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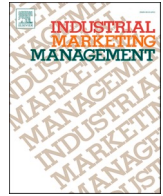
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# How marketing and sales use digital tools for innovation ideation

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## ABSTRACT

With the widespread practice of using digital tools to work from home (WFH), it is not clear how this impacts innovation. While some scholars argue that digital tools limit the spontaneous conversations that are essential for innovation, others consider them the solution for innovation in a hybrid work environment. We suggest that the current confusion about the impact of digital tools on innovation is due to researchers (a) treating innovation as a homogeneous activity, rather than focusing on specific innovation activities, and (b) ignoring the nature of specific jobs of employees participating in this process. This study explores how marketing and sales professionals use digital tools during innovation ideation. The findings show that various digital tools are used for idea generation, assessment, and development. During each of these stages, marketing and sales personnel use a different mix of digital tools – serving different purposes – and face different challenges. Study findings contribute to our understanding of how digital tools impact innovation and help managers to improve innovation ideation in hybrid work environments.

## 1. Introduction

The recent surge in digitalization in firms changes how they interact with external stakeholders and operate internally (Bharadwaj & Shipley, 2020; Tagscherer & Carbon, 2023; Wuersch et al., 2023). Increasing digitalization allows employees to WFH and establish a healthier work-life balance (Antunes et al., 2023). Evidence shows that as many firms embrace WFH (Carpenter, 2024; Clark, 2024), companies with flexible work policies outperform their less flexible peers (McGregor, 2023). Consistently, the number of virtual meetings has increased significantly (Tolliver & Sass, 2024) and firms rely on various digital tools (such as video conferencing platforms, instant messaging apps, and collaboration software) to adapt to the new normal of hybrid work (Raghavan et al., 2021; Trevor & Holweg, 2022).

While omnipresent, the digital tools used for WFH have been shown to have both positive and negative effects (Biemans, 2023; Kamal, 2020; Waizenegger et al., 2020) and their impact on a key business process like innovation is disputed. For example, several scholars argue that remote work, using digital tools, reduces the informal interactions (Biemans, 2023; Viererbl et al., 2022), such as watercooler conversations, that are considered essential for innovation (Ale Ebrahim et al., 2009; Fayard et al., 2021; Gratton, 2020; Koch & Denner, 2022; Trevor & Holweg, 2022). Indeed, empirical research findings suggest that the use of digital tools contributes to a sense of isolation, reduces interpersonal trust, and thus reduces the creativity of employees and the number of new product ideas generated (Garlatti Costa et al., 2023; McAlpine, 2017; Rucker

et al., 2024). On the other hand, scholars maintain that the idea that innovation will become more difficult online is “a common misconception, and there are many reasons that innovation can flourish in a hybrid work environment” (VanZandt, 2022). Studies show that digital tools can be used for informal, social interactions that build trust and cohesion (Carlson et al., 2013; Johnson & Boeing, 2016; Lu, 2015), and that WFH may improve group creativity and the generation of high-quality ideas (Abi Saad & Agogué, 2023; Chaudhury & Deng, 2022). Viewed collectively, the evidence regarding the impact of digital tools on innovation is inconclusive and firms lack clear guidelines about how to create effective innovation processes in hybrid work environments that optimally integrate digital tools.

We argue that this confusion about the impact of digital tools on innovation is due to scholars using a broad lens that has two shortcomings. First, scholars treat innovation as a homogeneous activity (Fayard et al., 2021; Trevor & Holweg, 2022; Yang et al., 2022), or at best distinguish between ideation and exploration (Bellis et al., 2024), while each stage of the innovation process is “composed of a group of prescribed, related, and often parallel activities” (Cooper, 1990, p. 46). This suggests that the use and impact of digital tools may not only differ between innovation stages (such as ideation and execution), but also within innovation stages (Brucks & Levav, 2022). Second, extant research examines the use of digital tools by employees in general, whereas research findings suggest that the use of digital tools depends on the nature of the employee’s job (Gratton, 2020; Grzegorzczak et al., 2021). For example, Biemans (2023) emphasizes that digital tools may

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help engage traveling salespeople to stay connected.

Our study addresses this gap in the literature by investigating how firms use digital tools for innovation ideation. We focus on innovation ideation because “creating new ideas is fundamental to firms as they constitute the starting point of innovation endeavours” (Björk et al., 2010; p. 386). Further, since marketing and sales are two key functions that contribute to innovation ideation (Griffin et al., 2013; Malshe & Biemans, 2014) and have been found to use digital tools to improve their interactions (Biemans, 2023) in business-to-business (B2B) firms, we explore in-depth how these two business functions use digital tools for innovation ideation. Thus, we address the following research question: *How do marketing and sales personnel use digital tools during the process of innovation ideation?*

In answering this research question, we make three contributions to the emerging literature on the impact of digital tools on innovation. First, we show that the ideation process consists of three distinct stages: idea generation, assessment, and development. Second, we demonstrate how firms use a range of digital tools during the process of innovation ideation and exemplify that the use and impact of digital tools is contingent on the nature of specific innovation activities. Third, we show how the nature of an employee’s job shapes the use and impact of digital tools during innovation ideation. In addition, our findings contribute to the managerial understanding of how digital tools may be used optimally during innovation ideation in hybrid work environments. Our detailed findings and recommendations are in sharp contrast to the generic advice such as ‘ideation should always be done in person’ (Bellis et al., 2024), which ignores context and lacks sophistication. Specifically, we highlight the major challenges firms face during innovation ideation in hybrid work environments and identify how they may employ specific digital tools in carrying out the best practices that allow them to successfully address these challenges.

## 2. Theoretical background

### 2.1. Digitalization and hybrid work

As part of their digitalization efforts, firms have invested heavily in a wide variety of digital tools. In this study we focus on software, applications, and platforms utilized by marketing and sales through information and communication technology for innovation ideation, such as video conferencing platforms (Teams, Zoom, Google Meet, Bluejeans, FaceTime), social media platforms (LinkedIn, Facebook), instant messaging apps (WhatsApp, Viber, WeChat, Jabber), online workspaces (Google Workspace, Slack, Trello, Salesforce), intranets, and email. The focus on innovation ideation excludes digital tools used during other innovation stages, such as tools used for computer-aided design (SolidWorks, AutoCAD, Onshape; Marion & Fixson, 2021). Several tools used during innovation ideation can be used for multiple tasks; for example, Teams can be used for online meetings, group chats, and collaboration through file sharing.

The evidence regarding the impact of digital tool-enabled remote work on team performance is multi-faceted and ambiguous (Grijalba et al., 2024). WFH has been found to increase flexibility and productivity, eliminate barriers of time and space, and enhance interaction between departments (Morrison-Smith & Ruiz, 2020), but also cause distraction, psychological distress, isolation, and reduced interpersonal trust and workplace performance (Orhan et al., 2021; Standaert et al., 2016; Van Zoonen & Sivunen, 2022). Others found that the isolation and stress experienced owing to WFH practices result in reduced engagement and productivity (Galanti et al., 2021; Tejero et al., 2021). In addition, the absence of audio and visual cues is often thought to impede the efficacy of digital interactions (Babutsidze et al., 2021). Theories like self-efficacy theory and social learning theory help to understand the extent to which employees have sufficient capacity to use digital tools when WFH and can learn in online environments (Yarberry & Sims, 2021). A recent study captures the multi-faceted impact of digital tools

and summarizes both the benefits and drawbacks of digital tools on the interactions between marketing and sales (Biemans, 2023).

To further complicate matters, several authors argue that the practice and impact of WFH varies across jobs (Adams-Prassl et al., 2022; Grzegorzczak et al., 2021; Holgersen et al., 2021). For example, product developers engaged in non-routine tasks that involve collaboration both within the organization and with outside partners would benefit from using collaborative technology that encourages serendipitous interactions, whereas call center workers performing autonomous, routine tasks may rely on home technology (Gratton, 2020).

### 2.2. Impact of digital tools on innovation

To understand how digital tools impact innovation, social exchange theory (Cropanzano & Mitchell, 2005; Emerson, 1976) and network theory (Burt, 2000; Kleinbaum & Tushman, 2008) are especially helpful because they emphasize the role of social interaction between employees that contribute to social capital, which impacts knowledge sharing (Hau et al., 2013). WFH is often characterized by more formal, task-oriented interactions (Biemans, 2023; Lal et al., 2023) that reduce the informal communication that is needed “to fulfill social, coordination and information functions” (Viererbl et al., 2022, p. 43) and deemed essential for innovation (Fayard et al., 2021; Koch & Denner, 2022; Trevor & Holweg, 2022). For example, in 2023 Amazon CEO Andy Jassy wrote in a memo to all Amazon employees: “Collaborating and inventing is easier and more effective when we’re in person” (Jassy, 2023). Watercooler conversations facilitate the serendipity of novel combinations (Gratton, 2020) and a “trip to coffee corner or across the hallway to a trusted colleague is still the most reliable and effective way to review and revise a new idea” (Ale Ebrahim et al., 2009, p. 2656). WFH has been found to reduce the number of new ideas generated (McAlpine, 2017), often due to work-home conflicts, a sense of isolation, or a lack of interpersonal trust (Garlatti Costa et al., 2023; Greenberg et al., 2007; Hacker et al., 2019). For example, a recent experimental study found that for team creative tasks (such as generating new product ideas), employees reported being more creative when working in the office (vs. from home) due to higher levels of perceived psychological safety (Rücker et al., 2024).

Nevertheless, several scholars suggest that, in hybrid work environments, digital tools may be used to simulate informal, social interactions between marketing and sales employees to build trust and cohesion (Carlson et al., 2013; Lu, 2015; VanZandt, 2022). For example, Johnson and Boeing (2016) found that marketing and sales use WhatsApp for fast, informal communication. When WFH, digital informal communication helps alleviate feelings of isolation and contributes to job satisfaction and well-being (Fay & Kline, 2011; Liu et al., 2022, October; Methot et al., 2021). Other studies found that WFH may have a positive effect on group creativity and the generation of high-quality ideas (Chaudhury & Deng, 2022). A recent study found that idea generation may be done effectively either fully in-person or fully remote, while idea evaluation benefits from a real-time hybrid work mode (Tonnesen, 2023). Further, an extensive literature review of creativity in virtual teams concludes that “when managed properly, creativity can still flourish in virtual teams” (Abi Saad & Agogue, 2023, p. 131).

### 2.3. Innovation ideation

Innovation begins with ideation (Eling & Herstatt, 2017; Kock et al., 2015; Utley & Klebahn, 2022). Firms use a range of approaches and tools to generate new product ideas, such as brainstorming, benchmarking, open calls, idea challenges or contests, and social listening. However, ideation involves more than just generating ideas; many scholars distinguish between generating ideas and selecting the most promising ones (Kornish & Hutchison-Krupat, 2017; Puente-Díaz et al., 2021; Rietzschel et al., 2010).

*Idea generation* refers to the firm using multiple approaches

(brainstorming, trend spotting, customer job mapping, patent analysis, large language models) to generate many new product/service ideas (Cooper & Edgett, 2008; Wang, 2019), which can be done individually, in groups, or using a hybrid structure (Girotra et al., 2010; Korde & Paulus, 2017). Generating ideas in groups allows participants to build on ideas from others and combine them into more complete, novel, or useful ones (Kohn et al., 2011). Idea generation relies on creativity, divergent thinking, and people refraining from judging ideas. The aim is to generate multiple ideas without being inhibited by preconceived notions about their feasibility or potential. Utley and Klebahn (2022) introduced the concept of ideaflow (number of ideas / time) to emphasize that “The process of idea generation should always revolve around quantity, not quality” (p. 34).

Idea selection is the systematic process of assessing ideas, eliminating ideas that are clearly not up to par, and identifying the ones that will receive additional investment (Kornish & Hutchison-Krupat, 2017). Idea selection benefits from using predetermined criteria (such as user value, potential profitability, novelty, and feasibility), weights and decision-making rules, but may also involve further brainstorming, asking feedback and specific information from others in the organization, or innovation tournaments (Frederiksen & Knudsen, 2017; Wooten & Ulrich, 2017). Alternatively, firms may use expert evaluators that combine their intuition (based on previous experience) with analysis and sensemaking to holistically assess new product ideas (Magnusson et al., 2014; Sukhov et al., 2021). Whereas idea generation relies on divergent thinking to increase idea flow, idea assessment uses convergent thinking to identify the most promising ideas.

### 3. Research method

Considering the ambiguous knowledge and the lack of theoretical development regarding how digital tools affect innovation ideation, this study used a discovery-oriented approach (Strauss & Corbin, 1998; Zeithaml et al., 2020). To increase sample diversity, we used theoretical sampling to include companies that are expected to represent a wide range of experiences (Creswell, 2007; Strauss & Corbin, 1998). Our sample includes companies from several European countries (Austria, Belgium, Germany, Greece, Hungary, The Netherlands), various industries (such as agricultural machinery, climate control, industrial lighting, industrial packaging, steel processing, construction, technological components, food and beverage, pharmaceuticals, and fast-moving consumer goods (FMCG)) and a range of firm sizes (from 15 to 140,000 employees). To be included in our study, companies had to (a) be product manufacturers, (b) operate in B2B markets, (c) have separate marketing and sales departments, (d) regularly develop new products or services, and (e) use digital tools for innovation ideation.

A total of 32 B2B companies participated in our study. From within these firms, we interviewed 32 marketing professionals and 21 sales professionals about how they use digital tools for innovation ideation (Table 1). Whenever possible we collected information from multiple

informants in firms. All our informants had first-hand experience with the use of digital tools during innovation ideation and had been in their current job for at least three years. Our sample also contains four general managers (CEO, Business Unit Manager, Digital Transformation Coordinator) who offered us additional insights about how their firms use digital tools for ideation. Our total sample of 57 informants includes individuals of various ages, from 23 to 60. In addition, our sample consists of 63 % male and 37 % female informants, which reflects data showing that women account for approximately 35 % of managers in the European Union (Eurostat, 2024).

Our emphasis on marketing and sales informants is appropriate since these two functions play complementary roles in innovation ideation, with marketing analyzing market trends, focusing on market segments, and representing the voice of the customer, and sales providing field-level intelligence and contacts with individual key customers (Malshe & Biemans, 2014). Salespeople’s daily interactions with customers put them in a unique position to collect information about customer problems and requirements (Judson et al., 2006; Woisetschläger et al., 2016), which is then communicated to marketing. By interviewing sales and marketing professionals we are able to shed sharper light on how they use digital tools to interact with each other during innovation ideation.

We recruited study informants using techniques such as cold calling, word of mouth, and using personal and LinkedIn contacts. The initial contact was either someone from marketing or sales. We encouraged our initial contacts to refer us to someone from the counterpart business function (sales or marketing) to allow us to obtain information from another perspective. All interviews were conducted using video calls, which contributed to informant accessibility and flexibility (Janghorban et al., 2014; Lo Iacono et al., 2016; Mirick & Wladkowski, 2019) and lasted 45 min on average. The interviews used a discovery-oriented, conversational style, allowing the informant to guide the conversation and illustrate their observations with examples from their own experiences. This conversational style helped improve the richness of insights obtained, and reduce interviewer-induced bias (McCracken, 1988). Letting informants tell their own stories further allowed us to emphasize depth over breadth, study informant perceptions, and “achieve close access to reality” (Gummesson, 2003, p. 491). Following McCracken’s (1988) suggestions, our interviews started with a general explanation about the study, followed by background questions (about the company, its innovation process, and the informant). These initial questions helped us put the informant at ease. Next, we focused on the ‘grand tour’ questions by asking the informants to share their experiences with digital tools during innovation ideation, their impact on the ideation process, the challenges experienced, and solutions they considered and/or tried to resolve them. It is important to note that, rather than asking informants directly about differences between idea generation and idea selection (and thus identifying differences between these two defined ideation stages *a priori*), we asked how they use digital tools during the ideation process (allowing us to identify key stages in the ideation process and the differential use and impact of digital tools across these

**Table 1**  
Informant profile.

Job titles	
Marketing: 32 (56 %), Marketing Manager, Head of Regional Marketing, Brand Marketer, Marketing and Communication Manager, Marketing Coordinator, Marketing Director, Digital Marketing Manager, Marketing and Product Management Director, Brand Builder, Trade Marketer	
Sales: 21 (37 %), Key Account Manager, Account Manager, Sales Manager, Manager Digital Sales Processes, Sales Representative, Region Director Sales, Global Sales Manager	
General management: 4 (7 %), General Manager, CEO, Head of Business Unit, Digital Transformation Coordinator	
Age	Gender
21–30: 11 (19 %)	Male: 36 (63 %) Female: 21 (37 %)
31–40: 21 (37 %)	
41–50: 13 (23 %)	
51–60: 12 (21 %)	

stages). The interview protocol can be found in Table 2.

Consistent with the discovery-oriented approach, we tightly integrated data collection and analysis (Eisenhardt, 1989; Zeithaml et al., 2020). All interviews were recorded, transcribed, and assessed for their accuracy. We analyzed all transcripts following established procedures for qualitative data analysis (Corbin & Strauss, 2014). Rather than fitting data into preconceived categories (Glaser, 1978), we subjected the data to a “rigorous comparative analysis that successively moves from studying concrete realities to rendering a conceptual understanding from these data” (Charmaz & Belgrave, 2012, p. 347). Our inductive analysis followed three steps. First, from the interview transcripts we distilled individual remarks, which informants indicated as critical to understanding the use and impact of digital tools during innovation ideation, as *in-vivo* codes containing the actual language used by informants (Corbin & Strauss, 2014). Second, we identified key *in-vivo* codes that can be applied to multiple contexts and were mentioned by multiple informants (Ulaga & Reinartz, 2011). Third, we used axial coding to link the selected *in-vivo* codes with first-order categories, which were then organized under second-order themes. These themes captured our key insights and were constantly refined based on subsequent interview data.

We ensured analytical rigor using a variety of techniques. First, we stored data centrally, which allowed us to conduct holistic data analysis, and ensured consistent conclusions (Kennedy et al., 2003). We ensured analytical validity by using techniques such as refutability, constant comparison, comprehensive data treatment, and deviant case analysis (Silverman & Marvasti, 2008). Specifically, we conducted an active search for deviant cases that might question our overall findings. We did not identify any deviant cases. In addition, the informants’ responses were analyzed for consistency across industries (Zeithaml et al., 2020) and no significant differences were found. Finally, we also found no significant differences between the opinions expressed by marketing and sales informants.

#### 4. Digital tools used for ideation

Our informants highlighted the following four digital tools most used by marketing and sales personnel for ideation: email, video conferencing, collaboration platforms, and chats. Below, we discuss the unique characteristics associated with each tool, which suggest that their utility and impact vary across the three ideation stages.

**Email** is an asynchronous communication tool that is better suited to ask specific questions, communicate complex issues, and obtain feedback; for example, on specific issues related to complex ideas. Email is also used to communicate multiple ideas, present ideas that require a formal or elaborate presentation, or disseminate ideas to multiple

employees. Our informants note that email is a user-friendly, fast communication tool that allows people to think before responding and has the added advantage that message threads can be traced, monitored, and recovered. The major drawbacks of email are its relatively low speed (because people do not respond quickly or not at all), the presence of irrelevant details, the limited ability to demonstrate new product ideas, and long email chains that reduce the speed of ideation. In addition, people have different opinions about what constitutes an acceptable response time for email, which may result in perceived pressure on the recipient as the following quote suggests:

*A disadvantage of modern communication is that you are a slave to the questions that someone else asks, you can no longer do your daily work. I notice that internally too. People have sent you an email and then walk up to you and stand next to you. [3, Marketing and Communication Manager, climate control]*

**Video conferencing platforms** (e.g. Teams, Zoom) facilitate synchronous, real-time communication between two or more participants, which our informants noted as being more efficient than email because visual cues can add a personal touch and reduce misinterpretations. Our informants stated that video conferences – online meetings with a relatively large number of participants – are used to generate ideas and obtain input from multiple people. For instance, an online brainstorming session allows individuals to join regardless of their physical location, which increases flexibility, broadens participation, and helps to include diverse perspectives, insights, and expertise, thus enhancing idea generation. Video calls – one-on-one online calls between two participants – facilitate the presentation and discussion of complex ideas (for example, through screen sharing) and can be used to discuss specific issues. The visibility of each colleague’s online status makes it easy to determine their availability and quickly schedule a video call. An informant shared a relevant perspective below.

*Calling via Teams is really ideal. Previously I would wait for an email back an hour later and then you often get half an answer. Now I notice that I call via Teams much more often and then I am ready in two minutes. That is of course strange because without Teams I could also reach everyone by phone and then I did that much less. I think the advantage of Teams is that you can also quickly show something via screen sharing. In addition, everyone is more often in front of their laptop. [14, Global Sales Manager, industrial packaging]*

On the flip side, informants mentioned that multitasking, poor internet connections, and the absence of in-person interaction, which hampers creativity, are major drawbacks of video conferences. In addition, several informants remarked that they found it difficult to interject during video conferences, which made them more passive and

**Table 2**  
Interview protocol.

General questions
<ul style="list-style-type: none"> <li>• The first five minutes (approximate) were spent on general questions.</li> <li>• Within your firm...               <ol style="list-style-type: none"> <li>1. What is your job title and work responsibilities?</li> <li>2. What is your tenure within the company and industry?</li> <li>3. What is your company’s size in terms of number of employees and annual sales?</li> <li>4. How are marketing and sales structured?</li> </ol> </li> </ul>
Grand tour questions
<ol style="list-style-type: none"> <li>5. Describe how innovation ideation occurs in your firm. What are the roles of marketing and sales in innovation ideation?</li> <li>6. How do marketing and sales interact with each other during innovation ideation?</li> <li>7. How do marketing and sales use digital tools for their interactions?</li> <li>8. Which digital tools are most commonly used for interactions between marketing and sales during ideation? Please explain how digital tools complement in-person interaction.</li> <li>9. What are the key differences in the use of various digital tools during the ideation process? Please distinguish between synchronous and asynchronous tools. Also distinguish between formal and informal interactions.</li> <li>10. How did the use of digital tools affect the nature and efficacy of the ideation process?</li> <li>11. Which key challenges did you experience during the ideation process? How were these challenges addressed?</li> <li>12. Is there anything else you would like to share about the use of digital tools during innovation ideation?</li> </ol>

further reduced creativity.

*Generally, people tend to be more passive in group calls compared to when they are physically present in a room together. In group calls people can become less creative and less engaged. Also, what I see is that there are often a few individuals during the group calls that are more dominant, while others may take a backseat and become less vocal.* [12, Global E-Commerce Manager, FMCG]

**Collaboration platforms** (Google Workspace, SharePoint, Trello, Basecamp, Slack) offer employees an asynchronous tool to efficiently share documents, facilitate idea sharing, store files, and document discussions. All relevant aspects of new product ideas can be quickly shared and discussed with each other through these platforms. Further, they offer a centralized repository of ideas, together with all current and upcoming projects, that enables stakeholders to access ideas, assess manufacturing feasibility and sales projections, ask questions, and suggest modifications. Since older versions of documents are saved, such platforms also allow people to trace how a discussion evolved over time. An important drawback of collaboration platforms is that its asynchronous nature may reduce the sense of urgency and lower engagement among participants, which may then slow down decision making.

*What I really like is that you use the same reference work. We also put all files in [a platform] so you know, I'm going to use those files. Then we don't use anything other than that. We also put the minutes in it, so you can easily access them. That makes it all very clear and demarcated, everyone has the same information. It's not like there's anything left on your own disk or anything. You can meet very tightly.* [21, Marketing Manager, industrial lighting]

**Chats** are used for both synchronous and asynchronous communication. Live chats are enabled by video conferencing platforms to enhance synchronous, real-time communication between participants; for example, people may use a live chat function during an online meeting to ask questions, respond to queries, or make suggestions. Especially when an online session is dominated by a few vocal participants, live chat can be used by others to interject and contribute. In contrast, chat messages are a form of asynchronous communication between two or more participants. Platforms like WhatsApp and chat features of video conferencing platforms like Teams are very easy to use and informal, which lowers their threshold, and makes them useful for sharing and discussing minor ideas, and for asking specific questions. While chat platforms may have drawbacks such as ideas getting lost in the continuous flow of messages or misinterpreted due to the absence of visual cues such as facial expressions or body language, their ease of use and fast feedback loop allows employees to efficiently refine ideas, which improves their quality. Because of their efficiency, chats are even used between employees who are both in the office (for example to quickly ask or answer brief questions).

*I now send a chat faster to someone from another department than I would send an email. The advantages are that it is fast and accessible, you can see whether someone is available at that moment. That's the same as with WhatsApp actually for chat, but you don't have to grab your phone. That sounds very stupid, but it is true, it is easier to send a chat via Teams.* [5, Account Manager, climate control]

## 5. Use of digital tools across ideation stages

Whereas the literature mentions two ideation stages (idea generation and selection), analysis of our interview transcripts suggests that informants distinguish three distinct ideation stages: idea generation, assessment, and development. In addition, analytical insights suggest that each of these ideation stages entails a distinct set of objectives and activities. Lastly, since each digital tool has different utility and associated strengths and drawbacks, the use of these tools by sales and marketing personnel varies across the three ideation stages. As

illustrated in Fig. 1, the ideation process functions as a funnel with the objectives changing from generating many ideas, to assessing all ideas to identify the most promising ones and eliminate sub-par ideas, followed by developing the best remaining ideas further. Accordingly, the ideation process benefits when marketing and sales personnel emphasize specific tools during each of its stages. We further learn that while beneficial, these digital tools also pose unique challenges that need to be actively managed. We identify a range of best practices that sales and marketing personnel may employ to address emergent challenges and make the most of the available digital tools (Table 3).

### 5.1. Digital tools for idea generation

Our informants emphasized the benefits of in-person idea generation, such as allowing participants to capture and interpret visual cues (body language), lowering the threshold for suggesting undeveloped ideas, and encouraging participants to spontaneously generate and build on each other's ideas.

*I prefer face-to-face interactions because they allow me to effortlessly express my ideas. I often have ideas, but it's not always the case that my ideas are good or well-structured and will succeed.* [54, Key Account Manager, FMCG]

However, with firms embracing hybrid work, many relevant potential contributors who can participate in idea generation are likely to be remote. For example, salespeople, who possess much first-hand information about customer needs through their daily contacts with individual customers may be traveling, marketing employees may be WFH, or international colleagues may be in various parts of the world. Our informants observed that all these actors may need to be included in idea generation since they can contribute multiple perspectives and thus enhance the generation of a wide variety of new product ideas. In a hybrid work context this is best achieved by using a video conference, supported by a virtual whiteboard and live chat, as the primary tool, since it can create an informal atmosphere that mimics in-person interactions and has a positive effect on creativity, the number of ideas generated, and the generation of innovative concepts.

*We are operating across all the continents; therefore, we have colleagues joining for a meeting from thousands of kilometers away. Moreover, even our regional sales representatives are always on the road; therefore, the most effective way to maintain constant interaction [at this stage] is through digital tools.* [35, Brand Manager, construction]

Salespeople constantly collect information about individual customers and may share this information, such as customer conversation notes or screen captures of social media interactions, while video conferencing with their marketing colleagues during online idea generation sessions. Similarly, marketing may analyze customer feedback and suggestions on social media and share useful aggregated customer insights during online idea generation.

While video conferencing facilitates synchronous, informal conversations, remote interactions do not include all visual and auditory cues from in-person interactions, which creates challenges in engendering an atmosphere of trust and open communication to facilitate the free flow of ideas. Participants need to feel psychologically safe enough to speak up and contribute to online brainstorming sessions, which may be harder to achieve for introverted employees. The quote below highlights this idea.

*There were two people who dialed in because they were not in the office. We were in the meeting physically with around 12 people. ... However, the two individuals who dialed in remained silent throughout. I believe that when you're physically present in a room, you feel more directly addressed and engaged. So, being in a digital setting may lead to a more passive involvement.* [37, Global E-Commerce Manager, FMCG]

Team leaders or moderators can address this potential concern by

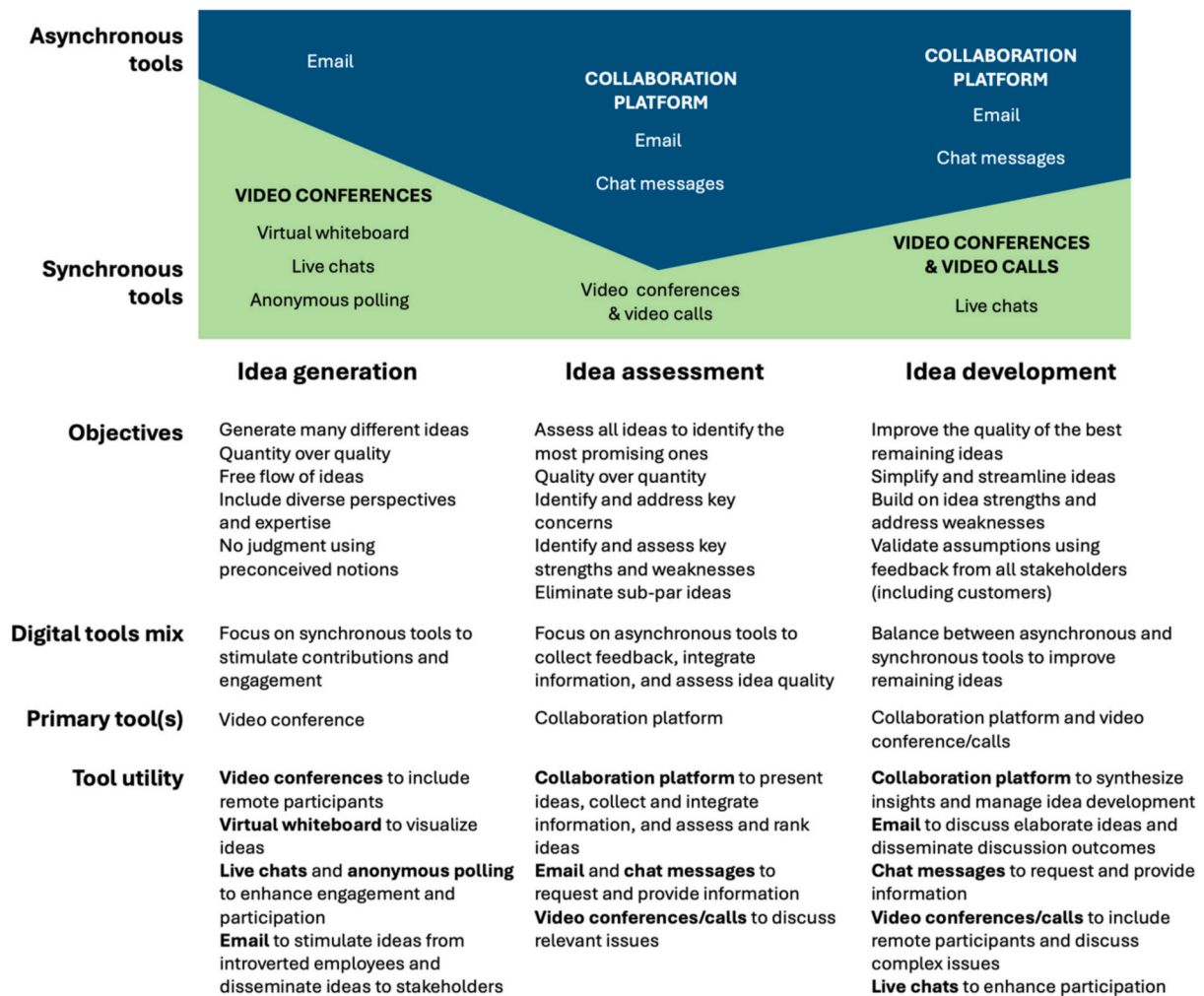


Fig. 1. Use of digital tools during innovation ideation.

starting with a five-minute icebreaker to establish the psychological safety and informal atmosphere that contribute to creative idea generation. Additionally, asking participants to prepare for the online brainstorming session ahead of time and bring their top three ideas to the meeting may help to avoid groupthink. Senior executives remarked that they use humor as a tool to both create an informal atmosphere and stimulate creativity. Other best practices include creating smaller sub-groups in breakout rooms to generate ideas beforehand, using live chats or anonymous polling to encourage participation, and encouraging introverted participants to submit ideas through email after the online brainstorming session.

5.2. Digital tools for idea assessment

During idea assessment the focus shifts from quantity of ideas to their quality, and since the objective is to make well-informed assessments about the attractiveness and potential of ideas, the emphasis changes to asynchronous tools that facilitate the collection of input and feedback from all relevant stakeholders and a thoughtful analysis of all available information. The primary asynchronous tool employed during this stage is a collaboration platform that allows multiple participants to contribute information, identify and assess the major strengths and weaknesses of ideas, eliminate sub-par ideas, and rank the remaining ideas in order of attractiveness. The more formal, asynchronous character of a collaboration platform is ideally suited to collect extensive input from all relevant stakeholders, post and respond to specific

requests for information, synthesize and analyze all available information, and thus improve the quality of idea assessment. To complement the collaboration platform, email and chat messages are also used to obtain feedback on ideas and address specific issues.

*It is very nice that you can work together in different files, so you can quickly build files with each other. You can work together very well online, that's how you should see it. You can also easily go through things together or build an Excel file together. This is much better via Teams. [23, Sales and Marketing Director, technological components]*

Our informants indicated that while useful, asynchronous communication may slow down the decision-making process during this stage; for example, when decisions are pending until all relevant stakeholders have provided feedback or submitted their votes, or when the use of asynchronous interaction reduces the sense of urgency and requests for information are ignored. Other challenges experienced while using asynchronous tools during idea assessment concern encouraging employees to use these tools as intended, and monitoring and managing information requested from and provided by employees. For example, several informants mentioned that feedback often ends up hidden or lost in long email chains or people simply lose track of where specific information or feedback can be found. Especially chat messages quickly proliferate, and people tend to read only the most recent ones.

*Email response is very slow. People tend to choose to answer emails with higher priority and therefore leave many emails untouched.*

**Table 3**  
Ideation stages and digital tools: key challenges and best practices.

	Idea generation	Idea assessment	Idea development
<i>Description</i>	Use of divergent thinking (multiple approaches and sources) to generate many new product ideas	Use of convergent thinking to assess ideas systematically and iteratively, often using a set of predetermined criteria, weights, and decision-making rules	Constant interaction, both within the innovation team and with target customers, to refine and convert the remaining ideas into more concrete form
<i>Digital tools commonly employed</i>	Emphasis on synchronous tools Primary tool: video conference Supported by live chats and email	Emphasis on asynchronous tools Primary tool: collaboration platform Supported by email and chat messages	Balanced mix of asynchronous and synchronous tools Primary tools: collaboration platform and video conference/calls Supported by email, chat messages and live chats
<i>Key challenges encountered when using digital tools</i>	Difficult to achieve the informal atmosphere that is required for a free flow of ideas Limited visual and auditory cues (body language) Participants are hesitant to speak up and contribute during online meetings Participants are less focused and involved because of multitasking	Problems in tracking, monitoring and managing contributions because of multiple tools or wrong use of tools Reduced sense of urgency and speed of idea assessment Difficult to physically demonstrate complex new product designs Lack of direct contact reduces engagement and enthusiasm for ideas	Absence of clear guidelines about which tools to use for which purpose Contributions get lost in a clutter of tools and message chains Task-oriented online meetings leave no room for informal <i>ad-hoc</i> discussions Participants are less involved during video conferences because of multitasking Lack of digital trust between participants Synthesize and analyze all information and insights to improve ideas and test their underlying assumptions
<i>Best practices</i>	Create psychological safety and opportunities for all relevant employees to contribute  <ul style="list-style-type: none"> <li>• allocate some time at the start of a remote brainstorming session to break the ice and get participants to relax</li> <li>• use humor to stimulate an informal atmosphere, make people feel comfortable, and build team identity</li> <li>• use live chats and anonymous polling to encourage contributions</li> <li>• send out brainstorm topics and objectives in</li> </ul>	Obtain feedback from all relevant parties to build and manage comprehensive idea assessments  <ul style="list-style-type: none"> <li>• employ a mix of digital tools to capture opinions from a range of employees</li> <li>• communicate which tools should be used for what to manage discussions and improve transparency and traceability of discussion flows</li> <li>• use digital tools that facilitate detailed presentations and feedback, and create visual impact</li> <li>• use one collaboration</li> </ul>	streamline discussions by using a limited number of digital tools and establish clear norms about how to use them  <ul style="list-style-type: none"> <li>• use collaboration platform to integrate insights and monitor idea development</li> <li>• use email to request and provide specific information</li> <li>• use video conference/calls for in-depth</li> </ul>

**Table 3 (continued)**

Idea generation	Idea assessment	Idea development
advance and ask participants to bring their top three ideas to the online session <ul style="list-style-type: none"> <li>• create small breakout rooms to encourage natural conversations and build trust</li> <li>• encourage introverted participants to submit ideas by phone or email after the online session</li> </ul>	platform to capture discussions, increase transparency, and distill and communicate major insights individually, before organizing group discussions, to avoid groupthink <ul style="list-style-type: none"> <li>• ask people to assess ideas individually, before organizing group discussions, to avoid groupthink</li> <li>• combine digital messages with invitations for phone calls to discuss ideas in more detail</li> </ul>	discussions of complex issues <ul style="list-style-type: none"> <li>• create sufficient opportunities for informal interactions and to discuss unscheduled topics</li> <li>• have team leaders send regular emails to provide updates to all participants and ask for additional input</li> <li>• supplement digital meetings with in-person one-on-ones to build trust</li> </ul>

Moreover, mailboxes are often overcrowded, which can result in missing emails over time. [31, International Account Manager, food and beverage]

Firms resolve some of the problems associated with asynchronous digital tools during this stage by clearly communicating to their employees about which tools are preferred and how they should be used. Several informants expressed a preference for email because it increases transparency and creates a digital archive of ongoing discussions.

*I use email because it provides tangible evidence and ensures centralized storage. This allows for easy referencing of our agreements or discussions regarding ideas, providing a reliable record to consult later.* [31, International Account Manager, food and beverage]

Other best practices include focusing on digital tools that allow for detailed visual presentation of ideas and complementing the focus on asynchronous tools with the use of synchronous tools in specific situations. For example, firms may use a video call or video conference to discuss ideas in more detail one-on-one or in a limited group setting. Although synchronous tools may be used to complement asynchronous tools (for example, when issues are discussed during a video call and key observations or conclusions are documented in the collaboration platform), synchronous video calls may be less useful for providing comprehensive feedback on complex issues, communicate nuanced meanings, and demonstrate product features as the quote below highlights.

*The fun part of my job is that I come up with new ideas for ice cream and that I can taste a lot. When we come up with a new idea and we want to involve the sales team, the fun part is tasting it together. However, when we are online, I can only say, “You can grab some ice cream from the freezer,” or “I’ll send it to you”, but it’s not the same. It’s better to take a bite together and then discuss it. That way, we can have a real conversation where everyone shares their thoughts. That’s the ultimate experience. ...When you dial into a meeting online, it feels like just another meeting, and then you move on to the next one. But it is just more about the experience when we are physically together.* [44, Brand Builder, FMCG]

### 5.3. Digital tools for idea development

Idea development involves in-depth discussions about ideas that allow participants to explore a range of issues and options aimed at improving, simplifying, and streamlining the remaining ideas from the

previous ideation stage. During this stage, firms systematically collect and synthesize relevant inputs using asynchronous tools like collaboration platforms and email that facilitate the collaboration between marketing and sales. The accessibility, transparency, and rapid feedback cycles of these tools help to refine and iterate ideas more efficiently, ultimately enhancing the quality of the remaining ideas.

*The positive is the speed. It's quick, information is quick. It's always available. Take SharePoint for example; you can see ongoing projects live anytime, you can add your feedback at it anytime. So, I think speed and accessibility are the two major points.* [25, Region Director Sales, agricultural machinery]

Several informants emphasized the importance of chat as a complementary tool during this stage. They noted that chat messages lower the threshold to ask quick questions, provide feedback on ideas, or suggest idea modifications at such a late stage. Chat messages are easy to use and contribute to an informal atmosphere between marketing and sales professionals.

*One way or another I find the chat more fun. It just feels more informal. On Teams you can easily add a nice gif and you just don't do that via email. In the chat you also make a joke or a comment faster, you just don't do that so quickly in email. It is therefore simply more informal and that helps in contact with colleagues.* [21, Marketing Manager, industrial lighting]

Our informants emphasized that, in addition to these asynchronous tools, they also use synchronous tools like video calls or video conferences to organize more informal, *ad-hoc* sessions to resolve complex issues and facilitate decision making. These video conferences differ from the comprehensive ones used for idea generation that create an informal atmosphere to facilitate the free flow of ideas. Specifically, video conferences during this stage tend to be short, task-oriented, and include only a few targeted participants discussing a set of specific issues.

*On a daily basis, we will use Zoom for clarification purpose... It is a very effective tool since you can communicate quickly with people that are online. However, I would not exchange important information that I would like to retrieve in the future through such a platform.* [17, Digital Transformation Coordinator, pharmaceuticals]

While digital tools allow ongoing discussions to be documented, resulting in more transparent communication and decision making, they also have important drawbacks. For example, in the absence of a uniform database and clear rules about which digital tools to use and how to use them, relevant information may get lost or buried when the ongoing discussion consists of a continuous flow of messages across multiple platforms.

*Sometimes I have the feeling that it is quite a clutter, that you no longer know how things were shared. Something was sent via email; something else was put on SharePoint. There is still no unified policy, and ultimately everyone works and communicates differently.* [29, Team Lead Marketing Campaign Management, agricultural machinery]

In addition, the more task-oriented nature of synchronous online meetings is perceived as less conducive to addressing emerging topics. Especially with hybrid meetings, online participants miss out on (often informal) conversations taking place just before or immediately after a meeting.

*What I find extremely difficult is when we now head in the direction of hybrid meetings, when half of the people are sitting in one room who probably already have an intensive exchange before and after the meeting. Usually, what is said before and after the meeting is actually an essential part of the meeting. The person who is connected via Skype no longer takes part in this.* [29, Team Lead Marketing Campaign Management, agricultural machinery]

In combining synchronous and asynchronous tools firms experience a broad range of challenges, such as ensuring that employees know how to use specific tools for specific purposes, keeping track of information across various tools, and improving the effectiveness of every tool used. For example, the widespread habit of multitasking during online sessions reduces engagement, limits interactions, and makes it harder to develop interpersonal trust, which hampers the open, collaborative culture needed for effective idea development.

*Many people multitask while on a video call. We have a lot of meetings and other tasks to get done, so it's common for people to turn off their cameras during the call and work on other things, like going through their mailbox. When I'm in a meeting, I believe I spend nearly half of the time multitasking. This highlights one of the issues with digital calls. You are less easily distracted when you are physically present in a room.* [12, Global E-Commerce Manager, FMCG]

Firms may also involve customers in idea development; for example, by running quick experiments to validate key assumptions with customers or having salespeople use their customer contacts or social media to obtain customer insights or feedback on specific issues. While this improves the quality of idea development, it may also slow down interactions between sales and marketing since each party may need additional time to connect with customers, in addition to connecting with their counterpart.

*Digital tools are extremely important for us during the discovery phase. We are active on social media and regularly interact with our customers there; they often share feedback and suggestions through these digital channels. With the help of digital tools, I am able to collect this information quickly and forward it to my marketing colleagues through an internal database. In addition, we also have regular interactions through WhatsApp whenever I visit a customer and have some immediate feedback to share. It helps us to effectively build this obtained knowledge into our new products, react quickly to the changing customer preferences and increase the chance of successful innovation.* [48, Sales Representative, petroleum]

Best practices used during idea development run the gamut of measures revolving around establishing norms about how to use digital tools, developing digital trust, improving engagement with the process, and combining digital tools with physical in-person interactions whenever appropriate.

## 6. Discussion

### 6.1. Theoretical contributions

This study provides three key contributions to the emergent literature on the impact of digital tools on innovation. First, in contrast to the common distinction between generating ideas and then selecting the most promising ones (Kornish & Hutchison-Krupat, 2017; Puente-Díaz et al., 2021; Rietzschel et al., 2010), our findings show that hybrid work environments suggest a more complex three-stage innovation ideation process consisting of idea generation, assessment, and development, with each stage being different in terms of their objectives and the activities conducted. (1) Idea generation involves the use of multiple approaches to simulate creativity and generate many new product ideas (Cooper & Edgett, 2008; Utley & Klebahn, 2022; Wang, 2019). (2) Idea assessment refers to the iterative process of assessing and critiquing ideas, usually by experts, to identify and conceivably resolve weaknesses, eliminate ideas that are clearly not up to par, and identify the ones that will receive additional investment (Kornish & Hutchison-Krupat, 2017; Magnusson et al., 2014; Sukhov et al., 2021). (3) Idea development encompasses refining the remaining ideas and shaping them into more concrete form, which involves not only simplifying and streamlining ideas through constant communication within the team, but may also include quick experiments to test underlying assumptions

about an idea's viability or market interest by getting feedback from real customers (Asmar et al., 2021; Maurya, 2022). Where idea generation aims at increasing the quantity of new product ideas, idea development is geared toward improving the quality of the remaining ideas and testing their underlying assumptions to ensure that the right ideas are selected to progress to the next stage of the innovation process (Savoia, 2019). As suggested by Catmull (2014, p. 131), ideas tend to be "awkward and unformed, vulnerable and incomplete. They need nurturing – in the form of time and patience – in order to grow". It is the use of digital tools, especially collaboration platforms, that facilitates this ideation triptych that allows firms to build a central repository of ideas in which ideas gradually evolve as knowledge is accumulated over time. This gradual improvement of ideas, through extensive idea assessment and development, is in sharp contrast to the more traditional assessment/selection that tends to be a single, compressed activity.

Second, we provide more nuanced insights into how digital tools are used and their impact on specific innovation activities. The extant literature presents ambiguous findings about the impact of digital tools on innovation, suggesting positive (Abi Saad & Agogu , 2023; Chaudhury & Deng, 2022), negative (McAlpine, 2017; R cker et al., 2024; Trevor & Holweg, 2022), or mixed effects (Biemans, 2023; Tonnessen, 2023; Waizenegger et al., 2020). We suggest that the underlying reason for this ambiguity is that previous studies have treated innovation as a generic, homogeneous activity (Fayard et al., 2021; Trevor & Holweg, 2022). A recent exception is Bellis et al. (2024), who distinguish between innovation ideation and execution and conclude that "activities related to the ideation phase are best conducted through in-person, face-to-face meetings... [whereas] activities related to the execution phase are more suitably carried out digitally" (p. 5). We argue that while the distinction between ideation and execution is useful, it still represents an oversimplification of the complexity of the innovation process (Cooper, 1990). Indeed, our findings show that firms use digital tools during each of the three ideation stages, with the use and impact of digital tools varying across the stages. In contrast to previous studies suggesting that innovation (Ale Ebrahim et al., 2009; R cker et al., 2024; Trevor & Holweg, 2022), ideation (Bellis et al., 2024) or idea generation (Brucks & Levav, 2022; Horv t & Uzzi, 2022; Lin et al., 2023; McAlpine, 2017) should be done in person, our findings explain why and how firms may differentially use digital tools to improve the efficacy of all three ideation stages in a hybrid work context, thus offering a significantly more fine-grained and nuanced perspective on the role, use, and impact of digital tools on innovation. Our findings acknowledge the importance of informal conversations and illustrate how marketing and sales personnel use digital tools for effective social exchanges that contribute to social capital and relational confidence that foster knowledge sharing (Hau et al., 2013; Keppler & Leonardi, 2023), which is consistent with the tenets of self-efficacy theory and social learning theory (Bandura, 1978; Yarberry & Sims, 2021).

Third, study findings further our understanding of how the use of digital tools varies across job types and contexts (Gratton, 2020; Grzegorzczak et al., 2021). Specifically, our findings show that the use of digital tools depends on the nature of the task, the objectives to be achieved, and the participants involved. For example, during idea generation the primary objective is to generate a wide range of ideas, which benefits from getting all relevant parties involved. While recent studies suggest that idea generation is best done in person (Brucks & Levav, 2022; Horv t & Uzzi, 2022; Lin et al., 2023; R cker et al., 2024), and our informants confirm this, our findings show that remote brainstorming may be a viable alternative. For example, when (a) salespeople possessing first-hand information about customer needs, problems, and requests are traveling, (b) marketing employees are WFH, or (c) colleagues in other geographic regions need to participate. Consistent with self-efficacy theory (Bandura, 1978), our findings show that with appropriate digital tools at their disposal, remote employees can have confidence in their ability to provide meaningful contributions to remote innovation ideation. Thus, our findings help explain how firms

decide between physical, in-person and digital interactions, as well as determine the appropriate mix of synchronous and asynchronous digital tools across innovation ideation stages.

## 6.2. Managerial implications

The findings from this study have several implications for managers. First, managers need to decide when to use digital tools instead of, or in combination with, physical interactions, and determine the appropriate mix of synchronous and asynchronous digital tools for each ideation stage (VanZandt, 2022). While our informants emphasized the superiority of in-person idea generation that engenders trust and facilitates the free flow of ideas, they indicated that remote brainstorming, achieved through video conferencing, is a viable substitute when relevant employees are unable to attend in person (for example, because they are traveling, WFH, or located in another geographic region). In contrast, idea assessment requires careful analysis of the ideas generated, based on available information and inputs from various employees, which suggests that it is best achieved through asynchronous digital tools like collaboration platforms (SharePoint, Google Workspace) that facilitate the collection, integration, and analysis of information that improves decision making. Finally, idea development requires more in-depth discussions about details and underlying assumptions, which suggests a balanced use of synchronous and asynchronous digital tools to improve the remaining ideas. The available digital toolbox is only expected to expand; for example, AI may not only be used to generate novel ideas (Cooper, 2024; Cooper & McCausland, 2024), but also to boost internal communication by automating repetitive tasks (such as scheduling meetings and sending reminders), providing employees with real-time translation, speech-to-text and text-to-speech capabilities, and improving access to information through AI-powered chatbots and virtual assistants (Kalkman, 2024). To avoid too much reliance on the use of digital tools, several informants recommend periodic in-person meetings to establish a collaborative culture that encourages sharing of ideas. When in-person meetings are not feasible, firms may promote the use of dedicated platforms – like Colleague Connect, Slack or Coffee Chats – that stimulate virtual watercooler conversations.

Second, against the backdrop of firms transitioning from co-located to virtual work (Gratton, 2021; Grzegorzczak et al., 2021; Maurer et al., 2022; Trevor & Holweg, 2022; Whillans et al., 2021), firms need to acknowledge and address the specific challenges associated with using digital tools during each of the three ideation stages. The quality of remote idea generation depends on the contributions of the intended participants, which means that the primary challenge is to enhance engagement by creating an open atmosphere in which participants feel psychologically safe and motivated to contribute ideas (Edmondson & Daley, 2020; Edmondson & Lei, 2014; Lechner & Tobias Mortlock, 2022). For example, firms may enhance the number of ideas generated by asking participants to bring their top 3 ideas to the online session and encouraging introverted participants to submit ideas by phone or email after the online brainstorming session. During idea assessment the primary challenge becomes the collection, integration, and synthesis of all relevant information from appropriate parties, which ensures high-quality assessments about the attractiveness of ideas, and requires employees to make optimal use of a suitable collaboration platform. Finally, during idea development the key challenge shifts toward encouraging and facilitating in-depth discussions of the most promising ideas to develop them in more detail and test underlying assumptions. Since firms may use several synchronous and asynchronous digital tools, they need to establish and communicate norms about the preferred tools to use, keep track of all discussions, and establish digital trust between all participants (especially when customers are also involved) (Cheng et al., 2016). In addition, firms face more generic challenges that are not limited to specific ideation stages, such as ensuring that all employees understand which digital tools are preferred and how to use them in specific situations.

Third, to successfully generate, assess, and develop new product ideas using a variety of digital tools, firms also need to create a supportive organizational environment that addresses challenges related to:

- *Technological infrastructure*: ensuring that all employees have access to the appropriate technology and software, as well as high-quality internet connections. This should be available in the workplace and at home, but salespeople should also be able to access it while traveling (Darics & Cristina Gatti, 2019; Dittes et al., 2019; Fayard et al., 2021).
- *Organizational infrastructure*: establishing and promoting a digital collaboration culture that promotes virtual team performance, using channel advocates for each digital tool to be used, and using measures that encourage natural, informal conversations, as well as monitor and safeguard employee wellbeing (Hill et al., 2024; Kożuch, 2009; Rosen, 2009).
- *Team infrastructure*: creating a cohesive team that team members identify with, through a comprehensive digital onboarding process, regular checking-in with team members, providing digital supervisor support, communicating norms for using digital tools, and engaging in activities and procedures that promote digital trust and psychological safety (Hacker et al., 2019; Owens & Khazanchi, 2018).
- *Individual digital literacy*: creating, supporting, and promoting individual digital skills, including acknowledging acceptable response times, leaving no messages unanswered, no multitasking during online meetings (always use the camera, do not use mute), and banning digital distractions during online meetings (Cetindamar et al., 2021; Dhawan, 2021; Nikou et al., 2022).

### 6.3. Limitations and future research directions

Several methodological choices made for this study represent limitations that suggest directions for future research. First, limitations associated with exploratory research that uses a relatively small sample suggest that several findings may need to be validated in future research using a large-scale survey. Second, future research may expand the scope of this study in several ways. For example, while our study drew informants from a range of industries to increase variation in experiences, future researchers could investigate how the use of digital tools for ideation varies across firms or industries, including their antecedents and effects. Future research could also expand the number of business functions investigated to explore differences in how they use digital tools for innovation ideation. Such research could explicitly compare job roles to explore differences in their use of digital tools, perceptions, experiences, and effects and thus contribute to our understanding of how the use of digital tools varies across job types, the causes of such differences, and their effects (Gratton, 2020; Grzegorzczuk et al., 2021). Finally, researchers may also expand the focus beyond innovation ideation. The innovation process consists of a series of distinct activities, each with its own nature and objectives (Cooper, 1990), that are expected to benefit differently from the use of digital tools. Rather than only distinguishing between ideation and execution (Bellis et al., 2024), future researchers may extend the more fine-grained perspective on ideation used in the current study to the entire innovation process, identify a series of distinct innovation stages and explore the use and impact of digital tools across and within these multiple stages. Third, since part of our informants were contacted via LinkedIn it could be argued that these informants are more extroverted, which might have influenced their use of and experiences with digital tools. For example, recent research findings suggest that introverted people are better at listening and may therefore draw more value out of their colleagues on the same team (Chaker et al., 2024; Flynn et al., 2023). Future scholars could explore both how introversion impacts the use of digital tools and whether reliance on LinkedIn to obtain respondents may lead to biased results.

Our study findings also suggest several avenues for future research.

First, our informants emphasized that they use a mix of synchronous and asynchronous digital tools during all three stages of the ideation process, with specific tools taking center stage during each of the stages and the exact mix of digital tools depending on the objectives to be achieved, the firm's specific context, and the nature of the participants targeted. Future researchers could further investigate the differences between digital tools and the factors that impact the optimal mix of digital tools used for ideation (Mitchell, 2023; Sivunen & Valo, 2006).

Second, future scholars may explore the impact of digital tools on the roles of marketing and sales and the balance of power between the two departments. In the words of one senior executive from our sample: "I think the role of sales will continue to diminish. I think the role of marketing will continue to increase in the ideation phase. ... Marketing and product development can go virtually through the data that we have and are much less reliant on interaction with salespeople for the voice of the customer." Future research may also explore how other digital tools, such as customer relationship management (CRM) software and artificial intelligence (AI) tools may affect innovation and the roles of marketing and sales (Cooper, 2024; Cooper & McCausland, 2024; Singh et al., 2019). For example, when salespeople record their conversations with customers, and upload these recordings into a CRM system, AI tools can use speech-to-text recognition and mine transcripts from multiple salespeople to distill relevant insights for marketing.

Third, future research could investigate the human side of digital transformation (Alavi & Habel, 2021). For example, scholars could investigate how changing roles and responsibilities of marketing and sales personnel affect these employees' job descriptions, job richness (in terms of interest and excitement), job satisfaction (Bolli & Pusterla, 2022; Cijan et al., 2019; Nemteanu et al., 2021), and personal well-being (Hill et al., 2024; Qiu & Dauth, 2022).

Fourth, scholars could apply concepts from the co-creation literature (Galvagno & Dall, 2014; Jain et al., 2024) to the internal collaboration between business functions in the context of innovation in hybrid work environments. Such studies would increase our understanding how the use of digital tools may improve cross-functional collaboration that is considered a cornerstone of successful innovation (Tsai & Hsu, 2014).

## 7. Conclusion

This study was inspired by the fragmented and contradictory findings in the extant literature about the impact of digital tools on innovation. We propose that this confusion is caused by previous research (a) treating innovation as a homogeneous activity and (b) not accounting for the nature of specific jobs, subsequently giving rise to contradictory or simplistic recommendations. In contrast, this study explores how marketing and sales professionals use digital tools during innovation ideation. It illustrates how the use of digital tools varies across three emergent ideation stages – idea generation, assessment, and development – resulting in specific challenges during each ideation stage. Firms that want to use digital tools effectively for innovation ideation in a hybrid work environment need to ensure that (1) the right mix of digital tools is used during each ideation stage, (2) norms for using these tools are communicated clearly to all participants, and (3) the appropriate infrastructure is in place, which includes providing the right technology to employees, creating a supportive collaboration culture, and ensuring that individual employees possess the digital skills to make optimal use of digital tools for innovation ideation.

### CRedit authorship contribution statement

**Wim Biemans**: Writing – review & editing, Writing – original draft, Supervision, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Avinash Malshe**: Writing – review & editing.

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## Data availability

The data that has been used is confidential.

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