as rising temperatures increasingly eliminate or drastically shorten the conditions required for artificial snow production. “The expensive facilities can no longer even be amortised” (ARD alpha 2021).

Recommendations:

- Comprehensive tourism realignment: focus on year-round offers such as wellness, health programmes, culture, culinary experiences and events (Austria Tourism 2025).
- Product development for non-winter-sport tourists: leisure pools, Alpine thermal spas, nature observation, tobogganing and ice-skating worlds (Austria Tourism 2025 & Bausch et al. 2016).
- Integration of modern working environments: workation offerings including the creation of creative retreat spaces for working holidaymakers (Austria Tourism 2025).
- Authentic infrastructure: rejection of international retail and hotel chains in favour of regional providers, modern and locally rooted accommodation concepts (Bausch et al. 2016).
- Enhanced promotion of the predominantly fog-free winter season and the opportunity to soak up the sun.

b) Winter destinations between 1.000 and 1.500 m average altitude:

Destinations at mid-altitudes are considered particularly vulnerable. At these altitudes, it becomes evident that “the core business around Christmas and Easter (...) is increasingly at risk in many ski resorts. (...) Due to early onset of warm periods pistes [also] become snow-free prematurely” (Arena 2025). Not only does the natural snow cover decrease significantly (Expertenforum Klima.Sport.Schnee 2025), but the meteorological conditions for artificial snowmaking also deteriorate (Bergzeit 2025). The number of potential snowmaking days could be halved. At the same time, rising energy and water costs increase economic pressure (Arena 2025). However, “in higher-lying ski resorts (...) skiing operations can probably still be maintained mid-term through artificial snow. Important in this regard: sufficient water must be available in storage ponds” (ARD alpha 2021).

Recommendations:

- Moderate artificial snowmaking: use of artificial snow only where meteorologically feasible and ecologically justifiable; use of optimised terrain profiles to increase efficiency (Arena 2025); relocation of ski slopes from sunny to shaded aspects (e.g. in the Swiss resort of Arosa Lenzerheide); and alternatives to skiing on difficult-to-snow terrain, such as grass or artificial mats (Austria Tourism 2025).
- Snow farming & terrain optimisation: use of modern technologies such as drones to create terrain models in summer; smoothing of ski runs to reduce snow demand; construction of storage ponds and precise snow management (Arena 2025); snow farming at the end of the season—i.e. storing large snow volumes and protecting them with covers during the summer (e.g. Stubaital) (Greenpeace 2025).
- Creation of alternative winter experiences: tobogganing, winter hiking, cross-country skiing, nature and cultural experiences (Allianz in den Alpen 2025).
- Seasonal adjustment: considerations for shortening the season to the end of March (Kleinwalsertal Tourismus 2025).
- Vulnerability analyses and climate strategies: location-specific studies on exposure, sensitivity, and resilience; creation of CO₂ balances and transition to renewable energy sources (Expertenforum 2025).
- Economic perspective: rising costs due to higher operational expenses and shifting demand from lower to mid- and high-altitude areas; risk of guest loss due to excessive price increases (Austria Tourism 2025).

c) Winter destinations above 1.500 m average altitude:

High-altitude winter sports resorts are considered comparatively snow-reliable, even under ambitious climate scenarios. “The probability that customers will shift long-term to still snow-reliable resorts is very high, as [the product of skiing] is highly substitutable” (Bausch et al. 2016, p. 15). Consequently, demand is expected to increase mid- to long-term in these high-altitude areas. Nevertheless, the need for action remains, due to competitive pressure, rising guest expectations, and the necessity of sustainable development.

Recommendations:

- Strategic marketing positioning as a climate-resilient ski destination with a clear sustainability strategy.
- Minimisation of ecological burdens: CO₂ reduction, use of renewable energy, and improvements in the energy efficiency of all infrastructure (Expertenforum 2025).
- Quality-focused product development: promotion of high-quality, regionally anchored experiences beyond the ski slopes.
- Long-term differentiation strategy: development of a unique profile beyond standard offerings, e.g. through environmental certifications, climate awareness, and soft mobility solutions.

CONCLUSIONS/DISCUSSION

Climatic changes necessitate a differentiated and altitude-specific adaptation of Alpine tourism strategies by local tourism associations. In this context, there is a need for “courage to take new paths and to develop winter offerings that can also function with less or no snow” (Allianz in den Alpen, 2025). While low-altitude destinations must pursue a complete repositioning, mid-altitude regions require a transformation within existing structures, taking into account ecological and economic limitations. High-Alpine regions, on the other hand, should strategically leverage their resilience to position themselves more strongly on the international market as top ski destinations.

All stakeholders within a destination are therefore called upon to think in terms of generations, to enhance the resilience of their tourism products and to build product development on their own strengths and identity while seeking a suitable visitor segment. With every new product, the focus must, in any case, be aligned with the principle of sustainability, as only in this way can climate change and its impacts on the respective destination be mitigated. Sustainable technical measures such as artificial snow production above 1.000 m and especially structural diversification, are essential across all altitude levels.

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СТРАТЕГИИ ЗА АДАПТАЦИЯ НА АЛПИЙСКИТЕ ЗИМНИ ДЕСТИНАЦИИ КЪМ КЛИМАТИЧНИТЕ ПРОМЕНИ ПРЕЗ ЗИМАТА

Резюме: Климатичните промени представляват сериозно предизвикателство за алпийския зимен туризъм, тъй като повишаващите се температури и намаляващата снежна надеждност – особено в ниските и средните надморски височини – застрашават основата на снежно зависимите развлекателни дейности, които са най-търсени от съвременните туристи. Настоящото изследване разглежда стратегиите за адаптация, които алпийските зимни дестинации могат да предприемат, за да смекчат отрицателните икономически последици от климатичните промени през зимния сезон. Въз основа на анализ на съвременна научна литература, стратегически политически документи и подбрани казуси от алпийския регион изследването формулира препоръки за зимни дестинации в три категории според надморската височина: средна височина на ски курорта под 1000 м, до 1500 м и над 1500 м. Резултатите показват, че въпреки широкото използване на технически решения тяхната дългосрочна устойчивост е ограничена поради високото потребление на енергия и вода. За разлика от тях дестинации, които прилагат интегрирани стратегии за адаптация, съчетаващи технически, икономически и институционални компоненти, ще демонстрират по-голяма устойчивост в бъдеще.

Ключови думи: алпийски климатични промени; алпийски зимен туризъм; стратегии за адаптация; устойчивост на зимната дестинация

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MANAGEMENT OF INFORMATION PROCESSES IN A LOCAL AUTHORITY

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Abstract: Interviews with mayors have shown that local authorities are facing new challenges. New technologies in particular lead to a rethink of internal processes. A shortage of skilled workers, a lack of financial resources and rapid technological developments in combination with digitalization are prompting local authorities to review their administrative procedures and processes, particularly from the point of view of efficiency. In this context, it is important to examine which needs can still be met from the perspective of economic efficiency, as goods (production and consumer goods) are in short supply. The purpose of this article is to explain the responsibilities and functions of a mayor of a municipality in the context of internal organization. As a local politician, he/she presents the municipality to the outside world. Internally, however, he/she must also ensure that processes are efficient, especially as the manager of the administration. Efficient processes lead to cost savings and benefit the common good. From the residents' perspective, the effects could be many and varied. On the one hand, services are reviewed in terms of demand, standards are adjusted and services of general interest are ensured. On the other hand, a review of services could lead to tax and fee reductions. The impact is a modern and attractive municipality with an appropriate municipal administration for future generations.

Keywords: Self-Government; Technological Development; Financial Resources

INTRODUCTION

According to § 42 GemO, the mayor is the chairman of the municipal council and head of the municipal administration. He represents the municipality. According to this, the mayor has three areas of responsibility. As head and thus manager of the municipal administration, he is responsible for the proper execution of municipal tasks. His management authority with regard to the internal organization can only be restricted within certain limits. As the manager of the administration, he has been given responsibility by law for the proper fulfillment of tasks (Aker 2019, p. 505). As the head of the local administration, the mayor is responsible for the structural and procedural organization. He hires the personnel necessary for the proper and appropriate fulfillment of tasks. In this context, he must observe the principle of economic efficiency (Aker 2019, p. 506). In his function as chairman of the municipal council, he is responsible, among other things, for preparing, convening and chairing meetings and managing order. In the three areas of responsibility and action, he is dependent on complete and comprehensive information. The administration has to structure and filter the large amount of data collected. It must be made available to the mayor in such a way that he can implement resolutions and make decisions based on the relevant information.

RESEARCH METHODOLOGY

Interviews and practical experience have shown that it is necessary to analyze the terms information, data, processes and control and their functions. Once the terms have been defined, the data collected and its use is reflected upon. It has emerged that data is collected in local authorities as part of controlling. However, this data is not analyzed in a way that could be useful for managers and mayors.

RESULTS/DISCUSSION

Goal hierarchy

Computer science distinguishes between signs, data and information. A sign is something audible and visible that can be used to attract attention. Data are signs that can be interpreted by machines. With regard to digitization, it is necessary to differentiate between texts and data. While texts are machine-readable but

not machine-interpretable, they can only be processed to a limited extent. In the context of digitization, it is important to make a clear distinction between data and texts. In the open data literature, a distinction is made as follows: “Texts are understandable for humans, data for machines. Texts can be read by machines, but cannot be interpreted by machines and can therefore only be processed to a limited extent. A word processing program can reproduce any text with an agreed character set from another computer syntactically correctly if the format is recognized. However, the meaning of the content cannot be recognized without an additional processing program. Artificial intelligence (AI) makes it possible to process texts further” (Klenk et al. 2015, p. 46). Data can be relevant action-related knowledge and thus valuable information for a person in a certain situation and completely irrelevant and uninteresting for other people. In the engineering understanding of the ISO standards (International Organization for Standardization), on the other hand, information is generally knowledge, regardless of whether it is relevant to action (Klenk et al. 2015, p.46). In business administration, information is purpose-oriented messages. In turn, messages are defined as signs or signals that serve to record production factors or states, events and results (Eichhorn 2000, p. 172). One of the criticisms in business administration is that companies have too much data but too little information. It is the task of information management to change this, i.e. to provide information at the right time, in the right place and in the right quality (Klenk et al. 2015, p. 46). This also applies to local government, which has to perform this task in the context of controlling. Under the semantic concept of information, information is understood as the interpretation of a message. Messages are created by structured data or signals that are imprinted as a structure on a physical medium, e.g. paper, sound, electromagnetic waves. Information, in turn, is only created when this data can be interpreted by any process, e.g. in humans, animals, cells or machines (Fritz & Schaback 2019, p.19). Information initially refers to messages. However, it is not a question of how and by what means the information may be transmitted. Rather, the concept of information is about knowledge that leads to insights and which generally refers to messages. Complete information is required for decisions within a local authority. According to Section 14 of the Municipal Budget Ordinance, local authorities must keep cost and performance accounts to assess the efficiency and performance of the administration. This means that the manager of an administration (mayor) must ensure a structured data culture. Data is collected in the administrations via controlling, so that in practice it may be a matter of processing this data into messages in order to generate information that is relevant for decisions and resolutions of the municipal council and the mayor. However, only information that is useful to the local authority in terms of task fulfillment is useful. As the manager also has to consider the costs of procuring and processing information in addition to the best possible achievement of objectives, it is important to set up controlling within a local authority in such a way that it is possible to determine at what point the marginal costs are greater than the benefit of the information. There are suitable computer-aided tools for setting up an information economy and thus the data structure (Wöhe 2010, p. 166). The structure should basically be organized in such a way that, in addition to generating data for accounting, external data relevant to decision-making can also be obtained and managers are provided with planning and control data so that they have complete information for decision-making (Wöhe 2010, p. 49). For a manager in local government, this means consistent implementation of cost and performance accounting in accordance with § 14 GemHVO with the corresponding key figures. In this context, efficient information management is to be understood as a needs-based, timely and cost-effective supply of information to system users (Wöhe 2010, p.49). This also applies to the services and the associated key figures.

In the legal sense, the term data is defined as incorporeal objects that cannot be directly owned, § 903 BGB. Under data protection law, data is generally available due to its incorporability and can be reproduced and passed on within a few seconds at low cost (Specht-Riemenschneider et al. 2019, p.5). Data plays an important role in economic life. This is due to the fact that data is a basis for decisions. Data must be differentiated between personal and non-personal data. According to the General Data Protection Regulation, every company must structure personal data in such a way that it is not identifiable and serves to protect privacy. Section 7 of the European Data Protection Regulation promotes a high level of data protection and Section 2 regulates the security of personal data. As data is part of information, it is in turn needed to fulfill tasks. A controller must therefore filter out the data that is necessary for internal purposes and that indicates the status quo of the earnings yield, as every company strives to maximize profits. For

this reason, they need information for their decisions. The information can relate to alternative courses of action, environmental conditions and the planned and realized achievement of objectives. Due to local self-government, a local authority must observe the goal of continuous task fulfillment. The return on profit is not a suitable indicator here. However, the manager and therefore the mayor of a local authority has the internal task and obligation to ensure efficient management. At the same time, as described above, he has a responsibility towards the common good to guarantee and ensure the sustainable and long-term development of the municipality in the area of task fulfillment. The municipal council requires complete and comprehensive information for its decisions, which in a figurative sense can be equated to the actions of a business and corporate management with regard to the goal-oriented management of a group.

Concept of process: In his book on controlling Horváth et al. (2020, p. 39) describes a process as a temporal sequence of system elements. A process can be designed. In this context, the term corresponds to the term in the legal interpretation in such a way that it is equivalent to a procedure that is designed. It is not always possible to differentiate between the sequence of system elements (“what a system is”) and the process (“what a system does”). However, it would be useful to be able to differentiate between these two terms “processes” and “system concept” in the process flows within a local authority. The link between the “system elements” and the “processes” should be provided in the administration by controlling and thus the controller. This approach was already manifested in 1975 by Haidekker (1975), who described the necessity of controlling as a tool in the literature.

In 1968, Fertakis presented a controlling concept in which he saw the controlling function as the integration of the information system with the management system: “The function of controllership lies neither in operations nor in management. Its function is to provide a catalyst between the two sectors, thus promoting a favorable interaction between them” (Fertakis 1968, p. 6) (Horváth et al. 2020, p. 41). Furthermore, a systems approach must be ensured, which enables the analysis of complex operational interrelations such as planning, control, and information supply (Horváth et al. 2020, p. 40). This again highlights the importance of information.

Processes in media and communication studies are described as a sequence of events or changes of state that must occur within a certain time frame. These events are related to each other and follow a specific logic or regularity. Processes can include natural phenomena such as the growth of a plant (Gerret von Nordheim et al. 2021, pp. 4–6) or technical procedures such as agile software development. It is important that a process involves a certain dynamic and development. An essential characteristic of processes is their interdisciplinarity (Gerret von Nordheim et al. 2021, pp. 4–6). In a complex world, many scientific questions require interdisciplinary approaches. For example, the development of research software can be viewed as an iterative process that requires the collaboration of different disciplines such as communication science and statistics (Gerret von Nordheim et al. 2021, pp. 4–6). This allows projects to be divided into time-limited iterations, ensuring flexibility and adaptability (Gerret von Nordheim et al. 2021, pp. 4–6).

When the term is considered in a legal context, it is in many respects comparable to the term “process” from media and communication studies. It is multifaceted and applied across various disciplines. In general, a process describes a sequence of events or actions that are connected in a specific manner and aim at a particular goal. Processes are dynamic and change over time. They are often complex and involve many different factors, according to Uve Murmann (2017, p. 37). Generally, it refers to a formal procedure for dispute resolution before a court. This procedure follows specific rules and laws to ensure a fair and just judgment. The analysis of processes involves identifying their individual phases, the actors involved, and the influencing forces. It is important to consider both internal and external influences (C. von Nägeli, 1884). Especially in interdisciplinary research, efficient knowledge management and a common language are required to ensure mutual understanding (Gerret von Nordheim et al. 2021, pp. 4–6). Agile software development can serve here as a kind of “lingua franca” that facilitates communication between different disciplines.

In summary, the term “process” in science describes a dynamic sequence of events characterized by interdisciplinarity, analysis, and modeling. Understanding processes is crucial for analyzing complex systems, making predictions, and driving innovation (Gerret von Nordheim et al. 2021, pp. 4–6). Especially in the area of digitization and the ongoing development of technologies, processes such as e-government and e-justice lead to improved efficiency and transparency of procedures. In addition to the disadvantages of digitization—particularly regarding data protection and cybercrime—the advantages outweigh them. In the context of globalization, the field of digitization, along with data protection, also impacts national politics (Turek 2017, p. 41). The European General Data Protection Regulation attempts to protect privacy and personal rights in this regard (Official Journal of the European Union, L119/1). A “process” is completed when the previously defined steps through a strategic plan have been carried out. The costs must be taken into account. These are especially relevant when analyzing the break-even point. This analysis addresses the question of the point at which “revenues and corresponding quantities neither generate profit nor loss but cover all fixed costs and the costs attributable to the sold quantities in full” (Poensgen 1981, p. 279). Applying this principle to the completion of processes means that a process should be terminated when the benefits are less than the costs.

For over 60 years, the cash-based accounting system (Kameralistik) was used in municipal administrations. As part of the reorganization of municipal budgeting and accounting, the aim is to enable the control of municipal administrations not through the traditional provision of spending authorizations (input control), but through the definition of goals for municipal services (output control) (State Parliament Document 14/4002, p. 30). Control in this context means that municipalities must set priorities in delivering their services. For particularly important services or tasks, performance targets must be defined. This is intended to strengthen the output and product orientation of public finance management as internal control information. The concept of control is understood, according to the justification of municipal budget law, as controlling the administration through performance targets (State Parliament Document 14/2002, p. 27) see Fig. 1).

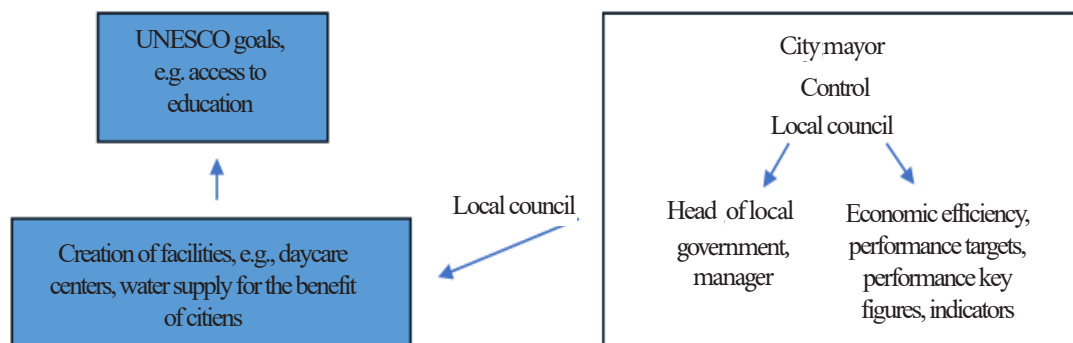


Fig. 1. Internal functions of a mayor (Manager)

Since the budget plan only has internal binding effect, it binds the administration. Residents cannot derive any claims or obligations from it. As depicting all services in the budget plan would lead to an overload, products are to be represented at a product group level with a brief description and their budget. Individual services essential to a municipal administration are also to be depicted in the budget plan with defined performance targets and performance indicators.

The German Stock Corporation Act regulates in § 93 (1) the duty of care and responsibility of the management board members. In order to avoid any breach of duty, the managing director/board must ensure internally that the internal instruments, such as the risk management system and the early risk detection system, are so interconnected that no duties are violated and no harm occurs to the company. In this sense, it is generally assumed that the company’s tasks are fulfilled properly. In order to achieve the company’s objectives, the supervisory board, as an organ of a GmbH or AG, must fulfill its monitoring duty pursuant to § 107 (3) of the German Stock Corporation Act (AktG). The question arises whether this monitoring function is comparable to the steering function defined in § 103 (3) of the Municipal Code (GemO). In its reasoning for the reorientation of the Municipal Code and the Municipal Budget Ordinance, the state legislator interpreted the concept of control as a holistic management of all municipal activities using the necessary information. The analytical interpretation of the concept of control first requires an understanding of the fundamental principles and models underlying this concept. Control, in the cybernetic

sense, refers to the mechanisms and processes through which a system adjusts its behavior to achieve a specific goal or to maintain a desired state (Reinisch 2020, pp. 1–3) (Hahn et al. 2020, pp. 1–3). This includes gathering information about the current state of the system and its environment, processing this information, comparing it to a target value, and initiating corrective measures if deviations are identified (Hahn et al. 2020, pp. 1–3). In the context of Industry 4.0 and especially Industry 5.0, control is gaining a new dimension through the use of digital technologies and artificial intelligence, which brings both opportunities and risks (Vogel-Heuser & Bengler 2023, pp. 4–6). An important aspect of control is human-machine interaction, in which humans and technical systems collaborate to optimize production processes (Vogel-Heuser & Bengler 2023, pp. 4–6). This raises the question of how much assistance from technical systems is reasonable and how such assistance should be designed to optimally complement human capabilities (Jipp & Steil, 2021, pp. 17–18). Research shows that technical assistance must be cognitively appropriate and meaningfully embedded into interaction in order to truly support users in fulfilling their tasks. This requires an analysis of the distribution of roles between humans and machines as well as the effects on each interaction partner. The implementation of control concepts in real production environments shows that companies pursue different strategies to achieve their goals. Some companies rely on greater automation and standardization of processes to increase efficiency and minimize the variability of human performance (Nies 2021, p. 478). Other companies, by contrast, emphasize the importance of human autonomy and promote employee self-organization in order to make optimal use of their skills and experience (Vogel-Heuser & Bengler 2023, pp. 1125, 1137). These differing approaches make it clear that there is no universal solution for designing control systems, and that the specific conditions and goals of a company must be taken into account. Successful implementation of control concepts requires careful planning and design of human-machine interaction. It is important to consider the competencies and needs of employees and to give them the opportunity to actively participate in the design process (Vogel-Heuser & Bengler 2023, p. 1140). Only in this way can control systems be created that not only increase efficiency but also improve the quality of work and promote human autonomy. In the context of enterprises, control is a central element of corporate management. Here, the term is often used in connection with controlling (Küpper 1992, p. 140-142). Controlling serves as a sub-system of management that coordinates planning, control, and information provision (Grob 1996). It supports the adaptation and coordination of the entire corporate system. Thus, corporate control includes the definition of objectives, the planning of measures, the monitoring of goal achievement, and the adjustment of strategies when necessary (Küpper 1992, p. 140). A key aspect of control is the selection of appropriate instruments. Controlling uses various tools to design effective control systems. These include key performance indicator systems, budgeting, and transfer pricing systems (Küpper 1992, p. 140). These instruments serve to collect, analyze, and communicate information to enable well-informed decisions (Küpper 1992, p. 142). The choice of appropriate instruments depends on the specific goals and conditions of the company (Feichter & Grabner 2020, p. 150).

CONCLUSION

In summary, the concept of control is a multifaceted one that is applied in various contexts. Whether in companies, production, or education, control serves to guide and adjust systems toward their goals (Küpper 1992, p. 141) (Reinisch 2020, p. 1-3). The selection of suitable instruments and the consideration of specific conditions are decisive for successful control (Feichter & Grabner 2020, p. 155). It is important to harness the potential of control without losing sight of its risks and side effects (Reinisch 2020, p. 1-3). Successful control within municipal administrations requires that these administrations engage with the process flows involved in service provision. It is important to distinguish between services that fall under sovereign tasks and those that are offered to residents due to municipal self-administration. In principle, all municipal services can be controlled. However, such a distinction would be helpful in view of selecting the right instruments and indicators.

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УПРАВЛЕНИЕ НА ИНФОРМАЦИОННИТЕ ПРОЦЕСИ В ОРГАНИ НА МЕСТНОТО САМОУПРАВЛЕНИЕ

Резюме: От интервюта с кметове става ясно, че местните власти са изправени пред нови предизвикателства. Новите технологии в частност налагат преосмисляне на вътрешните процеси. Недостигът на квалифицирана работна ръка, липсата на финансови ресурси и бързото технологично развитие в съчетание с цифровизацията подтикват местните власти да преразгледат административните си процедури и процеси, особено от гледна точка на ефективността. В този контекст е важно да се проучи кои нужди все още могат да бъдат задоволени от гледна точка на икономическата ефективност, тъй като стоките (производствени и потребителски) са в недостиг. Целта на тази статия е да обясни отговорностите и функциите на кмета на община в контекста на вътрешната организация. Като местен политик, той представя общината пред външния свят. Вътрешно обаче той трябва да гарантира, че процесите са ефективни, особено в качеството си на ръководител на администрацията. Ефективните процеси водят до икономия на разходи и са от полза за общото благо. От гледна точка на жителите ефектите могат да бъдат много и разнообразни. От една страна, услугите се преразглеждат с оглед на търсенето, стандартите се адаптират и се осигуряват услуги от общ интерес. От друга страна, преразглеждането на услугите може да доведе до намаляване на данъците и таксите. Резултатът е модерна и привлекателна община с подходяща общинска администрация за бъдещите поколения.

Ключови думи: самоуправление; технологично развитие; финансови ресурси

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THE CONTINUING RELEVANCE OF VISUAL BASIC FOR APPLICATIONS (VBA)
IN COMPANIES: A ROOT CAUSE ANALYSIS

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Abstract: Despite Microsoft's efforts to replace it with cloud-based alternatives such as Office Scripts and Power Automate, Visual Basic for Applications (VBA) remains the central automation tool in many companies. This root cause analysis shows that, in addition to the well-known lock-in effects (legacy code, low willingness to migrate, IT restrictions), LLM-supported "vibe coding" is now also significantly extending its lifespan: Generative AI facilitates the refactoring, documentation, and maintenance of existing macros, which tips the cost-benefit balance in favor of VBA. Furthermore, Office Scripts still lacks deep integration with Outlook and PowerPoint—a crucial criterion in industrial workflows. The study shows that VBA remains indispensable in the short term, but recommends training for end-user developers in particular in order to comply with governance requirements. All in all, VBA is often simply the right tool for end user development, as it can quickly provide highly customized solutions that alternative tools could only offer after a long development period and at high cost. If awareness of governance is now raised, VBA can and will remain in use for a very long time and continue to be of great benefit.

Keywords: Digital Transformation; Large Language Models (LLMs); Process Automation; Legacy Systems; Visual Basic for Applications (VBA); End User Development

INTRODUCTION

In modern business environments, data-driven decision-making and automation have become essential components of operational efficiency. Tools such as Microsoft Excel and PowerPoint continue to play a vital role in managing, analyzing, and presenting business-critical data. Particularly in industrial enterprises, which rely heavily on structured workflows, production metrics, and supply chain analytics, these Microsoft Office applications serve as indispensable instruments for both technical and administrative staff.

However, as businesses face increasing pressure to digitalize and streamline operations, the need to automate repetitive tasks within these applications has grown substantially. These include, but are not limited to, conditional data manipulation in Excel, automated reporting, and the generation of standardized email communications. While a variety of modern scripting and development tools are available, their deployment in corporate settings is often hindered by strict IT governance policies, lack of administrative rights, and restrictions on software installation. Consequently, many companies turn to a legacy technology that remains embedded in the Microsoft Office suite: VBA.

VBA is a built-in scripting language in Office applications, providing users with the ability to automate complex tasks without the need for external development environments. Although VBA is frequently criticized for its limited performance, lack of modern debugging capabilities, and single-threaded execution, its universal availability and ease of use have secured its continued relevance. As of 2020, approximately 85% of companies in Germany utilized Microsoft Office products, all of which natively include support for VBA (cf. empower and Nielsen, 2020).

Despite its widespread use, VBA is rarely examined from an academic perspective - particularly in the context of its practical role in industrial digitalization strategies. Since 1996, there have only been 35 articles with 'Visual Basic for Applications' in the title in the scientific database Scopus. In contrast, there are almost 8,500 articles on 'Python'. This paper seeks to fill that gap by exploring the technical, organizational, and strategic factors that contribute to the continued use of VBA in corporate environments. The analysis aims to answer a key question: Why does VBA persist, despite the availability of successor technologies such as Office Scripts?

BACKGROUND

VBA is a macro-based scripting language introduced by Microsoft in the early 1990s, embedded within Microsoft Office applications such as Excel, Word, Outlook, and PowerPoint. Its original intent was to provide non-developers with a simple way to automate repetitive Office tasks. Over time, however, VBA has become a central component of business process automation in enterprises of all sizes.

With the increasing emphasis on digitalization and cloud-based automation, Microsoft has introduced new tools such as Power Automate and Office Scripts. Office Scripts is a cloud-native automation framework based on

TypeScript, designed to run within Excel for the web. Contrary to its name, Office Scripts is not available for the entire Office suite, but only for Excel. While technologically more modern and scalable, Office Scripts is currently limited to certain Microsoft 365 licenses and lacks the deep integration with desktop applications and other Office components that VBA offers.

Although VBA is not among the most popular languages in the broader programming community, it retains functional relevance in enterprise environments. According to the PYPL Popularity of Programming Languages Index, VBA accounted for only 0.9% of tutorial search traffic in December 2023, compared to Python's 28.2% (Carbonnelle, 2024). This reflects low interest from new learners and developers but does not account for the massive installed base of VBA in legacy enterprise systems. Despite widespread use, scholarly analysis of VBA's role in industrial or corporate automation remains sparse. Most references to VBA appear in older textbooks or practitioner blogs. Scholarly publications that focus on business process automation often neglect VBA altogether, favoring newer platforms or general programming frameworks.

This lack of coverage underlines a research gap that this paper aims to address. The broader literature on legacy software supports the idea that systems like VBA persist not because of their superiority but due to path dependency, compatibility, and the high cost of migration. This work seeks to contribute to that underexplored intersection of scripting language persistence, IT infrastructure constraints, and industrial digitalization.

RESEARCH METHODOLOGY

The methodological approach of this paper is qualitative and exploratory in nature. Its objective is to identify and synthesize root causes that explain the continued relevance of VBA within contemporary EUC environments.

The analysis is based on a structured review of academic literature, technical documentation, and selected practitioner-oriented sources. Core themes include the organizational embedding of EUC tools, the complexity of spreadsheet-based systems, and the structural persistence of legacy code. Emphasis is placed on factors such as integration depth, switching costs, governance limitations, and user dependency.

Additionally, official documentation provided by Microsoft and contributions from the open-source VBA community (e.g., Rubberduck) are considered to assess the current tooling landscape and the practical conditions that sustain the use of VBA in business applications.

This methodological framework facilitates the integration of conceptual and technical perspectives and supports a comprehensive understanding of the infrastructural, organizational, and economic dynamics underlying the long-term use of VBA. No primary empirical data were collected.

COMPARATIVE ANALYSIS: VBA VS. OFFICE SCRIPTS

Table 1 below compares VBA and Office Scripts based on several factors.

Table 1. Comparison between VBA and Office Scripts

Feature	VBA	Office Scripts
Platform	Desktop (Excel, Word, PowerPoint, Outlook)	Excel (Web only)
Language	VBA (BASIC-derivative)	TypeScript (JavaScript-based)
User Access	Available by default in all Office installs	Requires Microsoft 365 (certain plans)
Integration	Deep inter-app automation	Limited to Excel
IDE Requirements	Built-in Visual Basic Editor	Online script editor in Excel Web
Execution Mode	Client-side	Server-side
Security Model	File-based macro security	Admin-controlled, cloud-executed

Ease of Learning	High – simple syntax derived from BASIC, broad community	Medium – JavaScript/TypeScript knowledge needed
IT Dependencies	Minimal (no admin rights required)	Requires cloud, admin setup
Offline Use	Yes	No

The comparison illustrates that while Office Scripts offers modern architecture and cloud-native benefits, it remains functionally constrained in real-world enterprise environments. Most notably, it lacks cross-application automation (e.g., Outlook mail generation, PowerPoint chart population), which is essential in many business workflows. For further automation, Power Automate is required; however, most automation scenarios involve additional costs. VBA cannot be integrated with Power Automate, but Office Scripts can.

Office Scripts introduces new technical and administrative dependencies that conflict with IT security policies in many industries. By contrast, VBA runs locally, requires no installation, and integrates tightly with the existing Office ecosystem, making it irreplaceable in many settings.

Persistence of Legacy Code

The enduring presence of Visual Basic for Applications (VBA) in corporate environments can, in part, be explained by structural and technical lock-in effects. Many companies continue to rely on large collections of Excel workbooks containing embedded VBA code that automates mission-critical tasks such as financial reporting, data transformation, and routine process automation.

These tools often emerged organically over time without formal software development practices. As Hermans et al. (2015) have shown, the complexity of spreadsheet systems increases significantly as logic becomes deeply embedded within cell formulas and scripts. These embedded routines, typically undocumented and developed by non-professional programmers, lead to systems that are difficult to refactor or replace.

Another factor that contributes to the persistence of legacy VBA systems is the transaction cost and risk involved in migrating to alternative platforms. Even where modern tools such as Office Scripts or Power Automate exist, they often lack the direct integration, performance efficiency, or end-user familiarity that VBA provides. Additionally, VBA remains tightly coupled with the Excel object model, offering granular control over workbooks and data connections.

Weber (2024) refers to this situation as a form of ‘strategic lock-in,’ wherein companies retain VBA not due to inertia alone, but because the cost-benefit ratio of transitioning is not favorable in the short term. Nahrstedt (2023) similarly documents how controllers prefer maintaining VBA macros due to predictability, speed, and stability.

As a result, VBA-based systems exhibit a high degree of resilience, supported by their embeddedness in critical processes and the high replacement cost, both technical and organizational. Understanding this dynamic is key to evaluating the language’s current relevance.

Vibe coding with VBA

Artificial intelligence (AI)-supported code completion is now provided directly in Microsoft 365 with Copilot. The already easy-to-understand programming language VBA is made even easier to learn and master with large language models (LLMs). The possibilities with this generative AI are endless, whether it’s automatically displaying syntactic suggestions, context hints, and error diagnostics.

It enables automated refactoring of existing modules, whereby redundant code is detected, modularized, and secured by automatically generated unit tests, thereby sustainably increasing maintainability and code quality. This type of LLM assisted programming is called vibe coding and is currently very popular due to the large number of LLMs available.

At the same time, the consistent use of PtrSafe declarations and conditional compilation ensures 64-bit compatibility, allowing larger memory to be addressed and improving performance. Furthermore, signed macros, trusted location policies, and centrally managed COM add-ins implement robust security and governance mechanisms. Since governance is a major issue in end-user computing applications (EUCAs) (Panko & Halverson, 1996; Hall, 1996), particular emphasis must be placed on this.

RESULTS

The enduring use of VBA in industrial and corporate environments is driven by a combination of technological, organizational, and economic factors:

- Availability: Microsoft Office, including VBA, is pre-installed on nearly all enterprise PCs, making it

immediately accessible. 85 % of Fortune 500 companies use SAP for their core business processes, as do many smaller companies (cf. Patil, 2024).

- **Legacy codebase:** Many existing automation scripts are written in VBA. Rewriting or migrating these would be resource-intensive and error-prone.
- **Learning curve:** VBA is relatively easy to learn due to its BASIC heritage. Employees without formal programming education can use it effectively.
- **IT restrictions:** Companies often restrict software installations and administrative access. VBA runs within Office and requires no additional setup like an integrated development environment.
- **No corporate IT required:** Corporate IT departments are already busy with other things such as cyber security, support and many other tasks, and therefore do not have time to develop customized tools for users. However, frequently used methods can be mapped as C libraries (DLLs) by the IT or end-user developers. This increases reusability, reduces the number of variants and greatly increases the speed of the method, as multithreading can be used with DLLs.
- **Cross-application automation:** Unlike Office Scripts, VBA supports rich interactions between Excel, Word, Outlook, and PowerPoint.
- **Offline compatibility:** VBA operates on desktop applications, independent of cloud connectivity, which is essential for many industrial environments.

These findings indicate that VBA fills a critical niche for lightweight, decentralized automation in constrained IT environments. While modern solutions like Office Scripts and Power Automate show promise, their current limitations and infrastructure dependencies make them less viable replacements in many cases.

CONCLUSION

This study has shown that the use of VBA remains widespread in business practice, particularly for the automation of repetitive processes and the development of custom functionality within the Microsoft Office suite. Despite the increasing prominence of low-code platforms and cloud-based automation tools, VBA continues to be relied upon due to entrenched legacy systems, historically evolved workflows, and the high degree of integration with Excel.

VBA is not merely a technical instrument but exemplifies a broader phenomenon of end-user development, where non-IT professionals design and implement functional solutions to meet specific operational needs. While this practice can significantly improve productivity and responsiveness, it also introduces risks related to governance, version control, and long-term maintainability – issues widely discussed in the literature on end-user computing.

The analysis has further revealed that VBA's continued use does not stem from strong institutional support or modern software engineering principles, but from its deep-rooted presence in organizational routines. Although basic documentation exists, especially through Microsoft Learn and community-driven resources, it is often outdated, inconsistent, and lacks the clarity and comprehensiveness expected of contemporary development environments. This presents a particular challenge in terms of onboarding, standardization, and refactoring of legacy code.

In conclusion, VBA is expected to remain relevant in the short to medium term, particularly within Excel-centric processes. The use of LLMs such as Copilot simplifies end-user development, which could also extend the lifespan of VBA, as it makes it much easier to create functioning scripts than starting completely from scratch.

However, its strategic role should be critically evaluated. Organizations are advised to assess the sustainability of existing VBA-based applications, develop structured maintenance and migration strategies, and explore alternatives such as Power Automate. If companies decide to use VBA for end-user development, end-user developers must be trained to comply with corporate IT guidelines.

Ultimately, the persistence of VBA illustrates the consequences of technological lock-in and highlights the need for robust governance mechanisms around user-driven software development. This includes setting standards, providing training, and establishing oversight processes that ensure both flexibility and long-term stability in a rapidly evolving digital landscape.

Outlook

Given the persistence of VBA across many industries despite the availability of modern alternatives, future research and practice should focus on structured transition strategies and hybrid environments. While a full-scale replacement of VBA may not be realistic in the short term, targeted augmentation – using APIs, RPA tools, or low-code platforms - can gradually reduce technical debt and enhance maintainability.

Further research should investigate the long-term costs of VBA-based infrastructures, both in terms of hidden complexity and dependency risks. Empirical studies comparing productivity, error rates, and maintainability across VBA and alternative tools (e.g. Python with pandas or Power Automate) could offer valuable insights for practitioners.

Moreover, there is a growing need to define governance frameworks for end-user development more explicitly. This includes balancing autonomy and control, standardizing practices without undermining flexibility, and designing training programs that bridge the gap between domain expertise and software engineering principles.

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ПРОДЪЛЖАВАЩАТА АКТУАЛНОСТ НА VISUAL BASIC FOR APPLICATIONS (VBA) В КОМПАНИИТЕ: АНАЛИЗ НА ОСНОВНИТЕ ПРИЧИНИ

Резюме: Въпреки усилията на Microsoft да го замени с облачни алтернативи като Office Scripts и Power Automate, Visual Basic for Applications (VBA) остава основният инструмент за автоматизация в много компании. Анализът на основните причини показва, че в допълнение към добре известните ефекти на „заклучване“ (стар код, ниска готовност за миграция, ИТ ограничения), поддържаното от LLM „vibe coding“ сега също значително удължава неговия живот: генеративната AI улеснява рефакторирането, документирането и поддръжката на съществуващите макроси, което накланя баланса между разходите и ползите в полза на VBA. Освен това Office Scripts все още не е дълбоко интегриран с Outlook и PowerPoint – критичен критерий в индустриалните работни процеси. Проучването показва, че VBA остава незаменим в краткосрочен план, но препоръчва обучение за крайните потребители разработчици, за да се спазят изискванията за управление. Като цяло, VBA често е просто подходящият инструмент за разработка от крайни потребители, тъй като може бързо да предостави високо персонализирани решения, които алтернативните инструменти могат да предложат само след дълъг период на разработка и на висока цена. Ако сега се повиши осведомеността за управлението, VBA може и ще продължи да се използва за много дълго време и да бъде от голяма полза.

Ключови думи: цифрова трансформация; големи езикови модели (LLM); автоматизация на процесите; стари системи; Visual Basic for Applications (VBA); разработка за крайни потребители

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COOPERATION AS AN IMPOSITION? PARENTS OF CHRONICALLY ILL CHILDREN
CAUGHT BETWEEN CONFLICTING SCHOOL EXPECTATIONS

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Abstract: *This article analyzes parental cooperation in the context of chronic illnesses using a theory-based, practice-oriented approach. Using epilepsy as an example, it shows that the ability to cooperate is not a static personality trait, but rather a context-dependent action influenced by medical responsibility, emotional stress, social attributions, and structural tensions. The qualitative evaluation of relevant specialist literature identifies six central dimensions of stress: medical-administrative complexity, fragmented responsibilities, communicative misunderstandings, emotional pressure, concerns about the future, and structural decoupling of responsibility and agency. The analysis shows that parental cooperation can only succeed under certain conditions: through reliable structures, transparent communication, and an attitude that understands stress as systemic rather than individualized. This paper aims to provide a differentiated systematization of parental stress and to stimulate inclusion-oriented school development that does not overwhelm parents but rather empowers them.*

Keywords: *Parental Cooperation; Chronic Illness; Inclusive Education; Epilepsy in Childhood; Institutional Stressors*

INTRODUCTION

Parents of chronically ill children play a central role in the inclusive education system. They are responsible for medical care, coordinate therapies, structure their children's daily lives, often under difficult conditions, and are in constant contact with schools, daycare centers, medical specialists, and other institutions. These diverse demands not only require organizational and emotional resources, but also a high degree of communication skills, mental resilience, and adaptability. At the same time, these parents are often regarded by educational institutions as natural cooperation partners – as people who are always available, constructive, and resilient. However, this expectation conflicts with the actual reality of many families' lives: Chronic illnesses such as epilepsy not only pose medical challenges, but also cause emotional uncertainty, social stigmatization, and structural disadvantages.

In particular, the fear of uncontrollable situations at school, uncertainty in dealing with emergency medication, or the feeling of being left alone with the responsibility characterize the everyday life of many parents. The example of epilepsy, one of the most common neurological disorders in childhood, is paradigmatic: parental cooperation is not a constant, but the result of complex, often overwhelming life circumstances. These circumstances not only affect the relationship between parents and educational professionals, but also indirectly affect the educational and participation opportunities of the children concerned. At the same time, not only the children but also the educational institutions themselves benefit when sustainable cooperative relationships between schools, families, and other partners are successful (Epstein 2001).

Inclusion-oriented institutions are therefore called upon to understand the parents' perspective not only as a supplementary resource, but also as a factor in the educational process that should be actively supported. Parents should not be viewed exclusively as agents for fulfilling school requirements, but must be perceived as equal partners with their own burdens and needs. The aim of this article is to use a theoretical-conceptual analysis to highlight the areas of tension in parental cooperation in the context of chronic illnesses, to frame them systemically, and to formulate ideas for institutional relief and cooperative support.

RESEARCH METHODOLOGY

This work is based on a theoretical-conceptual approach that combines different scientific perspectives. It focuses on concepts from inclusive education, disability studies, psychological family research, and interdisciplinary perspectives on cooperation processes in the education system. This framework is supplemented by practical findings from family psychological assessments, particularly in the context of proceedings concerning child welfare and the assessment of parental fitness.

In line with a systemic approach, parental cooperation is not understood as an individual personality trait or

a static characteristic, but as a relational phenomenon. Cooperation arises – or fails – depending on contextual conditions, institutional structures, communication processes, and intra-family stress constellations.

This perspective is also shared by Dutsch (2007), who emphasizes that parents often have to navigate between institutional expectations and family reality without finding sufficient support or a sympathetic ear. Module E, “Chronic illnesses in children and adolescents with an impact on everyday school life,” from the State Institute for School Development (Düser et al. 2016) also emphasizes that school practice often demands parents as cooperation partners without adequately addressing their stresses.

Epilepsy serves as an exemplary case structure in this article. The disease is symbolic of chronic conditions with a high degree of unpredictability, medical complexity, emotional stress, and considerable coordination requirements. At the same time, epilepsy is associated with a high potential for stigma, which can make it difficult for parents to be open with school institutions. The combination of caregiving responsibilities, institutional expectations, and social uncertainty makes epilepsy a particularly relevant example for investigating conditions for cooperation under stress. Düser et al. (2016) also emphasize that institutional requirements are often not sufficiently aligned with family coping strategies.

For practical purposes, more than 30 family psychology assessment cases were systematically evaluated in which a chronic illness – usually epilepsy – played a central role. These assessments included semi-structured parent interviews, standardized psychological diagnostics, observed parent-child interactions, and written assessments from youth welfare offices and professionals from the education system. The focus was not only on the parents’ experiences of stress, but also on their descriptions of cooperative relationships with daycare centers, schools, early intervention centers, and medical staff. Beerbom, Schönberg, and Kubandt (2010) also emphasize that chronic illnesses have a significant impact on everyday school life and require coordinated, cooperative support from the school and parents.

In addition, current studies and expert discussions on parental stress, cooperation dynamics in education systems, and institutional barriers to inclusion were analyzed. The methodological approach follows the principle of qualitative case consolidation, in which individual observations are embedded in theoretically reflected overall contexts. In addition to empirical materials, legal foundations for cooperation in the education sector, school supervision guidelines, and training concepts for educational staff were also taken into account. Structural weaknesses are evident here, as Düser et al. (2016) emphasize: The reality of school life has so far offered too few systematically anchored strategies to strengthen parents as equal cooperation partners. Beerbom et al. (2010) also point to the lack of structural consideration of parental expertise in everyday institutional life.

In addition, feedback from expert discussions with school social workers, family support agencies, and counseling centers was used to supplement institutional perspectives on parental cooperation and stress. The findings are condensed into a systemic overview in the spirit of practice-oriented concept development, which makes the interactions between family stress situations and institutional requirements transparent.

The work is therefore not intended as an empirical intervention study, but rather as a theory-based concept analysis with a strong practical foundation. One limitation of this approach is that the results cannot claim to be representative or generalizable. The case studies analyzed provide valuable insights into typical areas of tension, but cannot make quantitative statements about the frequency of certain patterns or mechanisms of action. The findings therefore aim at theoretically informed systematization and well-founded hypothesis formation.

RESULTS

The analysis clearly shows that parental cooperation can be impaired by multiple stress factors when a child has a chronic illness. These can be divided into six key areas of tension:

Medical and administrative complexity:

Parents are often responsible for organizing appointments, medication schedules, communication with doctors, and emergency management. In the case of epilepsy in particular, there is the additional responsibility of providing and securing emergency medication. These tasks tie up time, cognitive, and emotional resources. Many families experience a permanent disruption to their everyday lives due to medical necessities. The demands are not one-off, but chronic – they permeate everyday life and intensify during crises, transitions, or school requirements (Düser et al. 2016).

Fragmented responsibilities:

Schools, doctors, therapy practices, youth welfare services, health insurance companies, and other agencies follow different logics and often communicate in an uncoordinated manner. Parents thus become an informal interface that bears responsibility but has little power to influence the situation. The lack of institutional coordination forces parents into the role of case managers – without the appropriate support or recognition. This role is neither voluntary

nor sustainable, especially if the parents themselves are under stress due to work or health issues (Dutsch 2007; Beerbom et al. 2010).

Communicative misunderstandings:

Teachers and specialists often perceive parents as “uncooperative” when they do not participate in discussions or do not respond as desired. In fact, excessive demands, fear of stigmatization, or simply exhaustion are more common explanations. Many parents report that they tend to avoid institutional exchanges in order to avoid conflict or misunderstanding. Misunderstandings also arise from implicit expectations: parents often do not know exactly what is expected of them, what responsibilities they have at school, and where they might be relieved of some of the burden (Dutsch 2007; Düser et al. 2016).

Emotional pressure and social expectations:

The idea of always being informed, approachable, and engaged is conveyed to parents in many ways – implicitly through school communication and explicitly through support structures. Any deviation from this is quickly interpreted as disinterest or incompetence. These internalized expectations lead to constant pressure to conform, which ties up additional energy and impairs the ability to cooperate. Mothers are particularly affected here, as social attributions of “good motherhood” are strongly linked to school presence and involvement (Bachmann 2014).

Concerns about the future and constant psychological stress:

Many parents of chronically ill children are constantly worried about their child’s health, social and educational future. Questions about their child’s future independence, employability and social participation are a constant factor in everyday life. This latent fear of the future ties up emotional resources and can significantly limit openness to cooperation processes. In interviews, parents describe how even simple school meetings are linked to the unspoken question: “What will happen to my child when I can no longer be there for them?” The constant psychological stress can lead to symptoms of exhaustion, depression, or anxiety disorders, which in turn limit the parents’ ability to act. In a representative AOK study, 32% of parents of chronically ill children report very high levels of stress – both for themselves and for their child. In addition, 29% of parents express concerns about a lack of information and uncertainty about whether they can help their child sufficiently (Klaus 2024).

Structural decoupling of responsibility and agency:

Many parents take on tasks in everyday life that are not institutionally recognized but are in fact necessary – from monitoring their child’s health to coordinating therapy plans. At the same time, they are denied the opportunity to participate in decision-making. They see themselves as executors without a say. This is particularly critical in formal processes such as disadvantage compensation, medication approvals, or emergency plans. Parents report that they have to provide information multiple times, that their assessments are rarely heard, or that decisions about their child are made without their involvement. This decoupling reinforces the feeling of merely being reactive rather than proactive – which can lead to withdrawal or passive rejection in the long term (Beerbom et al. 2010; Düser et al. 2016).

These six areas of tension have a cumulative and mutually reinforcing effect. The greater the pressure on the family, the more difficult it becomes to establish a stable cooperative relationship with the school. At the same time, there is an increased risk that the child will be disadvantaged in school contexts – for example, through a lack of support, misunderstandings among staff, or a lack of individual support. Educational professionals themselves sometimes report feeling overwhelmed, unclear about how to deal with chronically ill children, and lacking training opportunities (Düser et al. 2016). Furthermore, it is clear that cooperation cannot be achieved through dialogue alone. It requires structural conditions – time, trust, reliability, and shared responsibility. Schools that have a clear multi-professional concept have been shown to be more successful in establishing cooperative relationships with parents of chronically ill children. This includes designated contact persons, coordinated communication channels, transparent processes, and a professional attitude that does not individualize stress but recognizes it as systemic (Beerbom et al. 2010). Another overlooked aspect is the long-term burden. Cooperation is not a one-off event, but an ongoing process – especially in the context of chronic illness. Many parents report that they are in constant communication with changing professionals, institutions, and authorities over a period of years. This long-term coordination, accompanied by repeated diagnoses, school changes, or deteriorating performance, creates a feeling of exhaustion and of “never arriving” (Bachmann 2014). Last but not least, the analysis points to methodological limitations: the qualitative selection of cases allows for a detailed description of typical stress phenomena, but does not claim to be generalizable. Statements about the prevalence or causes of individual phenomena would have to be empirically verified separately.

CONCLUSIONS/DISCUSSION

The present analysis has shown that the ability to cooperate should not be understood as a static characteristic, but rather as a dynamic process that is highly dependent on context. It is influenced by institutional conditions, social attributions, emotional stress, structural expectations, and misunderstandings (Dutsch 2007; Beerbom et al. 2010).

The example of epilepsy in particular makes it clear that parents not only bear medical responsibility, but are also confronted with a high degree of emotional uncertainty, additional organizational effort, and social stigmatization (Düser et al. 2016; Bachmann 2014). These stresses are not temporary, but permeate everyday family life for years. They shape how parents communicate with educational professionals—and how openly, trustingly, or exhausted they respond to offers of cooperation.

The areas of tension identified in the analysis make it clear that it is not enough to formally demand cooperation. Rather, inclusive school and daycare development is necessary that systematically takes parental resources into account (Düser et al. 2016). This includes clear structures, reliable contact persons, transparent communication, and a professional approach to ambivalence and boundaries. Schools and daycare centers must be prepared to share responsibility—not only in terms of educational care, but also in terms of institutional self-reflection (Beerbom et al. 2010).

At the same time, it is necessary to think of the relationship between parents and professionals not only in functional terms, but also in relational terms. Cooperation is particularly successful when both sides build trust, respect differences, and share joint responsibility (Epstein 2001). An inclusive attitude also includes taking parental overload seriously instead of interpreting it as resistance or disinterest (Dutsch 2007).

Nevertheless, it should be noted that these findings are primarily derived from the qualitative evaluation of family case histories and conceptual analyses. They offer key insights, but do not represent conclusive or comprehensive statements. Further research with larger samples and quantitative methods is needed to more broadly validate the dynamics identified here and to apply them in a differentiated manner to different family contexts.

Parental cooperation is therefore not unconditional. It needs space, time, recognition—and a system that is prepared not only to address parents, but to truly support them. Only in this way can the expectation of cooperation become a sustainable, mutually supportive relationship—for the benefit of the child and in the interests of an inclusive educational landscape.

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НАЛАГАНЕ НА СЪТРУДНИЧЕСТВО? РОДИТЕЛИ НА ХРОНИЧНО БОЛНИ ДЕЦА, ПОПАДНАЛИ СРЕД ПРОТИВОРЕЧИВИ ОЧАКВАНИЯ НА УЧИЛИЩЕТО

Резюме: В тази статия се анализира родителското сътрудничество в контекста на хроничните заболявания, като се използва подход, основан на теорията и ориентиран към практиката. Използвайки епилепсията като пример, тя показва, че способността за сътрудничество не е статична личностна черта, а по-скоро контекстно зависимо действие, повлияно от медицинската отговорност, емоционалния стрес, социалните атрибуции и структурните напрежения. Качествената оценка на съответната специализирана литература идентифицира шест централни измерения на стреса: медицинско-административна сложност,

фрагментирани отговорности, комуникативни недоразумения, емоционален натиск, загриженост за бъдещето и структурно разграничаване на отговорността и агенцията. Анализът показва, че родителското сътрудничество може да бъде успешно само при определени условия: чрез надеждни структури, прозрачна комуникация и нагласа, която разбира стреса като системен, а не като индивидуален. Целта на този текст е да предостави диференцирана систематизация на родителския стрес и да стимулира ориентирано към приобщаване развитие на училището, което не претоварва родителите, а по-скоро ги овластява.

Ключови думи: *родителско сътрудничество; хронично заболяване; приобщаващо образование; епилепсия в детска възраст; институционални стресови фактори*

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ANALYSIS OF THE DEMAND FOR RESEARCH ON THE STAKEHOLDER APPROACH TO OPTIMISE EMPLOYEE MANAGEMENT

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Abstract: *This article describes the relevance of the stakeholder approach for employee management in entrepreneurial times, which are characterised by the use of artificial intelligence. In this context, a description is offered how a stakeholder approach can be applied. In addition, a distinction is made compared to the shareholder approach. The importance of the stakeholder approach is illustrated by highlighting current macroeconomic trends. This is achieved by analyzing and summarizing the literature. Furthermore, the findings on emotional and spiritual intelligence show the demand for research regarding the stakeholder approach. This demand is necessary in order to optimize employee management in an entrepreneurial context. For this purpose, findings of a simplified case study analysis are used. Based on existing empirical studies it is concluded that the findings relating to the relationship of emotional intelligence and spiritual intelligence should be integrated in the existing stakeholder approach. This impulse for future research work is the main result of this article.*

Keywords: *Leadership; Employee Management; Stakeholder Approach; Emotional Intelligence; Spiritual Intelligence*

INTRODUCTION

At first glance, managers' current interests seem to be focused on the use of artificial intelligence in a business context. However, the statement by the visionary entrepreneur Elon Musk from 2018 describes the importance of interpersonal collaboration. Musk says: "It's very important to like the people you work with, otherwise life [and] your job is gonna be quite miserable" (Musk 2025).

This statement particularly addresses people with leadership responsibility as they are responsible for the stakeholder group of employees. The relevance of this special stakeholder group for the success of a company has been highlighted, for example, by the Gallup Institute (cf. Gallup Inc. 2023, 4-5).

Considering the relevance of the employee stakeholder group it is useful to reflect on the stakeholder approach. According to Wall and Schröder, the stakeholder approach means "[...] considering and balancing the interests of all stakeholder groups in corporate policy" (Wall/Schröder 2009, 4, translated from German by the author).

This stakeholder approach is supported by recognised institutions. For example, a stakeholder dialog was promoted by the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection of Germany in collaboration with the Fraunhofer Institute. The aim was to find solutions for a specific issue with all relevant stakeholders (cf. Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection 2017).

Although this practical example demonstrates the relevance of the stakeholder approach, it is still important to identify the current demand for research that will provide answers to the current challenges of the corporate environment.

RESEARCH METHODOLOGY

The present research method includes a review and the analysis of existing literature. This ensures a robust understanding of the stakeholder and shareholder approach. At the same time, this literature-based work shows the necessary demand for research into the stakeholder approach.

This demand for research is confirmed by findings from interviews with company managers and thus by a simplified case study analysis.

Finally, this demand for research is specified. Current knowledge regarding the relationship between the stakeholder approach and emotional and spiritual intelligence is examined. Existing empirical study findings are used for this purpose.

RESULTS

The economists Wall and Schröder consider the publication by the philosopher and economist Freeman entitled “Strategic Management: A Stakeholder Approach” (Freeman 1984/2010, I) from 1984 the starting point for the broad discussion of the stakeholder approach as an alternative to the shareholder approach (cf. Wall/Schröder 2009, 4). The stakeholder approach is about taking the interests of all stakeholders seriously, considering them and achieving a balance between the various interests (cf. Wall/Schröder 2009, 4).

Figure 1 shows the stakeholder approach:

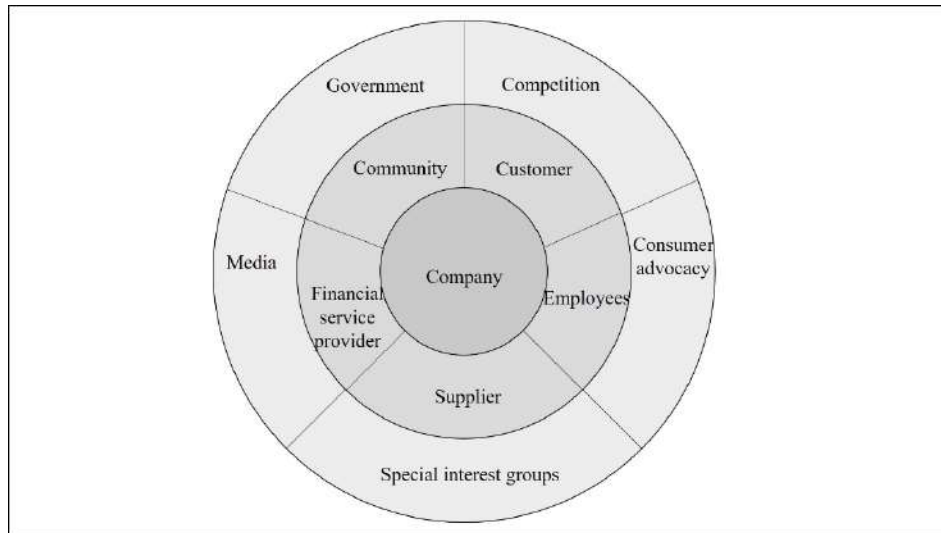


Figure 1. Approach of stakeholder theory (modified according to Freeman/Harrison/Wicks 2007, 51)

Figure 1 shows the various stakeholder groups that place demands of the respective company. The fact that there are various different groups illustrates the reason why, according to Wall and Schröder, the term ‘stakeholder’ is not strictly defined (cf. Wall/Schröder 2009, 6). In this assessment the authors refer to Freeman who defines stakeholders in the following way (cf. Wall/Schröder 2009, 6): “A stakeholder in an organization is (by definition) any group or individual who can affect or is affected by the achievement of the organization’s objectives” (Freeman 1984/2010, 46).

With regard to the stakeholder groups, the difference between the stakeholder approach and the shareholder approach becomes clear. Wall and Schröder demonstrate the difference by referring to existing literature. They argue that demands made by stakeholder groups other than the owners or shareholders are fulfilled under one condition only: All demands must contribute to the overarching goal of increasing the monetary value of the company for the shareholders (cf. Wall/Schröder 2009, 6; cf. also Rappaport 1986, 1).

To highlight the objective of the shareholder value approach Wall and Schröder quote the economist and Nobel Prize winner Friedman (cf. Wall/Schröder 2009, 6). Friedman comments as follows: “In such an economy, there is one and only one social responsibility of business — to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition, without deception or fraud” (Friedman 2002, 133).

In contrast, the stakeholder approach requires a balance between the demands of the various interest groups. It does not support a one-sided push of the demands of the owners (cf. Wall/Schröder 2009, 6). Wall and Schröder summarise this definition with a quote from Smith (cf. Wall/Schröder 2009, 6). Smith explains: “The fundamental distinction is that the stakeholder theory demands that interests of *all* stakeholders be considered *even if it reduces company profitability*” (Smith 2003, 86).

This simplified definition of the stakeholder approach does not allow the derivation of a uniform research direction. Rather, Wall and Schröder, referencing the economist Jones and the business ethicist Wicks, show different research directions regarding the stakeholder theory. The normative stakeholder theory is of particular interest. It focuses on the identification of ethically and morally binding claims by the various interest groups against the top executives of a company (cf. Wall/Schröder 2009, 6-7; cf. also Jones/Wicks 1999, 206-221).

These explanations by Wall and Schröder are confirmed in a recent publication. Freeman et al. confirm Wall’s and Schröder’s explanations with the words: “[...] it [stakeholder theory, remark JM] must adopt a practical way of putting business and ethics together that is implementable in the real world” (Freeman et al. 2023, 8).

This confirms the need for the inclusion of ethical aspects in the stakeholder approach to meet future challenges such as climate change or demographic developments. Thus, Wall and Schröder argue that the climate change is

recognised by the majority of scientists. In order to minimise the negative consequences for humanity, environmental interests cannot be disregarded (cf. Wall/Schröder 2009, 5).

Wall and Schröder also describe the demographic social change that is leading, respectively will lead to a shortage of skilled workers in certain sectors (cf. Wall/Schröder 2009, 5). In order for the respective company to be able to meet the demand for skilled workers in the long term, long-term investments are required which often go hand in hand with a long-term return on investment.

DISCUSSION

The overlap between the stakeholder approach and emotional intelligence¹ results from the fundamental idea of creating value for different stakeholder groups. The philosopher and economist Freeman and the economists Harrison, Wicks, Parmar and de Colle say: “Business can be understood as a set of relationships among groups which have a stake in the activities that make up the business” (Freeman et al. 2010, 24).

Consequently, in the business environment, the question is how the different stakeholder groups interact with each other and how value is created in this way (cf. Freeman et al. 2010, 24). In this context, Freeman et al. express the opinion: “To understand a business is to know how these relationships work” (Freeman et al. 2010, 24).

This finding by Freeman et al. can be confirmed with examples from the corporate context. The quotes collected by Waibel from company managers about their self-perception are suitable for this purpose (cf. Waibel 2016, 79-82). The following Table 1 contains an excerpt of the findings from these collected statements which are divided into positive and negative aspects.²

Table 1. Characteristics of company managers (cf. Waibel 2016, 79-82)

Positive aspects	Negative aspects
Michael Weiß: Chief Executive Officer Meckatzer Löwenbräu Benedikt Weiß KG	
<ul style="list-style-type: none"> · Creating orientation for employees through strong leadership · Responsible management of the company · Incentive to continuously promote the company due to the continuation of the family succession · Integration of all company stakeholders with commitment to corporate goals · Deep commitment to the company and its employees · The company's well-being has top priority · Implementing own ideas despite internal resistance which leads to success 	<ul style="list-style-type: none"> · Clinging to one's own position or adherence to patriarchal structures · Resistant to consultation · Insufficient integration of stakeholders in major decisions · Implementing own ideas despite internal resistance which leads to loss
Christiane Sasse: Chief Human Resources Officer Dr. Sasse AG	
<ul style="list-style-type: none"> · Responsible use of the decision-making authority · Agile decision-making processes · Holder of corporate responsibility · Identification figure for entrepreneurial vision 	<ul style="list-style-type: none"> · Overpowering leadership role or personality · Too much respect for company founders reduces feedback, innovative suggestions, and independent engagement by employees · Authoritarian management style reduces the inclusion of employee ideas · Limited openness by employees and reduced opportunity for co-design

The characteristics of company managers which are collected in Table 1 show that the managers have relationships with various stakeholder groups. The example of the relationship between the company manager and his employees clearly shows the relevance of maintaining this relationship for entrepreneurial success. This is confirmed by Freeman and his colleagues. Freeman et al. emphasise the relevance of business relationships for success and therefore the need to understand these relationships (cf. Freeman et al. 2010, 24).

This relationship aspect can be associated with emotional intelligence as well as spiritual intelligence³. This approach is not new (cf. Amram 2009). However, there is a demand for research to identify the relationship aspect

as a connecting element in the leadership and behavioural patterns of company managers. It is also necessary to integrate this connecting element into a new independent concept with the help of spiritual and emotional intelligence and to place it in relation to the stakeholder approach.⁴ The following exemplary study findings confirm the relevance of the demand for research.

For example, the economists Turi et al. investigated the relationship between emotional and spiritual intelligence by looking at the academic performance of 113 Pakistani students (cf. Turi et al. 2020, 278). They concluded that both emotional intelligence ($r = 0.600$) and spiritual intelligence ($r = 0.763$) have a connection with academic performance (cf. Turi et al. 2020, 281). The study findings are thus summarised as follows: “As the results of the study approve that emotional and spiritual intelligence is directly related to the academic prosperity” (Turi et al. 2020, 282).

These identified correlations can also be proven in a Western context, for example with the help of the findings of the psychologist Amram. He examined in total 252 participants in an entrepreneurial context: 42 of them were managing directors, while the remaining 210 were hierarchically subordinate to them (cf. Amram 2009, 62). Based on the results of this study, a strong connection between the employees’ rated emotional ($r = 0.64$; $p < 0.001$) and spiritual ($r = 0.68$; $p < 0.001$) intelligence and the quality of leadership can be demonstrated, among other things (cf. Amram 2009, 86). Based on this, Amram comes to the following conclusion: “In summary, results from this study suggest that emotional and spiritual intelligences contribute to business leadership effectiveness” (Amram 2009, 130).

Thus, it is important to identify empirically verifiable conditions under which emotional and spiritual intelligence lead to added economic value.

CONCLUSIONS

It is not possible to conclude from the current research results which conditions or prerequisites are necessary to achieve a relationship between emotional and spiritual intelligence, that is economically beneficial. In addition, there has been insufficient research into the question how this relationship can be reliably located in the stakeholder approach. This research gap needs to be closed with the help of further research. In this way, the conditions under which spiritual and emotional intelligence can add economic value to the relationship between managers and employees will become clear for business practice.

NOTES

¹ Psychologists Salovey and Mayer define emotional intelligence as “[...] the subset of social intelligence that involves the ability to monitor one’s own and other’s feelings and emotions, to discriminate among them and to use this information to guide one’s thinking and actions” (Salovey/Mayer 1990, 189). This definition is also used by Amram (cf. Amram 2009, 3).

² Characteristics as well as behaviour and leadership styles of more exemplary entrepreneurs and top managers are discussed in the article “Analysis of the scientific relevance of emotional intelligence as a common factor in the leadership and behaviour of entrepreneurs and top managers” (Meyer 2025). In this article, these leadership styles are linked to the entrepreneurial coordination task and the domains of emotional intelligence.

³ The philosopher and economist Bouckaert and the sociologist and economist Zsolnai contend that spiritual intelligence is “[...] a transformative intelligence that makes us ask basic questions of meaning, purpose, and values” (Bouckaert/Zsolnai 2012, 495).

⁴ In the article “Analysis of the scientific relevance of emotional intelligence as a common factor in the leadership and behaviour of entrepreneurs and top managers” (Meyer 2025) the relationship between leadership patterns and emotional intelligence is shown. It also indicates how emotional intelligence can be influenced by spiritual intelligence.

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АНАЛИЗ НА ПОТРЕБНОСТТА ОТ ИЗСЛЕДВАНИЯ НА ПОДХОДА НА ЗАИНТЕРЕСОВАНИТЕ СТРАНИ (“STAKEHOLDER APPROACH”) ЗА ОПТИМИЗИРАНЕ НА УПРАВЛЕНИЕТО НА СЛУЖИТЕЛИТЕ

Резюме: В тази статия се описва значението на подхода на заинтересованите страни за управлението на служителите във времената на предприемачество, които се характеризират с използването на изкуствен интелект. В този контекст се описва как може да се приложи подходът на заинтересованите страни. Освен това той се разграничава от подхода на акционерите. Значението на подхода на заинтересованите страни е илюстрирано чрез подчертаване на настоящите макроикономически тенденции. Това се постига чрез анализ и обобщение на литературата. Освен това констатациите относно емоционалната и духовната интелигентност показват необходимостта от изследвания по отношение на подхода на заинтересованите страни. Това търсене е необходимо, за да се оптимизира управлението на служителите в контекста на предприемачеството. За тази цел са използвани резултатите от опростен анализ на казус. Въз основа на съществуващите емпирични изследвания се стига до заключението, че констатациите, свързани с връзката между емоционалната и духовната интелигентност, следва да бъдат интегрирани в съществуващия подход на заинтересованите страни. Този импулс за бъдеща изследователска работа е основният резултат от настоящата статия.

Ключови думи: лидерство; управление на служителите; подход на заинтересованите страни; емоционална интелигентност; духовна интелигентност

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HEALTHY HABIT FORMATION TO SUPPORT SUSTAINABLE WEIGHT
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Abstract: *The global rise in obesity constitutes one of the most pressing public health challenges of our time, as it is associated with a multifactorial set of causes, contributes to a wide range of physical and psychological comorbidities, and places a substantial financial burden on healthcare systems. Sustained weight loss often fails due to the lack of internalization and consistent implementation of healthy habits. This literature review presents two well-established theoretical models of habit formation – the Habit-Goal Theory and the Habit Discontinuity Hypothesis – and discusses their relevance in the context of obesity treatment and weight maintenance (Wood and Neal 2007; Verplanken and Wood 2006). The aim is to derive evidence-based strategies for the development of sustainable, health-promoting habits. The results show that both models offer valuable implications for successful weight management. In particular, strategies such as inhibition, self-regulation, self-monitoring, avoidance, repetition, gradual behavioral change, and implementation intentions appear promising in supporting the establishment of long-term weight-stabilizing habits and effective relapse prevention.*

Keywords: *Obesity; Weight Stabilization; Theories of Habit Formation; Strategies Of Habit Change and Formation*

INTRODUCTION

The obesity pandemic is one of the most pressing health problems of our time and poses major challenges to the healthcare system, as it is associated with increased risk of morbidity and mortality as well as high costs (de Zwaan and Müller 2014, p. 94). Weight loss interventions are often unsuccessful after initial weight loss, as new behavioral patterns are not permanently established. Over 80% gain weight again after losing weight and fall back into unhealthy habits (Wing and Phelan 2005 p. 222). These also torpedo strong intentions. This effect is especially if there are strong associations between situations (e.g. watching TV) and behavior (e.g. eating ice cream) (Adriaanse and Verhoeven 2018, p. 169). Habits are resistant to change and are considered a central cause of the failure of many attempts at change (Wood and Rünger 2016, p. 304). Even with the best intentions and willpower, the behavior pattern often persists, which is referred to as the “intention-behavior gap” (Sniehotta, Scholz and Schwarzer 2005, cited in Cleo et al. 2017, p. 658). Unhealthy eating behavior is often based on habitual processes that undermine purposeful action (Wood and Rünger 2016, p. 307). Conversely, healthy habits can reduce the risk of relapse as they are resilient to stressors and function independently of motivation or willpower (Wood and Neal 2007, p. 840). Given the low success rate of weight stabilisation and the potential of healthy habits, this article uses two theoretical concepts to explore how habit formation and change can succeed in the context of sustainable weight management in obese adults. The aim is to identify evidence-based habit-orientated strategies that can contribute to the long-term establishment of healthy habits.

RESEARCH METHODOLOGY

Using a theory-based literature review, the current findings of habit formation in relation to the problem of inadequate weight stabilisation in obesity were examined in publicly accessible databases. Meta-analyses, reviews and randomised trials of habit change and habit formation strategies were considered.

RESULTS

Habit-Goal-Interface Theory

Habit-goal theory (Wood & Neal, 2007) explains how behaviors become automatic through repeated execution in stable contexts and become independent of conscious motivation. Habits are understood as behavioral dispositions that are triggered by contextual stimuli without the need for conscious decision-making processes. They arise from an associative learning history between a cue and a response. Three principles can be distinguished in the acquisition and execution of habits. Firstly, the model emphasises the central role of context in triggering habitual actions. Automated responses arise from repeated associations between specific environmental features and subsequent behavior. Through repeated performance in everyday life, these context-response patterns become entrenched so that

the context can eventually activate the behavior automatically (Wood and Neal 2007, p. 843). Many behaviors are triggered by cues that were previously regularly associated with them. Two possible forms of triggering are direct and motivated cueing (Neal, Wood and Quinn 2006, cited in Wood and Neal 2007, p. 845). Direct cueing is based on stable memory associations that arise through repeated execution in a consistent context (e.g. buckling up when getting into a car), independent of conscious goal pursuit (Wood and Neal 2007, p. 845). Motivated cueing, on the other hand, describes a conditioned learning process in which the reward value of an action (e.g. eating popcorn) is transferred to the context (e.g. going to the cinema) so that this itself becomes the trigger situation (Wood and Neal 2007, p. 846). Secondly, established habits are activated automatically and without conscious goal representation. Although they were originally learnt in a goal-directed manner, they no longer require any current goal mediation once they have been established. They are activated solely by contextual cues. This explains why habitual behaviors are often experienced as reflexive, such as mindless snacking in front of the TV (Wood and Neal 2007, p. 847). Thirdly, the interaction between habits and intentional behavior is emphasised. Habits do not change spontaneously in response to new goals, but can interact with current goals in certain situations. In some contexts, habitual reactions dominate; in others, goal-directed control can suppress automatic actions and replace them with alternative, goal-compliant actions. The principle illustrates that although habits are resistant to short-term goal changes, they remain involved in the interplay with intentional behavior (Wood and Neal 2007, pp. 843-844). Habits and goals often compete with each other: both systems can be activated simultaneously, with goal-directed actions such as planned weight loss requiring conscious and resource-intensive self-control to overcome habitual responses such as eating ice cream while watching TV. This depends on the available regulatory capacity. Goals also play a crucial role in the initial phase of habit formation, as they motivate the repeated performance of certain behaviors. Initially, control is top-down, but in the course of time it changes to an automatic, context-bound bottom-up activation as soon as a habit has been established (Wood and Neal 2007, pp. 850-851).

Habit Discontinuity Hypothesis

The Habit Discontinuity Hypothesis (Verplanken and Wood 2006; Wood et al. 2005 cited in Verplanken et al. 2008, p. 122) states that changes in context can interrupt habitual behavior and thus open a window of opportunity for more conscious reflection on one's own behavior (Verplanken et al. 2008, pp. 121, 124). Habits are based on stable stimulus-environment constellations (Wood and Neal 2007, p. 843). If this context becomes unstable, the habit loses its triggering power, which enables behavioral reorientation (Verplanken and Wood 2006, cited in Verplanken et al. 2008, p. 122). At the same time, the self-activation hypothesis applies, according to which internally anchored values (e.g. health) become effective when they are cognitively activated (Verplanken and Holland 2002; Utz 2004 cited in Verplanken et al. 2008, pp. 122-123). Context changes can raise awareness of such values (Verplanken et al. 2008, p. 122) and thereby promote more considered, value-led behavior (eating healthier) (Verplanken et al. 2008, p. 124). The implication is that interventions to change behavior are particularly effective if they are linked to contextual changes or phases in which habits are weakened and values are activated (Verplanken et al. 2008, p. 121). Life changes such as a change of residence, job or holiday can help to interrupt unhealthy routines. Those who have internalised health as a central value can implement it more easily under new contextual conditions (self-activation). Such disruptions in context thus create opportunities to rethink unhealthy eating habits and replace them with value-compliant behavior (Verplanken et al. 2008, pp. 125-126).

Both theories are complementary and enable the following strategies to be derived for changing unhealthy habits and establishing healthy habits.

Strategies

Inhibition and avoidance

Since habits are based on slow context-response learning, they do not automatically adapt to new goals - especially if they contradict them. Instead, habits and goals often compete for control over behavior. Two central mechanisms can help to regulate undesirable habits.

Inhibition: Firstly, a habit can be consciously inhibited, a self-control-based process that requires sufficient cognitive resources (Wood and Neal 2007, p. 856). Interventions should therefore help individuals strengthen their ability to inhibit unwanted habits. In an everyday study, the conscious self-instructional signal "Don't do that" in combination with increased attention to slips proved to be effective. The effect was based on increased cognitive control, not on a weakening of habit strength (Quinn et al. 2010, p. 499).

Avoidance: Secondly, targeted avoidance of triggering contexts can interrupt the automatic execution of unwanted habits (Wood and Neal 2007, p. 856). Successful weight maintainers report consciously avoiding unhealthy foods and keeping healthy alternatives available at all times, as well as routinising physical activity. This enables them to resist temptations even under stress (Cleo et al. 2017, p. 659).

Both strategies focus on automatic triggering and promote goal-directed behavior (Wood and Neal 2007, p. 856).

Self-regulation and self-monitoring

Inhibiting unhealthy habits and establishing healthy habits requires self-regulatory strategies that monitor and control behavior towards long-term goals. Successful weight maintainers weigh themselves regularly in order to be able to react early to weight fluctuations (Wing and Hill 2001, p. 310). This behavior begins consciously and becomes increasingly automatic through repetition (Wing and Phelan 2005, p. 222). Keeping a food diary can also regulate eating patterns and shopping lists help to control impulses in the supermarket (Zöllner 2024, p. 102).

Repetition

Repeated actions in stable contexts lead to the formation of context-response links in memory. Once this connection is established, the context stimulus is sufficient to trigger automatic behavior. The immediate reward value becomes increasingly irrelevant (Wood and Rünger 2016, p. 306). However, forming new habits requires time and perseverance. In one study, a self-chosen health-related behavior was performed daily for 12 weeks in the same context (Lally et al. 2010, p. 999). On average, it took 66 days to reach 95% of the maximum level of automation - with a range of 18 to 254 days (Lally et al. 2010, p. 1003). This emphasises the individual and often protracted nature of habit acquisition.

Gradual changes

Evidence-based methods for habit change emphasise the importance of the gradual introduction of new routines and the targeted use of rewards (Wood and Neal 2016, p. 22). Suppressing unhealthy habits would only create resistance. Small incremental changes add up and lead to healthier habits (Zöllner 2024, p. 82).

Implementation intentions

Implementation intentions are effective strategies or specific action plans that are formulated in an if-then structure to build healthy habits (Adriaanse and Verhoeven 2018, p. 172). Specific situations are linked to the desired behavior or specific plans are created, e.g. when you come home from work, you immediately go jogging (Gollwitzer 1999, pp. 493-494). Implementation intentions promote the automation of healthy behaviors and reduce the risk of relapse (Adriaanse et al. 2011, p. 507). In addition, the cognitive load is reduced because the decision to perform the action has already been made in advance, which increases the probability of maintaining the behavior in the long term (Adriaanse and Verhoeven 2018, pp. 172-184).

Combination of strategies in habit-based intervention programmes

A review with meta-analysis examined the effectiveness of habit-based intervention programmes for weight loss (Cleo et al. 2019, p. 519). The interventions analysed led to significant, albeit moderate, weight loss after 8 to 14 weeks and supported the internalisation of automated behavioral patterns. Context-specific cues, which have to be individually adapted to everyday life, played a central role. Such stimuli promote automatic responses without relying on motivation or memory (Cleo et al. 2019, pp. 528-530).

A randomised study investigated the effectiveness of a habit-oriented programme that systematically integrated central principles of habit formation such as stimulus-response repetition, stable contextual conditions and self-monitoring (Lally et al. 2008, pp. 700-701). After eight weeks, the intervention group achieved significantly greater weight loss than the control group. After 32 weeks under intervention conditions, the weight loss was maintained. In the following six months, the intervention group continued to reduce their weight. The average duration of habit formation was three months (Lally et al. 2008, pp. 702-705).

DISCUSSION

A considerable part of daily eating behavior is based on habitual processes. Unhealthy eating behavior in particular is often automatic and context-driven and thus contradicts consciously set goals, especially under stress (Wood and Rünger 2016, p. 307). Conversely, already established healthy habits can reduce the risk of relapse, as they function largely independently of motivation or willpower and are resilient to stressors (Wood and Neal 2007, p. 840). As a result, interventions based on the internalisation of healthy routines are more successful in the long term than those based solely on conscious intentions (Cleo et al. 2017, p. 657).

The concept of habit is therefore becoming increasingly important, as habitualised healthy behavior has been shown in several studies to be a strong predictor of long-term success in weight management (Van't Riet et al. 2011, cited in Cleo et al. 2017, p. 663).

Habit-goal interface theory (Wood & Neal 2007) provides a theoretical frame of reference to explain precisely

those aspects of everyday behavioral control that are not triggered by current intentions but by context-specific stimuli associated with past actions (Wood and Neal 2007, p. 860).

In addition, the Habit Discontinuity Hypothesis (Verplanken et al. 2008) emphasises that contextual changes such as life transitions destabilise existing habits and thus open up opportunities for behavioral change. Such transitional phases can be used specifically in interventions to establish new healthy habits that are ideally linked to personal goals and values, as this promotes motivation for long-term maintenance (Verplanken et al. 2008, p. 121).

However, it should be critically noted that both models largely exclude emotional and social influencing factors. As obesity is a multifactorial disease, a stronger integration of affective and social aspects would be necessary in future modelling. There is a need for further research in this area.

Finally, it should be emphasised that more rigorous, longer-term studies with follow-up periods of at least twelve months are needed to more accurately assess the influence of habit-forming strategies on weight stabilisation (Cleo et al. 2019, p. 531).

CONCLUSION

Long-term weight stabilisation requires the development of healthy, automated habits that can be maintained even under stress without conscious effort. The integration and combination of habit theories and the effective strategies derived from them offer a promising approach to establishing lasting weight-stabilising habits and effective relapse prevention. However, the successful establishment of healthy habits requires patience, frustration tolerance and self-regulatory skills. Future intervention approaches should therefore take into account the potential of habituation and integrate emotional and social aspects in order to enable long-term weight stabilisation.

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ФОРМИРАНЕ НА ЗДРАВΟΣЛОВНИ НАВИЦИ ЗА ПОДДЪРЖАНЕ НА УСТОЙЧИВО ОТСЛАБВАНЕ И СТАБИЛИЗИРАНЕ ПРИ ЗАТЛЪСТЯВАНЕ

Резюме: Нарастването на затлъстяването в световен мащаб представлява едно от най-неотложните предизвикателства пред общественото здраве в наши дни, тъй като то е свързано с многофакторни причини, допринася за широк спектър от физически и психологически съпътстващи заболявания и представлява значителна финансова тежест за системите на здравеопазване. Устойчивото намаляване на теглото често се проваля поради липсата на усвояване и последователно прилагане на здравословни навици. В настоящия литературен обзор са представени два утвърдени теоретични модела за формиране на навици – Теория за навика и целта и Хипотеза за прекъсване на навика, и е обсъдено тяхното значение в контекста на лечението на затлъстяването и поддържането на теглото (Wood, Neal 2007; Verplanken, Wood 2006). Целта е да се изведат основани на доказателства стратегии за развиване на устойчиви, благоприятстващи здравето навици. Резултатите показват, че и двата модела предлагат ценни изводи за успешно управление на теглото. По-специално стратегии като инхибиране, саморегулация, самонаблюдение, избягване, повторение, постепенна промяна на поведението и намерения за изпълнение изглеждат обещаващи в подкрепа на създаването на дългосрочни навици за стабилизиране на теглото и ефективна превенция на рецидивите.

Ключови думи: затлъстяване; стабилизация на теглото; теории за формиране на навици; стратегии за промяна и формиране на навици

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ADAPTATION STRATEGIES OF AUSTRIAN TOURISM
TO DEMOGRAPHIC CHANGES IN GERMANY

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Abstract: *Austrian tourism has traditionally benefited strongly from the German source market but now faces new challenges in the context of demographic change in Germany. An ageing society, declining birth rates and an increasingly diverse population are having a lasting impact on travel behaviour and demand for tourism services. This study, based on a qualitative literature review, examines strategic adaptation possibilities for the Austrian tourism sector. The focus lies on product-related measures such as senior-friendly infrastructure, multigenerational offers, digital services and regional as well as seasonal diversification of the product range. At the same time, targeted engagement with new target groups is becoming increasingly important: besides the 50-plus generation and multigenerational families, the growing group of “new Germans” (people with a migration background) represents an as yet underexploited potential. Furthermore, international source markets – particularly in Central and Eastern Europe, Asia and the Anglo-American region – offer new growth prospects.*

Keywords: *Adaptation Strategies; Demographic Change; Austrian Tourism; Tourism Strategy; Digitalization; Internationalization*

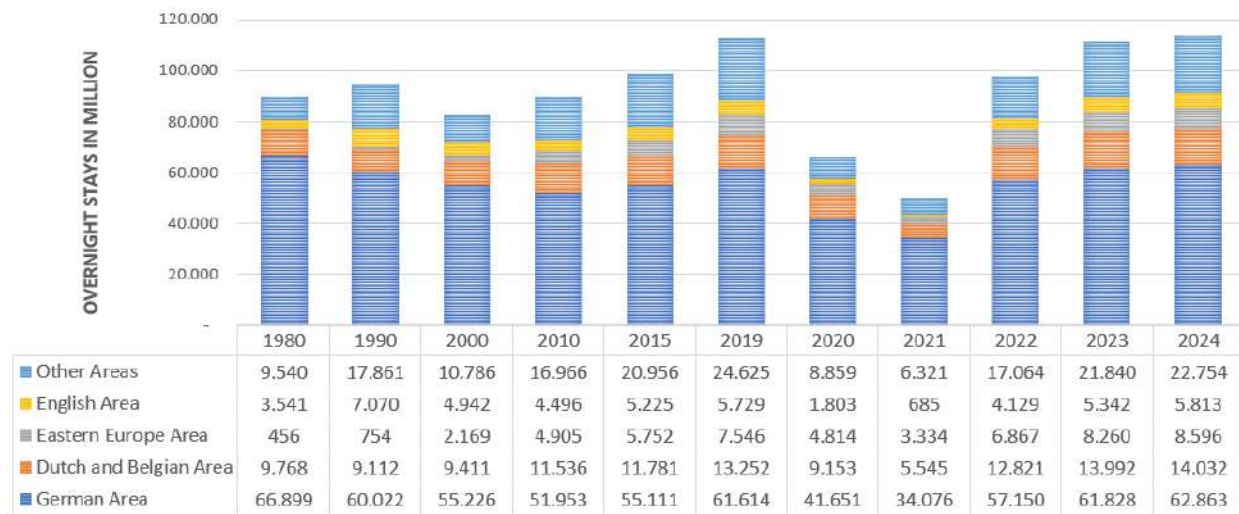
INTRODUCTION

Tourism constitutes a cornerstone of the Austrian economy, making a substantial contribution to regional development, employment and national income. In 2024, Austria recorded an all-time high of 154 million overnight stays (Statistik Austria 2025a). Of these, 114 million were attributable to international visitors, with 63 million overnight stays stemming from German-speaking countries (Germany, Switzerland, Liechtenstein). Table 1 highlights the consistently significant role of German-speaking tourists in absolute terms for Austrian tourism since 1980. Nevertheless, the relative share of German visitors has declined from 74% in 1980 to 55% in 2024, though it remains at a comparably high and stable level (Statistik Austria 2025b). The increasing internationalization of Austrian tourism – driven by factors such as enhanced mobility through air travel and the rising global interest in urban tourism – has become increasingly evident. Regional Austrian cities with pronounced international appeal, notably Vienna and Salzburg, accounted for 27,48 million overnight stays in 2024, representing 17,8% of the country’s total overnight stays (Statistik Austria 2025a).

Despite these broader internationalization trends, the German market continues to represent the backbone of Austria’s leisure tourism sector. This enduring significance is underpinned not only by the shared language and cultural proximity but also by convenient accessibility via private car or rail. According to recent findings on the Austrian tourism season 2022/23, 68% of German tourists in summer and as many as 82% in winter were repeat visitors. Furthermore, the length of stay among German travellers remains notably high, averaging eight days during the summer season and six days during the winter (Austria Tourism 2025).

Austria continues to rank among the five most popular holiday destinations for the German population, as evidenced by the most recent Travel Analysis conducted by the German Research Association for Holidays and Travel (Forschungsgemeinschaft Urlaub und Reisen e.V. 2025). In total, Germany’s population (noted at 82,8 million inhabitants) undertook approximately 68,3 million holiday trips in 2024, generating an overall expenditure of EUR 90,1 billion, equivalent to an average of EUR 1.319 per trip. Of these trips, 76% were outbound journeys, with 4.3% of all outbound holidays being directed towards Austria. In terms of modes of transport, air travel dominated with a share of 44,6%, whereas for journeys specifically to Austria, private vehicles, caravans, or motorhomes accounted for 42,2%. Public railway services were used by 6.3% of travellers, while coach travel represented 4.8%.

Table 1. Overnight Stays by Foreign Visitors in Austria 1980-2024
(own illustration based on Statistik Austria 2025b)



This study thus examines the demographic transformation underway in Germany, characterised in particular by an ageing population, the demographic decline of rural areas and evolving family structures. These developments are anticipated to exert a profound and lasting influence on travel behaviour, tourist expectations and the overall demand for tourism services in Austria.

RESEARCH METHODOLOGY

This study is based on a qualitative research approach with a focus on an in-depth literature review. The objective is to analyse and critically assess existing academic findings, industry reports and policy papers on the adaptation strategies of the Austrian tourism sector in response to demographic change in Germany – particularly the ageing population and evolving travel behaviours.

The literature review forms the core of the research. Relevant sources were identified through a structured search using academic databases (such as Scopus and Web of Science), digital libraries, tourism industry publications and institutional websites. The selection of literature was guided by the following criteria:

- Direct relevance to demographic change in Germany and its impact on tourism demand
- Focus on the Austrian tourism sector and its adaptation measures
- Scientific quality, credibility and transparency of the data
- Topicality, with preference given to publications from the past ten years
- The literature review aims to identify existing adaptation strategies, assess their practical application and highlight potential gaps for further research.

This study is limited to publicly accessible literature and secondary data. No empirical investigations or expert interviews were conducted. The findings are therefore exploratory in nature and aim to provide a structured overview.

RESULTS

Description of Demographic Change in Germany

The population of Germany has grown continuously from 68,7 million in 1950 to 82,8 million in 2024, with few exceptions (Statistisches Bundesamt 2025a). However, during this period, the ethnic composition and age structure have changed significantly. Population development is influenced by three factors: births, life expectancy and net migration (Statistisches Bundesamt 2025). These three aspects are analysed below.

The number of births in Germany is best measured by the birth rate per woman. In 2023, this rate was 1,38 children per woman (Statistisches Bundesamt 2025b). In 1950, it was still 2,10 children per woman (Statistisches Bundesamt 2025c), which is the level required to maintain a country's population size without immigration. The average age of mothers at first birth also increased from 24,9 years in 1965 (Bundeszentrale für politische Bildung 2025a) to 30,3 years in 2023 (Statistisches Bundesamt 2025b). Life expectancy in Germany has risen significantly over the past 150 years. This is mainly due to improved living standards, better medical care and lower infant and child mortality. A girl born in 2024 has a life expectancy of 83,2 years (compared to 38,5 years in 1871) and a boy born in 2024 has a life expectancy of 78,5 years (compared to 35,6 years in 1871) (Statistisches Bundesamt 2025d).

Germany is considered an attractive destination for immigration. Except for a few exceptions around 1950 (end of World War II) and 1985 (Cold War), Germany has consistently recorded a positive net migration balance. In the 1960s and 1970s, many guest workers immigrated to Germany, followed by a significant influx of asylum seekers and refugees around 1990 (end of the Cold War). After joining the European Union, Germany experienced high immigration of skilled workers mainly from Eastern European countries around the turn of the millennium. Since the mid-2010s, the number of refugees and asylum seekers became the dominant immigration factor, most recently influenced by the war in Ukraine (Bundesinstitut für Bevölkerungsforschung 2025). Consequently, the ethnic composition of Germany's population has changed. Of Germany's 82,8 million inhabitants in 2024, 25,2 million (30.4%) have a migration background (Bundeszentrale für politische Bildung, 2025b).

The 15th coordinated population projection for Germany (Statistisches Bundesamt 2021) predicts the following results for 2050, depending on the scenario, expecting a slight population decline from 83,2 million in 2022 to between 70 and 90 million in 2050:

- Fewer births and an increase in deaths in the future
- By 2050, twice as many elderly as younger people
- Rapid decline in school-age and trainee population
- Ageing and decline in the working-age population
- Working-age population will be strongly influenced by older people
- Population aged 80 and above will double
- The projected annual net migration balance is up to 300.000 positive but can only partially offset low birth rates and high death rates
- The share of the population with a migration background will increase significantly.

Key Adaptation Strategies for Austrian Tourism

The tourism industry is closely intertwined with social and demographic developments. In particular, changes in demand linked to the ageing society have a direct impact on tourism. The senior tourist market segment is expected to grow significantly (Peterman et al. 2006). Demographic change also affects tourism indirectly. One example is the reduction in the available workforce and the consequent cutbacks in tourism services (Grimm et al. 2009). From this, two main fields of action can be derived:

a) Product and Service Adaptation

Promoting **senior-friendly infrastructure and offerings** at holiday destinations is essential. This includes, for example, providing barrier-free hotels, developing easily accessible hiking trails, training staff, deploying technological aids (e.g., apps, navigation, audio systems, barrier-free websites and booking systems) and ensuring the destination is well connected by public transport. Expanding health and wellness offers tailored to seniors (spas, thermal baths, health retreats, wellness packages) is also recommended. All tourist infrastructure must be easily accessible for seniors, as part of a “last mile” solution (e.g., shuttle services, e-bike rental) (Austria Tourism 2025b & 2025c).

Seasonal and regional diversification of the offer will be a key factor for a resilient year-round tourism. The focus should be on marketing less frequented natural recreational areas in a healthy environment (RDK 2024). The culinary heritage and regional diversity of Austrian cuisine should also be highlighted (Austria Tourism 2025d).

Offers for and **targeting multigenerational families** provide strategic advantages (RDK 2024). Besides the new focus on the needs of older people, existing sporting activities for younger generations must also be optimised. Combining different age groups within a family creates high potential for longer stays, increased per capita spending and stronger customer loyalty.

Automation of tourism services is necessary due to the declining workforce (Bayerisches Zentrum für Tourismus 2025) and changing guest expectations, especially among younger generations. Digital services such as self-check-in or digital guest guides meet the demand for time flexibility, digital self-determination and contactless processes (travelandtourworld 2025).

b) Marketing and Communication

Tourism marketing is increasingly focusing on the **50plus generation**. This age group values comfort, a high level of safety, high-quality wellness offers and authentic regional experiences. Marketing should therefore emphasise barrier-free access, personal service, clear orientation aids, relaxing leisure activities, cultural authenticity, regional

cuisine and nature-related experiences (Kohlbacher & Herstatt 2011).

Given the ongoing immigration to Germany (Federal Ministry of the Interior and Community 2024), the group of **people with a migration background** living permanently in Germany is becoming increasingly important. Tourism has the opportunity to attract this new target group by embracing cultural diversity, openness and low-threshold access. Offers should be interculturally sensitive and communicated in multiple languages. Particularly effective are experiences that combine nature, health and community without creating cultural barriers. Inclusive formats such as family-friendly hikes, halal-certified gastronomy options, or culturally adapted wellness offers can help engage “new Germans” in the Alpine region.

Opening up **new source markets** is a central factor for sustainable growth in Austrian tourism. Increasing attention is being paid to Central and Eastern European markets such as Poland, the Czech Republic and Hungary - not only due to geographic proximity but also rising purchasing power and growing interest in alpine nature and active holidays. At the same time, distant markets such as China, India and the Gulf States offer considerable potential in culture, health and premium tourism. The Anglo-American market (USA, Canada, UK) is particularly promising, as these countries appreciate Austria's alpine landscape, cultural authenticity and winter sports expertise. Success here depends on high-quality English-language offers, well-developed direct flight connections and a strong online presence (Austrian Tourism Day 2025).

CONCLUSIONS

Demographic change in Germany presents significant challenges for Austrian tourism, while also offering a range of opportunities. The increasing ageing of the population, as well as the growing proportion of people with a migration background, are fundamentally transforming demand and travel behaviour. At the same time, the declining working-age population makes it more difficult to recruit qualified staff, which may adversely affect tourism performance and service quality.

To remain competitive, the Austrian tourism sector must increasingly tailor its offerings to include senior-friendly infrastructure, digital services and intergenerational experiences. In addition, culturally sensitive communication targeting new demographic groups – particularly so called “new Germans” – is essential. In parallel, the development of new source markets, including Central and Eastern Europe, Asia and the Anglo-American region, presents important growth opportunities. A strategically planned, flexible and target-group-specific adaptation of products and marketing activities is therefore crucial for the sustainable development of Austrian tourism.

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СТРАТЕГИИ ЗА АДАПТАЦИЯ НА АВСТРИЙСКИЯ ТУРИЗЪМ КЪМ ДЕМОГРАФСКИТЕ ПРОМЕНИ В ГЕРМАНИЯ

Резюме: Австрийският туризъм традиционно се възползва в значителна степен от германския изходен пазар, но в контекста на демографските промени в Германия е изправен пред нови предизвикателства. Застаряващото общество, намаляващата раждаемост и все по-разнообразното население оказват дългосрочно влияние върху туристическото поведение и търсенето на туристически услуги. Настоящото изследване, базирано на качествен преглед на литературата, разглежда стратегически възможности за адаптация на австрийския туристически сектор. Акцентът е поставен върху продуктови мерки като инфраструктура, подходяща за възрастни хора, оферти за няколко поколения, дигитални услуги и регионално, както и сезонно разнообразяване на туристическите продукти. Едновременно с това целенасоченото привличане на нови целеви групи става все по-важно: освен поколението 50+ и многопоколенческите семейства, растящата група на „новите германци“ (хора с миграционен произход) представлява все още недостатъчно използван потенциал. Освен това международните изходни пазари – особено в Централна и Източна Европа, Азия и англоамериканския регион, предлагат нови перспективи за растеж.

Ключови думи: стратегии за адаптиране; демографски промени; австрийски туризъм; туристическа стратегия; дигитализация; интернационализация

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BASIC PRINCIPLES IN USING CROSSWORD PUZZLES
AS A TEACHING TOOL FOR LEARNING LANGUAGES

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Abstract: *This article explores the pedagogical potential of crossword puzzles as an educational tool for language learning. By combining entertainment with structured problem-solving, crosswords enhance vocabulary retention, grammar awareness, and cultural knowledge. The study draws on both theoretical perspectives and practical classroom applications, situating crossword puzzles within active learning and gamification frameworks. Through the integration of problem-solving strategies – “solve the puzzle, identify the rule” – crosswords engage learners in cognitive and metalinguistic activities that support deeper understanding. The article further reviews recent research and technological developments in automated puzzle generation. Results highlight crosswords as effective, flexible instruments for learner motivation and knowledge retention.*

Keywords: *Crossword Puzzles; Language Learning; Gamification; Active Learning*

INTRODUCTION

Crossword puzzles are among the most enduring forms of word games, uniting play, memory, and logic. Their adaptability to various domains has made them particularly relevant in education, especially in language teaching, where vocabulary acquisition, syntactic awareness, and cultural contextualization are central. Building on prior work in gamification and active learning, this paper investigates the use of crossword puzzles as pedagogical tools for language learning, with a focus on higher education and lifelong learning contexts.

METHODOLOGY

The study adopts a mixed methodological approach combining theoretical analysis with classroom-based practice. First, a **conceptual framework** was established by reviewing relevant literature on gamification, active learning, and cognitive processing theories (e.g., Craik & Lockhart, 1972; Whitton, 2014). This theoretical grounding positioned crossword puzzles as tools that integrate problem-solving, rule identification, and cultural contextualization in language learning.

Second, **pedagogical design** was carried out by constructing crosswords around curricular content. Puzzles were tailored to highlight vocabulary, grammatical structures (such as verb conjugations and plural forms), and cultural references. The “solve–identify” model was applied, requiring learners to articulate linguistic rules once solutions were found.

Third, a **classroom application** was implemented at the University of Library Studies and Information Technologies. Crossword tasks were integrated into language modules and carried out individually, in pairs, or in groups to foster both cognitive engagement and collaborative problem-solving. Learner feedback and informal comparative evaluation against traditional vocabulary exercises were collected to assess engagement and retention.

Finally, **technological developments** were considered by reviewing recent advances in AI-driven and adaptive crossword generation, highlighting the potential of digital tools for personalization and online learning integration.

RESULTS

Crosswords as an educational tool

Crosswords integrate two complementary dimensions of learning. First, they promote problem-solving, as learners are required to interpret clues, recall relevant knowledge, and strategically complete the grid. Second, they facilitate rule identification, since linguistic and grammatical patterns become evident during the solving process. The solve–identify model thereby encourages metalinguistic reflection: once a solution is reached, the learner must articulate the underlying rule, such as a verb conjugation, a gender agreement, or a culturally embedded association. This dual activity enhances both explicit and implicit processes of knowledge construction. Furthermore, crosswords stimulate active learning, as students assume the role of participants rather than passive recipients. When carefully designed around curricular content, puzzles provide a structured yet playful framework for the exploration and reinforcement of knowledge.

Crosswords in language learning

Vocabulary development

Crosswords reinforce vocabulary through repetition in varied contexts. Research shows that learners remember words better when engaged in playful and associative tasks (Torres et al., 2022). Unlike rote memorization, puzzles provide contextual anchors that strengthen semantic networks.

Grammar and syntax awareness

Clues may highlight grammatical categories (e.g., irregular verbs, plural forms), prompting learners to analyze language structure. This fosters both conscious awareness and intuitive control of grammar. For example, puzzles that include verb paradigms encourage learners to internalize conjugational rules.

Cultural knowledge

Crosswords also transmit cultural values and references. Thematic puzzles on Bulgarian or French geography, traditions, and cuisine connect linguistic forms to socio-cultural contexts. This aligns with intercultural learning objectives by embedding linguistic learning within authentic cultural frames.

Pedagogical frameworks for crossword use

The use of crossword puzzles in the classroom can be situated within broader pedagogical paradigms. Gamification theories (Whitton, 2014) emphasize the motivational effects of game-like tasks, while communicative models highlight how learners build knowledge through discovery and interaction. Crosswords naturally bridge these frameworks: they motivate learners while requiring them to actively reconstruct linguistic rules.

From a cognitive perspective, puzzles function as tools for deep processing. Craik and Lockhart's (1972) levels of processing framework suggests that elaborative encoding strengthens memory retention. Solving crosswords requires semantic elaboration and syntactic analysis, thereby promoting deeper processing compared to surface-level memorization.

In addition, collaborative puzzle-solving encourages social interaction. Group-based crossword activities foster peer teaching, negotiation of meaning, and distributed problem-solving, which are crucial in communicative language teaching.

Digital tools and automation

Recent advances in AI-driven puzzle generation (Agarwal & Joshi, 2020) have expanded the scope of crossword use in education. Automated systems can produce puzzles adapted to specific corpora, learning levels, or thematic domains, reducing teacher workload while maintaining pedagogical quality.

Digital platforms also allow integration of interactive crosswords in online learning environments, enabling immediate feedback and collaborative solving. This flexibility is particularly relevant in blended and remote learning settings, where maintaining engagement is a persistent challenge.

Moreover, adaptive crossword systems are emerging. These tools adjust puzzle complexity in real time, based on learner responses, creating a personalized pathway of vocabulary and grammar acquisition. Such developments align with contemporary trends in adaptive learning technologies.

Case example: classroom application

During French language courses at the University of Library Studies and Information Technologies, crossword puzzles were introduced as part of vocabulary and grammar modules. Students reported higher engagement and motivation, especially when puzzles were linked to cultural themes (e.g., French history, European capitals). Feedback suggested that learners valued both the challenge of problem-solving and the insight into French linguistic rules revealed through puzzle completion. The activity also fostered peer collaboration, as students often solved puzzles in pairs or groups. A comparative evaluation between traditional exercises (e.g., vocabulary lists) and crossword-based tasks revealed stronger retention rates in the latter. Informal assessment suggested that learners were more willing to review vocabulary encountered in a puzzle context. The approach resonates with broader pedagogical practices that combine language learning and puzzle-based challenges, comparable to those discussed in Moore's *Alan Turing Codebreaker Puzzle Book* (2017) and its French adaptation *Le livre d'énigmes d'Alan Turing* (2022), which highlight the cognitive value of problem-solving in linguistic and cultural contexts.

Challenges and considerations

Despite their advantages, crossword puzzles present certain pedagogical challenges. First, puzzle design must balance difficulty and accessibility. Overly complex puzzles risk frustrating learners, while overly simple ones fail to

challenge them. Teachers must calibrate puzzle difficulty to learner proficiency.

Second, cultural references can create bias or exclusion. For international classrooms, puzzles should incorporate culturally inclusive clues to avoid alienating learners unfamiliar with specific traditions.

Third, crossword integration should not replace but rather complement other pedagogical strategies. Puzzles are most effective when embedded within a broader sequence of activities, including discussion, reflection, and application.

Finally, assessment methods need to be aligned with puzzle-based learning. While crosswords encourage active participation, educators must ensure that puzzle-solving outcomes translate into measurable learning gains.

Future perspectives

The integration of crosswords into language pedagogy is expected to expand significantly in response to ongoing advances in educational technology and language-learning methodologies. One of the most compelling prospects lies in the design of multimodal puzzles that combine textual clues with visual and auditory stimuli. Such formats can transcend the traditional focus on vocabulary recall by incorporating pronunciation exercises, listening comprehension tasks, and culturally embedded images, thereby fostering a holistic engagement with the French language. This convergence of modalities aligns with current trends in multimodal learning theory, which emphasize the value of linking linguistic form with sensory experience to deepen cognitive processing.

Another promising avenue is the application of corpus-driven approaches to puzzle construction. By grounding clue design in authentic linguistic data, educators can ensure that learners are exposed to lexical, grammatical, and idiomatic structures as they naturally occur in French. This not only strengthens the connection between classroom practice and real-world usage but also introduces learners to subtle variations in register, collocation, and pragmatic nuance that would be difficult to capture through textbook-based exercises alone.

The potential of gamified platforms further illustrates how crosswords might evolve into dynamic tools for community learning. Digital environments that incorporate features such as leaderboards, reward systems, and collaborative competitions can sustain learner motivation while simultaneously reinforcing a sense of shared intellectual endeavor. Unlike mere entertainment, these gamified structures contribute to the development of persistence, strategic thinking, and cooperative skills, qualities that are increasingly valued in educational contexts that view language acquisition as a social as well as a cognitive activity.

Beyond pedagogical application, crosswords also hold promise as instruments of empirical research in second language acquisition. By examining error patterns, hesitation points, and solution strategies within crossword-solving sessions, instructors and researchers can gain unique insights into the cognitive mechanisms that underpin linguistic processing. Such analyses can illuminate how learners negotiate ambiguity, retrieve lexical knowledge, and generalize grammatical rules, thereby offering a window into the interplay between implicit learning and explicit metalinguistic reflection. In this sense, crosswords are not only tools for instruction but also laboratories for the investigation of how languages are internalized, structured, and recalled.

CONCLUSIONS

Crossword puzzles demonstrate significant potential as language learning tools. They foster vocabulary retention, enhance grammatical awareness, and support cultural learning while maintaining student engagement. The dual function of crosswords – entertaining and instructional – makes them uniquely suited to gamified and active learning frameworks. With technological advances in automated puzzle generation, their educational application is likely to expand further. For language educators, crosswords offer a versatile resource for motivating learners and deepening linguistic competence.

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ОСНОВНИ ПРИНЦИПИ В ИЗПОЛЗВАНЕТО НА КРЪСТОСЛОВИЦИТЕ КАТО ДИДАКТИЧЕСКИ ИНСТРУМЕНТ ЗА ИЗУЧАВАНЕ НА ЕЗИЦИ

Резюме: Настоящата статия изследва педагогическия потенциал на кръстословиците като образователен инструмент при изучаване на езици. Чрез съчетаването на забавление със структурирано решаване на задачи кръстословиците подпомагат усвояването на лексика, осъзнаването на граматични структури и натрупването на културни знания. Изследването се основава както на теоретични постановки, така и на практически приложения в класната стая, като ситуира кръстословиците в рамките на активното учене и геймификацията. Чрез интегрирането на стратегии за решаване на проблеми – „реши задачата, открий правилото“, кръстословиците ангажират учащите в когнитивни и метаязикови дейности, които подпомагат по-задълбоченото разбиране. Статията разглежда също така съвременни изследвания и технологични разработки в областта на автоматизираното генериране на кръстословици. Резултатите показват, че кръстословиците са ефективен и гъвкав инструмент за повишаване на мотивацията на учащите и за трайно усвояване на знания.

Ключови думи: кръстословици; езиково обучение; геймификация; активно учене

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АДМИНИСТРАТИВНОНАКАЗАТЕЛНАТА ОТГОВОРНОСТ ПО ЗУТ: АНАЛИЗ НА ПРОБЛЕМИТЕ И ПЕРСПЕКТИВИ ЗА НОРМАТИВНО УСЪВЪРШЕНСТВАНЕ

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Академия на Министерството на вътрешните работи

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Резюме: В настоящата статия се разглежда правната уредба на административнонаказателната отговорност по Закона за устройство на територията (ЗУТ), като се идентифицират основните проблеми в практическото ѝ прилагане. Анализирани са несъответствията между нормативната рамка и административнонаказателната практика, както и липсата на уеднаквени стандарти при определянето на санкции. На тази основа са предложени възможности за усъвършенстване на режима чрез прецизиране на съставите на административните нарушения, подобряване на контролната дейност и въвеждане на механизми за правна сигурност. Изследването акцентира върху нуждата от балансиран подход, който едновременно да гарантира ефективност на административния контрол и защита на правата на гражданите и юридическите лица.

Ключови думи: административна отговорност; нарушения; правна сигурност; санкции; Закон за устройство на територията

ВЪВЕДЕНИЕ

Административнонаказателната отговорност представлява съществен елемент от системата за опазване на обществения ред и законността в Република България. В рамките на устройственото право приложението на административни санкции се осъществява основно чрез разпоредбите на Закона за устройство на територията (ЗУТ) (Народно събрание 2001), който регулира един от най-динамичните и конфликтни обществени сектори – строителството, градоустройството и инвестиционното проектиране. Въпреки важността си механизмите за налагане на административни наказания по този закон често се сблъскват с проблеми като правна неяснота, нееднаква практика и недостатъчна ефективност.

Настоящата статия има за цел да анализира основните проблеми, свързани с административнонаказателната отговорност по ЗУТ, да изследва нормативната рамка и прилагането ѝ на практика, както и да предложи възможни подходи за нейното усъвършенстване. Чрез систематичен преглед на законодателството, съдебната практика и административната дейност се търси отговор на въпроса как да се постигне по-ефективно, предвидимо и правосъобразно прилагане на санкционните разпоредби в устройственото право.

ПРАВНА РАМКА НА АДМИНИСТРАТИВНОНАКАЗАТЕЛНАТА ОТГОВОРНОСТ ПО ЗУТ

Административнонаказателната отговорност в българското право е регламентирана като форма на държавна санкция за нарушения, които не представляват престъпления, но засягат обществения ред. В контекста на Закона за устройство на територията (ЗУТ) тази отговорност изпълнява ключова роля за гарантиране на спазването на нормите, уреждащи инвестиционното проектиране, строителството и устройството на територията. ЗУТ съдържа множество разпоредби, предвиждащи санкции за различни видове административни нарушения, извършвани от физически и юридически лица, включително участници в строителния процес, длъжностни лица от администрацията, както и собственици и ползватели на недвижими имоти.

Правната рамка на административнонаказателната отговорност по ЗУТ се основава на общите принципи, заложи в Закона за административните нарушения и наказания (ЗАНН) (Народно

събрание 1996), който урежда реда за установяване на нарушенията, издаване на наказателни постановления, обжалване и изпълнение на наложените санкции. Същевременно обаче ЗУТ съдържа специални норми, които дерогират или допълват общата уредба на ЗАНН, като предвиждат конкретни органи с правомощие да съставят актове за установяване на административни нарушения, определят вида и размера на санкциите, както и сроковете за налагането им.

Характерни за ЗУТ са разнообразието и спецификата на предвидените административни нарушения, които обхващат широк спектър от деяния – от дребни процедурни пропуски до тежки нарушения, свързани със самоволно строителство, използване на сгради без издадено разрешение за ползване или неспазване на утвърдени инвестиционни проекти. Това налага прилагането на принципа на индивидуализация на административната отговорност, който често е затруднен от неясноти в правната уредба и липсата на достатъчно конкретизирани критерии за определяне на размера на санкцията.

Съществен проблем, свързан с правната рамка, е отсъствието на ясно разграничение между различните категории субекти, подлежащи на санкция, както и недостатъчната прецизност на част от съставите на административни нарушения. Това води до правна несигурност и предполага възможност за противоречива практика при налагането на наказания, както от страна на административните органи, така и при съдебния контрол. Отделен аспект е свързан с правомощията на общинските и държавните органи, чиито компетенции често се преплитат, което създава допълнителни затруднения в прилагането на закона.

На този фон е необходимо създаването на по-ясна, систематизирана и предвидима правна рамка, която да гарантира не само ефективност в контролната дейност, но и спазване на принципите на правовата държава, включително законосъобразност, равнопоставеност и защита на правата на адресатите на административните санкции. Усъвършенстването на правната уредба трябва да се основава на добри законодателни практики и аналитичен подход, отчитащ реалните проблеми в прилагането на административнонаказателната отговорност в устройственото право.

ПРОБЛЕМИ В ПРАКТИЧЕСКОТО ПРИЛАГАНЕ

Практическото прилагане на административнонаказателната отговорност по ЗУТ е белязано от множество проблеми, които водят до сериозни затруднения както за административните органи, така и за гражданите и бизнеса. Един от основните проблеми е свързан с правната неяснота и непоследователност на законовите разпоредби. В редица случаи текстовете, определящи съставите на административните нарушения, са формулирани по начин, който не осигурява ясно разграничение между различните видове нарушения. Например чл. 232, ал. 1 от ЗУТ (Народно събрание 2001) предвижда санкции за започване на строителство без одобрени инвестиционни проекти или без разрешение за строеж, но не предоставя достатъчно ясни критерии за това какъв е видът на нарушението при липса на само един от тези елементи. Това води до ситуации, в които идентични случаи се третират по различен начин от различни административни органи.

Такъв пример е различната практика на общински администрации в София и Пловдив при самоволно поставяне на преместваеми обекти. В София се издават наказателни постановления въз основа на чл. 232, ал. 1 от ЗУТ (Народно събрание 2001), докато в Пловдив сходни случаи се санкционират по Наредбата за преместваеми съоръжения на съответната община, което поставя въпрос за законността и равнопоставеността на санкциите. Такива несъответствия подкопават доверието в административната справедливост и водят до затруднения при обжалване пред съдилища.

Друг ключов проблем е свързан с подготовката на служителите, които извършват контролната дейност и съставят актовете за установяване на нарушения. На практика се наблюдават множество случаи на актове, които съдържат сериозни процесуални грешки – неточно описание на фактическата обстановка, непосочване на нарушената разпоредба, липса на доказателства или неправилна квалификация на нарушението. В резултат на това значителна част от наказателните постановления биват отменяни от административните съдилища, например в дело № 545/2018 г., разглеждано от Административен съд – Варна, където наказателно постановление за самоволно строителство е отменено поради липса на надлежно доказателство за нарушение, като съдът подчертава, че

установените факти не покриват изискванията за състав на административно нарушение по чл. 232 от ЗУТ (Административен съд – Варна 2018).

Съществуват и проблеми, свързани с дългите срокове за административни процедури, водещи до погасяване на административнонаказателната отговорност по давност. При реален случай в община Бургас акт за установяване на административно нарушение е съставен девет месеца след извършването на нарушението, а наказателното постановление е издадено още шест месеца по-късно. До момента на разглеждане от съда давностният срок е изтекъл, което е довело до прекратяване на производството и избягване на санкцията. Подобни закъснения често не се дължат на обективна невъзможност, а на административна неефективност, претовареност или липса на мотивация у служителите.

Допълнително усложнение представлява липсата на единна съдебна практика, свързана с обжалване на наказателни постановления. В идентични казуси различни съдилища постановяват противоречиви решения, което създава усещане за произвол и нарушава принципа на правната сигурност. Например някои съдилища приемат, че липсата на проект за безопасност на движението е самостоятелно административно нарушение, докато други считат, че това е част от състава за липса на одобрени инвестиционни проекти. Това объркване създава затруднения за адвокатите и за самите административни органи, които не разполагат със стабилна база за формиране на предвидима практика.

Не на последно място, сериозен проблем представлява липсата на координация между органите с контролни функции – например между общинските администрации, Дирекцията за национален строителен контрол (ДНСК) и регионалните структури на МРРБ. Често възникват дублиращи се проверки или липса на реакция в случаи на очевиден нарушения, като самостоятелно изградени търговски обекти без никакви документи. В един конкретен случай в Русе три различни институции – общината, ДНСК и РЗИ, са извършили отделни проверки в рамките на една година без реална координация и резултат, като междувременно обектът е продължил да функционира в нарушение на ЗУТ и други нормативни актове.

Всички тези проблеми показват, че настоящата система на административнонаказателна отговорност по ЗУТ не отговаря на нуждите на ефективно правоприлагане и обществена защита. Без яснота в законовите текстове, квалифицирани служители, съгласувана институционална дейност и стабилна съдебна практика всяко усилие за прилагане на санкции остава половинчато и често – безрезултатно. Нужно е сериозно усилие за реформа, която да изчисти неяснотите, да създаде практически насоки и да осигури ефективна координация между участниците в контролната верига.

ПОДХОДИ КЪМ УСЪВЪРШЕНСТВАНЕ НА ПРАВНАТА РАМКА

Подходите към усъвършенстване на правната рамка на административнонаказателната отговорност по ЗУТ следва да се основават на принципите на яснота, предвидимост и ефективност. Първата стъпка в тази посока е свързана с необходимостта от прецизиране на съставите на административните нарушения, така че да се избегнат съществуващите неясноти и възможности за произволно тълкуване. Законодателят следва да приеме по-конкретни и обосновани формулировки, които ясно да разграничават различните категории нарушения и да очертаят техните съставомерни признаци. Това ще позволи както на контролните органи, така и на засегнатите лица да действат в рамките на по-прозрачна и разбираема нормативна среда, намалявайки риска от злоупотреби или правна несигурност.

Успоредно с това е необходимо да се разработят стандартизирани методически указания и вътрешни правила за действие на контролните органи, които да включват примери за правилна квалификация на нарушенията, конкретни критерии за определяне на размера на санкциите, както и указания за сроковете и етапите на административните производства. Подобни указания следва да се изготвят в сътрудничество между Министерството на регионалното развитие и благоустройството, ДНСК и представителите на общините, като се осигурят тяхното регулярно актуализиране и публичен достъп. Така ще се постигне уеднаквяване на практиката и ще се повиши професионалната подготовка на служителите, ангажирани с прилагането на ЗУТ.

Друг съществен подход е свързан с въвеждането на ефективен механизъм за вътрешен и външен

контрол върху дейността на административнонаказващите органи. Това включва задължително обосноваване на мотивите за налагане на конкретни санкции, както и по-строги процедури за вътрешен преглед на актовете преди тяхното издаване. Възможно е да се обмисли създаването на централизирана електронна система за регистрация и проследяване на административните нарушения и наложените санкции по ЗУТ, която да улесни анализа на практиката, да осигури прозрачност и да подпомогне статистическите и аналитични дейности.

Реформата следва да обхване и законодателните механизми за обжалване и контрол, така че да се гарантира бърз, ефективен и предвидим съдебен процес. Това може да включва както подобрения в Административнопроцесуалния кодекс, така и въвеждане на специализирани административни съдебни състави, с компетентност по дела, свързани със ЗУТ. По този начин ще се намали разнопосочната съдебна практика, ще се ускори производството и ще се осигури стабилност в тълкуването на закона.

Съществува и необходимост от въвеждане на превантивни механизми, които да насърчават доброволното спазване на законовите изисквания. Това може да се реализира чрез информиране на обществеността и заинтересованите страни за съответните изисквания, провеждане на разяснителни кампании, създаване на леснодостъпни онлайн платформи с информация за процедурите по ЗУТ, както и стимулиране на добросъвестното поведение чрез облекчени процедури или намалени санкции при първо нарушение. Така ще се премине от репресивен към превантивен и възпитателен модел на административнонаказателна политика.

Накратко, усъвършенстването на правната рамка на административнонаказателната отговорност по ЗУТ изисква координирано усилие между законодателната, изпълнителната и съдебната власт, подкрепено от професионалната общност и гражданското общество. Само чрез такава комплексна и целенасочена реформа може да се постигне балансирана и ефективна система, която, от една страна, осигурява защита на обществения интерес, а от друга – гарантира правата на отделните субекти и предвидимост на административното правоприлагане.

ПРЕДЛОЖЕНИЯ ЗА ОБОГАТЯВАНЕ НА ПРАВНАТА РАМКА

С оглед на установените проблеми в прилагането на административнонаказателната отговорност по ЗУТ, обогатяването на правната рамка трябва да надхвърля технически редакции на законови текстове и да се превърне в стратегически процес на законодателно и институционално обновление. Една от най-належащите нужди е въвеждането на ясна класификация на административните нарушения по степени на тежест, подобно на съществуващи практики в данъчното и екологичното право. Това ще позволи по-адекватна индивидуализация на санкциите, като например разграничение между административно нарушение, свързано с несъществено отклонение от одобрен проект, и тежко нарушение, като изграждане на сграда без каквото и да е разрешение. В момента в множество общини, като Стара Загора и Благоевград, се наблюдава прилагане на едни и същи санкции за обекти с различна степен на опасност и нарушение, което води до обжалвания и отменени наказателни постановления.

Този проблем е анализиран и в научната литература, където се отбелязва, че прилагането на административнонаказателната отговорност по ЗУТ често е лишено от методическа консистентност и води до фрагментирани санкционни практики (Иванова, Петров 2019).

Необходима е също така промяна в подхода към тълкуване на закона. Препоръчва се създаване на институционализиран механизъм за тълкувателни указания, изготвяни от МРРБ в сътрудничество с ВАС, които да бъдат публикувани и прилагани от всички контролни органи. Такива указания могат да изяснят спорни текстове, като например тълкуването на „съществено отклонение от инвестиционния проект“, което в момента се прилага по различен начин в зависимост от тълкуванията на местните администрации. Например в Пловдив се приема, че преместването на прозорец с 50 см е несъществено, докато в Бургас такова изменение води до глоба от 5000 лв., независимо от факта, че сградата е в процес на строеж и промяната е вътрешна.

Предлага се също въвеждането на предупредителен механизъм, според който при първо и малозначително нарушение контролните органи да могат да издават писмено предупреждение,

вместо да налагат санкция. Този подход е широко разпространен в други административни режими – например в наредбите на Агенцията по храните или РИОСВ, и води до по-ефективна превенция. В Казанлък вече е реализиран пилотен подход, при който при първо установено нарушение на поставен обект без нужната табела за строителен надзор, собствениците получават предупреждение и срок за отстраняване на пропуска, което води до висока степен на доброволно изпълнение без налагане на глоби.

Друго ключово предложение е създаването на централизирана електронна платформа за регистриране и проследяване на актовете по ЗУТ. В момента всяка община води собствена регистратура на хартиен носител или в отделни локални системи, което прави координацията между институциите почти невъзможна. В резултат в София районните администрации често не знаят, че ДНСК е издала наказателно постановление за същото нарушение, по което вече тече процедура на общинско ниво. Централизираната система би позволила контрол върху повторемостта на нарушенията, проследимост на наложените санкции и анализ на слабите места в правоприлагането.

Особено важно е и нормативното уреждане на изискванията за квалификация и обучение на служителите, които упражняват контролни функции. В момента в повечето общини не съществуват специализирани екипи с юридическа експертиза в прилагането на ЗУТ, а актовете често се съставят от технически лица без задълбочени познания по административнонаказателно право. В резултат в над 40% от случаите наказателните постановления се отменят от съда поради процесуални или материални грешки. Въвеждането на задължителни обучения и сертифициране, подобно на системата за публични изпълнители, би повишило качеството на контролната дейност и доверието в институциите.

Не на последно място, обогатяването на правната рамка следва да се осъществи чрез засилен диалог между всички участници – законодатели, администрация, професионални камари, научни среди и граждански организации. Провеждането на регулярни обществени консултации при промени в ЗУТ и свързаните наредби ще гарантира по-голяма легитимност на реформите и по-добра адаптация на правните норми към реалните условия. В този смисъл правната рамка не трябва да се възприема като статичен кодекс, а като жив инструмент, който се променя и усъвършенства с оглед на нуждите на обществото и предизвикателствата на градската и строителната среда.

ИНТЕРДИСЦИПЛИНАРЕН ПОДХОД КЪМ ПРИЛАГАНЕТО НА АДМИНИСТРАТИВНОНАКАЗАТЕЛНАТА ОТГОВОРНОСТ ПО ЗУТ

Развитието на административнонаказателната отговорност по ЗУТ не може да се осъществява ефективно без прилагането на интердисциплинарен подход, който да обединява правната перспектива с технически, урбанистични, екологични и социални измерения. Устройственото планиране и строителството са области, в които правната уредба неизбежно се преплита с архитектурни, строителни и инженерни решения. Едно административно нарушение, каквото е изграждането на тераса без необходимото разрешение, не е просто юридически проблем, а акт с потенциални последици върху конструктивната сигурност на сградата, пожарната безопасност и дори градската естетика. В конкретен случай от Варна жител на кооперация изгражда метална конструкция върху покривната плоча без проект и без надлежно разрешение, което води до напрежение сред съседите и сигнал до РДНСК. При проверката се установява не само нарушение на ЗУТ, но и отклонение от правилата за противопожарна безопасност, поради блокиране на достъпа до аварийна стълба. Наложена санкция е атакувана в съда, но експертно заключение от строителен инженер и представител на ГДПБЗН подкрепя необходимостта от демонтаж поради реален риск за обитателите.

Подобни случаи показват, че правоприлагането по ЗУТ трябва да бъде подкрепено от експерти от различни дисциплини. Това включва не само архитекти и строителни инженери, но също така специалисти по екология и градско развитие. В Бургас при изграждането без одобрение на временен търговски обект върху зелена площ, контролните органи налагат санкция за липса на разрешение, но не се отчита допълнителното въздействие върху градската среда – унищожена растителност, нарушен достъп до пешеходна алея и засилено напрежение с местната общност. Ако в оценката беше включен урбанист или еколог, санкцията можеше да бъде съобразена с реалното обществено

въздействие, а не само с формалното нарушение на чл. 232 от ЗУТ.

Интердисциплинарният подход предполага също така участие на професионалните камари и научните среди в създаването на практически ориентирани методики за оценка на рискове и вреди при административни нарушения. Например съвместна работа между Камарата на архитектите, Камарата на инженерите и представители на административните съдилища би могла да доведе до създаване на стандартизирани формуляри за оценка на технически аспекти при нарушения, които да се прилагат при съставяне на актовете. Така ще се избегне субективността, която често води до отменени наказателни постановления. В допълнение, междуведомствените екипи могат да разработят образователни програми и ръководства за служителите от общинските администрации, които нямат задълбочена техническа подготовка, но ежедневно са изправени пред сложни казуси, изискващи такова разбиране.

Внедряването на интердисциплинарност в процеса на административно наказване по ЗУТ не само ще позволи по-прецизни и обосновани решения, но и ще създаде предпоставки за по-високо доверие към институциите. Обществото няма нужда просто от глоби – то има нужда от смислени, справедливи и професионално аргументирани действия, които да гарантират законност, безопасност и устойчиво развитие на градската среда.

ЗАКЛЮЧЕНИЕ

Заклучителният анализ на административнонаказателната отговорност по ЗУТ разкрива не толкова нормативен дефицит, колкото структурна липса на съгласуваност между теорията на правото и конкретната административна практика. Проблемите не се коренят само в неясно формулирани текстове или слабости в институционалната координация, а в по-дълбокото отсъствие на системен интегритет между законодателна воля, изпълнителска способност и съдебен контрол. Административнонаказателната система функционира в среда, където правната рационалност често отстъпва пред формализма, а превенцията – пред репресивната стихийност. Налице е очевиден дисбаланс между степента на правна сложност на ЗУТ и реалния капацитет на институциите, призвани да го прилагат.

Анализът показва, че усъвършенстването на правната рамка не е само въпрос на „по-добро писане на закони“, а на цялостна трансформация на отношението към правото като инструмент за управление на обществените отношения. Необходима е смяна на парадигмата: от нормативна охрана на статуквото към стратегическо управление на устройственото развитие чрез ефективна, разбираема и справедлива санкционна политика. Интеграцията на технически и правни знания, въвеждането на електронни инструменти за прозрачност и отчетност, както и ангажираността на обществото в контролните процеси се явяват не просто допълнение, а *conditio sine qua non* за постигане на устойчив модел на правоприлагане.

С други думи, правната рамка по ЗУТ не се нуждае само от редакция, а от реконструкция – не по-малко мащабна и прецизна от самите строителни процеси, които тази рамка се стреми да регулира. Без подобна трансформация дори най-добрите нормативни усилия ще останат в сянката на една административна практика, която хронично не догонва собствените си принципи.

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ADMINISTRATIVE PENAL LIABILITY UNDER THE SPATIAL DEVELOPMENT ACT: ISSUES, APPROACHES AND PROSPECTS FOR IMPROVEMENT

Abstract: *This study examines the legal framework of administrative penal liability under the Spatial Development Act (SDA) identifying key issues in its practical application. It analyzes the inconsistencies between the normative provisions and administrative-penal practices, as well as the lack of unified standards for determining sanctions. Based on this analysis, the study proposes improvements to the system, including clarification of the elements of administrative offences, enhancement of oversight activities, and the introduction of mechanisms for legal certainty. The research emphasizes the need for a balanced approach that ensures both effective administrative control and the protection of the rights of citizens and legal entities.*

Keywords: *administrative liability; legal certainty; sanctions; Spatial Development Act; violations*

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