Received: 30 October 2023 | Revised: 24 January 2025 | Accepted: 27 January 2025

DOI: 10.1111/jpim.12782

ORIGINAL ARTICLE

JOURNAL OF PRODUCT INNOVATION MANAGEMENT pdma

Artificial intelligence and corporate ideation systems

Selina L. Lehmann[1] | **Johannes Dahlke**[2] | **Valentina Pianta**[1] | **Bernd Ebersberger**[1,3]

[1]University of Hohenheim, Stuttgart, Germany

[2]University of Twente, Enschede, The Netherlands

[3]University of Lund, Lund, Sweden

Correspondence
Selina L. Lehmann, University of Hohenheim, Schwerzstraße 40, 70599 Stuttgart, Germany.
Email: s.goergner@uni-hohenheim.de

Associate Editor: Constantine Katsikeas

Abstract

Many companies leverage the creativity of their employees to gather ideas for innovations. These ideas are collected, saved, and evaluated via platforms known as corporate ideation systems. Moderated ideation systems (ideation 2.0) emerged as a solution to address the limitations of traditional, rather passive ideation systems (ideation 1.0). In this study, we apply a qualitative mixed-method approach (literature review, company case studies, expert interviews, and focus group workshops) to examine how artificial intelligence (AI) technology may relieve the remaining pains of stakeholders in collaborative, moderated ideation systems. This leads to a new framework of corporate ideation systems, termed AI-based ideation systems (ideation 3.0). We identify five major pains suffered by stakeholders in today's moderated ideation systems: creativity pain, content formulation pain, search pain, analytical pain, and administration pain. We find that AI agents act as pain relievers when serving five supporting functions: inspirer, stylist, matchmaker, analyst, and organizer. The interconnected nature of pains means that employing AI agents in certain functions within corporate ideation systems can create positive externalities across the entire system. Practical insights into AI agent implementation and application in corporate ideation systems are provided by six mini-case studies, which lead to the proposition of two organizational principles: the contextualization of AI usage and the generalization of AI implementation as the requirements for successful ideation 3.0.

KEYWORDS

artificial intelligence, corporate ideation, employee creativity, employee innovation, idea management

1 | INTRODUCTION

Employees' ideas are crucial to the production of innovations. Thus, companies initiate various programs to solicit ideas from the creative minds of their employees, such as hackathons or innovation labs (Flocco et al., 2022). Another established method is *idea management*, which gathers, develops, evaluates, and recognizes employees' ideas in a structured manner (Beretta, 2019). Over the past few decades, corporate idea management has undergone a major transformation—what began with simple letter boxes to collect incremental improvement

ideas from employees (Björk & Magnusson, 2009) has gradually evolved into sophisticated digital systems for finding breakthrough, novel ideas (Deichmann & Jensen, 2018). Features such as idea commenting and voting (Hoornaert et al., 2017) have turned these systems into collaborative platforms. With these developments, a new form of corporate ideation system using *moderated ideation*[1] has emerged. Systems of this nature are built upon *virtual idea boxes* (predefined, strategically aligned ideation themes) managed by employees (*moderators*), who facilitate the ideation process by, for instance, guiding idea discussions (Beretta et al., 2018). While moderated ideation addresses many of the drawbacks of traditional, passive ideation systems, such as a lack of continuous engagement and strategic misalignment (Beretta et al., 2018), it has increased the complexity of ideation systems by requiring the increased involvement and interaction of stakeholders. This poses procedural challenges, such as high evaluation workloads, communication efforts, and biased selection decisions, which impair the proper functioning of the ideation system (Kruft et al., 2019).

Although the literature on artificial intelligence (AI) suggests that AI holds immense potential as a tool in creativity and innovation (e.g., Bouschery et al., 2023; Verganti et al., 2020), its potential to address the emerging challenges of corporate ideation systems remains underexplored. Existing research mainly studies how AI can be applied to isolated stages of ideation, such as evaluation (e.g., Bell et al., 2024; Dahlander et al., 2023), reflecting its fragmented integration into corporate ideation systems. However, corporate ideation systems involve multiple interdependent functions, ranging from campaign preparation and idea generation to evaluation and development. The interconnected structure of these systems requires an understanding of how multiple functions can interact with AI in various roles and how these collective interactions affect the ideation system in its entirety (Grilli & Pedota, 2024). This is particularly relevant given the general-purpose nature of AI, which offers diverse applications to augment each function in different ways (Gama & Magistretti, 2025). A significant gap, therefore, lies in our understanding of how AI can effectively enhance entire ideation systems, particularly those using moderated ideation. This leads to the following research question, the first of two: *How can AI enhance corporate ideation systems across multiple stakeholders and functions?*

In addition, the technical integration of AI into ideation systems does not automatically ensure their effective functioning, leading scholars to call for research on the enablers and capabilities required for successful AI implementation in innovation (Gama & Magistretti, 2025). In general, empirical insights into how companies can effectively implement AI remain scarce (Bahoo et al., 2023). The knowledge required concerns the conditions under which AI implementation can promote ideas and innovation in organizations in general, but it is specifically unclear in the context of organizational multi-actor systems that enact multimodal value creation supported by AI (Gama & Magistretti, 2025), such as corporate ideation systems. This leads us to our second research question: *What implementation strategies effectively support the functions of AI in corporate ideation systems?*

To answer our research questions, we adopt an exploratory mixed-method approach. Given that AI is a new concept in corporate ideation systems, our approach is akin to generating new business models. This strategy is informed by the Value Proposition Canvas (Osterwalder et al., 2015) and considers a multiple-stakeholder perspective (Freeman, 1984) using different data collection techniques, including a literature review, a company case study, expert interviews, focus group workshops, and six mini-cases. Since we seek to develop a comprehensive picture of how AI can alleviate challenges across different stages of corporate ideation, the literature review and single case study serve the purpose of identifying central challenges in ideation systems (*pains*), whereas the expert interviews and focus groups allow us to conceptualize supporting AI roles within these systems (*gains*). Finally, the collection of mini-cases provides empirical evidence of how those AI roles are employed in practice and allows us to derive organizational strategies to implement them effectively.

Our study's core contribution to research on managing corporate ideation systems (e.g., Beretta et al., 2018; Beretta et al., 2021) lies in understanding how AI can be strategically employed to alleviate the specific pains faced by stakeholders in moderated ideation systems while also recognizing how these individual challenges interrelate throughout the entire ideation system cycle (Gama & Magistretti, 2025).

First, we show how AI agents can help mitigate or eliminate common pains, leading us to introduce a new type of ideation system (*AI-based ideation* or *ideation 3.0*). We find that AI agents act as pain relievers when serving five supporting functions—inspirer, stylist, matchmaker, analyst, and organizer—within corporate ideation systems. We go on to propose that these functions need to be understood as interconnected elements because ideation systems are inherently systemic in nature. We reveal how addressing pains by means of an

[1]Also known as collaborative ideation systems in research (Beretta et al., 2018).

AI agent at one stage (e.g., the content formulation pain in idea generation) can have downstream effects that either alleviate or exacerbate challenges in subsequent stages (e.g., fostering better idea evaluation and maturation). This contributes to a deeper understanding of ideation systems, where the effects of AI interventions must not be considered in isolation, but with consideration of their systemic impacts across the stages in ideation systems.

Second, adopting a systemic lens allows us to further identify strategies for implementing AI within corporate ideation systems, which need to be understood as subsystems embedded within larger organizational systems that face the pervasiveness of AI as a general-purpose technology. As a result of our casework, we derive two organizational principles—*contextualization* and *generalization*—that are critical for the successful adoption of AI in ideation systems. Contextualization refers to tailoring AI applications to specific functions and contexts within the ideation process, whereas generalization involves developing transferable AI resources and capabilities that can be utilized across multiple stages and tasks. These principles serve as guideposts for AI implementation strategies in practice and represent new contributions to the literature on AI implementation for innovation (Gama & Magistretti, 2025; Verganti et al., 2020).

2 | THEORETICAL BACKGROUND

2.1 | The evolution of ideation systems

Ideation systems have evolved from simple suggestion boxes that collected incremental, paper-based employee ideas for internal process optimization (Björk & Magnusson, 2009). Early IT-based systems, or *traditional systems* (*ideation 1.0*), were passive platforms involving managers, idea generators, and evaluators. These systems allowed ideators to submit ideas with limited idea revision and communication among ideators, but without the need for specific company search fields or predefined problems (Gernreich, 2018). Advancements in internet and Web 2.0 (wiki) technologies have also revolutionized ideation systems (Acar, 2019), leading to moderated ideation (ideation 2.0) systems (Beretta et al., 2018). Interactive community features, such as idea commenting and voting, encourage discussions and activities around ideas and give idea contributors (peers) a central role (Beretta, 2019; Deichmann et al., 2021). Ideation now targets not only incremental ideas but also radical breakthrough solutions (Gamber et al., 2022; Kruft et al., 2019). A problem-oriented ideation strategy with predefined themes in idea contests, campaigns, or idea boxes enhances the strategic fit of generated ideas (Beretta et al., 2018). Moderators play a key role in managing and guiding discussions on specific themes (Zhu et al., 2019).

Beretta et al. (2018) showed that moderated ideation systems address three key shortcomings of traditional ideation systems: *unfocused idea generation*, *reduced employee participation*, and *a lack of mechanisms for managing and selecting good ideas*. These issues are mitigated through a predefined, company-aligned ideation strategy, diverse community-building measures (e.g., performance targets, feedback, and incentives), and a structured ideation process (e.g., guidelines for idea refinement and evaluation). Studies highlight the importance of feedback and open discussions in moderated ideation systems for refining ideas (Gamber et al., 2022; Zhu et al., 2019) and fostering mutual learning (Chen et al., 2022). Although moderated ideation systems offer advantages over traditional systems, several barriers remain for stakeholders, as demonstrated in this article.

Given the current trend around AI, there is huge potential for AI in corporate ideation systems. Therefore, our article focuses on a new form of ideation system, the *AI-based ideation system* (*ideation 3.0*). This system differs from the prevailing moderated ideation systems by incorporating AI agents (Russell & Norvig, 2021) with different thematic focuses. In this article, we define an AI agent as a software entity that can perform tasks to varying degrees of autonomy by receiving inputs and producing outputs that feed back into the ideation system (OECD, 2024). AI agents either receive commands from ideation system stakeholders or operate independently through built-in features within the ideation system. Unlike directly involved ideation system stakeholders, AI agents function indirectly, thus enhancing ideation efficiency and outcomes. Table 1 summarizes the evolution of ideation systems.

2.2 | AI in creativity, knowledge, and innovation

Recent literature has pointed to the potential of applying AI technology to augment organizational creativity (Bouschery et al., 2023) and fundamentally change innovation processes (Haefner et al., 2021; Verganti et al., 2020). As well as making conceptual contributions, empirical studies showing positive effects of AI on creativity have naturally focused on jobs in creative industries, such as musical artists, visual artists, and designers (Mazzone & Elgammal, 2019), or employees involved in routine operations (Jia et al., 2024), because these cases allow a clean focus on bilateral interactions between

TABLE 1 Systematization of ideation systems.

Type of corporate ideation system	Ideation 1.0 Traditional ideation system	Ideation 2.0 Moderated ideation system	Ideation 3.0 AI-based ideation system
Description:	Passive platforms with limited possibilities for exchange among their users and a broader scope of ideas to be collected.	Interactive community-based systems (e.g., idea voting, commenting) with defined ideation focus fields, managed by moderators.	Same features as moderated ideation system, but with AI as the support function in the ideation process across all other stakeholders.
Innovation idea types	Mostly incremental	Incremental and/or radical	Incremental and/or radical
Stakeholders:			
Idea manager	×	×	×
Idea generator	×	×	×
Idea evaluator	×	×	×
Idea contributor (peer)		×	×
Moderator		×	×
AI agents			×
Exemplary sources	Gernreich (2018); Schweisfurth and Dharmawan (2019)	Beretta et al. (2018); Gamber et al. (2022)	*This study*

Note: × indicates that the stakeholder or AI support function is present in the respective system.

professionals and AI tools with regard to a single, well-defined task. Across creative jobs, AI can contribute substantially along the dimensions of content creation, information analysis, content enhancement, information extraction, and enhancement (Anantrasirichai & Bull, 2022). Occupational studies have found that AI-driven automation relieves workers of time-consuming routine tasks while creating mental capacities for more knowledge-intensive creative work, for which complementary human–AI collaboration seems necessary (Dell'Acqua et al., 2023; Rai et al., 2019).

However, these cases present somewhat isolated instances of bilateral human–AI interactions or homogenous creative occupations. In contrast, innovation processes in organizational settings constitute a more complex picture. Although this process starts with initial sparks of creativity, it is usually followed by iterative loops of evaluation and refinement. The complexity of this process is driven by the combination of routine logistics and highly creative nonroutine work, as well as by the interrelation of elements along these dimensions and across an organization's units. As ideation systems are embedded into existing company structures, coordination and the involvement of a plethora of information and stakeholders are required (Beretta et al., 2018). Studies have, for example, found that AI helps select the best-suited creativity and innovation techniques to generate ideas (Botega & da Silva, 2020). AI can provide condensed insights into and knowledge about users, offering a potentially valuable resource for product development and innovation efforts (Verganti et al., 2020). However, there remains an issue in pinpointing the specific contributions that AI technology can provide to various points along this process because of the inherent complexity of this general-purpose technology. Broadly, we follow the OECD (2023) in defining AI systems:

> *An AI system is a machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. Different AI systems vary in their levels of autonomy and adaptiveness after deployment.*

This definition showcases that the character of applied AI is highly context-dependent and varies based on

algorithmic diversity stemming from different technical paradigms (symbolic expert systems vs. connectionist neural networks), architectures, and parametrization, training methods (supervised, unsupervised, and reinforcement), usage of resources (numeric, textual, and visual training data), and outputs (prediction, optimization, classification, clustering, generating content, etc.). Given the general-purpose character and algorithmic diversity of the technology, investigating the interaction between ideation systems and AI technology requires a more nuanced perspective on how the technology is adapted to directly meet the needs of different stakeholders within ideation systems (Perez-Vega et al., 2021). This, in turn, carries indirect consequences for other stakeholders and the entire functioning of ideation systems (Freeman, 1984).

3 | METHOD USED

3.1 | Research approach and setting

Because AI-based ideation systems are a new topic, our research approach employs the Value Proposition Canvas (Osterwalder et al., 2015), a widely used framework for generating and analyzing new business ideas. The Canvas consists of two elements: the customer profile (right-hand side of Figure 1)—defined here as the

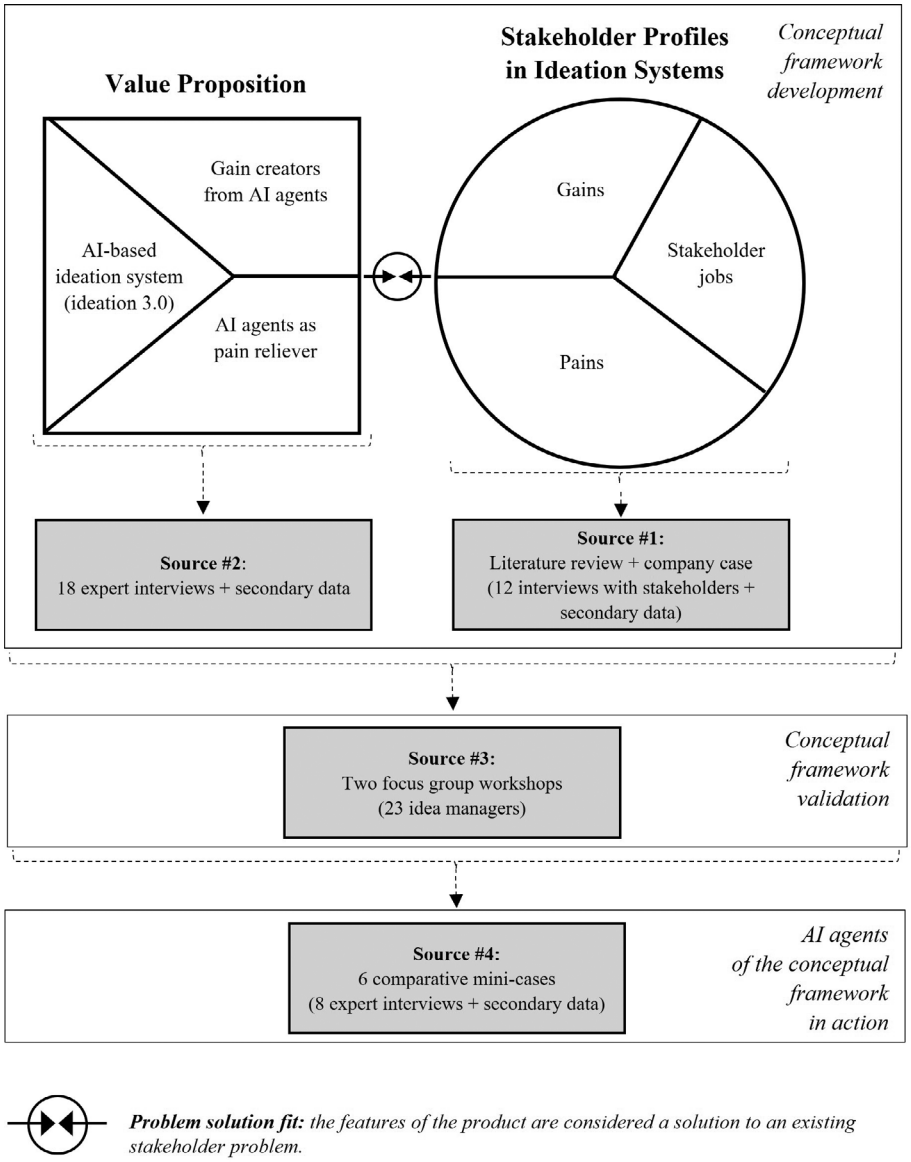

FIGURE 1 Adapted value proposition canvas as a research approach (adapted from Osterwalder et al., 2015).

ideation system stakeholder profile due to our multiple-stakeholder perspective (Freeman, 1984)—and the value proposition (left-hand side of Figure 1). The stakeholder profile includes descriptions of *jobs*[2] (tasks), *pains* (challenges), and *gains* (benefits from the completed job) for ideation system users. The *value proposition* defines how features can alleviate stakeholder pains and create further gains. In the early phase of business model development, there is a *problem–solution fit* when the value proposition addresses a customer (stakeholder) problem (Osterwalder et al., 2015).

Our research employs a four-step approach that uses three types of qualitative data to define and validate elements of the Value Proposition Canvas for AI-based ideation systems (Figure 1). Additionally, a fourth data source demonstrates how AI agents perform in action.

Our initial qualitative data set (Source #1) aims at defining stakeholder profiles in today's ideation systems, focusing on their pains. We conducted a comprehensive literature review (Table S1) on moderated ideation systems (ideation 2.0) and a case study with a large manufacturing firm operating a (semi-)moderated ideation system for over 15 years.[3] This system processes over 1000 ideas annually, primarily for incremental process innovations and predefined search fields. Idea managers, acting as moderators, oversee idea evaluation, invite experts for discussions and idea evaluation, and run ideation campaigns. Idea evaluators test, validate, and decide on idea implementation, with successful ideators receiving monetary rewards. Key performance indicators track and guide the ideation activities. We conducted semi-structured interviews with 12 stakeholders and triangulated our findings with secondary company data (presentations, survey, and workshop results) to enhance construct validity (Yin, 2009). The interviews lasted 45 to 120 min and were recorded with the consent of the participants.

The second part of our study (Source #2) focuses on *defining the value proposition and examining how AI features can act as pain relievers*, including their benefits and risks. Source #2 also serves to confirm the pains identified in the first part. We conducted semi-structured interviews with experts chosen for their specialized knowledge in AI and ideation systems. We targeted idea managers, consultants specializing in idea management, ideation system providers, and researchers on idea management and/or AI. We contacted more than 50 individuals using internet searches, personal networks, and snowballing techniques,[4] leading to 18 expert interviews. These interviews, lasting 30–60 min, were recorded with the consent of their participants. We triangulated our findings with secondary data provided by experts, including a study on AI in innovation management (sample: 162 innovation managers) and workshop findings on generative AI in corporate ideation (sample: 80 idea managers).

Findings from our third qualitative data source (Source #3) *validated our conceptual framework, specifically the problem–solution fit* (Osterwalder et al., 2015), and identified potential risks of AI in corporate ideation, enhancing construct validity and generalization (Yin, 2009). We conducted two focus group workshops with 23 idea managers from various companies and industries recruited through network organizations interested in our research. Each workshop lasted 45–60 min, primarily following a focus group discussion format, with the exception of a brief presentation on our concept prior to the discussions. With the consent of their participants, the workshops were recorded. Table 2 summarizes the interview participants contributing to the three qualitative data sets.

Our fourth qualitative data source (Source #4) comprises six comparative mini-case studies (Käss et al., 2024; Yin, 2009) involving companies—named Alpha through Zeta for the purposes of this study—developing, testing, or using ideation systems with AI features. *These studies offer firsthand insights into AI in online ideation*. We compared individual features representing our defined AI agents across cases. Primary data collection involved interviews lasting 30–60 min, again triangulated with secondary data sources, such as observations during AI usage, online workshops, company documents, and press reports. The interviews were recorded and transcribed. Table 3 summarizes the mini-cases.

3.2 | Data analysis

The transcripts from the interviews and focus groups were analyzed using qualitative content analysis (Miles & Huberman, 1994). The main categories (e.g., stakeholder pain, AI agent) and subcategories (e.g., pain type, AI agent type) were developed inductively during data

[2]The Value Proposition Canvas distinguishes between three categories of jobs (functional, social, and emotional). In the context of our study, the functional tasks are in the foreground and are therefore the subject of our study.

[3]We refer to this as a semi-moderated system because the platform does not include all the aufeatures typical of moderated ideation, such as idea voting.

[4]Our initial plan was to conduct a case study on an existing AI-based ideation system. However, after engaging with ideation system providers, we found that the AI-based ideation system is a new concept with limited availability and experience. Thus, we shifted our main research focus to expert insights.

TABLE 2 Overview of Interviewed Participants (Sources #1, #2, and #3).

Stakeholder	Description	Informants interviewed
Source #1: Company case		
Idea manager/ moderator	System coordinator who manages, maintains, and promotes the ideation system, develops campaigns, and drives idea evaluation.	4
Idea generator/ contributor (peer)	Employee from production or administration who submits ideas individually or as part of a team.	3
Idea evaluator	Manager who reviews and improves ideas, takes implementation decisions, provides decision feedback, and calculates rewards.	5
Source #2: Expert interviews		
Idea manager	Ideation system coordinator from finance, automotive, consumer goods, electronics, or engineering industries.	6
Consultant	Consultant who advises companies on idea management (e.g., helping clients to set up and manage ideation systems and to collect and implement ideas).	4
System provider	Specialist/consultant of an ideation system software company.	4
Researcher	Researcher specialized in the field of ideation systems or AI.	4
Source #3: Focus group workshops		
Idea manager	Ideation system coordinator from the finance, healthcare, insurance, automotive, consumer goods, or engineering industries.	23

Note: One consultant in Source #2 was also a former idea manager. Focus group workshops (Source #3) included three idea managers who had also participated in the expert interviews of Source #2.

analysis and deductively from the literature (Amabile, 1983; Nijstad et al., 2010; Runco & Chand, 1995). The evaluated data on pains and AI agents were organized into tables according to these categories, with examples and quotes provided as evidence (Table S2). Stakeholder pain classifications and AI support roles were refined iteratively, adjusting concepts as new insights emerged. Data analysis for the first two data sets (Sources #1 and #2) occurred concurrently with data collection to identify saturation points. Additionally, for the fourth data set (Source #4), data triangulation techniques were extensively employed (Yin, 2009) due to the availability of rich secondary data, such as company documents and press reports.

4 | RESULTS

In this section, we present the findings, starting with the identified stakeholder profiles of key users[5] in today's moderated ideation systems (*jobs and gains of stakeholders*). We then examine the value proposition for each AI agent (*inspirer*, *stylist, matchmaker*, *analyst*, and *organizer*), detailing the pains addressed, AI as a pain reliever, and the created gains and potential risks. Practical insights from the AI agents in action are also incorporated. This forms our conceptual framework of AI-based ideation (ideation 3.0). Finally, we present our findings on its validation and critical assessment.

4.1 | Stakeholder profiles in ideation systems

4.1.1 | Jobs and gains of stakeholders

Idea managers act as system coordinators, managing and maintaining the system. Their 'jobs' include setting reward policies, identifying idea topics for campaigns, selecting evaluators, communicating idea status, driving idea evaluation and implementation, promoting the program, assessing it against key performance indicators, reporting to management, and training employees (Gerlach & Brem, 2017). Their tasks are resource-intensive, as one idea manager elaborated:

> *We held events where I invited employees from different departments and advertised the system. I answered questions in special question-and-answer sessions. We also ran boost sessions to drive idea evaluation, shorten implementation times, or simply clarify idea*

[5]In this study, we focus exclusively on primary stakeholders—idea managers, idea generators, idea evaluators, idea contributors/peers, and moderators. Secondary stakeholders (e.g., campaign sponsors and top management) were omitted due to their lower importance in the digital ideation process (Beretta et al., 2021; Kruft et al., 2019). In addition, we excluded idea selectors as separate roles because their tasks and pains overlap with other roles, such as evaluators, and they are not a distinct role in our case study.

TABLE 3 Overview of the comparative mini-case to represent AI agents in action (Source #4).

Case company	Case perspective		Case description	Data sources	AI agent focus of the case				
	Ideation system provider	Ideation system user			Inspirer	Stylist	Matchmaker	Analyst	Organizer
Alpha		×	Transnational medium-sized enterprise operating in the financial services sector with a strong regional focus. Employs a community-based idea system with high levels of transparency and interaction. Introduced generative AI tools to strengthen ideation in 2023.	1 expert interview (*Idea and innovation manager*), observation during AI-feature usage, observation of ideation system data, and workshop materials	× Use generative AI to enable more radical ideation				
Beta		×	A leading private hospital group in Germany and a leading provider of integrated healthcare services. Has been using the community-based ideation system 'Table of Visions' since 2021. Since April 2024, the hospital group has been testing GenAI features from 'Table of Visions,' which operate via an API to OpenAI. The system includes a ChatGPT chatbot with different versions to choose from. AI features are integrated into the ideation process, and a prompt database contains both provider-developed and self-developed prompts.	2 expert interviews (*Idea/system managers*), corporate documents, and press reports from 'Table of Visions'	× System-integrated chatbot as sparring partner for idea solutions	× System-integrated feature for idea and peer feedback description		× Pre-fill an evaluation report for idea reviewers	
Gamma	×		A leading international provider of idea management software currently testing newly developed AI features in idea management with its customers. These features include functions to assist moderators and idea managers in framing ideation campaigns and operate via an API to OpenAI, as well as provider-developed prompts.	1 expert interview (*Customer manager*), observation during AI-feature usage, corporate documents, and press reports		× System-integrated feature for campaign framing			
Delta	×		A leading provider of idea management software for global mid- to large-size companies. The firm has developed AI features for over 5 years, focusing on semantic tools such as the	2 expert interviews (*Product specialist and innovation strategist*), observation during AI-feature usage, online	× System-integrated assistant to create idea	× System-integrated feature for campaign	× Similar idea matching (×) Matching	× Strategic assessments (e.g., idea challenges and	

(Continues)

TABLE 3 (Continued)

Case company	Case perspective: Ideation system provider	Case perspective: Ideation system user	Case description	Data sources	AI agent focus of the case: Inspirer	Stylist	Matchmaker	Analyst	Organizer
			similar-idea engine and expert finder. In April 2024, it launched new generative AI features in idea management, including strategic idea assessments, now in testing among clients. Today, the software company uses various methods, such as an ML engine based on Lucene SOLR (semantic search), integration with OpenAI, and custom AI clusters for clients. Clients can create custom prompts and receive contextual, role-specific analyses covering specific use cases while leveraging a prompt database enriched by both the customer community and advisory partners, all managed through a self-administrating console.	workshops, corporate documents, and press reports	from scratch for certain challenges (×) Trend crawler	framing and ideas, feedback, and email descriptions	partnerships, innovation projects, market trends, and business needs	difficulties, value summary, and region fit)	
Epsilon		×	An international chemical company that hosts around 75 ideation campaigns annually, utilizing a community-based ideation system from the software provider Hype since 2016. The platform has incorporated semantics-based AI features, including similar idea matching.	1 expert interview (*Idea/system manager*), observation during AI-feature usage, online workshops, corporate documents, and press reports from Hype			× Similar idea matching		
Zeta		×	International automotive supplier that has been using a community-based system from the software provider Hype since 2016. The system has a very high implementation rate for feasible ideas, focusing on process improvements rather than new product ideas.	1 expert interview (*Idea/system manager*), corporate documents					× Assistant for questions in the idea-entering phase

Note: × = indicates that the example is in the scope of our article; (×) = indicates that the example is out of the scope of our article.

> *cases with many open questions*. (Idea manager, Source #1)

Often, the role of managing ideation is an addition to a primary job. Idea managers benefit through compensation (salary), but also recognize the program's value to the company, as one interviewee (Idea manager, Source #1) noted: "*I do this with all my heart because I see that we are saving money and moving the company forward with good ideas*." Other benefits relate to social aspects, from being the first point of contact.

Idea generators are employees who create ideas individually or in teams (Gibbs et al., 2017). Their 'jobs' include identifying idea topics (Beretta et al., 2018), searching for suitable team members (Deichmann & Jensen, 2018), formulating ideas clearly (Gamber et al., 2022), testing and validating ideas (e.g., prototyping, market validation, cost–benefit analysis) (Deichmann et al., 2021), refining ideas based on feedback (Boënne et al., 2023), and responding to comments (Gamber et al., 2022; Zhu et al., 2019). They 'gain' from ideation through compensation by reward or as part of their salary (Ruiz & Beretta, 2021), experience (Boënne et al., 2023), recognition, and workplace improvement from incremental process ideas; as one informant noted: "*The employees themselves benefit from ideas. They want to make their work easier*."

Idea evaluators are management-level experts or members of committees responsible for reviewing ideas (Ruiz & Beretta, 2021). Their 'jobs' include screening, categorizing, and filtering out ideas (Kruft et al., 2019), testing ideas, and gathering additional insights for decision making (Deichmann et al., 2021). The company case shows that decision-making can be supported by inviting other specialists to comment on ideas. Evaluators also review ideas to decide whether to move them forward or implement them (Beretta, 2019), provide (decision) feedback (Asplund et al., 2022), calculate rewards, and nominate award winners (Gerlach & Brem, 2017). In the company case, evaluation is part of the evaluators' job so that their 'gains' include compensation as well as the benefits of ideation outcomes (e.g., product/service innovations) driven by their goal to advance the business and generate revenue as managers.

Idea contributors (peers) comment on or vote for others' ideas, thus becoming involved in idea refinement and evaluation (Zhu et al., 2019). Furthermore, a contributor may signal an interest in joining idea development as a team member by committing to others' ideas (Deichmann et al., 2021). Contributors' 'gains' from these activities are socialization (Beretta & Søndergaard, 2021) and learning from others (Chen et al., 2022), thus favoring the development of their own ideas (Chen & Althuizen, 2022).

Finally, *moderators* are trained individuals who facilitate ideation by leading idea discussions (Zhu et al., 2019), providing feedback (Camacho et al., 2019), and matching ideas with synergistic content (Zhu et al., 2019). Their roles are similar to those of the idea managers but limited to specific campaigns or topics (Chen et al., 2022), rather than the entire program. They may also formulate the ideation strategy (i.e., analyze the internal environment to identify opportunities as idea scouts) and initiate idea topics as parts of campaigns or contests (Beretta et al., 2018). Moderators are crucial because, as one interviewee said, "*They keep the community fresh, they keep the campaign fresh. They onboard community members*." As initiators of idea topics, they 'gain' from their job through finding solutions for specific problems in their field, but they may also benefit from socialization, like the other roles.

Overall, the identified 'gains,' which we group into functional, social, and emotional gains[6] (Osterwalder et al., 2015) come to fruition when the program runs smoothly and good ideas—ideas that are implemented and from which the company benefits—are developed. Furthermore, we found that the above roles are not mutually exclusive. The company case shows that idea managers also acted as moderators, and some even submitted ideas themselves. Likewise, evaluators also had experience with idea submission.

4.2 | AI as an inspirer

4.2.1 | The creativity pain

The *creativity pain* refers to the lack of the creativity-related, problem-finding, or divergent thinking skills necessary to find creative solutions (Amabile, 1983; Runco & Chand, 1995). This pain can reduce the number of ideas generated within a campaign or contest or lead to ideas that identify problems but offer no solutions, as an idea manager pointed out:

> *Another major issue is that employees realize that there is a problem, and they just recommend doing the process differently without explaining how to do it differently. That is, the ideas that are submitted are not really elaborated*. (Idea manager, Source #1)

[6]Functional gains: problem solution, process optimizations (savings), product/service innovations (revenue), compensation, learning, and workplace improvement. Social gains: socialization, experience, and learning. Emotional gains: recognition and employee satisfaction.

The creativity pain, however, may also result from wrong problem-solving approaches occurring in the context of cognitive fixation (Jansson & Smith, 1991). This, in turn, leads to undesirable concepts or ideas. Ideators with past success, for instance, have been shown to fixate on their past successful solutions when creating new ideas, leading to less variation and idea novelty (Bayus, 2013). One informant further elaborated on this issue as follows:

> *In the ideation phase, generally there are many problems like cognitive biases and fixedness of people that basically lead them to* consider *only a specific set of options. That is usually related to what has been there in the past* (...). (Researcher, Source #2)

The creativity pain is not limited to ideators in the idea generation phase. For example, interviewees also identified this pain among idea managers and moderators involved in creating promotional material and setting up appealing campaigns or contests, primarily due to a lack of time. This can have serious consequences for system participation "*because if you come with the same message every day and do the same thing year after year for motivation and inspiration, it's boring. No one will pay attention to it anymore*" (Consultant, Source #2).

4.2.2 | The value proposition of the inspirer agent

First, in its role as an *inspirer*, AI helps to create content by providing food for thought, inspiring input, or initial ideas (Brem et al., 2021), thereby addressing stakeholders' creativity pain. In this context, experts consider generative AI the main technique to address, for example, the inability of idea generators to find a solution for a specific problem:

> *There is a situation, not too bad, but maybe it could be better, and they are looking for an idea. What to do in this case? They simply could ask a generative AI. And they get suggestions. Most probably, none of those suggestions would fit, but maybe one would trigger an original human idea.* (Consultant, Source #2)

It is important to emphasize that generative AI is considered a source of inspiration, not a source of final, submission-ready ideas. It is seen as a time-saving method compared to alternatives like design thinking or "*walks in the forest to come up with a new idea*," as one consultant noted. In addition, it can inspire by proposing creative thinking or problem-solving methods, thus also helping to break potential biases, such as cognitive fixation (Storm & Angello, 2010).

Instead of applying generative AI, one expert suggested other ways—related to the use of transfer learning of large language models to find text similarity (Raffel et al., 2020) or of analogy mining techniques based on genetic algorithms (McCaffrey & Spector, 2018)—to create ideas for a given problem or to solve fixation issues in the phrasing of the problem:

> *If you're in the automotive industry and you're totally thinking automotive, but you have a process that is similar to what chemical manufacturing does, AI could basically highlight the similarity and say 'look I found like 20 patents from the chemical industry where there is a similar process and it looks to be something that we could also use.* (Researcher, Source #2)

Furthermore, generative AI may relieve the creativity pain of moderators and idea managers because it provides access to a wealth of inspiring messages, slogans, motivational videos, and speeches. As highlighted by the experts, this content could serve to motivate participants, foster creativity, and maintain momentum for the campaign or contest.

Considering the potential risks of the inspirer role, interviewees questioned whether AI would enable the development of breakthrough ideas. One expert illustrated the concept of '*sweet spots*,' referring to "*certain ideas that might sound crazy* (...) *but they have something in the core of the idea, or an aspect of the idea is really good and interesting*." '*Sweet spots*' that eventually lead to breakthrough innovations, however, require much more than inspiration; they also need profound industry and trend knowledge. Furthermore, experts question whether AI can be inspiring when the topics are very specific, complex, and dependent on a plethora of internal insights. In addition, copyright issues pose a problem. If creative content is generated using open-source AI, questions arise as to the identity of its creative director and the owner of the idea, as well as whether the submitter needs to be rewarded for it at all.

4.2.3 | The inspirer in action—Building a holistic AI culture

In 2023, Alpha adopted a generative AI tool to enhance input into its internal ideation system. The primary goal

was to move beyond incremental improvements and drive forward-thinking initiatives:

> *We need to inspire our employees to think beyond the incremental and envision truly transformative ideas*. (Innovation manager, Source #4, Case Alpha)

The company started integrating the AI-powered chatbot branded as 'Medici.' It was connected to OpenAI's application programming interface through the Azure cloud and into the company's Microsoft Teams environment. This tool assists employees not only with formulating ideas, but also with various queries, from daily operational questions to more complex problem-solving scenarios, and is domain-adapted based on internal company data to produce more company-relevant outputs. The rollout strategy for AI at Alpha was comprehensive:

> *Medici is accessible to all employees, providing support on professional topics while ensuring data privacy and security*. (Innovation manager, Source #4, Case Alpha)

Instead of limiting AI usage to idea generation, the company integrated AI into various everyday tasks, encouraging broader adoption. This approach helped employees become familiar with AI tools more quickly. While Medici was meant to be a general-purpose sparring partner, the company undertook a substantial effort to equip employees with the skills to avoid the pitfall of creating ideas greater in number but smaller in creativity. To this end, Alpha conducted extensive training sessions and took various steps to motivate and educate employees. Prompt engineering workshops were designed to teach employees how to interact with AI effectively. "*We had more than 16% of our employees participate in these workshops live, and many more accessed the recorded sessions*," the innovation manager noted. These workshops included practical exercises using AI tools for daily tasks. However, a more salient point of these workshops involved fostering experimental conduct with Medici and *providing prompting techniques and best practices* to coproduce nongeneric outputs. Alpha also offered an internal prompt library, but this remained underutilized because human–AI interactions seemed to be rather bilateral, and users would stay within the chat interaction rather than considering additional information. Alpha *provided employees with regular updates* through the company's intranet and employee newsletters, keeping everyone informed about new developments and success stories related to AI. Alpha fostered a holistic AI culture and prompted its employees to apply the tool creatively for idea generation and refinement. At the same time, they decided to *embrace the general-purpose nature of generative AI* and not maintain AI applications in isolated silos, for example by embedding them only into the ideation system environment. This helped enable experiential learning, which led to increased AI literacy among employees.

In other cases, a chatbot (Case Beta) or an automated idea generation feature (Figure S1; Case Delta) is integrated into the ideation system as a partner for solution searches. An informant from a leading private hospital group explained this functionality:

> *With our present self-developed prompts, we aim to support by providing inspiration on how to generate an idea. Meaning, you only need to present a problem and then collaboratively develop a solution with the AI in the chat*. (Idea manager, Source #4, Case Beta)

In Beta, it was imperative to address *copyright and liability issues in the ideation policy*. Developed over several months in collaboration with the company's works council, the policy ensures that employees are not disadvantaged by AI features and are released from any copyright and liability concerns—a central issue mentioned by the informants interviewed earlier (Sources #2 and #3). To encourage employees to use AI features, *training sessions* were initiated to address concerns, particularly in regard to data privacy, given the importance of protecting corporate data in the clinical environment. Consequently, employees were educated about the proper use of a chatbot in ideation.

4.3 | AI as a stylist

4.3.1 | The content formulation pain

The *content formulation pain* refers to the difficulty of correctly formulating text to ensure the information is properly understood and appealing to the reader. This occurs when the core message is available, but its description is poorly elaborated. Informants highlighted various causes for this pain, such as a lack of skills or language barriers, which make it challenging to describe ideas accurately or to formulate appealing campaigns or contest briefs:

> *The employees should sell their ideas well, and not everyone is a salesperson, in the sense that they put their ideas across so positively*

that the person in front is totally enthusiastic. (Idea manager, Source #2)

Additionally, a lack of time and heavy workloads (Vanharanta, 2018) prevent feedback providers from delivering comprehensible feedback. The content formulation pain can have various consequences. The way contest briefs are presented, including their readability and length, affects the number of high-quality ideas in competitions (Hu et al., 2020). Moderators' writing and leadership language styles impact the quality and quantity of contributions (Becker et al., 2022; Coussement et al., 2017). Idea presentation influences selection decisions due to differences in understanding (Gernreich, 2018) and attention (Zeng et al., 2022). Poorly formulated ideas may be withheld by ideators fearing rejection, and this pain may limit participation from global employees who do not speak a common language. Rejecting ideas with impersonal responses can also lead to demotivation and lower participation:

> *It is exactly this feedback that is the biggest hurdle.* (...) *That means that if an employee has received bad feedback, he is guaranteed to tell his colleagues about it, and that creates a chain reaction*. (Consultant, Source #2)

4.3.2 | The value proposition of the stylist agent

AI can reformulate existing content to enhance its understandability and appeal, altering the presentation while preserving the message's meaning. This AI agent, defined as the *stylist*, could reduce the content formulation pain. The stylist agent supports various stakeholders throughout the ideation process, including reformulating campaign or contest briefs (idea managers and moderators), idea descriptions (idea generators), comments (peers), and feedback (evaluators). Here, language models used in generative AI and additional text-mining techniques, such as sentiment analysis, are once again at the forefront:

> *ChatGPT can formulate [campaigns] much better than me* (...) *or how do I hit the language of the target group? If I present something to a controller, I need a completely different language than for HR, the sales manager, or the board*. (Consultant, Source #2)

Moreover, experts have suggested that ideation systems could incorporate a language transcription feature to address the content formulation pain caused by language barriers. Automated speech recognition has significantly improved with deep learning, enabling multinational employees to communicate more freely. Depending on the way that automated speech recognition is used, the stylist agent may create gains, such as increased awareness, motivation, understanding, and improved communication. Research has indicated that message presentation affects idea quantity and quality (Becker et al., 2022; Coussement et al., 2017), and, according to one expert:

> *In so many cases, there was one problem definition [within a campaign] and there were no good results and redefining the same question with other wording from another angle, they found the right answer in the short term*. (Consultant, Source #2)

Experts considered the stylist agent to be less risky than other agents, although some highlighted that it could lead to monotony, reduced variety, and excessive similarity in descriptions. Furthermore, since radical and explorative solutions are typically complex, AI misinterpretation of such ideas could result in incorrect reformulations.

4.3.3 | The stylist in action—Flawless communication throughout the ideation process

Our comparative mini-cases show that the stylist agent is already being tested and utilized in a few ideation systems (Cases Beta, Gamma, and Delta), covering the entire ideation process, from idea generation to feedback (Figures S2 and S3; Case Delta). An informant from the private hospital group described this feature as follows:

> *In the submission form, you can select 'AI actions,' such as spell check or text shortening. The same options are available for comment fields; when users comment on ideas, they can use preconfigured prompts from the software provider, such as formulating text from bullet points*. (Idea manager, Source #4, Case Beta)

The stylist (and inspirer) agent relieves idea managers from the further administrative tasks that arise with less-developed ideas, thus providing evidence for the interconnection of pains or interdependent relationships:

> *In the past, together with the ideator, we often had to rephrase, revise, and add information*

> *to ideas because they were often incomplete. However, this was no longer necessary for the ideas generated with AI.* (Idea manager, Source #4, Case Beta)

Other noticeable advantages include the acceleration of processes. Next, as part of fostering an *AI-adaptive company culture*, the hospital group plans to launch a communication campaign entitled *Developing Ideas in Five Minutes*. This campaign aims to engage ideators with limited computer access, such as nursing staff, thereby increasing idea quantity.

Other ideation software (Cases Gamma and Delta) also uses the stylist agent in campaign creation, providing a 'shortcut' to campaigns, thereby saving time but also ensuring that ideators are properly addressed. The AI-based campaign development feature again works via an interface to OpenAI and is fully integrated into the ideation system:

> *There is no rocket science behind it (...) it's a GPT model that we've prompted with the context that we have added to it.* (Customer Manager, Source #4, Case Gamma)

To create a campaign, the user first provides a title and a short campaign summary, with keywords being sufficient. Next, the user selects from various campaign description templates utilizing different storytelling tactics. Each narrative template operates via a predefined prompt in the system's background, *contextualizing campaign descriptions* to convey key aspects engagingly. Generative AI then automatically generates campaign tags (analyst agent) and suggests four header images (inspirer agent) using DALL·E 3. Finally, the campaign is generated, and final specifications, such as campaign duration, are set.

4.4 | AI as a matchmaker

4.4.1 | The search pain

The *search pain* refers to the lack of knowledge or expertise necessary to proceed in the ideation process, often resulting in significant search efforts to acquire the required information. Research has underscored that domain-specific knowledge is crucial for creativity (e.g., Amabile, 1983; Boons & Stam, 2019). However, in practice, this knowledge is frequently unavailable to idea generators because "*employees have too little understanding or perhaps too little insight for certain things*" (Idea manager, Source #1). The search pain extends beyond the idea generation phase, affecting idea managers and moderators as well. These stakeholders experience difficulties in locating duplicate ideas, identifying the right individuals to refine ideas, or finding evaluators for implementation decisions. One interviewee highlighted this challenge: "*Now we have 10,000 employees and 2200 processes. You should have in your head who is responsible for what*" (Idea manager, Source #2). Evaluators also require "*numbers, data, facts*" (Idea manager, Source #1) and information outside their expertise, such as legal knowledge of intellectual property or industry standards. This pain can severely slow down the process, leading to delayed decisions and feedback, as noted by an informant from the case company (Source #1).

4.4.2 | The value proposition of the matchmaker agent

AI can match stakeholders with the necessary information, knowledge, or people, acting as a matchmaker to address search pain. This AI agent offers opportunities for a wide range of stakeholders due to the broad presence of search pain:

> "*Is this idea already there?*" *I think this can help the employee when submitting the idea. The AI can also help to tell who's the right person to address because AI could do the match of content and responsibility within the company.* (*Idea manager, Source #2*)
> *AI could also help to find specific people, or maybe also to match specific, different people to work together on ideas.* (Researcher, Source #2)

Recommender systems based on k-nearest-neighbor algorithms or matrix factorization techniques could be predominantly used for match functions of this kind (Felfernig et al., 2021). Generative AI could provide direct answers to evaluators for simple queries or decision-making information, leading to faster results. Clustering and classification algorithms could identify groups of similar or dissimilar employees or classify their expertise, aiding idea managers in matching ideas with evaluators or suitable collaborators. While this saves time and increases efficiency, it could also affect outcome quality, because higher quality and successful ideas often result from diverse team members (Garcia Martinez et al., 2017) or diverse peer comments (Zhu et al., 2019). However, AI could also help here by analyzing ideators' ideas and their knowledge from prior submissions or comments to ensure diversity in idea discussions, for example (see also *AI as an Analyst* below).

A potential risk highlighted by idea managers is the possibility of developing blind faith in the technology, where the matchmaker agent is fully trusted without questioning potential mismatches. This concern persists despite early studies showing that algorithm appreciation can lead to better outcomes than aversion (Keding & Meissner, 2021). Furthermore, the matchmaker agent could limit learning by discouraging the submitter from entering an idea if the system finds a match with a similar existing idea.

4.4.3 | The matchmaker in action—Semantic idea similarity search

A mini-case with a leading global chemical producer reveals practical insights into the matchmaker agent. Their ideation software includes a semantic idea similarity search, putting them ahead of firms that still rely on conventional search techniques to find duplicate submissions. The informant (Idea manager, Source #4, Case Epsilon) explained, "*Before, it didn't work well. All the words in the title were significantly overvalued compared to those in the idea itself.*" The advanced search, based on cosine similarity metrics, allows users to identify submissions with low, medium, or high similarity to their ideas, along with corresponding authors' contact details (Figure S4). This AI feature enhances socialization and improves submission quality through idea advancement, benefiting multiple stakeholders:

> *[As idea generator] you'll get the people you want to talk to. You describe your own idea, you see the authors of ideas that are similar, and then you know who you need to chat with if you want to advance your idea or if you need someone for feedback. The campaign manager then brings other ideators [from the similar idea] in for feedback.* (Idea manager, Source #4, Case Epsilon)

Additionally, the effective functioning of the idea similarity feature has led employees to use the system as an 'Expertise Finder,' enabling global connections with colleagues sharing similar interests. Although the feature is considered low risk, its use may be restricted if ideas are confidential. The company's ideation policy states that idea similarity is not an exclusion criterion for submission. Submitters are encouraged to submit their ideas even if they closely resemble existing ones, minimizing the prior stated risk of reducing the number of submissions (cf. Sources #2 and #3).

In comparison, findings from Case Delta indicate that the semantic idea search during the idea generation phase intentionally reduces the number of submissions to improve idea quality. Ideators with similar ideas are invited to provide feedback, turning potential risks into opportunities and resulting in higher-quality ideas.

4.5 | AI as an analyst

4.5.1 | The analytical pain

The analytical pain refers to the challenge of correctly analyzing, evaluating, and interpreting information. This pain is linked to a lack of competencies in convergent thinking, which is necessary for logical reasoning, information accumulation, and decision making (Cropley, 2006). Causes include a lack of skills (Runco & Chand, 1995), cognitive effort (Hoornaert et al., 2017), time constraints, and heavy workloads (Criscuolo et al., 2017). For example, idea managers and moderators acting as idea or problem scouts (Beretta et al., 2018; Beretta et al., 2021) must analyze organizational trends to align campaigns with priorities, ensuring relevance and impact. As one informant (System provider, Source #2) stated, "*Idea managers are always interested in what the trends are, where people are talking about, or where the biggest problems are.*" Evaluators also face time constraints that challenge the review and selection process, making it difficult to analyze ideas thoroughly and engage in meaningful discussions (Criscuolo et al., 2017). Informants further noted that evaluators' analytical skills might be subject to biases affecting idea selection:

> *The operational blindness (of evaluators) leads to less thorough evaluations.* (Evaluator, Source #1)
>
> *Ideas that were more novel are typically those that get discarded. A panel of experts or experts make decisions that tend to focus on low risk and more feasible ideas in a way.* (Researcher, Source #2)

The consequences of biased selection decisions, such as novelty bias (Criscuolo et al., 2017) and familiarity bias (Piezunka & Dahlander, 2015), limit the exploration of new and breakthrough ideas. Experts have also noted that bias can lead to unfair reward calculations, likely decreasing motivation.

4.5.2 | The value proposition of the analyst agent

To address analytical pain, AI can act as an *analyst* by objectively interpreting and assessing complex information to recommend actionable steps. This creates opportunities for various users, such as idea managers or moderators, to identify valuable campaign topics using text mining techniques, such as topic modeling, on internal or external data, such as patents and social media (Mühlroth & Grottke, 2022) or predictive customer analytics that bridge internal and external knowledge silos (Kitchens et al., 2018):

> *There is some really interesting stuff happening around trend management, trend analysis. AI identifying current trends* (...) *and helping focus the innovation strength on the right topics, so that they don't start an ideation campaign in a field where you wouldn't really have any gains from it.* (Consultant, Source #2)

In addition, the analyst agent could help mitigate evaluators' biases by providing robust evidence of the feasibility and potential value of ideas (Bell et al., 2024). For instance, similarity and clustering algorithms can identify connections between proposed and past successful ideas as well as successful patents or products, which can then be used as predictors of idea success or feasibility (Dahlander et al., 2023). This evidence-based approach helps evaluators consider innovative solutions by assessing originality (Dumas et al., 2021) and presentation quality (Mesgar & Strube, 2018), leading to more objective evaluations and rewards. Concerning potential risks, experts worry that AI, in its role as an analyst, could lead to unreliable predictions if there is a lack of large, high-quality datasets for training, biased training data, or if the idea is highly uncertain and radical.

4.5.3 | The analyst in action—Strategic assessments along the ideation journey

One mini-case (Case Beta) provides the first insights into how companies experiment and plan to implement the analyst agent in the evaluation process using generative AI:

> *We have a standardized evaluation scheme that the AI could pre-fill. Reviewers would then only need to check and verify the form, reducing their effort.* (Idea manager, Source #4, Case Beta).

The company would develop its prompts through *learning by doing* with the help of online sources. This approach has already proven successful in developing prompts for inspiring idea solutions (see *AI as an Inspirer* above).

In contrast, a mini-case with a leading ideation software provider (Case Delta) offers insights into an AI-based analytical feature integrated into their ideation software via an interface with OpenAI. This feature supports the entire ideation journey. It can perform specific analyses for various cases, such as the challenges to and difficulties, value, and regional suitability of an idea during the evaluation phases (Figure S5), "*accelerating the process by handling tasks that experts might spend hours on*," as noted by an interviewed product specialist and innovation strategist (Source #4, Case Delta). In the implementation phase, it suggests tasks to execute ideas. The system allows customers and consulting firms to develop and share prompts in a virtual marketplace. Additionally, it includes verified prompts from the software company's prompting engineers. These prompts "*combine flexibility with scalability*," meaning they can be used across various customers but are also *tailored to specific factors*, such as industry, company brand, target market, ideation challenge, and strategy (radical or incremental). Furthermore, the prompts are tailored to different roles or target groups, addressing their specific needs. This *contextualization* enhances result quality and reduces prediction risks, eliminating concerns raised by informants (Sources #2 and #3).

4.6 | AI as an organizer

4.6.1 | The administration pain

The *administration pain* refers to the issue of properly managing and maintaining the system. It relates to smaller organization-related tasks that add up to a large workload for the stakeholders, and idea managers and moderators in particular. These tasks may include inviting selected peers to provide feedback on ideas, sending out personal reminders to evaluators who missed their review deadlines, onboarding idea submitters, or manually creating performance reports. Our results suggest that this is a prevalent pain throughout all of our data. The findings from the company cases and expert interviews show that timely evaluation represents a particular administration pain for idea managers and moderators. Despite regular automated email reminders to evaluators, idea managers must "*run behind and push*," as one interviewee from the case company (Source #1) reported. This often leads to alternative solutions to drive idea evaluation, including meetings outside the system that need to

be planned and organized. As a result, there is less time for value-adding activities in the ideation process.

4.6.2 | The value proposition of the organizer agent

To reduce the administration pain, AI may slip into the role of an *organizer*. In this role, AI assists in planning, monitoring, and controlling tasks, thereby relieving stakeholders from time-consuming administrative pains and freeing up resources for value-adding activities:

> *So that the chatbot could, for instance, be the one in charge of facilitating these discussions or trying to engage more employees. So that some of these tasks somehow are delegated and others that are more relevant or where they're intervention of the moderator is more important could be stuff where they focus on in a way*. (Researcher, Source #2).

AI-powered chatbots could also guide and help employees submit their ideas. By providing clear instructions and support, these chatbots ensure a smooth experience, reducing the burden on moderators or idea managers who would otherwise have to address repetitive queries. Planning algorithms for workflow management could contribute additional value, such as when AI, in its role as an organizer, sets appointments for face-to-face discussion of ideas between idea managers and evaluators on instruction from the idea manager. Potential risks of the organizer role relate primarily to the chatbot function, which, depending on its design, may involve impersonal communication and lower engagement compared to face-to-face user onboarding (Go & Sundar, 2019).

4.6.3 | The organizer in action: Efficiency versus human touch

Zeta initiated several AI initiatives intended to optimize the administration of their ideation system but found that they faced significant obstacles. They introduced a rule-based chatbot named 'Vinny' to assist with idea submissions, aiming to streamline the process and reduce the workload on human administrators. Launched in 2018, 'Vinny' was designed to provide immediate responses to common queries based on content from frequently asked questions. It was integrated into the existing software to facilitate ease of use. By 2020, the chatbot had been discontinued due to low utilization. Although it offered immediate and correct information on the process of submitting ideas, employees preferred interacting with local idea managers rather than the chatbot, citing trust issues and generational preferences. The *perceived lack of reliability and personal touch* in AI-driven interactions led to its abandonment. These factors seem especially important for employees who are emotionally invested in the ideas they submit.

4.7 | Framework validation: Problem–solution fit and interdependencies

We validated the above findings in focus group sessions to confirm the so-called problem–solution fit (Osterwalder et al., 2015). Participants confirmed the existence of the five identified pains[7] and considered AI, with its five different support roles, as a potential pain reliever. As one idea manager declared, "*I definitely see similar problems in my company and think that AI could help for sure in the explained ways*." *When participants were asked to consider* which pain was most severe or, conversely, which AI agent had the greatest potential in ideation systems, the answers varied depending on the stakeholder they were referring to. Overall, they pointed out that AI has the biggest impact in the idea generation phase because of the severe consequences: "*S*** in, s*** out! Bad ideas lead to long processing and evaluation times, and lower implementation likelihood*." In this context, they saw the content formulation pain to be the most severe, not the creativity pain, because "*[t]here are enough ideas available, creativity is there. Though, the biggest obstacle for many ideators is to describe their idea*." From the perspective of an idea manager, however, relieving the administration pain using AI as an organizer would already be of great potential because of the created gain in saved time. Since the lack of time is the main cause of many other pains faced by idea managers, addressing the administration pain would automatically reduce the other pains as well, indicating a positively or negatively reinforcing and hierarchical relationship between the identified problems. Figure 2 depicts the potential mechanisms derived from our data.

[7]One participant noted the potential omission of motivational pain (i.e., a lack of motivation among employees to submit ideas). We do not see this as a major issue in today's moderated ideation systems, as the practices implemented by moderators effectively address it (Beretta et al., 2018). We consider increased motivation as a positive outcome or 'gain creator' from using AI in idea management (Figure 3). Another participant identified the challenge of tracking key performance indicators and defining actions when they are unmet, but this was included in the analytical pain addressed by the analyst agent.

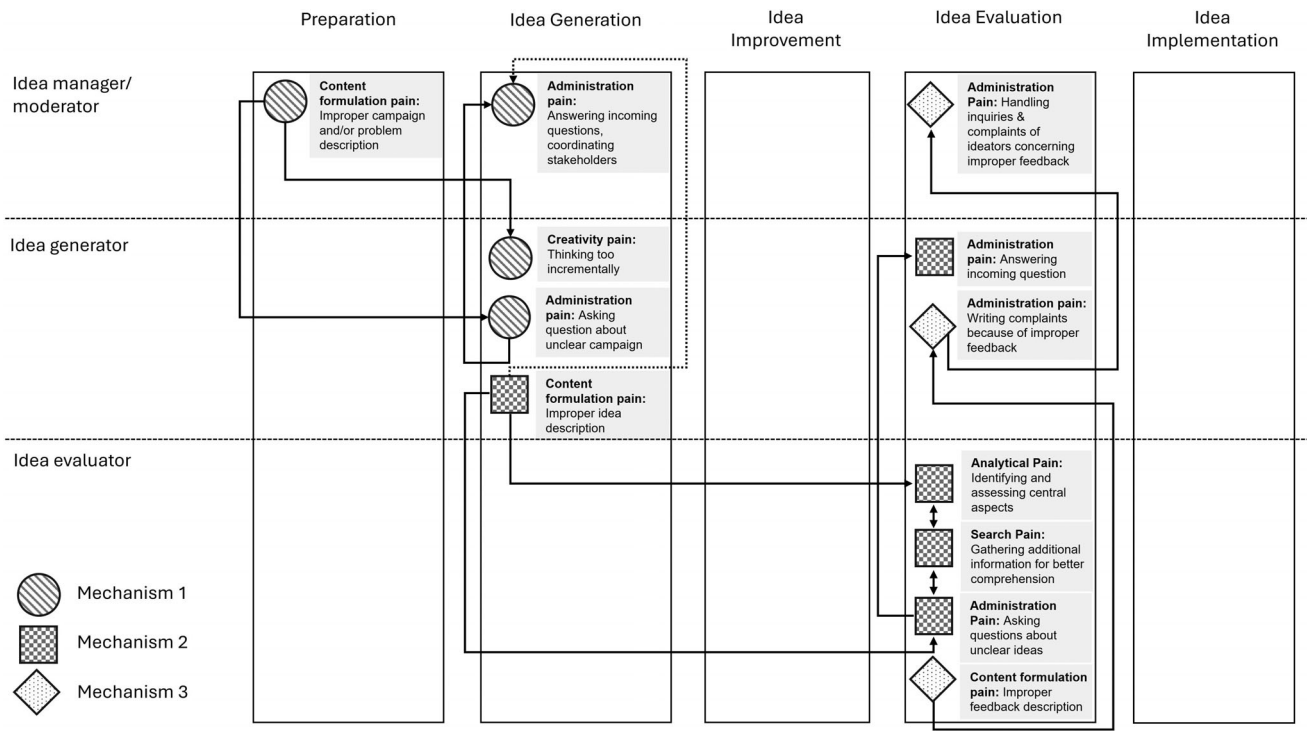

FIGURE 2 Reinforcing Mechanisms Between Pains Within the Ideation System. Structured by Different Phases (Horizontally) and Stakeholders Involved (Vertically). Source: The content formulation process may also apply to idea contributors (peers). For the sake of simplicity, our figure focuses on examples involving three stakeholders.

All mechanisms initiate with a content formulation pain in the phases of (1) campaign design, (2) idea generation, or (3) idea evaluation (horizontal dimension) and may lead to a worsening of the related pains (administration, creativity, search, and analytical) subsequently faced by the different stakeholders involved (vertical dimension).

In addition, participants stated that pains may be influenced by *corporate culture* and system maturity, as certain problems may be less severe if users have experience with writing, submitting, and evaluating ideas, for example. Another focus group member emphasized that "*some AI applications leave the system boundary of idea management*," requiring interfaces with other systems, such as AI scheduling appointments in its organizer role. Thus, to successfully implement an AI-based ideation system that covers the full range of functionalities outlined in this study, *AI systems need to be established across the company*, including interfaces with other systems.

There are further risks that lie in the usage of AI in general, and generative AI to augment ideation in particular: model misbehavior and interaction issues (Cheatham et al., 2019) based on underlying biases in training data and parametrization (e.g., leading to discriminatory or hallucinating AI). However, quality controls in data preparation and training procedures can also help enhance the reliability (Gudivada et al., 2017) and fairness of these systems vis-a-vis human decisions (Mitchell et al., 2021). Interaction issues bear more managerial relevance because they are often unintended and may go unnoticed. These issues include bad prompting in guiding interactive language models, overriding proposals of AI systems, or, contrarily, unreflective acceptance of AI outputs (Mollick & Euchner, 2023). Moreover, the technology could lead to user frustration "*if the algorithm just discriminates against them and their ideas. And then not receiving any recognition, especially if it's very depersonalized*," as one expert pointed out. Hughes et al. (2019) highlighted the risks of AI in terms of the perceived fairness of employees. While these interaction issues may not cause immediate harm, they may lead to suboptimal use of the technology and thus negatively impact the quality of system outputs in the long run. In addition, experts highlighted the general risks concerning data protection and intellectual property loss (Cheatham et al., 2019). To summarize, the identified AI support roles may create 'gains'[8] for ideation system

[8]Identified 'gain creators' from AI support functions are: improved process efficiency and time savings, increased inspiration, motivation, awareness, understanding, communication, and facilitation of discussions, reduction of biases, increased idea quantity and quality, increased quantity and quality of ideas, and greater likelihood of implementation or success of ideas.

stakeholders. However, they are also subject to various risks. Table S3 contains a summary of the risks examined.

5 | DISCUSSION AND CONTRIBUTIONS

While literature exists on the potential of AI in creativity and innovation management (for reviews, see Bahoo et al., 2023; Haefner et al., 2021), AI has rarely been combined with (corporate) ideation systems and, if it has, tends to be the subject of a one-sided view of a specific ideation stage or AI functionality, particularly idea selection (Bell et al., 2024; Dahlander et al., 2023; Hoornaert et al., 2017). Our study makes two major contributions to both literature streams. First, we derive a framework for AI-based ideation systems based on empirical evidence, defining the specific supporting roles of AI agents in ideation systems. These AI technology roles can help mitigate or even overcome the pains of stakeholders in today's ideation systems. Second, our study proposes an understanding of the use of AI in ideation systems through the lens of systems thinking. We propose two principles of *contextualization* and *generalization* when employing AI agents for corporate ideation by considering the systemic properties of ideation systems themselves, as well as the systemic nature of their embeddedness within organizations.

5.1 | A conceptual framework of AI-based ideation systems

As shown in Figure 3, our proposed AI-based ideation systems framework encompasses a problem–solution fit consisting of the identified generic stakeholder 'pains' in today's ideation systems, and AI support roles as 'pain relievers.' Further, it depicts the benefits that the AI support roles bring—that is, what 'gain creators' they provide. These gain creators eventually translate into the stakeholders' expected outcomes from ideation, defined as 'gains' according to the Value Proposition Canvas concept.

Specifically, in addressing our first research question, we identified five pains of users in moderated, firm-internal ideation systems: *creativity pain*, *content formulation pain*, *search pain*, *analytical pain*, and *administration pain*. Thereby, we show that several challenges exist, even though moderated ideation systems can overcome the drawbacks of traditional systems (Beretta et al., 2018). This aligns with recent research on improvements in ideation systems to increase the quantity and quality of their outputs (e.g., Gamber et al., 2022; Zhu et al., 2019). The main contribution in this regard is to the literature on (corporate) idea management (e.g., Beretta et al., 2018; Ruiz & Beretta, 2021) by providing a more profound understanding of the challenges faced by different stakeholders of today's existing systems.

In the context of our first research question, we further demonstrate how AI can act as a pain reliever. We identified five AI agents helping to mitigate or overcome the defined pains: *inspirer*, *stylist*, *matchmaker*, *analyst*, and *organizer*. In this way, our results further contribute to ideation system research, particularly to the literature focusing on investigating measures that lead to greater efficiency and better innovation outcomes (e.g., Boënne et al., 2023; Gamber et al., 2022) and literature with special emphasis on ideation system characteristics (Beretta et al., 2018; Gibbs et al., 2017). This contribution is not necessarily limited to internal ideation systems, as there are similar user groups and processes, and thus similar problems in open ideation systems and external crowdsourcing systems (Ruiz & Beretta, 2021).

5.2 | Toward a holistic understanding of AI-based ideation systems

Our study shows that focusing on the systemic properties of corporate ideation systems helps us understand their interaction with AI technology. We understand a system to encompass a "*complex whole[,] the functioning of which depends on its parts and the interactions between those parts*" (Jackson, 2003, p. 3).

First, there are the systemic properties inherent to corporate ideation systems themselves. Our results demonstrate that there are interdependent and hierarchical relationships among different stakeholder pains within these systems. The benefits (gain creators) of a particular AI support agent may directly reduce the severity of the specific pain it addresses while also creating second-order benefits for related pains. For instance, results from our practitioner focus group workshops and mini-cases show that the inspirer and stylist agents in the idea generation phase not only relieve a direct content formulation pain but also, in doing so, subsequently reduce the idea manager's burden (administration pain) of refining incomplete ideas in collaboration with the idea submitter. Understanding that a pronounced content formulation pain initiates a negative feedback mechanism within the ideation process explains why many of the informants in our study stress the importance of employing generative AI tools as *inspirer* and *stylist* agents, although they are affected by a recency bias.

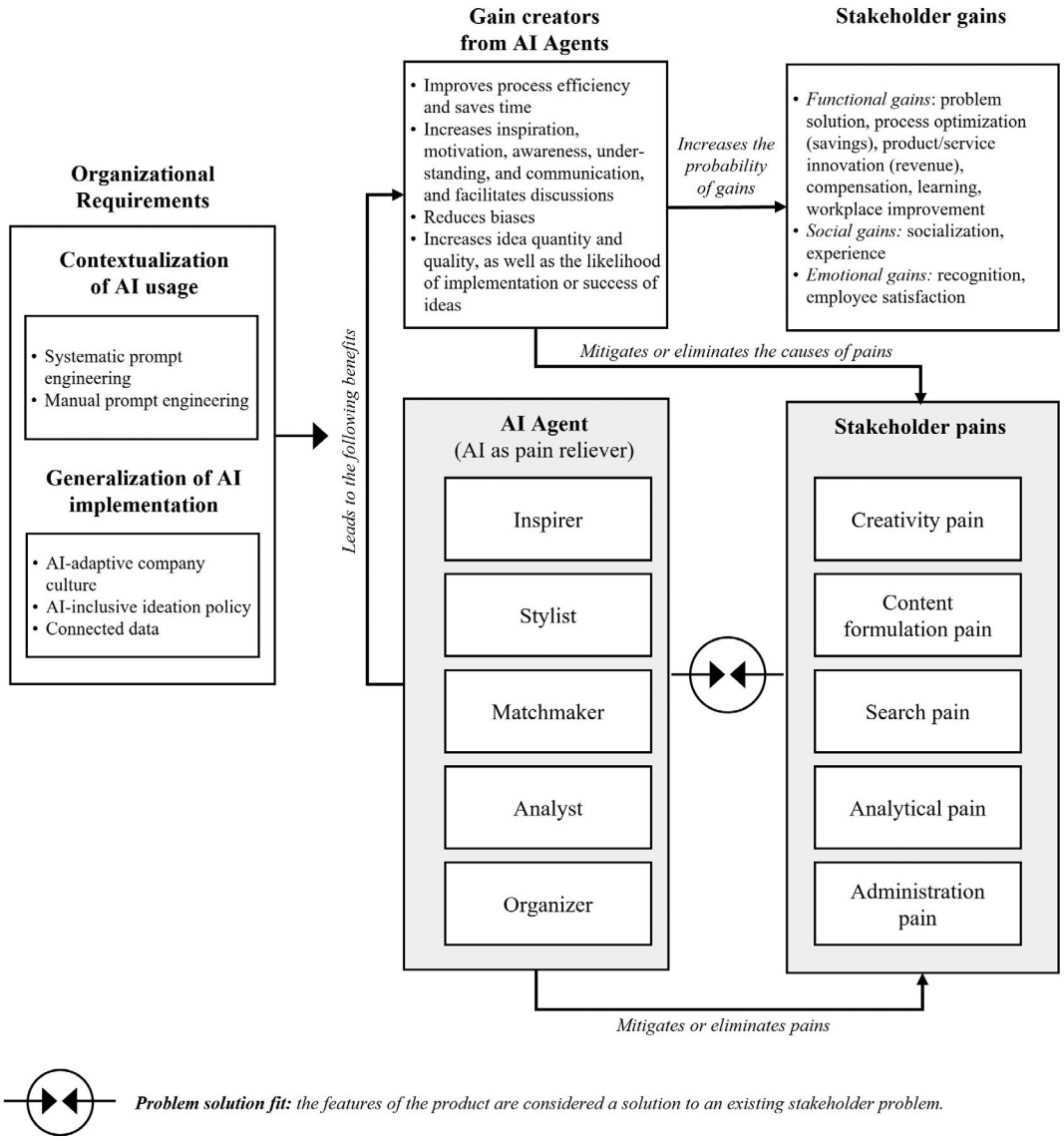

FIGURE 3 A conceptual framework of AI-based ideation systems.

Second, systems thinking allows us to understand ideation systems as subsystems within larger organizational systems. Our findings highlight that neither ideation systems nor AI technology operate in isolation but are affected by the organizational context. This makes the application of AI prone to the 'suboptimization' problem, meaning an overemphasis on engineering technical features for specific functions in ideation systems rather than considering the human elements of these systems (Jackson, 2003). The pitfall of suboptimization explains why, for example, one of our cases shows that an AI organizer agent may technically perform well but remains underutilized due to the idea submitters' wishes for personalized communication.

The results of our analysis suggest how organizations can address this issue strategically, thereby answering our second research question. Our main contributions in this context are to the literature on effective AI implementation for innovation (e.g., Bahoo et al., 2023; Gama & Magistretti, 2025). Based on our case studies, we propose the two organizational principles of *contextualization* (of AI usage) and *generalization* (of AI implementation), constituting organizational requirements for the effective application of AI to ideation 3.0. Following the definition provided by Gama and Magistretti (2025) on innovation capabilities driven by AI adoption, contextualization and generalization are associated with enabling capabilities, while the five AI agents we have defined correspond to enhancing capabilities.

The principle of contextualization is based on the observation that the combination of AI agents and humans performs better when the *context of a task is*

precisely defined (Henrickson & Meroño-Peñuela, 2023). This contextualization can be achieved technically through *systematic prompt engineering* in the backend of ideation systems, for example, as in the cases of the examined software developers (e.g., contextual input into the customer's industry, target group, and region). In this way, prompts are automatically contextualized, resulting in a "*higher chance of response accuracy and relevance*" (Henrickson & Meroño-Peñuela, 2023, p. 6). However, contextualization may also be achieved *manually through proficient prompting in interactions between users and agents*, allowing users to set their individual contexts in interaction with the AI agent. This directly addresses the potential risks connected to the current AI models' tendency to reproduce general patterns that may lead to less creative ideas. *Equipping users with contextualization abilities through training* can be used to direct the human–AI ensemble away from generic patterns by setting constraints and experimenting with outputs.

Whereas the principle of contextualization focuses on specific AI agents in interactions with individual users, the principle of *generalization* is based on the understanding that AI technology has a general-purpose character. This means that the technology is not only employed within ideation systems but also that employees are exposed to it throughout different units and functions within organizations. Although the principles of contextualization and generalization seem dichotomous, generalization activities may support contextualized usage at the individual level. Companies can engage in general activities to educate and empower employees to use general classes of AI tools effectively across tasks. This cross-functional learning facilitates users' AI literacy; it also benefits the more contextualized integration of AI tools into specific work processes (Weritz et al., 2024). Our results demonstrate specific generalization instruments, such as an *AI-adaptive company culture* that embraces an experimental approach to using AI agents and is developed through training and communication campaigns. Generalization may also be achieved through formalizing AI principles that address associated concerns, such as copyright and liability issues. This not only alleviates employees' fears of potential AI risks but may also directly contribute to the adaptation of ideation system strategies, such as *ideation policies* (Beretta et al., 2018), to become *AI-inclusive*. Finally, the principles of contextualization and generalization imply an important tension regarding the data used to train and apply AI agents within corporate ideation systems. Our casework suggests that higher contextualization for AI-based processes may be achieved by using proprietary (company internal) data. However, an AI agent trained on a completely closed internal dataset may lack the breadth of training data needed to perform personalized communication or to consider relevant information outside of company boundaries. The principle of generalization suggests that the efficacy of AI models scales with the number of connected data points they can use (Gregory et al., 2022) because the agents profit from utilizing external big data or pretrained foundation models. Here, balancing the two principles through a half-open approach that matches the general reasoning capabilities of external models with fine-tuning their contextual constraints based on internal data seems advisable—but does require investment in system integration.

6 | MANAGERIAL IMPLICATIONS

Practically, this study offers implications for managers in two business fields: ideation system developers and their customers. Both groups could benefit from considering the distinction between contextualization and generalization activities. For developers, our findings serve as a blueprint for AI-based ideation systems, highlighting the need to design features in a way that allows contextualizing AI agents either in the backend or through direct interaction with users in the front end (or both). They may also consider identifying the foundation models (e.g., OpenAI's architecture) that their most important clients already have in use so that they can leverage the generalized learning taking place at each customer's organization. Overall, our results accelerate the development of AI-based ideation systems by guiding the AI development process with a summary of stakeholder requirements and potential AI functionalities. Furthermore, for a quick win, developers can reduce content formulation pain by implementing the stylist agent with generative AI. For managers representing ideation system clients, our findings show that AI in digital ideation could increase process efficiency and ideation outputs, but they also indicate that such systems must be used wisely, given their potential risks, such as the lack of breakthrough ideas or the loss of intellectual property. Importantly, stakeholders involved in online ideation will need to develop skills to proficiently select the right type of AI technology for specific tasks, given the diversity of algorithms, and to proficiently employ them, for example, through informed prompting in the case of generative AI. Idea managers and higher-level managers need to think carefully about how to allow for contextualized interactions with AI agents while fostering generalized cross-functional learning in interactions with AI agents. This involves building an AI-inclusive corporate culture, including policies, but it also requires choosing a central foundational architecture for each class of AI agent (e.g., one

generative AI chatbot) to be used across different tasks, including digital ideation.

7 | LIMITATIONS AND FUTURE RESEARCH

Four central limitations of our study need to be reflected upon. First, our main finding is that AI can be employed in different roles to act as a pain reliever in modern ideation systems. This finding involved the identification of (i) current issues in ideation systems and (ii) AI-based solutions to those issues. Although our study identified the latter based on insights from stakeholders and experts across various industries and regions, thus strengthening the transferability of our findings, the identification of initial pains emerged from a single company case within a specific industry. This raises concerns about whether all relevant issues in modern ideation systems were correctly identified and represented in our study. We consider this a minor issue because these findings are supported by extensive literature and expert insights, and because the conducted cross-industry mini-cases confirmed the existence of the identified pains. If these pains did not exist in the first place, ideation system providers would likely not develop AI features to address them. However, future research should examine issues in modern ideation systems across a broader range of companies. In particular, the systemic nature of ideation systems and the interrelation of elements and functions within these systems may be contingent on context and need to be researched with more nuance, taking feedback loops and interdependencies into account. As a starting point, we refer the interested reader to Figure 2.

Second, in this systemic view of corporate ideation, our findings suggest that the content formulation pain is a root cause of other pains rippling through the ideation system. We identified the centrality of this issue through practitioner workshops with idea managers. Although these informants are very knowledgeable in terms of seeing the entire functioning of ideation systems, they do not represent the lived experience of actual users of the ideation systems at various stages. This may introduce bias when it comes to judging the severity and centrality of this issue. While our findings suggest that the content formulation pain is also a focal point for system developers, further research should aim to understand how different stakeholders judge the functionality of corporate ideation systems and their individual elements, and whether the assessments converge between different stakeholder groups.

Third, our mini-cases on AI implementation in ideation systems provide empirical support for our conceptualization of AI roles in ideation systems. However, they are limited to only a few examples, reflecting the nascency of AI in corporate ideation systems, with many companies still lacking experience. While our study lays the groundwork for characterizing AI-augmented ideation systems, we encourage future research to conduct more case studies as AI-based ideation becomes more prevalent. We must further acknowledge that our empirical evidence is prone to recency bias. Although our study conceptualized and empirically supported AI agents based on different algorithmic solutions, many informants focused on the impact of generative AI on ideation systems. While this may speak to the transformative potential raised by this paradigm of AI, it may also be overemphasized by the current buzz surrounding this particular type of AI technology. As companies increasingly integrate AI technology into ideation systems, a pronounced empirical focus should be on how different AI agents affect corporate ideation over time, using a longitudinal approach to track a company's transition to an AI-based system.

Fourth, our research focuses on corporate ideation systems. While user roles are similar in both open and closed ideation systems, our findings do not fully apply to open ideation systems. For example, internal AI technologies might be preferred to protect intellectual property, offering greater control over data quality but limiting the breadth of input data. As data constitute the critical resource determining the potency of AI solutions, the difference between closed and open ideation systems should be investigated for these systems' ability to amplify the positive effects of AI described in this study. Despite these limitations, our research provides significant insights into the potential of AI in digital ideation and encourages further research, analogous to AI as an inspirer.

ACKNOWLEDGMENTS

We thank the Reviewers and Guest Editors for their valuable insights and constructive feedback, which have significantly contributed to enhancing the quality of our work. Open Access funding enabled and organized by Projekt DEAL.

FUNDING INFORMATION

The authors declare that no specific funding was received in support the research.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are confidential.

ETHICS STATEMENT

The authors have read and agreed to the Committee on Publication Ethics (COPE) international standards for authors.

ORCID

Selina L. Lehmann https://orcid.org/0000-0002-8420-8735

REFERENCES

Acar, Oguz A. 2019. "Motivations and Solution Appropriateness in Crowdsourcing Challenges for Innovation." *Research Policy* 48(8): 103716.

Amabile, Teresa M. 1983. "The Social Psychology of Creativity: A Componential Conceptualization." *Journal of Personality and Social Psychology* 45(2): 357–376.

Anantrasirichai, Nantheera, and David Bull. 2022. "Artificial Intelligence in the Creative Industries: A Review." *Artificial Intelligence Review* 55: 589–656.

Asplund, Fredrik, Jennie Björk, and Mats Magnusson. 2022. "Knowing Too Much? On Bias Due to Domain-Specific Knowledge in Internal Crowdsourcing for Explorative Ideas." *R&D Management* 52(4): 720–734.

Bahoo, Salman, Marco Cucculelli, and Dawood Qamar. 2023. "Artificial Intelligence and Corporate Innovation: A Review and Research Agenda." *Technological Forecasting and Social Change* 188: 122264.

Bayus, Barry L. 2013. "Crowdsourcing New Product Ideas over Time: An Analysis of the Dell IdeaStorm Community." *Management Science* 59(1): 226–244.

Becker, Laura, Kristof Coussement, Marion Büttgen, and Ellen Weber. 2022. "Leadership in Innovation Communities: The Impact of Transformational Leadership Language on Member Participation." *Journal of Product Innovation Management* 39(3): 371–393.

Bell, Jason J., Christian Pescher, Gerard J. Tellis, and Johann Füller. 2024. "Can AI Help in Ideation? A Theory-Based Model for Idea Screening in Crowdsourcing Contests." *Marketing Science* 43(1): 54–72.

Beretta, Michela. 2019. "Idea Selection in Web-Enabled Ideation Systems." *Journal of Product Innovation Management* 36(1): 5–23.

Beretta, Michela, Jennie Björk, and Mats Magnusson. 2018. "Moderating Ideation in Web-Enabled Ideation Systems." *Journal of Product Innovation Management* 35(3): 389–409.

Beretta, Michela, Lars Frederiksen, Martin Wallin, and Viktorija Kulikovskaja. 2021. "Why and how Firms Implement Internal Crowdsourcing Platforms." *IEEE Trans Eng Manag* 70(9): 3036–49.

Beretta, Michela, and Helle A. Søndergaard. 2021. "Employee Behaviours beyond Innovators in Internal Crowdsourcing: What Do Employees Do in Internal Crowdsourcing, if Not Innovating, and why?" *Creativity and Innovation Management* 30(3): 542–562.

Björk, Jennie, and Mats Magnusson. 2009. "Where Do Good Innovation Ideas Come from? Exploring the Influence of Network Connectivity on Innovation Idea Quality." *Journal of Product Innovation Management* 26(6): 662–670.

Boënne, Mathias, Bart Leten, and Walter van Dyck. 2023. "Does Constructive Feedback Improve Idea Quality in Idea Contests? Exploring the Role of Hierarchy and Feedback Overlap." *R&D Management* 53: 245–363.

Boons, Mark, and Daan Stam. 2019. "Crowdsourcing for Innovation: How Related and Unrelated Perspectives Interact to Increase Creative Performance." *Research Policy* 48(7): 1758–70.

Botega, Luiz Fernando de Carvalho, and Jonny C. da Silva. 2020. "An Artificial Intelligence Approach to Support Knowledge Management on the Selection of Creativity and Innovation Techniques." *Journal of Knowledge Management* 24(5): 1107–30.

Bouschery, Sebastian G., Vera Blazevic, and Frank T. Piller. 2023. "Augmenting Human Innovation Teams with Artificial Intelligence: Exploring Transformer-Based Language Models." *Journal of Product Innovation Management* 40(2): 139–153.

Brem, Alexander, Ferran Giones, and Marcel Werle. 2021. "The AI Digital Revolution in Innovation: A Conceptual Framework of Artificial Intelligence Technologies for the Management of Innovation." *IEEE Transactions on Engineering Management* 70(2): 770–76.

Camacho, Nuno, Hyoryung Nam, P. K. Kannan, and Stefan Stremersch. 2019. "Tournaments to Crowdsource Innovation: The Role of Moderator Feedback and Participation Intensity." *Journal of Marketing* 83(2): 138–157.

Cheatham, Benjamin, Kia Javanmardian, and Hamid Samandari. 2019. "Confronting the Risks of Artificial Intelligence." *McKinsey Quarterly* 2(38): 1–9.

Chen, Bo, and Niek Althuizen. 2022. "The Effects of Exposure to others' Ideas and their Ratings on Online Crowdsourcing Platforms on the Quantity and Novelty of Subsequently Generated Ideas." *Journal of Product Innovation Management* 39(5): 643–661.

Chen, Qian, Mats Magnusson, and Jennie Björk. 2022. "Exploring the Effects of Problem- and Solution-Related Knowledge Sharing in Internal Crowdsourcing." *Journal of Knowledge Management* 26(11): 324–347.

Coussement, Kristof, Steven Debaere, and Tom De Ruyck. 2017. "Inferior Member Participation Identification in Innovation Communities: The Signaling Role of Linguistic Style Use." *Journal of Product Innovation Management* 34(5): 565–579.

Criscuolo, Paola, Linus Dahlander, Thorsten Grohsjean, and Ammon Salter. 2017. "Evaluating Novelty: The Role of Panels in the Selection of R&D Projects." *Academy of Management Journal* 60(2): 433–460.

Cropley, Arthur. 2006. "In Praise of Convergent Thinking." *Creativity Research Journal* 18(3): 391–404.

Dahlander, Linus, Michela Beretta, Arne Thomas, Shahab Kazemi, Morten H. J. Fenger, and Lars Frederiksen. 2023. "Weeding out or Picking Winners in Open Innovation? Factors Driving Multi-Stage Crowd Selection on LEGO Ideas." *Research Policy* 52(10): 104875.

Deichmann, Dirk, Thomas Gillier, and Marco Tonellato. 2021. "Getting on Board with New Ideas: An Analysis of Idea Commitments on a Crowdsourcing Platform." *Research Policy* 50(9): 104320.

Deichmann, Dirk, and Michael Jensen. 2018. "I Can Do that Alone... or Not? How Idea Generators Juggle between the Pros

and Cons of Teamwork." *Strategic Management Journal* 39(2): 458–475.

Dell'Acqua, Fabrizio, Edward McFowland, Ethan R. Mollick, Hila Lifshitz-Assaf, Katherine Kellogg, Saran Rajendran, Lisa Krayer, François Candelon, and Karim R. Lakhani. 2023. Navigating the Jagged Technological Frontier: Field Experimental Evidence of the Effects of AI on Knowledge Worker Productivity and Quality. Harvard Business School Technology & Operations Mgt. Unit Working Paper, 24-013

Dumas, Denis, Peter Organisciak, and Michael Doherty. 2021. "Measuring Divergent Thinking Originality with Human Raters and Text-Mining Models: A Psychometric Comparison of Methods." *Psychology of Aesthetics, Creativity, and the Arts* 15(4): 645–663.

Felfernig, Alexander, Viet-Man Le, Andrei Popescu, Mathias Uta, Thi Ngoc Trang Tran, and Müslüm Atas. 2021. An Overview of Recommender Systems and Machine Learning in Feature Modeling and Configuration. Proceedings of the 15th International Working Conference on Variability Modelling of Software-Intensive Systems, Article 16. Krems, Austria: Association for Computing Machinery

Flocco, Nicole, Filomena Canterino, and Raffaella Cagliano. 2022. "To Control or Not to Control: How to Organize Employee-Driven Innovation." *Creativity and Innovation Management* 31(3): 396–409.

Freeman, R. Edward. 1984. *Strategic Management: A Stakeholder Approach*. New York: Cambridge University Press.

Gama, Fábio, and Stefano Magistretti. 2025. "Artificial Intelligence in Innovation Management: A Review of Innovation Capabilities and a Taxonomy of AI Applications." *Journal of Product Innovation Management* 42(1): 76–111.

Gamber, Michael, Tobias Kruft, and Alexander Kock. 2022. "Which Effort Pays off? Analyzing ideators' Behavioral Patterns on Corporate Ideation Platforms." *Journal of Product Innovation Management* 39(3): 419–444.

Gerlach, Sophia, and Alexander Brem. 2017. "Idea Management Revisited: A Review of the Literature and Guide for Implementation." *International Journal of Innovation Studies* 1(2): 144–161.

Gernreich, Chris C. 2018. "What Employees Really Want: Demands for Individual Idea Development." *International Journal of Innovation Management* 22(8): 1840010.

Gibbs, Michael, Susanne Neckermann, and Christoph Siemroth. 2017. "A Field Experiment in Motivating Employee Ideas." *Review of Economics and Statistics* 99(4): 577–590.

Go, Eun, and S. Shyam Sundar. 2019. "Humanizing Chatbots: The Effects of Visual, Identity and Conversational Cues on Humanness Perceptions." *Computers in Human Behavior* 97: 304–316.

Gregory, Wayne R., Ola Henfridsson, Evgeny Kaganer, and H. Harris Kyriakou. 2022. "Data Network Effects: Key Conditions, Shared Data, and the Data Value Duality." *Academy of Management Review* 47(1): 189–192.

Grilli, Luca, and Mattia Pedota. 2024. "Creativity and Artificial Intelligence: A Multilevel Perspective." *Creativity and Innovation Management* 33(2): 234–247.

Gudivada, Venkat, Amy Apon, and Junhua Ding. 2017. "Data Quality Considerations for Big Data and Machine Learning: Going Beyond Data Cleaning and Transformations." *International Journal on Advances in Software* 10(1): 1–20.

Haefner, Naomi, Joakim Wincent, Vinit Parida, and Oliver Gassmann. 2021. "Artificial Intelligence and Innovation Management: A Review, Framework, and Research Agenda." *Technological Forecasting and Social Change* 162: 120392.

Henrickson, Leah, and Albert Meroño-Peñuela. 2023. "Prompting Meaning: A Hermeneutic Approach to Optimising Prompt Engineering with ChatGPT." *AI & Society* 1–16. https://doi.org/10.1007/s00146-023-01752-8.

Hoornaert, Steven, Michel Ballings, Edward C. Malthouse, and Dirk Van den Poel. 2017. "Identifying New Product Ideas: Waiting for the Wisdom of the Crowd or Screening Ideas in Real Time." *Journal of Product Innovation Management* 34(5): 580–597.

Hu, Feng, Tammo H. A. Bijmolt, and Eelko K. Huizingh. 2020. "The Impact of Innovation Contest Briefs on the Quality of Solvers and Solutions." *Technovation* 90: 102099.

Hughes, Claretha, Lionel Robert, Kristin Frady, and Adam Arroyos. 2019. "Artificial Intelligence, Employee Engagement, Fairness, and Job Outcomes." In *Managing Technology and Middle-and Low-Skilled Employees: Advances for Economic Regeneration* 61–68. Leeds, England: Emerald Publishing Limited.

Jackson, Michael C. 2003. *Systems Thinking: Creative Holism for Managers*. Chichester, England: John Wiley & Sons, Inc.

Jansson, David G., and Steven M. Smith. 1991. "Design Fixation." *Design Studies* 12(1): 3–11.

Jia, Nan, Xueming Luo, Zheng Fang, and Chengcheng Liao. 2024. "When and how Artificial Intelligence Augments Employee Creativity." *Academy of Management Journal* 67(1): 5–32.

Käss, Sebastian, Christoph Brosig, Markus Westner, and Susanne Strahringer. 2024. "Short and Sweet: Multiple Mini Case Studies as a Form of Rigorous Case Study Research." *Information Systems and e-Business Management* 22: 1–34.

Keding, Christoph, and Philip Meissner. 2021. "Managerial Overreliance on AI-Augmented Decision-Making Processes: How the Use of AI-Based Advisory Systems Shapes Choice Behavior in R&D Investment Decisions." *Technological Forecasting and Social Change* 171: 120970.

Kitchens, Brent, David Dobolyi, Jingjing Li, and Ahmed Abbasi. 2018. "Advanced Customer Analytics: Strategic Value through Integration of Relationship-Oriented Big Data." *Journal of Management Information Systems* 35(2): 540–574.

Kruft, Tobias, Christoph Tilsner, Andreas Schindler, and Alexander Kock. 2019. "Persuasion in Corporate Idea Contests: The Moderating Role of Content Scarcity on Decision-Making." *Journal of Product Innovation Management* 36(5): 560–585.

Martinez, Garcia, Ferdaous Zouaghi Marian, and Teresa Garcia Marco. 2017. "Diversity Is Strategy: The Effect of R&D Team Diversity on Innovative Performance." *R&D Management* 47(2): 311–329.

Mazzone, Marian, and Ahmed Elgammal. 2019. "Art, Creativity, and the Potential of Artificial Intelligence." *Art* 8(1): 26.

McCaffrey, Tony, and Lee Spector. 2018. "An Approach to Human–Machine Collaboration in Innovation." *AI EDAM* 32(1): 1–15.

Mesgar, Mohsen, and Michael Strube. 2018. A Neural Local Coherence Model for Text Quality Assessment. In Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing, 4328–39. Brussels, Belgium: Association for Computational Linguistics

Miles, Matthew B., and A. Michael Huberman. 1994. *Qualitative Data Analysis: An Expanded Sourcebook*. Thousand Oaks, CA: Sage.

Mitchell, Shira, Eric Potash, Solon Barocas, Alexander D'Amour, and Kristian Lum. 2021. "Algorithmic Fairness: Choices, Assumptions, and Definitions." *Annual Review of Statistics and Its Application* 8: 141–163.

Mollick, Ethan, and Jim Euchner. 2023. "The Transformative Potential of Generative AI: A Conversation with Ethan Mollick." *Research-Technology Management* 66(4): 11–16.

Mühlroth, Christian, and Michael Grottke. 2022. "Artificial Intelligence in Innovation: How to Spot Emerging Trends and Technologies." *IEEE Transactions on Engineering Management* 69(2): 493–510.

Nijstad, Bernard A., Carsten K. W. de Dreu, Eric F. Rietzschel, and Matthijs Baas. 2010. "The Dual Pathway to Creativity Model: Creative Ideation as a Function of Flexibility and Persistence." *European Review of Social Psychology* 21(1): 34–77.

OECD. 2023. OECD Updates to the OECD's definition of an AI system explained https://oecd.ai/en/wonk/ai-system-definition-update

OECD. 2024. OECD AI Principles overview https://oecd.ai/en/ai-principles

Osterwalder, Alexander, Yves Pigneur, Gregory Bernarda, and Alan Smith. 2015. *Value Proposition Design: How to Create Products and Services Customers Want*. Hoboken, NJ: John Wiley & Sons.

Perez-Vega, Rodrigo, Valtteri Kaartemo, Cristiana R. Lages, Niloofar Borghei Razavi, and Jaakko Männistö. 2021. "Reshaping the Contexts of Online Customer Engagement Behavior Via Artificial Intelligence: A Conceptual Framework." *Journal of Business Research* 129: 902–910.

Piezunka, Henning, and Linus Dahlander. 2015. "Distant Search, Narrow Attention: How Crowding Alters organizations' Filtering of Suggestions in Crowdsourcing." *Academy of Management Journal* 58(3): 856–880.

Raffel, Colin, Noam Shazeer, Adam Roberts, Katherine Lee, Sharan Narang, Michael Matena, Yanqi Zhou, Wei Li, and Peter J. Liu. 2020. "Exploring the Limits of Transfer Learning with a Unified Text-to-Text Transformer." *The Journal of Machine Learning Research* 21(1): 5485–5551.

Rai, Arun, Panos Constantinides, and Saonee Sarker. 2019. "Next Generation Digital Platforms: Toward Human-AI Hybrids." *MIS Quarterly* 43(1): 3–9.

Ruiz, Émilie, and Michela Beretta. 2021. "Managing Internal and External Crowdsourcing: An Investigation of Emerging Challenges in the Context of a less Experienced Firm." *Technovation* 106: 102290.

Runco, Mark A., and Ivonne Chand. 1995. "Cognition and Creativity." *Educational Psychology Review* 7: 243–267.

Russell, Stuart J., and Peter Norvig. 2021. *Artificial Intelligence: A Modern Approach, Global Edition*. Harlow, UK: Pearson.

Schweisfurth, Tim G., and Magha P. Dharmawan. 2019. "Does Lead Userness Foster Idea Implementation and Diffusion? A Study of Internal Shopfloor Users." *Research Policy* 48(1): 289–297.

Storm, Benjamin C., and Genna Angello. 2010. "Overcoming Fixation: Creative Problem Solving and Retrieval-Induced Forgetting." *Psychological Science* 21(9): 1263–65.

Vanharanta, Outi. 2018. "Whose Responsibility Is it Anyway? Competing Narratives of Suggestion System Change." *Creativity and Innovation Management* 27(3): 244–254.

Verganti, Roberto, Luca Vendraminelli, and Marco Iansiti. 2020. "Innovation and Design in the Age of Artificial Intelligence." *Journal of Product Innovation Management* 37(3): 212–227.

Weritz, Pauline, Jessica Braojos, Jorge Matute, and Jose Benitez. 2024. "Impact of Strategic Capabilities on Digital Transformation Success and Firm Performance: Theory and Empirical Evidence." *European Journal of Information Systems* 1–21. https://doi.org/10.1080/0960085X.2024.2311137.

Yin, Robert K. 2009. *Case Study Research: Design and Methods*. Thousand Oaks, CA: Sage.

Zeng, Qingfeng, Lanlan Zhang, Qian Guo, Wei Zhuang, and Weiguo Fan. 2022. "Factors Influencing User-Idea Selection in Open Innovation Communities." *International Journal of Electronic Commerce* 26(4): 415–440.

Zhu, Hangzi, Alexander Kock, Marc Wentker, and Jens Leker. 2019. "How Does Online Interaction Affect Idea Quality? The Effect of Feedback in Firm-Internal Idea Competitions." *Journal of Product Innovation Management* 36(1): 24–40.

AUTHOR BIOGRAPHIES

Selina L. Lehmann worked as an idea manager in the automotive industry for several years, where she drove innovation and creative solutions. Alongside her professional role, she earned a doctoral degree from the University of Hohenheim in Stuttgart, Germany. Her research focuses on optimizing internal and external idea management, including crowdsourcing and idea contests, with a particular interest in improving idea generation performance and enhancing idea quality.

Johannes Dahlke is an Assistant Professor of Digital Innovation & Entrepreneurship at the University of Twente. His main research activities concern the economics of AI technology, the responsible use of AI applications, and human–AI interactions in knowledge work. He has published in leading journals such as Research Policy and Technological Forecasting & Social Change. He is a research affiliate at the Swiss Economic Institute at ETH Zurich and the ETH AI Center. He also acts as Chief Scientific Officer for the award-winning startup ISTARI.AI.

Valentina Pianta is a BSc Graduate in Economics, Markets, and Finance at Ca' Foscari University of Venice, Italy. She completed a Double Joint MSc Degree in Management, with a specialization in International Management at Ca' Foscari University of Venice, Italy, and Marketing & Management at the University of Hohenheim, Stuttgart, Germany. Her

main interests are innovation management and HR topics, which she enjoys blending to find modern solutions able to address people's challenges.

Bernd Ebersberger is professor for innovation management at the University of Hohenheim, Stuttgart, Germany. His main interest is empirical innovation management research with focus on creativity and sustainability. He has published in leading journals such as Research Policy, Journal of Applied Econometrics, Journal of Business Research, Regional Studies, Journal of Economic Geography.

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Lehmann, Selina L., Johannes Dahlke, Valentina Pianta, and Bernd Ebersberger. 2026. "Artificial Intelligence and Corporate Ideation Systems." *Journal of Product Innovation Management* 43(1): 160–185. https://doi.org/10.1111/jpim.12782