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Signpost "Communication in Construction 5.0": A Paradigm Shift in Digitalization and AI Toward the Most Sustainable Industry

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Abstract: The author's research on "Corporate Digital Responsibility (CDR) in Construction" lays the ground for this study examining the associated success factors of contemporary, innovative communication. The practical compass aims to strengthen societal public awareness by reporting on the highly modern and innovative industry fulfilling sustainability goals and environmental, social, and governance toward a paradigm shift. A structured literature review and personal and written expert interviews in companies of all sizes including corporate best practices offer new data from observations on multiple real-life applications and illuminate various perspectives based on expert surveys from multiple specialist fields and corporate departments of responsibility, for example, in the field of corporate management and strategies and human resources. Representatives from societal and political German associations and from research and development focusing on designated research area allowed receiving profound expertise. To investigate normative aspects and assess the database, the hermeneutic approach was used. The assessment of innovative communication scenarios leads to new findings to catalyze wider acceptance of the industry's modern role. The study's critical question addresses whether the view that the building branch has fallen behind in terms of innovative technologies is realistic or not—or whether the sector is, in fact, a catalyst for the digital transformation. This research highlights the communication portfolio of the industry's innovation and social sustainability strategy to provide orientation in the industry's progress. The results demonstrate that continually aligning communication content and channels with contemporary requirements is thus essential.

Keywords: construction, communication, SDGs

1. Introduction

This study examines in depth the perception of communication, language, and reporting on the innovative power of the construction industry 5.0. The linguistic engagement with technologies, innovations, and progress turns out to be a game changer for a holistic, critical, and innovative perception of the construction industry. It is an industry on its way to becoming the most sustainable industry based on its long history, fundamentally high values, the responsibility it has due to the proportion of employees, its share in the value chain, climate change, resource consumption, and increasing diversity. This study defined a research gap in analyzing the success factors of contemporary, innovative ways of communication leading to a new design of communication to raise awareness and orientation. The guiding research questions are: Can a practical compass be set up to strengthen societal public awareness by reporting about the branch's potential as a highly modern, resilient, and innovative industry and the fulfillment of sustainability goals and environmental, social, and governance (ESG) criteria toward a paradigm shift (RQ1)? What is the decisive turning point for the notion of the construction industry as a sector that is falling behind in terms of digitalization and AI, or does the sector rather catalyze a sustainable digital age (RQ2)?

Can the industry's innovation and social sustainability strategy's communication portfolio be enhanced to provide guidance for the industry's progress (RQ3)? In interviews with corporate and academic experts and journalists, in exchanges at conferences and panel discussions, the increasing interest in recent innovation projects of the construction industry, as well as negative public media reporting, knowledge transfer, and new methods of communication as part of adjusted communication management strategies, is evident. The field of communication in the construction industry offers new research opportunities, allowing to reach the research objective, to answer the key questions of research, and to significantly shape the perception and reputation of the industry.

The study covers the change of perspective within the field of "communication": It addresses the public social perception and reputation of the industry, the way of reporting on the innovative strength of the construction industry 5.0—publicly, socially, politically, and in corporate practice—and the diversity of potential in communication in construction using, for example, Building Information Modeling (BIM) and AI [1, 2]. The power of

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language is equally high, ideally a signpost for a paradigm shift in the industry through greater social sustainability.

The communicative transfer of knowledge between science, practice, and society—the interdisciplinary, multidisciplinary exchange—turns out to be THE game changer for education, orientation, trust in technology, and the responsible application of technologies in a socially sustainable industry. Communication catalyzes the construction industry 5.0, which is increasingly concerned with normative questions, and it "humanizes," and in the course of the humane transformation, people should be "taken along" (Figure 1).

2. Background of Analysis

2.1. Communication in Construction 5.0

By linking a more technically oriented discipline such as civil engineering with humanistic, socio-cultural, and linguistic considerations, this study introduces the key factors that emerge for both constructively and critically balanced communication of the sectors leading the digital and human transformation toward Industry 5.0.

The construction industry is still very traditionally conservative, and the willingness to innovate has a lot of room for improvement. The ESG criteria and the 17 Sustainability Development Goals (SDGs) by the UN demand, on the one hand, a greater assumption of responsibility by the industry and, on the other hand, contemporary communication in order to make the industry more tangible. With her research on "CDR in Construction," the author recognizes ESG criteria [3], the 17 SDGs by the United Nations [4], and compliance and governance guidelines. As an expert at the interface between construction and AI values, she focuses on the sensible, humane use of AI. People and knowledge are the secret weapons, and this is increasingly reflected in corporate sustainability certification practices to achieve trust-building and transparent communication.

The digital change is likely to be beneficial for humanity; pioneers are needed, and the call for more exchange and transparency is increasing in order to understand the complexity of the factors involved (Figure 2). The study's findings highlight the construction industry's comparatively high level of responsibility compared to other industries:

1) through their share of 40% of the total CO_2 production through new construction and cement production;
2) a still high level of work accidents;
3) lagging behind in diversity, inclusion, and willingness to innovate;
4) a very high shortage of skilled workers.

And this despite the fact that the industry has almost 2 million workers, a share of almost 6% of the total gross value added, and a share of 10.5% of the gross domestic product that is used for investments in construction. In a preview of the global market volume for energy-efficient buildings up to 2030, there is talk of 611 trillion euros. The study's results demonstrate that construction enjoys a high reputation around the globe; for example, the Chinese view of Germany ("The Germans build for eternity") is always associated with high product quality, high standards of craftsmanship, reliability, and a lot of knowledge and know-how. According to literature review results and expert interviews, in Germany, people know the value of their craftsmanship and appreciate the opportunities for a wide range of technical, vocational, and academic training. In Germany, we are also aware that technologies such as AI, which can only function through a high level of data and sometimes take over human work, go hand in hand with the protection of democratic and human values and personal and data rights. And this is exactly where, according to one result of the study, lies the proverbial "needle in the haystack."

In fact, where society, economy, environment and new technology meet, an area of tension inevitably arises. As an essential part, the study considers the transparency of such technological developments, communicating about research progress, sharing lessons learned, critically questioning whether and where it actually makes sense, and reporting on pioneers, role models, and empirical values with the help of neutral critical journalism. This represents a success-critical, supportive framework for people in their work using digital innovations in construction.

However, the study's results demonstrate that the course setting and the impacts required for balanced, critical, fact-based

Figure 1
Communication allocated in the human-centered age of Industry 5.0 in construction

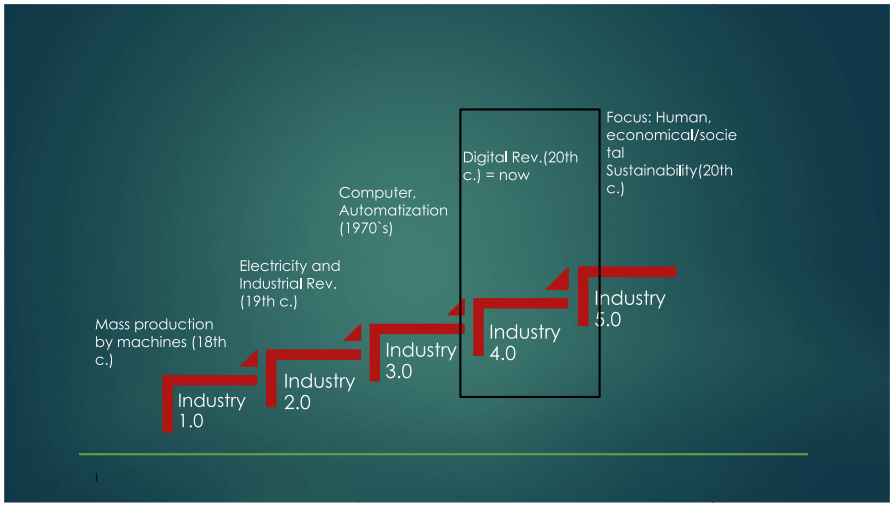
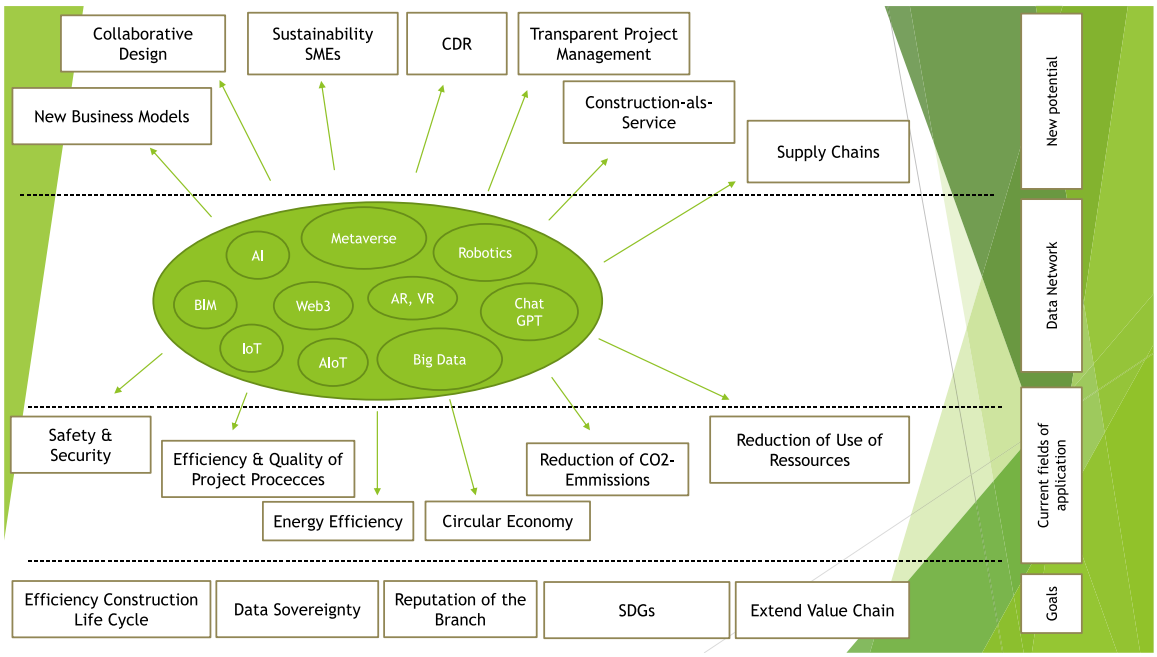


Figure 2
Communication throughout all elements of the value chain in Construction 5.0



communication go beyond this. Ultimately, these are precisely the factors that help transport and exchange knowledge, generate new knowledge, and maintain the flow between research, development, and application. Such success factors build trust, clarify, ensure understanding, and offer orientation. Such factors can even be decisive for how the construction industry is perceived, recognized, and supported by the public. The study argues: How can language and communication help to expand the pool of skilled workers, knowledge networking, and error prevention in data preparation and process flows? How is innovation in construction exchanged? What role does public social reporting play? Does the industry need to rethink its own communications strategy? Is the industry's reputation presented correctly and based on facts, or does it need a long-overdue adjustment?

Based on the findings of this research evaluation, the study introduces new, often disruptive approaches to driving the construction industry 5.0 forward toward an industry with greater efficiency, productivity, diversity, agility, and crisis resistance—by humans for humans. One of the study's findings based on expert interviews is that value creation can only be achieved through appreciation.

The study critically investigated that, not least in communication, a new learning and thinking culture is needed in order to make innovation potential, progress, and thus new knowledge accessible and bring them into discussion. Where there is knowledge and transparency, there is trust. Communication permeates all elements of the value chains in Construction 5.0 (Figure 2), interacts with each other, and forms a cycle.

As part of the results, it could be stated that large companies have set up research and development (R&D) areas that are specifically dedicated to digital transformation and technological innovations. Closely linked to other departments, for example, with Human Resources (HR) to attract technically qualified workers and management, they help to define common approaches in the digital strategy. Such interdisciplinary networking within the company is the basis for the necessary and practiced corporate culture of thinking, learning, and communicative exchange. Whereas the situation is different for Small and Medium sized enterprises (SMEs) and smaller companies, where research cannot be carried out in the same way due to the lack of financial back-up, there are already fully digitized medium-sized companies and innovative start-ups that are using new digital and AI methods in practice and training other companies—be it in planning and project management, in AI-supported decision-making, or in documentation and accounting. One of the biggest limitations and gaps the study identifies is the lack of fluid communication between start-ups, SMEs, and large companies. Insights and experiences are exchanged insufficiently or not at all, which severely hinders mutual learning, improvements, and innovation. Due to the limitations of this study, the reasons and suggested solutions cannot be discussed further.

Several examples from corporate practice illustrate communicative progress at different levels: Object and image recognition are considered ideal ad hoc applications. A construction worker sends his photo documentation after laying pipes and sends it to the office via WhatsApp, for example. The AI recognizes the pipes and sees how many individual parts and sections have been laid. A target/actual comparison in real time makes this digital documentation possible, and the invoice can be created immediately. The worker no longer has to check and write down manually. Such systems can be used for quality control, where AI-based control and warning systems support and facilitate human work.

AI-supported camera systems can specifically search for dangerous situations and alert you if, for example, someone is only wearing their protective equipment partially or not at all. This makes working on the construction site safer and minimizes the risk of accidents.

For example, there is a building law GPT (In German: "BaurechtGPT") that the author worked on. The tool, which accesses all common building law principles and has been trained with questions typical of construction, supports the immediate clarification of building law questions on site, ensuring time-efficient,

transparent communication. This tool supports legally compliant, faster action on the construction site by ad hoc retrieval of construction law questions with suggested solutions as a result.

2.1.1. Technologies from human to human: change of perspective within the field of "communication"

Based on the results of interviewing experts, internet analysis, and literature research evaluation, the findings of this study provide new constructive approaches to strategic communication that have proven to be the most critical for success. Due to the limitations of the study, the following fields of communication can be addressed, which were selected based on their apparent urgency for action:

1) The public social perception and the reputation of the industry through the way of reporting, for example, about the construction industry 5.0's strength of innovation. The choice of words such as "million-dollar hole," "danger," "alarming," "collapse," "depends far," and "men's industry" represents subjective perception aimed at subjective media and journalism. This stands versus the communication of neutral facts and transfer of know-how about "technology innovation," "lighthouse projects," "role models," "best practices," "market leaders," and "promotion of diversity," "diverse," "socially and socially sustainable," "ESG and sustainability goals in line with constructive approaches," "open and transparent sustainability reporting," "enough skilled workers through adapted teaching and training," "new task profiles," "employer attractiveness," "drives progress," "Milestones." Such reporting enables different levels of quality and originality in the branch and at the same time clarity, appreciation, and recognition of facts and developments. Reporting on a "vibrant, strong industry," "responsible," "expanding portfolio" puts the industry to the test with a resilient and agile positioning. Compliance in communication can be achieved through clarity and a neutral, fact-based, precise, transparent, and critical language recognizing broad background information. Barriers, hurdles, and challenges, some derived from history, the state of technology, and R&D, must not be ignored to understand this construction ecosystem. One result of the study is that pioneers contribute to raising awareness and knowledge, offer orientation, can break down prejudices, and help build trust in the construction industry. A corporate identity creates prestige through the pride of those involved in construction, the population, and society and has a significant impact on the reputation of the industry. Language ensures that bridges are built between practice and research, politics and society.
2) The diversity of potential in communication in construction using, for example, BIM and AI. This field spans the entire construction life cycle with the help of inclusive communication; in other words, one that "takes along" and inspires. A language through which a necessary technical and corporate cultural infrastructure can be created leads, in the long term, to the active implementation of a central data platform in the project, which enables more efficient and productive communication with authorities digitally.
3) The interpersonal interaction in collaboration between the various project participants, which can be improved and promoted using innovative technologies. The focus is on avoiding misunderstandings, breaking down language barriers, and catalyzing more efficient data transfer with information exchange independent of time and location. This factor in turn helps to ensure that documentation is in line with building law in order to counteract any ambiguities that may arise later. The starting point for all aspects is the awareness of the economic, legal, temporal, and technical consequences caused by a lack of communication and access to data and information. Here, the language and means of communication from "person to person" win, and digital process documentation and standardized procedures significantly ease the burden on cooperation.
4) The interaction between people and technology, for example, communication between people and technology. This is about the "human" factor and existing language barriers, which can only be achieved by explaining new technologies, using them sensibly, finding and experiencing the added value using innovative strategies and opportunities tailored to the industry, and dealing with risks, as well as exploiting the potential.
5) Communication in architecture and construction: This aspect can be demonstrated best using the practical model of a timely and innovative education degree in Architecture Media Management (AMM) at University of Applied Sciences Bochum. Its final section is accompanied by an annual AMM symposium organized and conducted by students with expert lectures, workshops, laboratories, and specialist exhibitions. The focus is on communication and mediation, profile building and positioning of technologies, areas of responsibility, ways to externally communicate your own business, and corporate strategies. The necessary public relations, press work, marketing and visualization, the market-oriented communication of the job profile and the contemporary, people-supporting technological innovations such as, for example, ensure AI and apply concrete approaches practically and round up the communicative skills in Architecture and Construction.
6) Highlighting female role models, for example, with the help of podcasts, social media channels, LinkedIn and Facebook posts, and Instagram profiles that showcase the "woman in construction" and make the woman in construction campaign on the construction site tangible. Such openness and gaining insights behind the scenes help to achieve more transparency, trust, access, and participation and inspire female professionals to pursue disciplines such as Science, Technology, Engineering, and Mathematics (STEMs). The linchpin is lived diversity, one of the central building blocks in fulfilling the ESG criteria and the 17 SDGs by the United Nations.
7) City marketing to promote, for example, a large construction site is the be-all and end-all for oversized construction projects that are hardly accessible to the public and/or the extent of the daily challenges is difficult for uninvolved people. A best practice can be considered in the public "Stuttgart IST Information Tower" to present the progress of the major construction site "Stuttgart S21." Communication ensures appearance as a brand, branding, and corporate design. Guided tours, such as the "Day of open construction sites Stuttgart 2026" in April 2026, ensure transparency about the construction progress, status quo, milestones, and major challenges, and promote public awareness and broad communication, but above all, the pride of everyone involved on site: "I work here. One team, one goal." This construction site serves as an example of public communication that was neglected for a long time at the beginning, which led to further irritation and a lack of transparency.

As the study shows, clear, transparent, data- and fact-based communication in, about, and with the industry influences the industry's sustainability.

The influencing factors contribute to non-material value creation in companies and should be incorporated into practice. As a resulting guide, "Communication in Construction 5.0" could trigger a paradigm shift. Such communication not only reports superficially, subjectively, and in one direction but also promotes the construction industry's reputation and recognition as the most sustainable industry through the breadth of consideration of the aspects involved.

However, to arrive at these findings, the study considers the industry's development, holistic understanding, the state of the art, the increasingly complex expectations of the industry, and evaluation criteria for sustainability goals as the most important foundation for conducting such research. The construction branch's development is shifting away from traditional investment-oriented paths and opportunities toward those driven by innovative technologies. The digital change, a lack of skilled workers, rising costs of energy and materials, and the implementation of energy and climate transitions represent key requirements. Investors and contractors call for reliable projects within set budgets, time, and quality standards in line with fulfilling the 17 SDGs and ESG requirements [5]. However, it is one of the least digitalized industries [6], and the lack of innovation within the holistic life cycle of construction projects is responsible for low productivity and efficiency [7]. In terms of innovation and technology adoption, the construction industry lags behind other industries [8] and in communication skills, despite the urgency of today's global challenges such as climate change, global warming, and resource scarcity [9]. A radical human and digital transformation in construction supply chains and project processes is urgently required [10, 11]. Therefore, this article provides a systematic and holistic overview of the digital transformation's impact on the branch and the required appropriate transfer and exchange of knowledge and communication both internally and publicly. The study argues that trust-building and transparent communication about digital and human transformation itself represent an important field of action that requires the assumption of corporate, value-oriented responsibility. It characterizes the industrial stage of Construction 5.0 (Figure 3).

Initial experiences shared by best practices offer orientation along a thorough and broad thought-out, consistently digitized building life cycle [12, 13]. Such corporate willingness and ability to perfect one's own level of maturity and approach the shared task responsibly help to master this continuously growing, complex task, which is relevant to the industry and at the same time affects society as a whole [14]. Innovative practical examples demonstrate how quality, performance, and productivity in the construction sector have already been significantly improved [15].

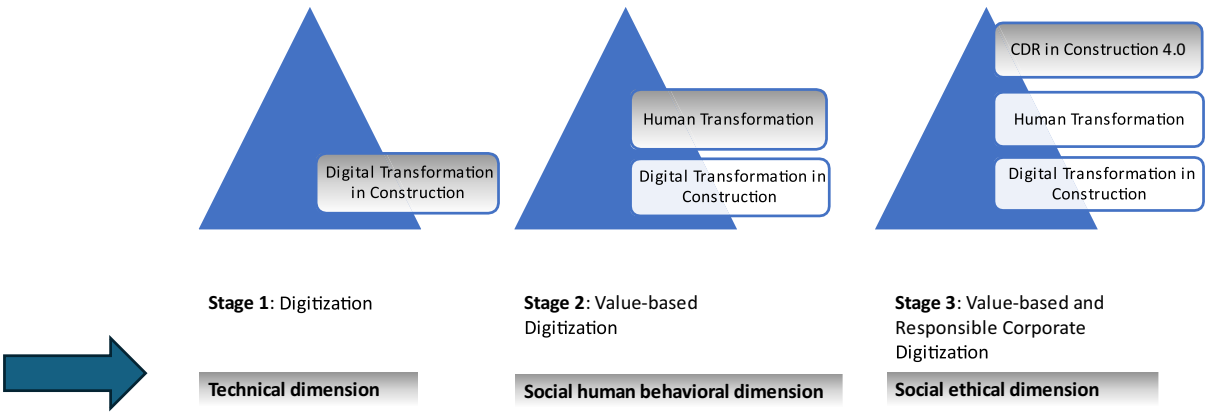
AI has become a motor of transformation in the construction branch as both interviewees and literature research results confirm. The introduction of BIM has had a strong influence on all phases and processes of construction. Blayse and Manley [16] highlight that innovations catalyzed construction processes, with the will to strengthen innovation and productivity, but have stagnated. The construction industry transformation reflects the reinforced recognition of corporate digital responsibility (CDR), societal-normative aspects, ESG reporting, and sustainability.

In fact, this study connects the environment conducive to innovation and broad acceptance and trust between people based on adequate communication. Delays in productivity and completion time originate in the absence of the will for innovation, digital infrastructure, qualified staff, and construction project life cycles that are not holistically thought through and the lack of responsible application of new technologies. This aspect has been far too long underestimated, and the industry-specific structure and stereotypes in the industry are the reasons [17, 18], as well as the lack of communication of facts, data, neutral analysis, and objective evaluation.

Therefore, the Construction 5.0 era represents a promising change in the industry's strength and reputation. Building on numerous previous research papers, this study presents the industry as one of the fastest growing. Scientific literature discusses the normative impacts on society toward a reflection of similar trends. To demonstrate their continued appeal, innovations have filled previous research gaps. Practical examples, such as the semi-autonomous drilling robot "Jaibot" from HILTI [19] or communication tools from the company VALOON, offer guidance.

Most recently, in February 2026, the company Valoon [20] developed innovative digital communication tools, which counteract the industry's stagnating productivity. Through compilation and statistical analysis, data from the transferred information recognize patterns. These are applied to enhance training and improve AI models to automate processes. Valoon's WhatsApp Messenger service with AI agents supports construction documentation and has already achieved measurable success: 90% reduction in manual effort, 100% usage rate, significant reduction in maintenance downtime in 24/7 operation, and efficient management of projects, machines, and HR. As Pozin et al. [21] highlight and following a study by BauInfoConsult, in

Figure 3
Value-based and corporate digital responsibility in construction



Germany, construction workers use WhatsApp for their internal coordination at a rate of 72%. 55% use it for site documentation. The implementation of messaging apps across all project management and process levels contributes to low acceptance of new technologies. Such inspiration increases widespread acceptance of AI, enhances progress in the continuous improvement of user-friendliness, perfect collection of data, on-site management, and structuring. This change promotes both significantly advanced digital development and increased project efficiency and effectiveness. Long-standing productivity problems can be addressed by transforming conventional communication methods to up-to-date digital platforms.

3. Method

For the first time, a more technically oriented discipline such as civil engineering incorporates humanistic, socio-cultural, and linguistic observations into its study. Therefore, a new, disruptive approach is needed, aided by a new methodological approach. Compared to purely quantitative or purely qualitative or literature review methods, a mix proved particularly beneficial for this task. Compared to existing approaches, this study applies the self-initiated "Next Generation Method" [22] in three stages, tailored to contemporary needs of cross-multidisciplinary scientific research investigating normative aspects. It combines a literature review, expert interviews with corporate best practices, and the hermeneutic approach [23, 24] (Figures 4 and 5). The hermeneutic approach enabled the analysis and evaluation of the database. It originates in the human sciences, and its modernity is also evident in the digital age [25, 26].

Such a methodical approach recognizes the potential, challenges, and limitations of communication research as a crucial component of digital transformation in technical fields and the associated human factors and normative issues. Furthermore, this approach enables a holistic understanding and the search for new ways of communicating value-oriented, socially sustainable human–technology interaction [27, 28]. Since the hermeneutic philosophical aspects are most relevant for application in the digital context [29], such a methodology is considered most suitable to evaluate the human, societal linguistic engagement with technologies, innovations, and progress and to enhance the concise scientific contribution of this study. It uses the explosive power of language to communicate, for example, the potential of innovative technologies, which are catalyzing the construction branch´s resilience and innovation [30].

Overall, this research has led to new aspects of the power of communication practices that support a compelling innovation scenario and contribute to a wider use of digitization and AI. This study's new results enrich scientific literature and underline the leadership of the industry.

With this practical framework, which also aims to increase societal and corporate sustainability as part of the UN SDGs and ESG criteria, the connection between communication, innovations such as AI, social sustainability, new scientific findings, and their practical application in this study is in line with the journal's objective. By presenting the positive impact of AI on society based on good communication, this study aims to motivate and bring together academic disciplines from engineering and humanities, ethics, economics, and law [31]. By 2026, AI research has definitively become the central driving force and a cross-cutting discipline for virtually all branches of science [32] [33] [34].

The study is divided into three stages:

1) Stage: internet and literature research
   The research on the internet on key terms of the main research question in combination with a literature review exposed: Although the number of publications on digital transformation increases, research gaps still exist. Scientists criticize that purely technical aspects of digitization still guide research [35].
2) Stage: role models and corporate best practices
   In order to answer the study's key question, face-to-face interviews or video interview calls were conducted between March 2024 and August 2025 with selected corporate role models in construction. They are familiar with the technologies or are pioneers. The focus of the survey was statements on the assessment of the ability to innovate, limitations, areas of application, needs, and risks. For the initial assessment and for answering the research question, this study proves these to be sufficiently representative, seeing that the respondents currently represent the most driving force behind the construction industry's innovation.
3) Stage: the hermeneutic approach as basis for analysis and evaluation
   Interpretations—based on subjective examinations—of interview surveys, normative and societal aspects, and ways of considering and acting lay the ground for the hermeneutic

Figure 4
Applied scientific research methodology

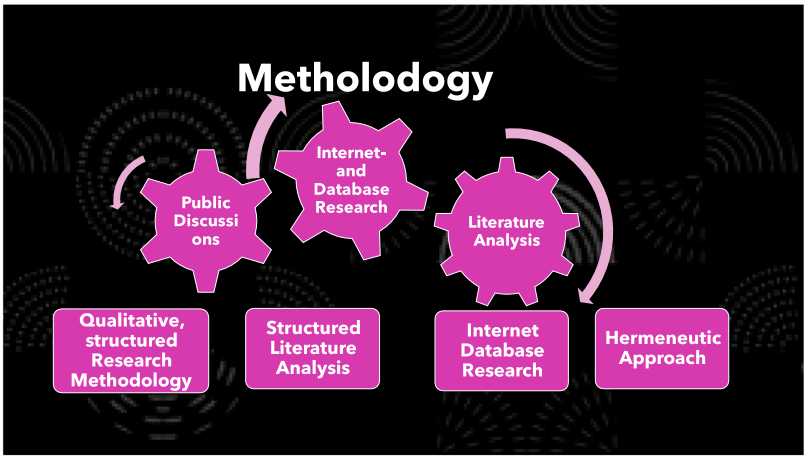
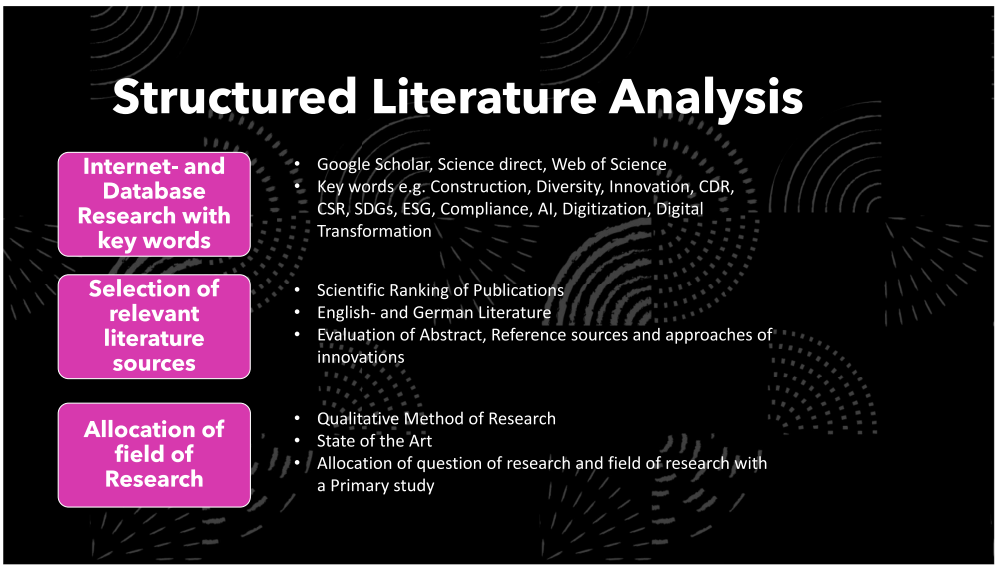


Figure 5
Structured literature analysis



research approach [36]. This scientific method is in particular valuable in the application of engineering sciences, when people look at purely technical issues and the data received is to be examined and evaluated. This extends to identifying and elaborating trends as well as identifying motivations behind them, focusing on the research question.

Furthermore, this study builds on this foundation and continues its evaluation in four consecutive stages: learning the cultural, historical, and corporate correlation (internet research and literature review), recognizing the literary context, observing through interviews and public discussions) and summarizing based on the observations made during conferences and scientific papers. This scientific approach aims at a circular understanding of society (hermeneutic circle) on the basis of technical feasibility and responsible human use of innovative technologies in line with social sustainability and human values. This takes into account the data retrieved at the start of this research, as well as the required comparison with the most recent technology and the adequately introduced new frameworks required as it continually emerges as research continues. This approach is therefore considered to be the most appropriate method for examining the main research question, explaining and drawing conclusions from the data received.

Since 2020, scientific literature in the construction branch has been experiencing digital change, and AI, value-based engineering, and socially sustainable AI have been growing. The trends highlighted provide information about the communication of the dynamics of innovative concepts over the years.

Along with technological development and with each defined initial innovation cycle, certain keywords like "innovation," "digitization," and "AI" show an S-curve, demonstrating a continuous growth of interest in new innovative R&D. Some key terms relate to groundbreaking developments that initiate new innovation cycles like new technologies and approaches, their multiple impacts (e.g. on humans, the environment, and society), and their novelty. The output of scientific work can be defined by the overall quantity of publications. Such a number is key to qualitative interpretation of significant tendencies both in key terms and in the literature growth rate. New R&D and practical approaches have already proven themselves. This builds the foundation for expecting that the importance of earlier-appeared terms in the literature would be of significantly increased interest.

Weber-Lewerenz's [37] publications on "CDR in Construction" serve as a reference as well as the increasing interest in digital responsibility since 2018 (Figure 6).

4. Results

Based on the study´s results, its discussion through the methodological approach and the comparison with existing approaches, further conclusions can be drawn, and new perspectives can be gained, taking into account existing limitations or the localization of underutilized potentials.

Reliable empirical values and convincing use cases are essential for the construction branch in order to meet the challenges of digital transformation with role models and orientation. In fact, through appropriately contemporary, holistic communication, a connection was established between the growing acceptance of digitization in corporate environments and the reporting of experiences with innovative use cases. It is important to investigate the key factors that accelerate such an innovation scenario´s development and ensure even broader acceptance. To get to the bottom of this finding, the study first examined whether the perception that the building branch is an industry lacking innovative technologies is realistic or whether the branch is more of a catalyst strengthening societal sustainability.

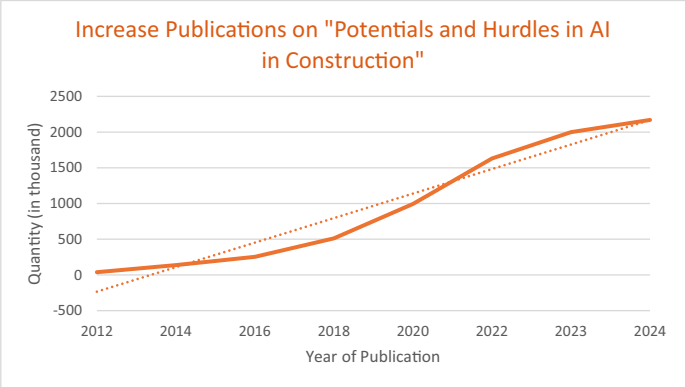
In addition, a new approach emerged in the study, which raised the question of whether a communication guide to Industry 5.0 may offer a better understanding and strengthen the focus on people and normative questions. This study is part of the author's primary research. Literature and internet research and expert interviews with best practices and public topic-related discourses are analyzed and evaluated. The interview methodology complements the theoretical analysis with a practical component. Although only a few but thematically leading, companies, academic institutions, and experts were interviewed, public

discussions were also evaluated, and the ongoing development of national and international legal norms and guidelines was monitored; the systematic planning, conducting, and analyzing of the semi-structured conversations resulted in collecting qualitative data. To ensure the full effectiveness of this study, an interview guide with clear, open-ended questions was developed, participants were selected, and the appropriate recording method was chosen to document the experts' individual experiences, recommendations, and future predictions. The data analyzed provide new insights into trends, motivations, and practical experiences in dealing with innovations in the industry and their communication. Due to the limited timeframe for this specific research field, a more comprehensive interview study that would have provided a data basis for quantitative analysis could not be conducted. However, the author considers the data obtained to be relevant to answer the key research questions. It offers a meaningful overall impression. By applying the self-initiated "Next Generation Method" in three steps, this study not only proposes new disruptive ways to meet the current needs for interdisciplinary scientific research but also delves into a topic area that has so far been under-researched, namely communication in the building branch 5.0. The study concluded that this selected aspect could bring about a paradigm shift in digitalization and AI toward a more sustainable industry. The chosen method uses the hermeneutic approach with dimensions from the Social Sciences, Philosophy, and Ethics [38] in order to specifically examine the diverse normative aspects of the field to holistically answer the key question of this research. Furthermore, to the author's knowledge, there are no comparable approaches or studies in this research area. Rather, it is a newly introduced topic approached with a specifically designed research methodology. Here lies the novelty of the selected method and the contribution of this study. This scientific approach, as the study finds, particularly adds value in the application of civil engineering, when the examination of technological impacts is combined with normative assessment and societal human values. Thus, the information gained can be evaluated holistically. This lays the ground for defining motivations, trends, and related actions accompanied by their inspirations based on the previously defined research question.

Only recently has the communication of normative aspects received more observance (Figure 6 and Table 1); however, only since 2020 have publications dedicated to digital change in construction increased significantly (Figure 7). The numbers provided in Figures 6 and 7 correspond to the time in July 2024.

Figure 6
Increase in literature dedicated to the topic "potentials and hurdles in AI in construction" (status: July 2024)

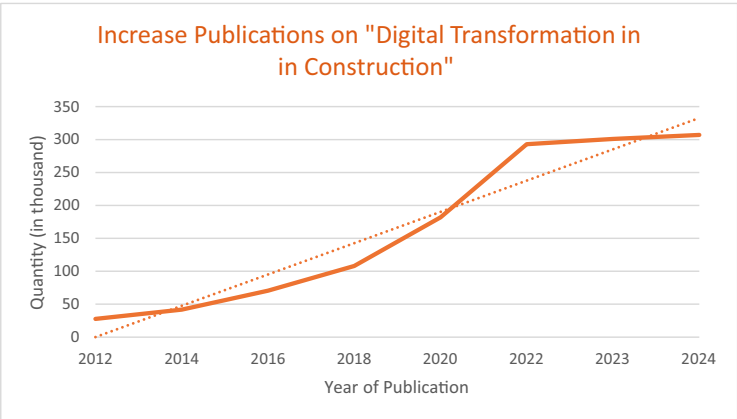
Year of Publication	Quantity
2012	38
2014	139
2016	254
2018	513
2020	995
2022	1630
2023	2000
2024	2170



Source: Googlescholar, July 2024

Figure 7
Increase in literature dedicated to the topic "digital transformation in construction" (status: July 2024)

Year of Publication	Quantity
2012	27700
2014	41900
2016	70700
2018	108000
2020	182000
2022	293000
2023	301000
2024	307000



Quelle: Googlescholar, July 2024

Since digitization helps to largely address the most important challenges in the construction industry, a steadily increasing acceptance rate can be expected. This in turn could trigger a change in the industry. This study addresses a significant gap in existing research, especially in the area of communication, its political, corporate, and social opportunities. Significant improvements, as Table 1 with an extract of the literature review results reflects, catalyze sharing knowledge and facts transparently and—thus closing a further circle—contribute to strengthening progress in education and science. The study goes one step further and gets to the bottom of the ethical-normative factors that justify the expansion of new innovative technologies.

One of the main recommendations of this paper is to define the key determinants responsible for the effective communication of the digitalization scenario in order to sustainably advance Industry 5.0. Those advocating the digital era in construction are often challenged by the difficulties of justifying the impacts and results of disruptive change, and there is little evidence in the literature to support decision-makers in implementation. Interview results show that communication, for example, of best practices, shared experience values, and lighthouse projects, offers motivation and increases the will to innovate. The study aims to critically assess a holistic argumentation to support digital advocates by offering comprehensive arguments. Thus, one of the author's previous studies is a literature review overview highlighting significant literature that addresses the keys to successful societal sustainability and innovation in the construction branch [39].

As a significant contribution to scientific research and new insights in technical fields, the study serves as a beacon of excellence with its innovative research design, which is new to technical topics such as construction, and demonstrates the industry's leadership through interdisciplinary innovation with the corresponding communication strategy.

5. Discussion

Research demonstrates how the building branch´s cultural environment impacts its operation and the way it communicates toward the level of innovation. In this context, it can be discussed that research into correlations is still limited, and the application of innovative research methods still has room for improvement.

Whereas most existing studies focus on the technology-centered approach, this study's results reinforce that the human and value-based approach offers more trust, societal sustainability, productivity, and an efficient communication culture.

Despite extensive research on communication culture, practices, and standards in other disciplines, few studies have uncovered the complex dynamic configurations and industry-specific characteristics underlying the construction industry's overall communication. The study was therefore able to define communication as THE game changer, transferring the industry's strengths, responsibly using resources, and shaping innovative environments. It emerged that the reputation as a pioneering industry cannot be significantly influenced by adapted communication.

To effectively administer such challenges, the study's results emphasize putting critical focus on societal engagement, human needs, and the availability and infrastructure of modern technologies that can be deployed ad hoc in this process. Thus, it is pertinent to highlight the factors of success as well as technologies such as AI, digital communication apps, Metaverse, Virtual Reality (VR), and Extended Reality (XR) that support the implementation and trust-building communication, which are referred to as enablers. A critical and highly publicly discussed part is the design of the data protection framework, which serves to ensure data communication and prevent misuse and at the same time requires, in particular, corporate voluntariness and political-legal responsibility with corresponding awareness and action.

It was recognized that precisely these steps toward strengthening social and industry-appropriate communication are required to successfully master digital and human transformation as key to sustainability.

Shared values, the will to innovate, and diversity represent the main factors of success to establish sustainable human and digital change. Innovative, competitive companies simultaneously attract qualified specialists [40]. The pioneering effect, for example, by establishing a lighthouse project, strengthens employees' identification, inspires as a social media influencer in the construction branch in recruiting young talent, and inspires in shaping the industry. Public perception requires specifically differentiated and long-overdue critically balanced public reporting and communication. Engineering and empathy go hand in hand; the study results demonstrate.

For construction companies, the project-oriented, temporary structure hinders knowledge building and fragments innovation results. Data and information too often remain with a few but are not widely disseminated to do justice to the industry's inclusion and diversity. The study critically notes that far too little is being talked about and discussed about highlights, successes, flagship projects, and new R&D findings in order to finally overcome the industry's reputation, away from what has long been perceived as a traditionally conservative, male-dominated industry, toward one that is increasingly becoming diverse, modern, inclusive, and innovative. Far more holistic, in-depth communication would, for example, clarify how many and what different apprenticeships and job profiles the digital transformation in construction has already led to, or what opportunities have been developed through innovative technologies in New Work, and what potential and attractiveness both innovative employers and employees appropriately trained for digital transformation have to offer. There are many opportunities and strengths that are unfortunately still untapped and often unrecognized, which will drive the construction industry forward. Despite significant successful movements and innovative progress, multiple challenges hinder the growth of dialogue.

The study results clearly demonstrate that, for example, errors or a lack of communication in career counseling at grammar schools lead to a lack of knowledge among the younger generation and among school graduates when choosing their future career sector, training, and degree program. One high-school principal interviewed still believes in 2025 that high-school students should be prepared exclusively for university studies, not for practical vocational training.

Due to a lack of knowledge and its communication, a lack of resources and infrastructure, and a lack of access to newer research results and experience, transparent, fact-based, critical reporting and communication in the construction industry and thus trust and orientation are difficult.

The study concludes that the branches´ highly fragmented nature, with a large number of start-ups and small businesses and a comparatively small number of large companies, the latter due to their financially strong background and significant knowledge advantage through their own R&D departments, results in a disproportionate and unevenly distributed knowledge localization among a few, making knowledge barely accessible or even impossible in many places and hindering consistent, shared communication.

Furthermore, the long chain of actors involved and the complex stakeholder relationships create systemic resistance to the spread of innovations. These characteristics pose a particular challenge for digital transformation and require systems that synergistically leverage the industry's skills, resources, and environmental factors. The industry's inherent interdisciplinary nature makes human–technology interaction a crucial paradigm, further complicating innovation-driven systems. Added to this are the industry's specific characteristics due to its fragmentation, strong technical focus, and lack of consideration of social, human, and communication science and ethical and philosophical aspects, which play a crucial role in digital transformation.

In this context, the study highlights the extremely critical need for both generating primary data on specific challenges and communicating resulting assumptions and new insights. This sharing through communication applies both in R&D and in practice, education, and society. The study considers such practice as best meeting inclusive standards, providing access and participation for all.

The decisive factors for successful communication at all levels include strong societal engagement, diversity and equity, integrated compliance and governance, access to and insight into technological innovations, a focus on sustainability, data protection and security, smart mobility solutions in the work and built-living environment, and broadening the fields of education, financing, and sustainable, resilient planning. Each factor of success contributes to sustainable societal life cycle progress. Key factors for strong societal engagement include public participation, for example, in urban planning, which actively involves residents in decision-making processes; the creation of facilitated collaboration between administration, construction, and residents; and ensuring open communicative exchange. Access to technologies, mitigating social inequality, and promoting digital training for all are essential aspects of inclusivity and equity.

Integrated governance encompasses cross-sectoral collaboration involving all stakeholders, the creation of clear policy frameworks that support a human and value-based approach, and advocating transparency through clear communication. Regarding technological innovations, data-driven processes of decision-making leveraging IoT, AI, and digital platform services that enable optimized access to services for all are key factors for sustainable dialogue. Data protection and security require ethical data use. Protection of personal data, security of cyber networks, strict security protocols, information flow, and trust through transparency must be ensured during data collection and sharing.

Recognizing such factors during the stages of planning and development ensures that construction progress in projects and the sustainable design of the industry are resilient, human-centered, value-based, inclusive, and technologically advanced, ultimately enhancing the reputation of the construction industry.

Such motivation drives sophisticated innovations, shaping sustainable societal infrastructures or smart cities, and using AI to increase the quality of work in construction, making it more productive, sustainable, and adaptable.

Many companies face the challenge of establishing an open and digital communication culture and adequately engaging their employees in the digital transformation process. However, this challenge could be exacerbated by corporate norms and the emerging phase of corporate participation in policymaking in the digital age. Fostering greater engagement and defining the associated, step-by-step accompanying communication require new approaches and thus in-depth academic research. Sustainability has become a popular buzzword. However, it is time to breathe life into it and discuss and exchange ideas about the social, environmental, and governance goals achieved by the sector.

The development of multiple possibilities stimulates creative thinking, boosts both communication and the branches standing as a leading one.

Communication is the game changer: the exchange of new knowledge between practice and science and how the positive reputation of the construction industry is restored. There is a systemic flaw here: instead of a comprehensive, fact-based assessment, reporting shaped by biased judgments leads to the industry being downplayed and its potential for innovation and progress being called into question. The study highlighted a lack of visibility of role models and pioneers, achieved progress and innovation milestones driving the digital transformation and—through the assumption of corporate responsibility—social sustainability.

An outdated way of thinking and continuously looking into the past is still in place: the branch's complexity and fragmentation is origin for failing and the speed of the industry's digital development, furthermore, the shaping of a timely education system require more time, the shortage of skilled workers continues, at best the quantity of orders are high, and progress needs patience. BIM cannot be implemented in practice either consistently or in standard communication between companies, authorities, and administration, as there are no framework conditions and specifications, and people often do not know how to proceed. The will is there.

In addition, there are cultivated generalities and legal requirements that restrict innovation and freedom in research. The industry's impulses with a variety of innovations are reported sparingly in comparison with other industries' public communication.

However, the feedbacks from interview surveys and expert discussions demonstrate a continuously growing desire for a critical, cross-disciplinary debate on the responsible use of innovative technologies followed by excessive innovation and ad hoc applications without an adequate testing phase, since there is awareness of the urgent need to shape Construction 5.0 and the digital transformation.

As shown in Figures 6 and 7, the increase in publications in this area—and, as the study notes, the interest in these publications—reflects that the industry is primarily described as technology-centric based on its experience, but a stronger normative focus is needed, as shown in Table 1. This is consistent with the findings of the literature review, expert interviews, and data from participants in lighthouse projects.

On the other hand, the majority of respondents describe the industry's communication as outdated, non-transparent, and non-inclusive. They emphasize the need to overcome old standards as a technical discipline and to strengthen a new communication culture using innovative technologies that emphasize technological and human experience. The study's findings are consistent with these, as well as with governance.

It can be argued that the components identified in the expert interviews, such as the knowledge economy, technology centers, knowledge exchange platforms, informed and public participation, and strong governance, do not fully cover the list. However, reshaping the communication of these components in the interest of technological innovative transformation and a society driving forward the knowledge economy, as well as strengthening human resources, contributes to the sustainability of the sector's life cycle and its public perception.

Technology centers and knowledge clusters are also an integral part of modern communication. The greatest benefit lies in their societal accessibility, catalyzing public awareness of getting engaged in the prosperous development of cities that are fit for the future.

The results show that the sense of belonging and collaboration created by the communication perspective is crucial for the perception of the construction industry's actions and behavior.

This depends largely on strong corporate governance driving knowledge management policies and shaping further economic dynamics and labor-intensive industry.

Competent and trustworthy governance systems, as well as progressive and creative co-creators, form the crucial foundation for innovative communication across the board, which is essential for reporting on economic growth and innovation progress. Communication about successes and exceptional experiences leads to a stronger sense of community and good governance, which has a positive impact on collaboration, partnerships, and trust.

This paves the way for greater ownership, transparency, trust, and a mutually trusting orientation in Construction 5.0, based on public participation and individual, community, and corporate engagement in the spirit of a shared, but no less critical, dialogue to set new milestones of innovation in construction, as shown in Figure 8, along with the chronologically ordered illustration of the author's research milestones.

This approach offers prosperous grounds of societal sustainable innovation, as it encompasses the dissemination of initiatives, awareness-raising, and public participation. This approach lays the foundation for a contemporary culture of thinking and learning.

The study found that the trend toward strengthening communication and developing a new framework to improve transparency and mutual trust is consistent with ESG criteria, the achievement of the SDGs, and compliance and governance standards.

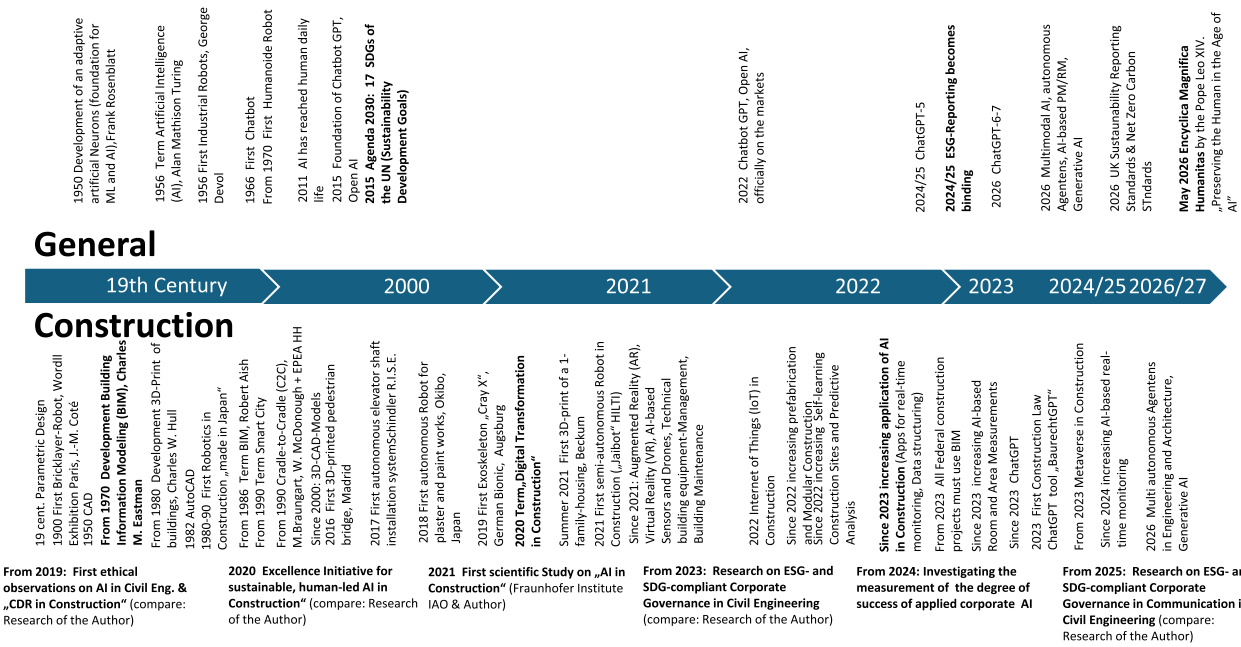
Insights into the temporal dynamics and reciprocal effects of communication diversity as a critical component of the transformation of human and technological innovation enrich holistic understanding and offer practical guidance for communicative transitions and appropriate disruption.

6. Conclusion and Recommendations

The past decades' milestones of digitization and AI in construction are visualized in Figure 8. Since 1970, BIM has existed. According to expert interview results, since 2017, the first AI-based tools have been available. Large-sized corporate environments have their individual R&D units, whereas start-ups are more likely to be located at universities. Based on the author's study results to date, society and economy increasingly rely on AI. The growing AI-based events—such as Construction and AI Summits—as well as training sessions, reflect the increased desire for guidance and the acquisition of new insights to define corporate strategies and unlock new synergy effects. It reveals that such platforms create trust in technological progress and strengthen the will to innovate.

Building trust, transparent communication about digital and human transformation, new approaches, tools, and ways to implement knowledge transfer, expertise, and new insights offer a new field of in-depth scientific research. With such practical preparation, companies, society, the public, education, and

Figure 8
Milestones of innovation in construction



politics are best equipped to assume value-based responsibility through their communication.

New ways in communication in, about, and in favor of Construction 5.0 have been defined with this research. However, further scientific research is recommended in order to observe the construction industry and its social sustainability achievements as a driver of a sustainable digital age.

Construction is making progress, and the author considers the construction industry as one that is continuing its own story of success toward the most sustainable industry due to its long history, its fundamentally high values, and its innovative strength, fostering inclusion and diversity as the milestones mirror. Future research is crucial. Because the muscle needed to train social communication skills must be nurtured. Learning, willpower, and the ability to adapt form the foundation. To put it in musical terms, the melodic, the "WE" (unity), only succeeds in an orchestra, that is, in social interaction. Communication moves us, brings more music into the technical discipline, and connects us as people. Communication can be viewed as a signpost in Construction 5.0. It strengthens awareness and provides orientation. It can enable a paradigm shift in digitalization and AI toward the most sustainable industry. Support and trust through communication and securing freedom and democracy are basic requirements for rapid technological progress [41]. The results demonstrate that continually aligning communication content and channels with contemporary requirements is therefore essential to promote human values as the basis for appreciation to expand the value chain.

Acknowledgment

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Ethical Statement

The interviews were not conducted by the author for this particular study, and all excerpts are from literature cited by the author. There are no ethical parameters required since the author has not conducted the interviews. The author of this study conducts independent scientific research, is company-independent, and is not financially supported by third-party funds, companies, or other institutions. She is free in her research and shares her findings at the interface of "Application practice – Research – Societal debates." In this way, the author encourages the ethical debate on the CDR, the responsible use of digitization and AI in construction—neutrally, critically, and inclusively.

Conflicts of Interest

The author declares that she has no conflicts of interest to this work.

Data Availability Statement

The data that support the findings of this study are openly available at https://doi.org/10.1007/978-3-658-43905-7, reference number [22].

Author Contribution Statement

Bianca Weber-Lewerenz: Conceptualization, Methodology, Validation, Formal analysis, Investigation, Resources, Data curation, Writing – original draft, Writing – review & editing, Visualization, Supervision, Project administration.

References

[1] An, L., Chua, A. Y. K., & Islam, M. A. (2022). Knowledge management and innovation. *Data and Information Management*, *6*(3), 100018. https://doi.org/10.1016/j.dim.2022.100018

[2] Adhikari, D. R., & Shrestha, P. (2023). Knowledge management initiatives for achieving sustainable development goal 4.7: Higher education institutions' stakeholder perspectives. *Journal of Knowledge Management*, *27*(4), 1109–1139. https://doi.org/10.1108/JKM-03-2022-0172

[3] Martiny, A., Taglialatela, J., Testa, F., & Iraldo, F. (2024). Determinants of environmental social and governance (ESG) performance: A systematic literature review. *Journal of Cleaner Production*, *456*, 142213. https://doi.org/10.1016/j.jclepro.2024.142213

[4] Sorooshian, S. (2024). The sustainable development goals of the United Nations: A comparative midterm research review. *Journal of Cleaner Production*, *453*, 142272. https://doi.org/10.1016/j.jclepro.2024.142272

[5] Aros, L. H., Mejia, A. B., Hernández, H. A. B., & Portela, F. G. (2025). Sustainability reporting in the construction sector: Trends, models, metrics and challenges towards achieving the SDGs. *Research in Globalization*, *11*, 100300. https://doi.org/10.1016/j.resglo.2025.100300

[6] Zulu, S. L., Saad, A. M., & Gledson, B. (2023). Exploring leaders' perceptions of the business case for digitalisation in the construction industry. *Buildings*, *13*(3), 701. https://doi.org/10.3390/buildings13030701

[7] Alwashah, Z., Sweis, G. J., Abu Hajar, H., Abu-Khader, W., & Sweis, R. (2026). Awareness and willingness to adopt construction 4.0 technologies: Evidence from Jordan. *Engineering, Construction and Architectural Management*, *33*(7), 5364–5383. https://doi.org/10.1108/ECAM-10-2024-1436

[8] Fatade, A., Ibuoka, K., Akinfolahan, O. P., Oyetunji, O. S., & Adeniyi, R. M. (2026). Digital transformation in construction: A systematic review of BIM, IoT, robotics, and automation in industry 4.0. *Journal of Computers and Applications*, *2*(1), 36–50. https://doi.org/10.58613/jca214

[9] Ghaffar, S. H., Mullett, P., Pei, E., & Roberts, J (Eds.). (2022). *Innovation in construction: A practical guide to transforming the construction industry*. Switzerland: Springer. https://doi.org/10.1007/978-3-030-95798-8

[10] Aju, O. G., & Mokgohloa, K. (2026). Leveraging artificial intelligence for digital transformation of construction and project management practices. *Journal of Construction Business and Management*, *8*(S1), 13–29. https://doi.org/10.15641/jcbm.8.S1.1921

[11] Jahanger, Q. K., Louis, J., Pestana, C., & Trejo, D. (2021). Potential positive impacts of digitalization of construction-phase information management for project owners. *Journal of Information Technology in Construction*, *26*, 1–22. https://doi.org/10.36680/j.itcon.2021.001

[12] Cheng, F., & Hu, Z. (2026). Impact of digital transformation on corporate performance in the construction industry.

Journal of Construction Engineering and Management, *152*(2), 04025248. https://doi.org/10.1061/JCEMD4.COENG-17080

[13] Haghsheno, S., Satzger, G., Lauble, S., & Vössing, M. (2024). *Künstliche intelligenz im bauwesen: Grundlagen und anwendungsfälle [AI in construction: Basics and best practices]*. Germany: Springer.

[14] Ernstsen, S. N., Whyte, J., Thuesen, C., & Maier, A. (2021). How innovation champions frame the future: Three visions for digital transformation of construction. *Journal of Construction Engineering and Management*, *147*(1), 05020022. https://doi.org/10.1061/(ASCE)CO.1943-7862.0001928

[15] Kölzer, T (Ed.). (2022). *Nachhaltige und digitale baukonzepte: Methoden und wege zu einer ökologisch ausgerichteten baubranche [Sustainable and digital building concepts: Methods and paths to an ecologically oriented construction industry]*. Germany: Springer. https://doi.org/10.1007/978-3-658-36776-3_1

[16] Yang, K., Sunindijo, R. Y., & Wang, C. C. (2026). Digital transformation in the construction industry: Barriers and leadership competencies. *International Journal of Construction Management*, 1–18. https://doi.org/10.1080/15623599.2026.2630248

[17] Chen, Z.-S., Liang, C.-Z., Xu, Y.-Q., Pedrycz, W., & Skibniewski, M. J. (2024). Dynamic collective opinion generation framework for digital transformation barrier analysis in the construction industry. *Information Fusion*, *103*, 102096. https://doi.org/10.1016/j.inffus.2023.102096

[18] Omoyajowo, J. O., & Mohammed, M. (2026). Impact of artificial intelligence technologies on construction efficiency and safety in Nigeria. *Journal of Biodiversity and Environmental Research*, *11*. https://doi.org/10.70382/sjber.v11i4.053

[19] Ritzer, K., & Kling, H. (2024). My story: Ein berufsleben zwischen familie, vertrieb und engineering [My story: Job life between family, sales and engineering]. In B. C. Weber-Lewerenz (Ed.), *Diversity in construction – The gamechanger*. Springer. https://doi.org/10.1007/978-3-658-45308-4_7

[20] Cisterna, D. (2024). Von walkie-talkies bis hin zu messaging-apps: Erkundung der herausforderungen und chancen bei der kommunikation und datenerfassung bei bauprojekten [From walkytalky to messaging app: Assessing challenges and chances in the communication and data assessment in construction projects]. In B. C. Weber-Lewerenz (Ed.), *Diversity in construction – The gamechanger*. Springer. https://doi.org/10.1007/978-3-658-45308-4_12

[21] Cisterna, D., Weinmann, M., & Cruz, S. (2025). Chat as front end, structured data as output: A whatsapp-native AI agent for the AEC industry. *Revista Ingeniería de Construcción*, *40*, 1–14. https://doi.org/10.7764/RIC.00164.21

[22] Weber-Lewerenz, B. C. (2024). *Innovation empowerment in construction 4.0 by the CDR-approach: A new field of scientific research for the digital breakthrough*. Germany: Springer. https://doi.org/10.1007/978-3-658-43905-7

[23] Grunwald, A., Nordmann, A., & Sand, M (Eds.). (2023). *Hermeneutics, history, and technology: The call of the future*. UK: Taylor & Francis.

[24] Bahar, N. F. (2026). Hermeneutics: Philosophy of language in interpreting texts in the era of artificial intelligence. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, *11*(01), 60–72. https://doi.org/10.23969/jp.v11i01.39904

[25] Sharma, V. C. (2026). Digital hermeneutics and engagement: A gamified framework for sustainable urban resilience. In R. Liu, V. C. Sharma, & P. K. Tyagi (Eds.), *Addressing urban and spatial challenges through gamification* (pp. 327–356). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3373-5901-4.ch016

[26] Mehnert, W., & Grunwald, A. (2024). Hermeneutic technology assessment. In A. Grunwald (Ed.), *Handbook of technology assessment* (pp. 281–290). Edward Elgar Publishing. https://doi.org/10.4337/9781035310685.00041

[27] Nguyen, M. V., Ha, K. D., & Nguyen, K. V. (2026). Linking corporate social responsibility and project performance: Role of collaboration and trust. *International Journal of Construction Management*, *26*(6), 960–973. https://doi.org/10.1080/15623599.2025.2541132

[28] Masuwd, M. (2025). From data to meaning: A philosophical framework for interpreting digital phenomena in contemporary society. *SATUKATA: Jurnal Sains, Teknik, dan Studi Kemasyarakatan*, *4*(1), 53–65. https://doi.org/10.47353/satukata.v4i1.4606

[29] Arifin, M., & Maulana, M. Z. (2025). The role of philosophical hermeneutics in contextual Qur'anic exegesis in the digital age. *Al-Mashadir: Journal of Quranic Sciences and Tafsir*, *1*(1), 37–46.

[30] Grosz, A., Cisterna, D., Meins-Becker, A., Kelm, A., & Koch to Krax, N. (2024). Was macht gute kommunikation in architektur und bauwesen aus? [What constitutes good communication in architecture and construction?]. In B. C. Weber-Lewerenz (Ed.), *Diversität im bauwesen - Die gamechanger: Innovation durch vielfalt stärken* (pp. 339–368). Springer. https://doi.org/10.1007/978-3-658-45632-0_12

[31] Zovko, J. (2023). Expanding hermeneutics to the world of technology. *AI & Society*, *38*(6), 2243–2254. https://doi.org/10.1007/s00146-020-01052-5

[32] Aikkal, Riju. (2026). The Future of Research Work in the AI Era. *ResearchGate*. https://doi.org/10.13140/RG.2.2.31287.59047

[33] Fu, V. (2026). AI for Science: Opportunities, Challenges, and Future Directions. *Special Issue: Statistical aspects of Trustworthy Machine Learning*, *24*(1), 106–124. https://doi.org/10.6339/25-JDS1214

[34] Tabassum, L., & Rivera, L. S. (2026). How AI is Reshaping Scientific Discovery and Innovation. *Preprint*. *ResearchGate*, 186–193.

[35] Abdulqader, Z., Abdulqader, D. M., Ahmed, O. M., Ismael, H. R., Ahmed, S. H., & Haji, L. (2024). Responsible AI development for sustainable enterprises: A review of integrating ethical AI with IoT and enterprise systems. *Journal of Information Technology and Informatics*, *3*(2), 129–156.

[36] Zakaria, Z., & Okoi, I. O. (2026). The ontology of the digital Bible: A theological critique of computational hermeneutics. *Evangelikal: Jurnal Teologi Injili dan Pembinaan Warga Jemaat*, *10*(2), 153–175. https://doi.org/10.46445/ejti.v10i2.1104

[37] Weber-Lewerenz, B. (2024). *KI im Bauwesen: Wie wollen wir sie einsetzen? [AI in construction: How do we want to implement it?]. (Interview with T. Rohe) [Audio podcast episode]. Hören. Lesen. Wissen*. https://open.spotify.com/episode/7ATicbIWwLodmXYPMtSyQc

[38] Holsomback, C. (2026). Gadamer's social epistemology: A review of carolyn culbertson's gadamer and the social turn in epistemology. *Journal of Gadamer Studies*, *1*(1), 144–150. https://doi.org/10.21423/btd23k20

[39] Weber-Lewerenz, B. (2025). Diversität - Kompass für sozial nachhaltige Compliance – Teil 1 (English: Diversity-Compass for societal sustainable Compliance-Part 1). Vol. 20, p. 63

sqq., ZRFC 2/2025, Journal Risk, Fraud and Compliance (ZRFC), Erich Schmidt Publishing, Berlin. https://doi.org/10.37307/j.1867-8394.2025.02.04

[40] Lijauco, F., Gajendran, T., Brewer, G., & Rasoolimanesh, S. M. (2020). Impacts of culture on innovation propensity in small to medium enterprises in construction. *Journal of Construction Engineering and Management*, *146*(3), 04019116. https://doi.org/10.1061/(ASCE)CO.1943-7862.0001753

[41] Schäuble, W. (2024). *Erinnerungen [Memories]*. Germany: Klett-Cotta Publishing.

How to Cite: Weber-Lewerenz, B. (2026). Signpost "Communication in Construction 5.0": A Paradigm Shift in Digitalization and AI Toward the Most Sustainable Industry. *Artificial Intelligence and Applications*. https://doi.org/10.47852/bonviewAIA62027184