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Extended reality in B2B sales interactions

Janina Riether[a], Robin-Christopher M. Ruhnau[b] and Christian Homburg[c,d]

[a]Marketing Department, University of Mannheim, Mannheim, 68131, Germany; [b]WFI - Ingolstadt School of Management, Catholic University of Eichstätt-Ingolstadt, Ingolstadt, 85049, Germany; [c]Marketing Department, Director of the Institute for Market-Oriented Management, University of Mannheim, Mannheim, D-68131, Germany; [d]Alliance Manchester Business School, Manchester, M13 9SS, UK

ABSTRACT

Recently, extended reality (XR) technologies like augmented and virtual reality have expanded across businesses and society. In business-to-business (B2B) sales, however, the implementation is lagging. And while expectations about XR technologies are high, their specific impact on personal selling and sales interactions in business-to-business (B2B) contexts remains unclear. Against this background, the authors provide insight into the unique benefits through which XR technologies may contribute to salesperson performance and the conditions under which these benefits are likely. Based on an extensive qualitative study comprising 40 B2B salespeople, customer, and XR technology expert interviews, the authors create a comprehensive framework about XR technologies in B2B sales interactions related to the focal antecedent conditions, benefits, and contingencies. The findings show that using XR technologies in sales interactions may strengthen salesperson performance through customer-centered (e.g. simplified product evaluation, enhanced buying center coordination) and seller-centered (e.g. persuasive storytelling, enhanced product value communication) benefits. However, against the background of necessary investments, companies should consider whether the required antecedent conditions (e.g. sufficient organizational resources, suitable products) are met. Relatedly, the ultimate benefits that can be expected from XR technologies in sales depend on two main impact contingencies (i.e. customers' purchasing decision phase, buying center complexity).

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Over the past decade, extended reality (XR) technologies have continued to advance in their capabilities and have seen a significant boost in adoption across business and society (PwC, 2020). XR refers to the combination of real and virtual worlds, serving as an umbrella term for technologies such as augmented reality (AR) and virtual reality (VR) (Rauschnabel et al. 2022). AR technologies enrich the real world with virtual objects or people with whom users can interact (Tan, Chandukala, and Reddy 2022), whereas VR describes an entirely virtual world in which users are fully immersed and separated from the real world (Steuer 1992).

Today, an increasing number of business-to-business (B2B) companies are implementing XR technologies for sales purposes. For example, industrial company Bosch Rexroth uses VR in sales to demonstrate products in virtual showrooms, for example, at trade fairs or during sales meetings—creating a pleasant customer experience and replacing the need to transport heavy machinery and other products for sales interactions (Boyle 2024). Pharma company Roche uses VR from the early start of the sales process with its customers, such as for virtual laboratory configuration, customer onboarding, or illustrating future product innovations (Roche Diagnostics 2022). Using specialized AR assistance tools, industrial company Siemens provides business customers, such as Porsche, with on-site or remote assistance during the after-sales phase (Siemens, 2020).

As these examples illustrate, XR technologies have the potential to impact sales interactions or even (partially) replace face-to-face sales interactions. That is, XR technologies can be used both in the physical presence of both salespeople and customers (e.g. deploying AR for product visualization during a sales meeting) and remotely (e.g. deploying VR as a tool for virtual, entirely remote sales meetings). Either way, industry predictions concur that XR technologies, such as VR and AR, will play a critical role in B2B sales interactions, leading to improved customer experiences and enhanced salesperson performance (e.g. Gartner 2022; Kostusev 2019).

Despite the promise for B2B companies and specifically B2B sales, extant work on XR technologies has a strong focus on the consumer context. Extant work provides insights into the potential of XR technologies in three main consumer-related areas. First, XR has the potential to enhance consumers' cognitive (Heller et al. 2019; Pfaff and Spann 2023) and psychological (Hinsch, Felix, and Rauschnabel 2020; Lavoye et al. 2023) processes, such as information processing. Second, XR technologies may improve the accuracy of new product sales forecasts based on consumer evaluations (Harz, Hohenberg, and Homburg 2022). Third, XR technologies influence

CONTACT Christian Homburg christian.homburg@uni-mannheim.de
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consumers' (purchasing) decisions, for example, by enhancing their confidence in their product choices (Fritz, Hadi, and Stephen 2023; Tan, Chandukala, and Reddy 2022; Yim, Chu, and Sauer 2017).

In the B2B context, the body of literature remains rather limited and overwhelmingly conceptual in nature. In their literature review, for example, Boyd and Koles (2019) conclude that XR technologies are potentially relevant in the post-purchase phase of B2B marketing. Closely related, Wieland et al. (2024) and Rustholllkarhu et al. (2022) outline use cases of how B2B marketers can use XR technologies across the customer journey. Likewise, the limitations of extant literature apply to research with a dedicated sales focus. For example, in their conceptual paper, De Jong et al. (2021) highlight general technological trends, among which XR is one, and assume that XR may facilitate virtual selling and service delivery. In their conceptual article, Fischer, Seidenstricker, and Poeppelbuss (2023) outline some of the potentially promising use cases of XR in deriving findings from non-sales-related contexts to the sales context. In a similar vein, several studies on digital technologies in sales mention XR as a potentially important technology for sales organizations (e.g. Agnihotri et al. 2023; Alavi and Habel 2021; Singh et al. 2019)—and yet the benefits of XR technologies in the sales context remain largely speculative, including how and when these benefits may be reached.

Therefore, beyond some potential use cases and the general intuition that adopting technologies is beneficial for sales organizations, it remains unclear how, precisely, XR technologies may help salesperson performance—and under which requirements and conditions. This lack of insight into the successful implementation and specific benefits is also mirrored in sales practice. For example, the vast majority of salespeople believe that digital sales technologies support them in their work, and yet the actual adoption of cutting-edge technologies in sales is lagging, with XR as a prime example (Alavi and Habel 2021). A key reason for the low adoption of XR technologies in sales may be the lack of understanding of the specific antecedent requirements, but also the benefits for sellers, salespeople, and customers (e.g. Alavi and Habel 2021; Micallef, Keränen, and Kokshagina 2024; Zoltners et al. 2021). From a practical perspective, understanding both the antecedent conditions and the expected benefits is crucial, as implementing XR technologies incurs costs, such as time and financial investments (e.g. Agnihotri et al. 2023).

Thus, a considerable research gap exists regarding XR technologies in the B2B sales context. Against this background, we aim to shed light on the specific benefits that can be expected from implementing XR technologies in sales interactions. Moreover, we aim to shed light on the contingencies that determine the range and level of benefits. We derive three research questions (RQs):

RQ1: What are the necessary antecedent conditions for using XR technologies in B2B sales interactions?

RQ2: What benefits can B2B sellers, salespeople, and their customers expect from using XR technologies in sales interactions?

RQ3: When are the benefits of using XR technologies in B2B sales interactions more (versus less) pronounced?

To this end, we conducted an extensive qualitative study comprising 40 in-depth, semistructured expert interviews. The sample comprises 26 B2B salespeople, 10 B2B customers (stakeholders of the buying center), and 4 experts working for XR technology providers. Because the impact of sales technologies may differ by hierarchical level (e.g. Micallef, Keränen, and Kokshagina 2024), our sample includes interviewees from different hierarchical levels, functions, and industries. Notably, our qualitative data also allows for cross-validating salespeople's and technology experts' beliefs about the potential benefits of XR technologies from the customers' perspective.

Our findings center around a developed conceptual framework with a set of four research propositions. These findings enrich existing literature in three main ways.

First, we offer a systematic overview of the focal benefits of using XR technologies in B2B sales interactions. Specifically, we develop two research propositions on the customer- and seller-centered benefits that can be expected from using XR technologies in B2B sales interactions, ultimately contributing to salesperson performance. Customer-centered benefits comprise simplified product evaluation, enhanced buying center coordination, facilitated cocreation, and improved post-sale implementation. Seller-centered benefits comprise perceived seller and salesperson innovativeness, more persuasive storytelling, enhanced value communication, and efficiency gains from time and cost saved. As a focal customer-centered benefit, for example, interviews revealed that XR technologies substantially enhance the coordination between salespeople and the stakeholders in customers' buying centers. Here, XR technologies can help salespeople engage with different stakeholders through detailed, personalized virtual product visualizations tailored to the respective stakeholder group's needs (e.g. users, decision-makers, and buyers).

Second, we outline the primary antecedent conditions for using XR in B2B sales interactions and the impact contingencies associated with the expected benefits of doing so. Specifically, we develop two more research propositions on when implementing XR technologies is promising. Understanding requirements and boundary conditions is key for both sales research and the implementation of its findings in sales practice (Rapp and Habel 2024). This is because implementing sales technologies like XR is not costless and does not automatically drive salesperson performance (Agnihotri et al. 2023). For example, XR may be associated with substantial investments (e.g. for hardware and software). Against this background, we provide insight into antecedent conditions for its fruitful implementation and contingencies of when using XR is particularly beneficial or even counterproductive. Important antecedent conditions to consider comprise sufficient organizational resources, salespeople's and customers' adoption readiness, and product suitability. Impact contingencies to the benefits comprise the customers' decision phase and buying center complexity. Our findings suggest, for example, that the benefits of using

XR technologies are particularly pronounced in the early sales interactions (i.e. before the purchase) and after closed deals (i.e. after the purchase).

Third, with the combined perspective of antecedent conditions, benefits, and impact contingencies of XR in sales, we advance several streams in sales literature that are not directly focused on digitalization. For example, we introduce XR technologies as a response to the phenomenon of growing customer complexity, as recorded in the literature on B2B purchasing behavior (e.g. Bonney, Beeler, and Chaker 2022). As another example, we provide evidence that XR is a key example of how sales technology can facilitate buyer—seller relationships, as called for in the corresponding literature (e.g. Ahearne et al. 2022).

Conceptual background

Conceptualization of XR

XR is an umbrella term that conceptualizes different reality-enhancing technologies, most notably AR and VR. XR technologies enhance users' real world with virtual objects or even replace the real world with an immersive virtual environment (Rauschnabel et al. 2022). Despite potential differences between AR and VR technologies (e.g. type and level of presence, devices used), XR is suitable for describing use cases that stem from both (e.g. Rauschnabel et al. 2022). With some technological developments, a clear distinction between AR and VR also becomes increasingly difficult, such as with Apple's "Vision Pro" (primarily a VR device that can also be used very similar to an AR device). As such, the label XR summarizes the most important features of AR and VR (e.g. displaying and enabling interaction with virtual objects) (Rauschnabel et al. 2022).

Unique to AR is that user perceptions remain embedded in the real world. As such, Rauschnabel et al. (2022, 13) define AR as "a hybrid experience consisting of context-specific virtual content that is merged into a user's real-time perception of the physical environment." With the help of smartphones, tablets, or smart glasses, users can project virtual objects into the real world. By using AR technologies, users experience a sense of spatial presence—that is, the degree to which they perceive XR content as being actually there (Lombard and Ditton 2006).

By contrast, VR is unique because users are completely immersed in a virtual world. According to Rauschnabel et al. (2022, 13), "VR is an artificial, virtual, and viewer-centered experience in which the user is enclosed in an all-encompassing 3D space that is—at least visually—sealed off from the physical environment." When using VR glasses, users are transported to a virtual world, which induces a feeling of presence. Presence is the extent to which users feel immersed in a virtual environment, rather than a real one (Steuer 1992).

Given that this research strongly focuses on the applications of XR technologies in B2B sales, the theoretical concepts related to XR, VR, and AR are not discussed in detail in the main sections that follow. However, there is a substantial body of literature on the unique technological characteristics and psychological mechanisms primarily at work in XR experiences. In this regard, Web Appendix A provides a more detailed overview.

Common use cases of XR technologies in B2B sales

Although the focus of this research lies on the focal benefits of XR technologies used in B2B sales interactions, the various sales-related use cases of the technologies are an important conceptual background that we briefly want to cover. Closest to the focus of this research, existing studies illustrate common use cases of XR technologies in B2B contexts (e.g. Fischer, Seidenstricker, and Poeppelbuss 2023; Wieland et al. 2024). In addition, Table 1 provides a comprehensive list of B2B sales-related use cases for XR technologies (identified through, among others, expert interviews conducted as part of this study).

Qualitative methodology

General approach

We employed a qualitative, inductive research design to gain rich insights into the application of XR technologies in B2B sales. According to Corbin and Strauss (2014), this design is beneficial for areas not yet thoroughly researched and for discovering relevant insights that can later be tested through quantitative research (e.g. Zeithaml et al. 2020). Given the scarcity of empirical research on XR technologies in B2B sales, this research design is well-suited for uncovering new insights. Consistent with prior work (Challagalla, Murtha, and Jaworski 2014), we employ a grounded theory approach (Glaser and Strauss 2017) in our interviews, which are conducted with B2B salespeople, customers, and XR technology experts across various hierarchical levels, functions, and industries. Table 2 illustrates our research process.

Sampling and data collection

We selected the potential interviewees through theoretical sampling (Zeithaml et al. 2020). That is, we approached individuals with the intent of providing incremental insights concerning our RQs. This intent guided our selection of three interviewee groups: B2B salespeople, customers, and XR technology experts. As the focal interviewees, we first sampled B2B salespeople with and without XR expertise. During the interviews with XR-experienced salespeople, we drew on their usage experience with XR technologies in sales interactions. For example, we identified sales process characteristics (e.g. the phase of the customers' purchase decision) at which XR technologies are likely to deliver the most benefits. Additionally, we interviewed salespeople without XR expertise to gain insight into their perceptions on the topics of interest. In this regard, we explored how XR technologies could influence, improve, or worsen sales interactions, as perceived by the salespeople.

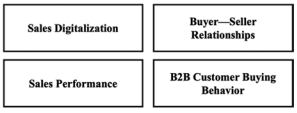
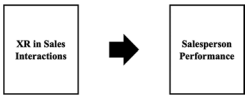
Following the initial interviews, we recognized the necessity for diverse perspectives on the topic (e.g. Lanzrath,

Table 1. Overview of common use cases of XR in B2B sales interactions.

Common sales-related use cases in B2B interactions	Suitability of XR technology type	
	VR	AR
• **Prototype visualization at exhibitions and events**: Let customers see virtual prototypes or product variants for better imagination of the seller's products	High	Medium
• **Product visualization in sales meetings**: Present product alternatives visualized by XR at the customer's production facility	Medium	High
• **Product configuration tools:** Virtually configure virtual product options (e.g. with a visual drop-down menu)	High	High
• **Spatial planning and factory simulations:** Virtually adjust products to given room layouts, such as a machinery in a factory	High	High
• **Storytelling:** Visualize background stories about products, production facilities, or companies in the XR-based product presentation	High	Low
• **Product personalization:** Visualize and select different product options directly in the XR application	High	High
• **Cross-selling support:** Show the buying center stakeholders the benefit of an additional product (e.g. a preview of additional product features)	High	Medium
• **Up-selling support:** Show a premium product (vs. basic version) and its benefits through XR	High	Medium
• **Visualization of price structure:** Virtually display the pricing structure for XR-visualized product variants or features	High	High
• **Remote (virtual) sales meetings:** Meet the customer only remotely through an XR-based call	High	Low
• **Virtual click and buy:** Select and purchase products directly within the XR experience	High	Medium
• **Product installment:** Develop detailed descriptions to install and set up new products with step-by-step instructions displaced with XR	High	High
• **Customer employee onboarding:** Offer virtual training for users in real-life situations	High	Medium
• **Remote assistance:** Equip customer's employees with AR smart glasses or VR headsets through which they can work with a seller's technician	Low	High
• **Refurbishment:** Detect and visualize product updates (e.g. machine refurbishment) with XR	Low	High

Notes: The suitability of the technology type (AR or VR) ranges from low to medium to high. The suitability assessment of either XR technology type is based primarily on interviewees' reported use cases (e.g. whether many interviewees reported frequently using a type of technology for a specific use case) and industry reports (e.g. real-world evidence beyond the interviews of firms using the technologies for a specific use case).

Table 2. Illustration of the research process.

	Process steps	Illustration	Main results
1.	Observation of technological developments and analysis of extant literature	*Technological developments in B2B sales* 	• New technologies such as XR promise to advance marketing and sales. • XR technologies have a considerable economic potential worldwide and experience increased adoption.
2.	Qualitative study with 40 depth interviews with B2B salespeople, customers (buyers), and XR technology experts Application of several data triangulation measures (e.g. workshops, member checks)	*Data triangulation (*Eisenhardt 1989*)* 	• Identification of prominent use cases, corresponding benefits, and contingencies of using XR technologies in sales interactions. • Validation of core elements from different perspectives (e.g. interviewed salespeople vs. customers). • Derivation of preliminary research propositions from the findings of the expert interviews. • First categorization of core elements in a conceptual framework.
3.	Integrating the empirical insights into existing literature streams		• Integration of insights (e.g. similarities and differences) from existing literature. • Refinement of conceptual framework.
4.	Finalization of conceptual framework and derivation of contributions and implications		• Final conceptual framework. • Specification of research contributions. • Specification of practical implications for different stakeholders.

Homburg, and Ruhnau, 2025). Thus, we included B2B customers and XR technology experts. B2B customers (with and without XR experience) helped us glean qualitative insights into their usage attitudes toward XR technologies in purchasing decisions. Technology experts tend to have a deep knowledge of the technical implementation and application of XR technologies across various industries. We conducted interviews until we reached theoretical saturation, that is, until we could no longer generate additional insights (Corbin and Strauss 2014). We recruited interviewees through various channels, such as LinkedIn and our professional networks.

Sample

The final sample of interviewees contains 26 B2B salespeople (including four marketing employees responsible for sales), 10 B2B customers (stakeholders of the buying center), and four XR technology experts. This size exceeds recommended minimum sizes (McCracken 1988) and samples of qualitative work in marketing and sales (e.g. Challagalla, Murtha, and Jaworski 2014). The final sample (Table 3) is noteworthy in three respects.

First, the sample is highly diverse in terms of industries and firm types (31 different firms covering a broad array of the B2B landscape); diversity is crucial to our research goal

Table 3. Interview sample composition of salespeople (S), buyers (B), and technology experts (T).

Interviewee characteristics	S	B	T	Firm characteristics	S	B	T
Gender				Industry			
Female	6	2	0	Machinery	9	4	0
Male	20	8	4	Chemicals	2	1	0
Job experience of respondents				Pharmaceutical and healthcare	5	0	0
<5 years	4	1	0	Technology (e.g. hard- and software)	4	0	4
5–10 years	9	4	2	Logistics	0	1	0
11–20 years	7	5	2	Automotives	0	4	0
>20 years	6	0	0	Aviation	1	0	0
Hierarchical level of respondents				Information technology	1	0	0
Leadership experience	22	7	3	Consulting	3	0	0
No leadership experience	4	3	1	Construction	2	0	0
Personal experience with XR technologies				Firm type			
XR experience	20	6	4	Large corporations (≥250 employees)	19	6	1
No XR experience	6	4	0	Small/mid-sized enterprises (<250 employees)	7	4	3

to develop insights that hold across industries from a salesperson and customer perspective and a technical standpoint (Flint, Woodruff, and Gardial 2002). Second, the sample encompasses a range of experience levels, from senior to junior positions in sales departments, buying centers, and technology companies. Hierarchy, seniority, and age may be critical contextual factors for the impact of sales technologies (Micallef, Keränen, and Kokshagina 2024). Third, the sample comprises three interviewee groups, enabling the triangulation of different viewpoints (Lanzrath, Homburg, and Ruhnau, 2025). Each group was diverse, comprising sales managers, key account managers, sales engineers, and product (marketing) managers among the sales interviewee group, while the customer interviewee group mainly included strategic, operational, and technical buyers.

Interview guidelines

We conducted the interviews using semistructured guidelines (see Web Appendix B, C, and D). On average, the interviews lasted around 40 min, yielding approximately 520 transcript (single-spaced) pages. In constructing the interview guidelines and during the interviews, we adhered to established procedures to prevent becoming co-creators of the data (McCracken 1988). To mitigate risks associated with active listening and data bias and ensure objectivity, we thoroughly designed the structure and wording of the interview questions (McCracken 1988).

We developed three distinct interview guides that are flexible enough to capture the interviewees' flow of arguments and uncover unique insights in each interviewee group (e.g. Zeithaml et al. 2020). At the beginning of the interview, we gave a short introduction to the research topic, followed by questions around six guiding topics: (1) technology trends, (2) B2B sales processes in general, (3) the influence of XR technologies on B2B sales, (4) goals and reasons for using XR technologies in B2B sales, (5) concrete XR use cases in B2B sales, and (6) hurdles and challenges of XR technologies in B2B sales.

Finally, consistent with grounded theory (Corbin and Strauss 2014), we refined our interview guidelines iteratively to ensure responsiveness to emerging insights. For example, the mentioned guiding topics were supplemented by various subtopics and optional deep-dive and follow-up questions during the interviews. Furthermore, interviewees could address other valuable themes related to the research topic at the end of their interview to avoid overlooking essential aspects (Lanzrath, Homburg, and Ruhnau 2025).

Data analysis

We followed the established qualitative data analysis procedures of Strauss and Corbin (1998), including open, axial, and selective coding. For this purpose, we used the coding software MAXQDA. Specifically, we analyzed the interview data in three steps. First, we used open coding (for each transcript line) to cluster the data into different themes. This step aims to obtain unique insights by using new ways of seeing, thinking about, and interpreting the data (Corbin and Strauss 1990). In our case, we identified the main common themes (i.e. subcategories) in the interviews, such as specific requirements or benefits associated with using XR in sales interactions. Second, we performed axial coding by drawing connections between the codes identified in the first step. We linked subcategories to the corresponding superordinate category (e.g. customer-centered benefits). Third, we used selective coding ("all categories are unified around a 'core' category"; Corbin and Strauss 1990, 14). In our case, we linked the subordinate and superordinate codes from the interviews to an aggregated, overarching conceptual framework. This framework categorizes the antecedent conditions, benefits, and contingencies of using XR in sales, with the key phenomenon of interest being the determinants of salesperson performance related to XR in B2B sales interactions. Web Appendix E provides an overview of the main categories from the interview analysis.

Research rigor

To ensure the quality of the data (analysis), we adopted common evaluation criteria for qualitative research in sales (e.g. Bonney, Beeler, and Chaker 2022; Lanzrath, Homburg, and Ruhnau 2025). Next, we evaluate each criterion and how it helps establish trustworthiness.

Triangulation

We relied on data and investigator triangulation to obtain holistic findings and more comprehensive data across industries and countries, and to increase validity. For data triangulation, in line with qualitative research in sales (Lanzrath, Homburg, and Ruhnau 2025), we augmented our interview

insights in several ways. More precisely, we derived our insights from three interview groups to develop a holistic picture of our research topic. Furthermore, our selected interviewees work at companies in different industries (e.g. construction, healthcare), which informed our findings. We conducted cross-national interviews with companies from Germany, the United Kingdom, and Canada, consistent with prior qualitative research (e.g. Challagalla, Murtha, and Jaworski 2014). For further data triangulation, we continuously scanned press releases regarding the use of XR technologies in B2B sales and marketing. We compared them with insights from our interviews to avoid omitted variables in our research (e.g. Lanzrath, Homburg, and Ruhnau 2025).

For investigator triangulation, two researchers independently coded the data. After each interview, we discussed code consistency. Finally, we calculated the intercoder reliability at .86, exceeding suggested thresholds (Perreault and Leigh 1989).

Retest reliability

We included only aspects in our data analysis that multiple interviewees mentioned to ensure the reliability of the findings. With the help of range-spanning questions in the interviews, we considered the entire spectrum of constructs (e.g. very high to very low) (Zeithaml et al. 2020). For example, if some respondents indicated that high technological affinity of B2B customers strengthens the benefits of XR technologies in sales, we asked other respondents (or the same ones later in the interview) about the consequences of low technological affinity.

Content validity

To further enhance the trustworthiness of our findings, we checked our data for content validity. Thus, we sent out a summary of our interview findings to the respondents for review, thereby employing member checks (Colm, Ordanini, and Bornemann 2020). This step ensures that the interpretation of the findings reflects the interviewees' intentions and is not due to methodological errors. Overall, the interviewees strongly agreed with our interpretation of the interview insights. After data collection, we discussed and verified our findings and their practical relevance in three workshops with experts of each interviewee group, further supporting content validity (Ulaga and Eggert 2006).

Conceptual framework and research propositions

The following results sections present the findings from our expert interviews related to our RQs. Figure 1 illustrates an integrated conceptual framework for using XR technologies in B2B sales interactions. Following a similar presentation of qualitative findings in sales literature (e.g. Johnson 2024), the conceptual framework outlines the required antecedent conditions of XR technologies (RQ1), potential benefits (RQ2), and impact contingencies associated with them (RQ3).

At the heart of the conceptual framework and as an overarching categorization of benefits, we identify customer-centered versus seller-centered benefits (see again Figure 1). The benefits that we identified through our expert interviews primarily relate to the counterfactual of not using XR technologies in sales, such as in conventional sales meetings or digital calls. In line with extant sales literature, our findings relate to the fact that sales-relevant outcomes may exist at different levels, such as customer versus salesperson (e.g. Johnson 2024) or salesperson versus selling company (e.g. Micallef, Keränen, and Kokshagina 2024). For example, the innovativeness signaled by using XR (see Figure 1 and the corresponding findings section) can relate both to the salesperson using the technology and the selling company (seller) overall. It is noteworthy that both customer-centered and seller-centered benefits may ultimately contribute to salesperson performance, although their primary locus differs. For example, the finding that customers' internal buying center coordination is facilitated when using XR in sales is a benefit that primarily relates to a process at the customer's end. Nevertheless, it is a benefit that is also desirable from the seller's perspective, as it ultimately supports closing a sale altogether. Therefore, the categorization of benefits does not imply that, for example, customer-centered benefits are exclusively desirable from the customers' perspective. In other words, given the sales focus of the framework, all benefits are directly relevant to sellers and salespeople.

Beyond categorizing benefits, the conceptual framework outlines the necessary conditions for implementing XR technologies in B2B sales interactions (i.e. antecedent conditions) and identifies situations where doing so is particularly beneficial (i.e. impact contingencies) (see Figure 1 again). Antecedent conditions primarily relate to the likelihood of success of XR implementation in sales. Impact contingencies relate to the range and level of expected benefits from XR implementation in sales.

Tables 4, 5, and 6 summarize our findings related to the conceptual framework and provide further supporting quotes from the expert interviews. With the conceptual framework, we derived four research propositions from the expert interviews related to the proposed antecedent conditions (P1; findings summarized in Table 4), benefits (P2 and P3; findings summarized in Table 5), and contingencies (P4; findings summarized in Table 6) of using XR in B2B sales interactions. We present these propositions at the end of the corresponding sections, that is, after presenting the individual parts of the derived propositions.

Antecedent conditions of XR in B2B sales interactions

For the successful implementation of XR in B2B sales interactions, our interviews revealed four main antecedent conditions: (a) organizational resources, (b) salesperson adoption readiness, (c) customer adoption readiness, and (d) product suitability.

Organizational resources

As a focal antecedent condition, the interviews revealed that the seller's organizational resources are crucial for

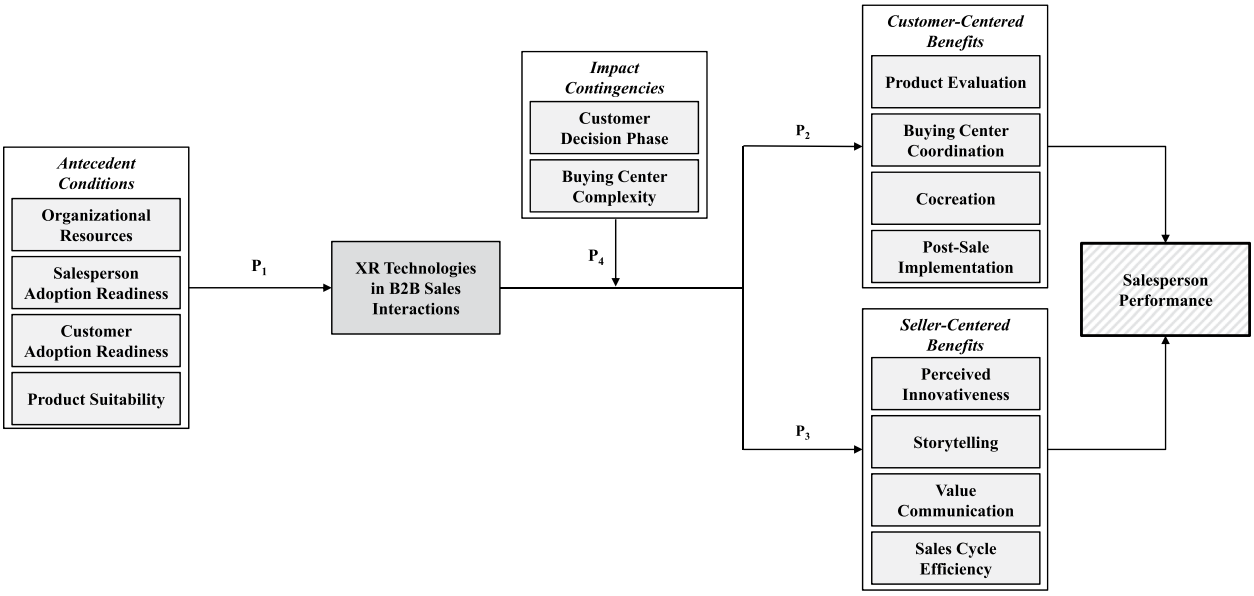


Figure 1. Conceptual framework of using XR technologies in B2B sales interactions.

Table 4. Interview results on RQ1: Antecedent conditions of using XR technologies in B2B sales interactions.

Condition	Description	Illustrative quotes
Antecedent conditions (P1): Proposed antecedents of successful XR technology usage in B2B sales interactions		
Organizational resources	The seller's organizational resources are crucial to support the implementation of XR in B2B sales interactions.	*When it then comes to [XR] implementation for the company across the entire product portfolio, there is always a great deal of astonishment at the effort involved, the costs involved, and the time involved.* *[The XR application] has to be superbly crafted, including the audio. This is also something that is completely underestimated.* *On the customer side, there has to be a certain infrastructure upgrade. There will have to be internet bandwidths, there will have to be some kind of equipment purchased. … But I think the main push and the initial investments must take place on the seller side.* *The big challenge is the devices at the end of the day. I would say that a mobile phone is too small. And our customers don't always have an iPad [or smart glasses], so that's a problem.*
Salesperson adoption readiness	Salespeople's adoption readiness is crucial to the implementation of XR in B2B sales interactions.	*Honestly, our employees are more of a problem than the customer. As I said, our employees have been answering cases on the phone for 20 or 30 years. That's their job. And now we suddenly say: "We need to do something* via *virtual video." And you know how it is with new technologies. It's always problematic at the beginning.* *As with all things, [XR technologies represent] a change. Nobody likes to change. And it is obvious that there is the hesitation of the staff that [XR technologies] work and that they are a good tool.* *The customer puts on his glasses and is gone for a while. That is a stupid situation because the salesperson stands beside the customer and does not participate directly. It's an artificial and unfamiliar situation [for many salespeople].*
Customer adoption readiness	Customers' adoption readiness is crucial to the implementation of XR in B2B sales interactions.	*Especially with the cultures I work with, Southern and Eastern Europe, [meeting customers in person makes a big difference]. That affects the business relationship. I would worry that it would no longer work so well if you communicated only* via *digital media [such as XR].* *[Potentially, when implementing XR customers say], "Come on, stay away from me with this newfangled stuff." There are certainly customers who say: "No, I don't want that." But I would guess that the vast majority would be very happy to take advantage of this.* *Acceptance varies … The chemical industry is highly conservative. It always takes longer to implement such processes.*
Product suitability	Against the background of necessary technological investments, implementing XR in B2B sales interactions is generally more promising in the context of high-involvement products.	*I believe this technology must be used more in areas where costly mistakes can be avoided. With this technology, you can simulate [functionalities] very well. Quality inspection is what we call it, or remote inspection. [Here you will find] an unbelievably great added value.* *[Using XR] doesn't make sense when products are not so complex. Then the investment is not worth it.* *[The suitability of using XR] depends on the degree of complexity of a machine. Of course, the more complex it becomes, the more beneficial it is for explaining something.* *[Implementing XR] depends more on the product itself and in what context you use or apply it, and how complex it is. I say, if I'm selling a screw, I probably don't need virtual reality. Or augmented reality. But, as I said, if I'm selling something that I have to put into some context or that I have to explain, then, of course, AR and VR make sense.*

Table 5. Interview results on RQ2: Benefits of using XR technologies in B2B sales interactions.

Benefit	Description	Illustrative quotes
Customer-Centered Benefits (P2): Proposed consequences of XR technology usage in B2B sales interactions on the customer side		
Simplified product evaluation	Using XR technologies in sales interactions simplifies customers' evaluation of products through an enhanced understanding of product features.	*[With XR] we have the option of visualizing what [the customer's product] will look like in 3D, and we also have the option of going inside the product. We also have the opportunity to see how [the product really works].* *In the end, [using XR] is also about how I can better provide information to the customer.* *I think it's a good way for the customer to get an overview first. Better than PowerPoint. Because you can really visualize how big the products are. You can even bring them directly into the lab premises. If you make a 3D scan of the lab beforehand, you can recreate the lab one-to-one. And you can show what it will look like in the customers' lab.*
Enhanced buying-center coordination	Using XR technologies in sales interactions enhance the customers' internal coordination of buying center stakeholders.	*You can reach a broad number of stakeholders within the buying center by experiencing the supplier's virtual production facility. In such a [VR-enabled] process, everyone is involved: the development, the production, the supply chain management, the purchasing, the quality assurance, and so on.* *We regularly have conflicts between the various stakeholders in the buying center, such as procurement and the users. AR can be a building block for bringing different perspectives closer together. Of course, you also need a certain level of expertise, but it can help resolve conflicts more easily.* *I think that [with XR] conflicts within the buying center can certainly be improved and fundamentally reduced.*
Facilitated cocreation	Using XR technologies in sales interactions facilitates customers' engagement in product cocreation.	*You can keep a [product feature selection] list in the background [in the XR application] where you can select components, together with the customer, which will be added to the machine. Based on this, you can automatically generate a price. And ideally, you might even get a technical specification of all the parameters for the machine. Remote installed engine power, which transmission, which color, and so on.* *This personalization and showing the customer how it will look [with the help of XR] adds a lot of value. Because that also creates security for the customer. That is a decisive factor in winning customers.* *We build a tool where he can set up his layout and then plug in elements …. I think there's a huge opportunity. And then we are in this co-creation, or more precisely, co-production. We shift a little bit of the sales process to the customer.*
Post-sale implementation	Using XR technologies in sales interactions facilitates customers' post-sale implementation related to product usage.	*You're able to onboard [employees] quicker [with XR technologies]. You don't have to send a technician out because they might be able to deal with [the onboarding] remotely.* *Smart glasses [make] customer service quicker. Our customers want minimum machine downtime. That's where XR technologies help because the customer doesn't have to wait for a technician to come on-site.* *We can train our customers already on the new system with VR glasses or with a VR connection that can be transmitted to a large screen before the system reaches the customer.*
Seller-centered benefits (P3): Proposed consequences of XR technology usage in B2B sales interactions on the seller side		
Perceived seller and salesperson innovativeness	Using XR technologies in sales interactions leads to high perceived seller and salesperson innovativeness.	*The reputation you create [by using XR technologies] is crucial. [Our company] is regarded as one of the leading industrial service providers in digitalization because we have been doing this for a long time.* *At first, we certainly tend to opt for a supplier that offers [XR]…. [For companies that do not use XR], you say: "Okay, then we'll have a company in the future that's not quite so innovative, which might not benefit us so much in the future."* *I would say that [XR technologies help you] set yourself apart from your competitors if they don't have it.*
Persuasive storytelling	Using XR technologies in sales interactions improves salespeople's storytelling effectiveness.	*We're developing a VR experience that represents the product differently. … Customers get to know the founder of a company; they go through the workshop with him virtually by using XR. Then, they can tell the product's story because they have experienced it. [We call this] story-living.* *With the help of XR technologies, customers can be transported into the future. So, they can see the vision that they might have or that I might have been able to convey. It suddenly becomes tangible, touchable. And that does something to the customer.* *And then suddenly, I'm not just selling the [product], a really expensive one, but I have a story to go with it, and I've experienced it. … I can give customers an XR Pod, where they can immerse themselves. … In my view, this story-living is very important. I have experienced it. I was there. I've seen how it works.*
Enhanced value communication	Using XR technologies in sales interactions facilitates salespeople's communication of the value of product alternatives.	*[XR technologies make it] certainly possible to show different variants, which means you can cross over into other product categories.* *Imagine upselling. Simply saying, okay, [this first product] is now just the standard variant. If you want it to be even faster, bigger, better, and improve your cycle times even more, switch to the [other product variant]. Or add a [this feature] to increase efficiency or productivity.* *I can visualize different product scenarios digitally, that is, in virtual or augmented reality, and compare them more easily.*
Improved sales cycle efficiency	Using XR technologies in sales interactions implies efficiency gains for sellers and salespeople in terms of time and costs.	*We can serve more customers in a shorter time [with the help of XR technologies] because we do not waste any traveling time.* *There is an internal productivity increase [with XR technologies], so higher performance for the seller.* *[An XR-enabled meeting] is timesaving, of course, because you can already rely on the focus products pretty quickly. The selection process will probably also be reduced accordingly in terms of time.* *A technology like the HoloLens is ideal for [remote assistance]. And because [salespeople] no longer have to travel, or no longer have to travel as much, they immediately save on travel costs by using it, which means the use case pays for itself extremely quickly.*

Table 6. Interview results on RQ3: Contingencies to the benefits of using XR technologies in B2B sales interactions.

Contingency	Description	Illustrative quotes
Impact contingencies (P4): Proposed boundary conditions to the benefits of XR technology usage in B2B sales interactions		
Customer decision phase	The benefits of using XR in sales interactions are more pronounced during the pre-purchase and post-purchase phases and less pronounced during the purchase phase.	*The productivity gains [from XR arise, in particular,] from quicker processing in the pre-sales phase or through quicker product installation [in the after-sales phase].* *At the trade fair, it was an eye-catcher. Our customers were thrilled because … they didn't just see our products on a screen. Instead, they were inside the machine, flying through it with lots of action. And that definitely impresses the customer.* *[XR is a] great tool for enhancing customer loyalty. [Since we use XR technologies] customer loyalty has certainly increased.* *We can also differentiate ourselves from the competition [by using XR technologies]. We can create an outstanding experience or a unique selling point with the XR solution. For example, in after-sales, you can create strong customer loyalty for the future.*
Buying center complexity	The benefits of using XR in sales interactions are more pronounced for complex buying centers.	*[Using XR technologies is] highly interesting for buying organizations that are centrally structured and where the places of operation are global. In other words, the German purchaser buys a machine for a user in Brazil. And the maintenance provider is also located in Brazil. Therefore, bridging of spatial distance is required.* *AR can help us generate a certain proximity to the product in a context where we are very decentralized [as a buying center]. Here, I would expect AR to be able to explain the product to me better than a PowerPoint presentation.* *[In our particular buying center, there is a large audience] … There are medical-technical employees and non-medical-technical employees from the IT department. They've been invited because they'll be involved in the implementation at some point but not in the project. … And the moment they all sit at the table [and see the product visualized through XR], something happens. That's when the spark is created.*

implementing XR in B2B sales interactions. That is, successfully implementing XR in B2B sales interactions requires sufficient organizational resources.

In this regard, interviewees highlighted the importance of technological investments and managerial support at the seller company. In terms of technological investments, interviewed experts mentioned the need for appropriate hardware (e.g. VR headsets) and software (e.g. virtual content for the XR application), and that suitable technological infrastructure is essential to exploit the benefits of XR in sales. For example, developing virtual content is complex and requires the development of internal expertise or outsourcing to specialized media agencies. A salesperson from the technology industry explained:

> *When it comes to [XR] implementation for the company across the entire product portfolio, there is always a great deal of astonishment at the effort involved, the costs involved, and the time involved.*

Many interviewees also emphasized that immature hardware (e.g. uncomfortable devices) and software (e.g. low-quality resolution) are significant barriers to a successful implementation of XR in B2B sales interactions. An XR technology expert summarized:

> *You can throw most VR experiences in the bin because they are simply of poor quality. The quality has to be high; that's a decisive factor.*

As sellers cannot always expect customers to have the necessary hardware themselves, sellers may also need to provide customers with the hardware, for example, used for after-sales services. An expert from a large consulting firm explained:

> *On the customer side, we can say there has to be a certain infrastructure upgrade, too. There will have to be internet bandwidth, and there will have to be some kind of equipment purchased. … But I think the main push and the initial investments must take place on the seller side.*

In terms of managerial support, interviewees identified several factors that are crucial for successfully implementing XR in B2B sales interactions. Sales experts explained that training (e.g. courses on XR usage) and motivating (e.g. monetary incentives) salespeople are critical. Training may be necessary as handling AR smart glasses or VR headsets, for example, significantly differs from using smartphones or tablets. Training should also entail communicating the necessary changes related to adopting XR technologies in sales. This can be achieved, among others, by sharing best practices for when and how to use XR technologies (e.g. depending on the purchasing decision phase or buying center complexity). Salespeople also reported that managerial support is particularly important during initial attempts to use XR technologies in sales interactions, where the benefits may not be immediately apparent. A salesperson from the technology industry succinctly concluded:

> *[The internal implementation of XR is] a real change management process.*

Salesperson adoption readiness

As another focal antecedent condition, the interviews revealed that salespeople's adoption readiness is crucial to the implementation of XR in B2B sales interactions. That is, successfully implementing XR in B2B sales interactions requires that the salespeople involved are broadly open to adopting the new technology despite potentially implied changes in the sales process.

Under conditions where most salespeople are reluctant, attempts to implement XR technologies in sales interactions may be more challenging and less promising, even with sufficient organizational resources. While some salespeople fear that technologies like XR threaten to replace them, others are just skeptical of the implied change of sales processes, and again, others have doubts about XR's usefulness for

sales. The following quote by a sales manager exemplifies an experience echoed by many interviewees:

> *Honestly, our employees are more of a problem than the customer. As I said, our employees have been answering cases on the phone for 20 or 30 years. That's their job. And now we suddenly say: "We need to do something via virtual video." And you know how it is with new technologies. It's always problematic at the beginning.*

Interviewees also highlighted that many experienced but less technologically inclined salespeople are reluctant to use new technologies overall, including XR technologies. A senior sales manager from the machinery industry explained that for many salespeople, XR technologies may create situations that are unfamiliar at first:

> *The customer puts on his glasses and is gone for a while. That is a stupid situation because the salesperson stands beside the customer and does not participate directly. It's an artificial and unfamiliar situation [for many salespeople].*

Customer adoption readiness

As a focal antecedent condition analogous to salesperson adoption readiness, the interviews revealed that customers' adoption readiness is important to the implementation of XR in B2B sales interactions. That is, successfully implementing XR in sales interactions depends on whether the customers concerned are open to XR usage in these sales interactions.

Implementing XR technologies in sales may be disruptive and differs significantly from what most customers are accustomed to, even if digital interactions have become an essential part of today's sales environment (e.g. via digital calls). In extreme cases where customers have a strong preference against digital technologies, introducing XR technologies to sales interactions may even be counterproductive. A sales manager from an automotive supplier explained that for customers from certain regions with low adoption readiness, conventional sales interactions are more beneficial:

> *Especially with the cultures I work with, Southern and Eastern Europe, [meeting customers in person makes a big difference]. That affects the business relationship. I would worry that it would no longer work so well if you communicated only via digital media [such as XR].*

Relatedly, interviewed salespeople reported that while some customers are very open to using XR technologies in sales interactions, other customers are skeptical about their added value. A related risk is that these customers dismiss the technology as a gimmick, as a sales manager from the machinery industry illustrated:

> *Then this hurdle arises: Does it come across as a gimmick? And gimmickry is not necessarily conducive to the sales process.*

Salespeople also reported that the benefits of XR technologies for sales interactions are difficult to realize with customers who have low adoption readiness, as these customers tend not to have the patience to get accustomed to XR technologies (e.g. setting up VR glasses for product visualization). Thus, for these customers, implementing XR technologies successfully is more challenging. In extreme cases, these customers may lose interest in the purchase altogether. One senior sales manager from the machinery industry noted:

> *If the customer says, "I had to do three tutorials now" before using it, then he is only interested if the benefit is immediately recognizable. Our clients are very operational. One moment, they are negotiating for the order; the next, they are dealing with machine downtime.*

Product suitability

As a last focal antecedent condition, the interviews revealed that a seller's products are important consideration factors in the implementation of XR in B2B sales interactions. That is, against the background of necessary technological investments, implementing XR in B2B sales interactions is generally more promising in the context of high-involvement products. High-involvement products typically imply longer and more complicated purchase decisions, as well as relatively higher investments (e.g. Hochstein et al. 2019). For example, in B2B settings, these could be technically complex products such as an enterprise resource system or manufacturing equipment. For such high-involvement products, it is more likely that the benefits associated with XR usage in sales interactions warrant the upfront investments in the technology. For example, a salesperson explained:

> *I believe this technology must be used more in areas where costly mistakes can be avoided. With this technology, you can simulate [functionalities] very well. Quality inspection is what we call it, or remote inspection. [Here you will find] an unbelievably great added value.*

In contrast, for low-involvement products (e.g. the purchase decision is straightforward, prices are lower, and there is a low purchasing risk), the incremental benefits of XR technologies over conventional sales interactions may not be able to compensate for the necessary investments in the technologies. A salesperson working in the IT industry specified:

> *[Using XR] doesn't make sense when products are not so complex. Then the investment is not worth it.*

A salesperson from the medical industry concurred:

> *Using VR is really not worth it if I sell something like a mini product or so. What I mean is that the suitability [of the technology] is associated with product complexity and size.*

To summarize the findings described in the sections above, our interviews revealed four focal antecedent conditions for successfully using XR technologies in B2B sales interactions (i.e. related organizational resources, salesperson and customer adoption readiness, and product suitability). Thus, we derive the following proposition:

> **P1**: Successfully using XR technologies in sales interactions depends on the right antecedent conditions. These conditions include (a) organizational resources, (b) salesperson adoption readiness, (c) customer adoption readiness, and (d) product suitability.

Customer-centered benefits of XR in B2B sales interactions

As a result of successful XR implementation in B2B sales interactions, our interviews revealed four main customer-centered benefits: (a) simplified product evaluations, (b) enhanced buying center coordination, (c) facilitated cocreation, and (d) improved post-sale implementation.

Simplified product evaluation

Our interviews revealed that one of the focal benefits of using XR technologies in B2B sales interactions is that customers' product evaluation is simplified. That is, customers consistently reported in the interviews that XR technologies simplify understanding the products that a seller offers more thoroughly. Compared with conventional product presentations, sales managers use XR technologies to present products and their components with much more realistic, immersive, and vivid visualization. A salesperson explained:

> *You can virtually enter a [product], see how it works, and how big or small it is. What quality is behind it, and what materials?*

For example, XR allows customers to inspect a virtual prototype of a product three-dimensionally and vividly—in contrast to two-dimensional, static pictures of a product in a PowerPoint presentation or physical catalog. Such visualization allows for a detailed understanding of how the seller's product can be integrated into the customer's production facility (e.g. the interplay between existing and potential new machines). A buyer described:

> *With XR, I can check if I can even reach this button that's back somewhere on a panel. Or do I have to walk three steps to it? Can I see the relevant information from the position where I work?*

In other words, XR-based visualization enables customers to understand a product's functionalities and suitability much more easily. An interviewed buyer from an automotive company who is responsible for car safety systems explained:

> *[When visualizing the product through XR,] the product complexity is reduced, especially in software procurement, which is much easier to imagine than if it is only presented on a PowerPoint.*

Given the improved visualization, XR technologies also make differences between customers' expectations and the seller's product more apparent. The resulting reconciliation between customers' expectations and the seller's product prevents misunderstandings, for example, about whether the offered product really fulfills customers' purchasing criteria. Consequently, customers have a lower purchasing risk associated with the offered product (e.g. avoiding the purchase of an unsuitable product) because the evaluation of product features is simplified. One buyer responsible for steel and aluminum components explained:

> *One of the biggest advantages [of using XR in the sales process] is, from the buyer's point of view, preventing a lousy decision simply by not understanding it completely.*

Enhanced buying center coordination

As another focal benefit of using XR technologies in B2B sales interactions, interviewees revealed that customers' internal coordination of buying center stakeholders is enhanced. In B2B sales, there are often different customer stakeholders involved in the purchasing decision (i.e. a buying center exists). These stakeholders may have different roles and expertise, such as buyers (e.g. responsible for contracting), decision-makers (e.g. responsible for product selection), and users (e.g. ultimately working with the product) (Webster and Wind 1972).

Specifically, XR technologies may enhance the internal coordination of the buying center because they are powerful in presenting information tailored to the different stakeholder groups in a buying center. For example, compared with conventional sales interactions, VR-based product simulations may virtually bring together buying center stakeholders and enable virtual collaboration and communication, such as for the joint selection and configuration of products. One interviewed buyer from the machinery industry described a VR-based facility tour offered during a sales interaction:

> *You can reach a broad number of stakeholders within the buying center by experiencing the supplier's virtual production facility. In such a [VR-enabled] process, everyone is involved: the development, the production, the supply chain management, the purchasing, the quality assurance, and so on.*

In such XR-enabled collaboration, salespeople can more easily consider the individual needs for information of the respective stakeholders. Many interviewees explained that providing stakeholder-tailored information is a vital benefit of XR technologies, as buying center stakeholders regularly differ in their information requirements depending on their role(s). For example, while buyers may want to obtain comprehensive information on product options (e.g. financial figures, compatibility with budget restrictions), the primary focus of users may be on the product itself (e.g. product features, onboarding effort, impact on established processes). Relatedly, an accounting employee who is involved in the purchasing decision may have a different level of technical expertise than an engineer who is the potential user of a product. XR-based visualization of a product may also help both salespeople and users to explain product requirements and differences to stakeholders with less expertise. As an example, instead of reading complex technical manuals, a customer stakeholder can put on a VR headset and virtually interact with the product, explore its components, and see animated demonstrations of how this product variant and other variants operate.

Interviewed customers confirmed that using XR in sales interactions strongly supports the internal coordination of buying center stakeholders. For example, a procurement manager for parking assistance systems at a car manufacturer illustrated that AR-enabled product visualization helps avoid misunderstanding or conflicts among buying center stakeholders:

> *We regularly have conflicts between the various stakeholders in the buying center, such as procurement and the users. AR can be a*

building block for bringing different perspectives closer together. … [AR] can help resolve conflicts more easily.

Importantly, sales-related XR solutions may even enable buying centers to evaluate product options without the permanent presence of a salesperson (i.e. asynchronously). Some interviewed customers explained that AR visualizations, for example, could be used outside of formal sales meetings to allow a more informal discussion among the buying center stakeholders about the product features and options. A purchasing expert described:

[Exploring the AR environment on their own would allow] the buying team to look at a [product solution] and openly discuss it. Without being bugged by the salesperson. This enables an honest discussion and better feedback within the buying team. … So, it's certainly an advantage if the buying side can have the AR experience without the salesperson.

In summary, the interviews revealed that XR enhances buying center coordination, ultimately contributing to fewer internal conflicts, better product evaluation, and faster purchasing decisions.

Facilitated cocreation

Another customer-centered focal benefit is that using XR technologies in sales interactions facilitates customers' product cocreation, that is, the active participation of the customer in personalizing the product to their specific needs. The interviewed salespeople confirmed that cocreation is very important in many B2B sales settings and that XR technologies can generate significant customer benefits in this regard. One prominent use case is XR configuration tools through which customers can vividly select additional product features to a base variant or choose between alternative variants, based on their individual needs and requirements. For example, salespeople can use AR-enabled tablets or smart glasses to scan existing products in customers' facilities and instantly show visualizations of potential products that are tailored to their needs. A salesperson illustrated the XR-based cocreation:

You can keep a [product feature selection] list in the background [in the XR application], where you can select components, together with the customer, which will be added to the machine. Based on this, you can automatically generate a price. And ideally, you might even get a technical specification of all the parameters for the machine. Remote installed engine power, which transmission, which color, and so on.

Similarly, through a factory simulation with XR smart glasses, customers can plan and project new products directly in their production facility. One product manager from a supplier in the medical industry stated how important XR-enabled cocreation is for closing a sale:

This personalization and showing the customer how it will look [with the help of XR] adds a lot of value. Because that also creates security for the customer. That is a decisive factor in winning customers.

Improved post-sale implementation

As one of the focal benefits, interviewees reported that using XR technologies in sales interactions improves post-sale implementation on the customers' side. Specifically, XR technologies may reduce the monetary and temporal costs for important post-sale implementation tasks related to product usage, especially when customers are distant from the sellers. For example, for new product installation and employee training, XR technologies can (partly) replace necessary onsite visits from the seller after the sale. With XR technologies, such as smart glasses or VR headsets through which the seller provides guidance, customers may be able to install and set up a new machine in their production facility on their own. A customer from a utility tool–producing company explained:

You're able to onboard [employees] quicker [with XR technologies]. You don't have to send a technician out because they might be able to deal with [the onboarding] remotely.

Another interviewed customer concurred, specifically describing how XR may help new employees working with previously purchased machinery:

Right now, what I can see for the VR spectrum is that if there's a brand-new employee, [XR] really helps him. He can have training on it and identify the different parts of the machine.

Moreover, XR technologies enable powerful remote, real-time product support so that sellers can offer timely maintenance and other services related to customers' continued product usage. A vice president of technical services of a machinery firm explained:

Smart glasses [make] customer service quicker. Our customers want minimum machine downtime. That's where XR technologies help because the customer doesn't have to wait for a technician to come on-site.

Relatedly, an owner of a family business in sheet metal production described how sellers can instruct customer employees for product maintenance through XR-enabled visualization:

In after-sales, I can imagine it very well for maintenance. Either with a person on the opposite side who says, "Here we have to look at [this or that]" [or] an automatic program running through and saying, "Here, this is step one, step two [etc.]." That's very practical because the tasks are very complicated.

In a similar vein, other interviewees emphasized how useful XR technologies can be in avoiding downtimes in customers' production processes, as the following quote illustrates:

Regarding remote monitoring, [XR technologies] result in faster problem-solving. Customers always need to produce again as fast as possible. You have to imagine that most chemical plants or many chemical plants produce 24 hours a day, 365 days a year. Every minute that the plant stands still is a loss for the customer. It's about speed, the availability, and transport of knowledge.

To summarize the findings described in the sections above, our interviews revealed four focal seller-centered benefits related to the use of XR technologies in B2B sales interactions (i.e. related to product evaluation, buying center coordination, cocreation, and post-sale implementation). Thus, we derive the following proposition:

P2: Using XR technologies in sales interactions supports salesperson performance through customer-centered benefits. These

benefits include (a) simplified product evaluation, (b) enhanced buying center coordination, (c) facilitated cocreation, and (d) improved post-sale implementation.

Seller-centered benefits of XR in B2B sales interactions

Apart from customer-centered benefits, our interviews revealed four main seller-centered benefits as a result of successful XR implementation in B2B sales interactions: (a) perceived seller and salesperson innovativeness, (b) persuasive storytelling, (c) enhanced value communication, and (d) improved sales cycle efficiency.

Perceived seller and salesperson innovativeness

As one of the focal seller-centered benefits, many interviewees reported that XR usage in sales creates a high level of perceived innovativeness. That is, both the salesperson and the selling firm strongly signal competence regarding technological innovations. Compared with conventional sales presentations, for example, XR-based simulations enable customers to be fully immersed in a company's virtual products in three dimensions. Relatedly, many interviewees reported that XR usage in sales interactions creates a "wow effect" that catches customers' attention, as one sales manager from a company in the steel industry described:

> *Using the VR glasses has this wow effect. It impresses [the stakeholders of the buying center]. The buying center is in the middle of a product experience instead of just "there."*

According to many salespeople in our sample, the innovativeness associated with an XR-enabled sales approach is an effective way to set the seller apart from competitors. That is, the perceived innovativeness related to XR usage ultimately affects customers' purchase decisions. For example, one senior key account manager from the engineering industry noted:

> *The reputation you create [by using XR technologies] is crucial. [Our company] is regarded as one of the leading industrial service providers in digitalization because we have been doing this for a long time.*

Importantly, the interviewed customers confirmed the interviewed salespeople's intuition that the use of XR evokes an innovative image of the seller and the salesperson—and that this image matters for the purchase decision. For example, one B2B buyer from a company in the machinery industry explained:

> *At first, we certainly tend to opt for a supplier that offers [XR]…. [For companies that do not use XR], you say: "Okay, then we'll have a company in the future that's not quite so innovative, which might not benefit us so much in the future."*

Persuasive storytelling

As another focal seller-centered benefit, the interviews revealed that using XR technologies may strengthen the persuasiveness of the salesperson's storytelling in sales interactions. That is, beyond the provision of factual information about products and product features, sellers and salespeople often aim to create an emotional bond with (potential) customers, such as by telling a story about the seller's heritage or past successes (e.g. Gilliam and Flaherty 2015). According to both salespeople and customers, XR technologies are powerful tools for storytelling, as they bring products and the selling firm "to life" in the customers' minds, clearly setting XR-based storytelling apart from conventional tools like a PowerPoint presentation. For example, XR-based simulations and presentations can transport customers to a virtual world with vivid stories about the offered product, the seller's firm history, the production processes, or the origin of the product's raw materials.

Based on the storytelling capabilities of XR technologies, salespeople reported that XR may help build an emotional bond between seller and customer. Two experts explained:

> *We're developing a VR experience that represents the product differently. … Customers get to know the founder of a company; they go through the workshop with him virtually by using XR. Then, they can tell the product's story because they have experienced it. [We call this] story-living.*

> *With the help of XR technologies, customers can be transported into the future. So, they can see the vision that they might have or that I might have been able to convey. It suddenly becomes tangible, touchable. And that does something to the customer.*

Enhanced value communication

As one of the focal seller-centered benefits, the interviews revealed that XR technologies are beneficial for communicating the value of product alternatives, such as during cross- and up-selling efforts. Specifically, salespeople can use XR technologies to present the added value of add-ons or higher-priced variants more comprehensibly and convincingly. Interviewees highlighted that with their more vivid, three-dimensional presentations, XR technologies help customers understand the benefits of different product variants much better than conventional presentations. For example, one sales expert explained:

> *The problem with upselling is that a business customer often buys a product [and does not know how it works]. If you can show the product in action [through XR technologies] … in the place where it will be actually used later, it becomes easier to understand.*

Two other salespeople concurred:

> *[XR technologies make it] certainly possible to show different variants, which means you can cross over into other product categories.*

> *We can simply integrate an upselling option or upgraded premium product variant into the VR environment. And then we show the customer how great everything works and how great it fits to his [production environment]. Clearly, you can use it to better explain to them the benefits [of the premium variant].*

Our customer interviews confirmed salespeople's intuition that XR technologies enhance value communication. Customers stated, for example, that XR-enabled communication tends to increase their openness to complementary

products or higher-priced product variants. Related to up-selling, for example, customers can use XR visualizations to understand how old machinery can be upgraded and more easily imagine the benefits of the upgraded product. For example, one buyer from the automotive industry explained:

> *A major topic now is machine refurbishment. Old, mechanically good machines are brought up to state-of-the-art. In this case, I always have this Pokémon Go image in mind: I'm looking at my plant with my cell phone, and suddenly, the plant grows some attachment, for example, a new aggregate.*

Improved sales cycle efficiency

As the last of the focal seller-centered benefits that emerged from our interviews, utilizing XR technologies in sales interactions implies efficiency gains for sellers and salespeople in terms of time and costs. In terms of time, salespeople can conduct a higher share of sales interactions remotely with XR technologies—without compromising the quality of the sales interaction. That is, XR technologies enable powerful sales interactions (e.g. see again the section on customer-centered benefits) without salespeople necessarily being present at the customer's premises, for example, in the after-sales phase. With more sales interactions happening remotely, enabled by XR, salespeople save a considerable amount of time traveling. One sales manager from the chemical industry summarized:

> *We can serve more customers in a shorter time [with the help of XR technologies] because we do not waste any traveling time.*

Moreover, interviews revealed that XR technologies enable customers to see compelling digital prototypes that are significantly cheaper than physical prototypes. Relatedly, interviewees reported that salespeople are likely to save time because customers' purchasing decision is accelerated with XR usage (e.g. see the section on simplified product evaluation). Consequently, XR technologies may reduce the need for sales interactions required to close a sale. For example, one salesperson explained:

> *So, [XR technologies increase] the speed in the sales funnel—how quickly it moves from interest to purchase or nonpurchase, so to speak.*

With the time saved, salespeople have more time for other sales interactions and customers, and overall salesperson efficiency is likely to increase. Relatedly, the time saved through XR technologies (e.g. reduced travel and accelerated purchasing decisions) implies lower costs to serve customers. Another salesperson summarized succinctly:

> *There is an internal productivity increase [with XR technologies], so higher performance for the seller.*

To summarize the findings described in the sections above, our interviews revealed four focal seller-centered benefits related to the use of XR technologies in B2B sales interactions (i.e. related to perceived innovativeness, storytelling, value communication, and sales cycle efficiency). Thus, we derive the following proposition:

> **P3**: Using XR technologies in sales interactions supports salesperson performance through seller-centered benefits. These benefits include (a) perceived seller and salesperson innovativeness, (b) persuasive storytelling, (c) enhanced value communication, and (d) improved sales cycle efficiency.

Impact contingencies of XR in B2B sales interactions

Our interviews revealed two main impact contingencies that determine the range and level of benefits associated with XR implementation in B2B sales interactions: (a) customer decision phase and (b) buying center complexity.

Customer decision phase

As the first focal impact contingency, the interviews revealed that the expected benefits of XR technologies in sales interactions depend on a customer's phase in the decision process. That is, the benefits of using XR in sales interactions are most pronounced when these interactions happen in the pre-purchase and post-purchase phases. Typically, researchers distinguish three customer purchasing decision phases in the sales process: the pre-purchase phase (i.e. before the sale), purchase phase (i.e. during the sale), and post-purchase phase (i.e. after the sale) (e.g. Guenzi and Habel 2020). The interviews revealed that the benefits of XR technologies are relatively low during the purchase phase, when customers negotiate prices with the seller, place an order, or pay for the product. In contrast, both salespeople and customers explained that the benefits of XR technologies primarily occur before and after the sale.

For example, the benefits of storytelling and perceived innovativeness are particularly helpful for new customer acquisition. One very beneficial use case of XR in this regard is visualizing products at exhibitions and events, where salespeople typically focus on generating leads. Moreover, cost savings from digital, XR-enabled prototypes are typically realized in the early phases of customers' decisions—when it is not yet clear if the customer is interested in the product altogether. An interviewed expert illustrated the benefit of using XR technologies at exhibitions as follows:

> *XR applications can showcase big machinery at exhibitions. Visualizing machines through XR smart glasses is cheaper than bringing physical machines and prototypes.*

Beyond initial interactions with customers, the benefits of XR are strong in the subsequent pre-purchase sales interactions. For example, simplifying the purchase evaluation, enhancing buying center coordination, and facilitating cocreation may be decisive factors when (potential) customers are early in their decision-making and still evaluating different options (e.g. products or suppliers). In other words, XR technologies are useful particularly when the sales interaction happens during the customers' decision-making process.

In the post-purchase phase, the benefits of XR technologies are also pronounced, such as in post-sale implementation or up-selling. Many salespeople reported that the

benefits are particularly strong after the sale was closed, as the following quote illustrates:

> *But it is also our turn to use VR in post-sales, for example, to set up courses and training. And we can then say to the customers, even before the system is with the customer, that we are already training them on the new system, with VR glasses or with a virtual reality connection that can be shown on a large screen.*

Relatedly, many salespeople highlighted that XR usage in the post-purchase phase ultimately contributes to long-term relationships with the customer. The following quotes from two salespeople exemplify this benefit that was similarly echoed by many interviewees:

> *It is like, wow, [customers are] happy to work with the machines, and they can also do XR. So, then, that already builds customer loyalty or brand loyalty.*

> *We can also differentiate ourselves from the competition [by using XR technologies]. We can create an outstanding experience or a unique selling point with the XR solution. For example, in after-sales, you can create strong customer loyalty for the future.*

Buying center complexity

As the second focal impact contingency, the interviews revealed that the expected benefits of XR technologies depend on the customer's buying center complexity. That is, the benefits of using XR in sales interactions are more pronounced for complex buying centers. This contingency primarily relates to the focal benefit that XR technologies simplify customers' product evaluation and enhance buying center coordination. Compared with conventional sales interactions, the XR-induced enhancement of buying center coordination unfolds its effect stronger the more complex the buying center is.

Complexity in this regard particularly refers to large buying centers (i.e. many stakeholders are involved) and decentralized buying centers (e.g. involved stakeholders are spread geographically). Customers emphasized in the interviews that XR technologies are particularly beneficial when stakeholders are far from each other, as they enable effective virtual remote interaction of different buying center stakeholders across borders. One buyer from the automotive industry summarized this contingency:

> *[XR technologies are] highly interesting for buying organizations that are centrally structured and where the places of operation are global. In other words, the German purchaser buys a machine for a user in Brazil. And the maintenance provider is also located in Brazil. Therefore, bridging of spatial distance is required.*

To summarize the findings described in the sections above, our interviews revealed two focal impact contingencies that determine the ultimate benefits of using XR technologies in B2B sales interactions. Thus, we derive the following proposition:

> **P4**: The range and level of benefits realized by using XR technologies in sales interactions depend on two impact contingencies. These contingencies include customers' (a) purchasing decision phase, and (b) buying center complexity.

Discussion

This research adds to the sales technology literature context by providing an overarching conceptual framework for using XR technologies in B2B sales interactions. Our framework outlines the primary XR antecedent conditions (RQ1), specifies how using XR technologies benefits stakeholders in B2B sales (RQ2), and identifies the contingencies under which such benefits can be expected (RQ3). In the following, we discuss the associated contributions to research, avenues for future research, and practical implications.

Research contributions

The insights from this study advance several literature streams in B2B sales and marketing, as summarized in Table 7. In summary, we make three main contributions.

First, we provide a systematic overview of the focal benefits of XR technologies used in B2B sales interactions. Specifically, we developed two research propositions explaining the benefits of adopting XR technologies in B2B sales interactions. These two derived propositions include a set of eight specific customer- and seller-centered benefits of XR technologies in B2B sales. Notably, our empirical insights consider both sellers' and customers' viewpoints, which ensures, for example, that the benefits claimed by interviewed B2B salespeople are also validated from the customers' perspective. To our knowledge, we are the first to empirically shed light on both the perspectives of the benefits resulting from XR technologies in sales meetings.

By specifying the benefits of XR technologies for different stakeholders in the sales ecosystem, we contribute to the broader stream of literature on sales digitalization (e.g. Agnihotri et al. 2023) and answer a number of calls for empirical (B2B) sales research specifically on XR technologies (e.g. De Jong et al. 2021). For example, Bauer et al. (2024) and Micallef, Keränen, and Kokshagina (2024) note the importance of evaluating sales technologies regarding their value and impact across different actors. Relatedly, our framework emphasizes the importance of the customer's point of view in digital sales (Fischer, Seidenstricker, and Poeppelbuss 2023), such as the customer-centered benefits of using XR in sales interactions, which may ultimately contribute to salesperson performance. With our framework, we move previous researchers' focus on use cases of XR in B2B marketing (e.g. Wieland et al. 2024) to the specific benefits associated with these use cases from a sales perspective. That is, although prior research identifies XR technologies as promising in the B2B context (Boyd and Koles 2019; De Jong et al. 2021), precise knowledge about where and how B2B salespeople can benefit from integrating XR remained vague.

Second, we derived two research propositions explaining when a successful and beneficial implementation of XR technologies in B2B sales interactions is likely. These propositions include insights on the antecedent conditions (e.g. sufficient organizational resources) and on the contingencies for when using XR technologies is particularly (or less) beneficial for sellers, salespeople, and customers (e.g. depending

Table 7. Summary of research contributions.

Literature stream	Dominant perspectives in the literature	Insights advanced in the present study
Sales digitalization benefits	Digital technologies in sales, such as XR, may improve sales efficiency and effectiveness in various ways (e.g. Agnihotri et al. 2023). The specific value of different technologies must be verified from multiple perspectives (e.g. Fischer, Seidenstricker, and Poeppelbuss 2023).	Using XR technologies in B2B sales interactions offers four main customer-centered and four main seller-centered benefits that ultimately contribute to salesperson performance. Its successful implementation hinges on four main conditions.
Sales digitalization contingencies	A contingency perspective on digital technologies in sales is required to understand when their performance implications will likely outweigh their required investments (e.g. Bauer et al. 2024).	The range and level of customer- and seller-centered benefits of using XR technologies in B2B sales interactions depend on two focal impact contingencies.
Buyer–seller relationships	Digital technologies in sales may have important relational consequences on the customers' and the sellers' side (e.g. Ahearne et al. 2022).	Using XR technologies in B2B sales interactions facilitates the interaction between buyers and sellers in several ways, for example, through customers' facilitated product evaluation and cocreation.
B2B customer buying behavior	B2B buying processes become increasingly complex and dealing with this complexity is key for sellers (e.g. Bonney, Beeler, and Chaker 2022).	Using XR technologies in B2B sales interactions is a promising approach to deal with increasing B2B customer buying complexities. In complex buying situations, the potential benefits of XR technologies for B2B sales interactions are even more pronounced.
Selling techniques	The targeted use of effective selling techniques, such as benefit selling, cross-selling, and up-selling, is important for salesperson performance (e.g. Klarmann and Wouters 2023).	Using XR technologies in B2B sales may be an important driver of benefit selling as well as cross- and up-selling techniques.
Sales performance	To holistically and accurately measure salesperson performance, several perspectives and indicators can and should be considered. Performance can be evaluated using activity-based, conversion-based, outcome-based, and relationship-based indicators (e.g. Bolander et al. 2021).	Using XR technologies in B2B sales implies several activity-based, conversion-based, outcome-based, and relationship-based performance implications. There are various potential indicators of the performance impact for evaluating the benefits of XR technologies in B2B sales interactions (Web Appendix F).

on the customer decision phase). These two propositions relate to the circumstance that implementing XR technologies is not costless and must be carefully evaluated based on expected costs and benefits. We thereby embrace that contingency perspectives are crucial for understanding sales phenomena (Rapp and Habel 2024), for example, because sales technologies do not automatically drive salesperson performance (Agnihotri et al. 2023), and their value likely differs by context (Bauer et al. 2024). Relatedly, despite the comprehensive promises of XR technologies, widespread adoption in B2B sales is still lagging (Alavi and Habel 2021), likely because it was previously unclear whether the investments in the technologies would pay off. While a strong focus in research on sales digitalization lies in the positive consequences of digital technologies like XR, our contingency perspective also evidences that adopting such technologies may also be counterproductive in some settings.

Third, in their combination, the identified antecedent conditions, benefits, and contingencies of XR technologies in B2B sales advance several more specific sales literature streams, beyond the general sales digitalization literature. Specifically, we contribute to the literature stream on buyer—seller relationships, a stream that has assumed important relational consequences of digital technologies, such as XR, on both the customers' and the sellers' sides (e.g. Ahearne et al. 2022). As our framework specifies, XR technologies are a fundamental example of technology-facilitated buyer—seller interactions that, for example, Ahearne et al. (2022) called to research in more detail.

Moreover, we add to the literature stream on B2B customers' buying behaviors (e.g. Bonney, Beeler, and Chaker 2022). Bonney, Beeler, and Chaker (2022, 350) note, for example, that B2B buying processes will become increasingly more complex and that dealing with this complexity and creating consensus across buying center stakeholders will be key for sellers. We find that XR technologies are very beneficial in this regard (e.g. enhanced buying center coordination), and even more so in settings of high sales complexity (e.g. complex buying centers and products). In such settings, there is typically a high need for explanation and coordination (Schmitz, Lee, and Lilien 2014), and customers expect detailed product presentations and simulations to rectify inconsistencies and ensure product quality (Leach and Liu 2014). As our findings illustrate, such settings are specifically where XR technologies may flourish, given their unique capabilities (e.g. vivid visualization of product features that simplify the customers' product evaluation).

Relatedly, we contribute to the stream of selling techniques, such as benefit selling or cross- and up-selling. With the benefit of enhanced value communication, for example, our findings may add XR technologies as another important driver of benefit selling (e.g. Klarmann and Wouters 2023), given that XR technologies may help visualize how well a product performs in the customer's context (e.g. machinery visualization in the customer's factory). Relatedly, our framework incorporates digital technologies, such as XR, as a driver of cross- and up-selling (e.g. Johnson and Friend 2015).

As a last noteworthy stream, we add to the sales performance literature. Specifically, the benefits identified from the expert interviews enable us to derive several sales and salesperson performance indicators for utilizing XR technologies. In terms of Bolander et al. (2021) categorization, for example, our research implies several activity-based (e.g. fewer meetings with the customer), conversion-based (e.g. time and cost savings), outcome-based (e.g. sales productivity), and relationship-based (e.g. cross- and up-selling) performance implications related to XR technologies in B2B sales. We provide a comprehensive overview of potential performance indicators based on our conceptual framework in Web Appendix F.

Future research agenda

Generally, XR in sales remains an area with scant research. Building on our findings, we develop an agenda for future research, comprising four high-priority avenues for future investigations with associated RQs (Table 8). First, future research should explore XR technologies' potential for personalizing products and experiences in B2B sales. For example, what type of XR content or applications are best to facilitate cocreation with buying centers? Second, an important area for future research is the impact of XR usage on selling behaviors. For example, how can salespeople balance (some) customers' need for in-person interactions and XR usage? Third, future research is needed at the interface of XR and AI in sales. For example, how can sales-related AI implementations in XR experiences strengthen the benefits of XR technologies? Fourth, future research should embrace a perspective on the time dynamics of XR and its benefits for sales. For example, how do the identified benefits of XR for sales unfold over time (e.g. when both salespeople and customers are more accustomed)?

Practical implications

From a practitioner's perspective, our findings offer two main areas of insight focused on sellers and salespeople.

Table 8. High-priority avenues and questions for future research.

Research themes	Potential research topics
XR and personalization in B2B sales	• How should XR content be optimized to enable efficient product and experience personalization in sales? • How should XR content be optimized to enable cocreation with the customer in sales interactions? • How can personalized XR content affect rational-oriented buying centers' decision and selection behavior (e.g. more emotional tendencies and psychological ownership)?
XR and selling behavior	• How do XR technologies transform the selling approaches of salespeople (e.g. benefit selling)? • How does an adaptive (vs. static) selling orientation of salespeople influence the success of using XR technologies in sales meetings? • Which sales roles (e.g. hunter versus farmer) benefit most from adopting XR technologies? • How can salespeople balance customers' need for conventional, in-person interactions and the use of XR technologies? • What is the optimal balance of fully remote versus in-person XR-enabled sales interactions? • Which adverse effects can emerge from XR technology implementation in B2B sales interactions?
XR and AI in sales	• How can XR technologies combined with AI create products perfectly tailored to buying centers' stakeholder needs in sales? • How can XR technologies give intelligent recommendations for visualizing new product innovations? • How can XR technologies and AI automate customer-specific repurchase recommendations?
Time-related dynamics of XR benefits	• How do XR technologies impact potential benefits, depending on different business settings (e.g. technologically mature business vs. early adopter)? • Which time-related contingencies determine the importance of the benefits of XR technologies (e.g. XR technology diffusion across salespeople or companies)? • How do the benefits of XR technologies develop before, shortly after, and some years after implementing XR in B2B sales processes (which benefits increase and which decline)?

First, we provide important evidence for how implementing XR may drive salesperson performance. Specifically, our findings reveal benefits for different stakeholders, such as the selling firm (e.g. perceived innovativeness), the salesperson (e.g. improved efficiency), and the customer (e.g. improved employee onboarding). Throughout the manuscript, sellers may find support for the different benefits validated by both B2B salespeople and customers in our expert interviews. Notably, some of the identified benefits (e.g. perceived seller and salesperson innovativeness) may even be particularly pronounced in the current sales environment, where most sales organizations still lag substantially in adopting cutting-edge technologies (Alavi and Habel 2021).

From a practical perspective, understanding the benefits of implementing XR technologies for sellers is important because such implementation represents a major change. Sales managers, for example, may use these proven benefits to convince reluctant salespeople and customers to integrate XR technologies in sales interactions. In this regard, it is very noteworthy that using XR technologies in B2B sales interactions also creates value for customers. XR-enabled cocreation, for example, offers direct added value for the customer (e.g. facilitation of buying decisions). As such, sellers have strong arguments for both salespeople and customers to use XR technologies. For sales managers and salespeople, the identified benefits can also serve as guidelines for measuring the impact of introducing XR technologies on sales performance (e.g. using the indicators shown in Web Appendix F).

Second, we provide guidance on a successful and beneficial implementation of XR usage in B2B sales interactions. Sellers should base their decision of whether to implement XR in sales interactions based on the antecedent conditions and the impact contingencies, such as the type of customers served, the type of product sold, and the phase of the sales process. Our findings illustrate, for example, that the successful implementation hinges on providing sufficient organizational resources, including training and motivation, but also requires a certain level of adoption readiness among a company's salesforce and its customers. Furthermore, the interviews revealed that the greatest benefits of using XR technologies lie in the pre-purchase and post-purchase phases of the sales process, such as for visualizing products in early sales interactions or product installation and maintenance. Also, XR technologies create the most value for all stakeholders if used in sales interactions with large, complex customer buying centers. In such settings, the seller's investments in the technology are more likely to pay off quickly.

Sales managers may use our insights, for example, when introducing XR technologies to their sales organization. We recommend that sellers begin by clarifying whether their conditions for implementing XR technologies are favorable. Sellers should clarify if the necessary resources are available and then specify the most suitable conditions for XR implementations, such as suitable customers, salespeople, or product categories. Among others, our findings revealed that salespeople and customers generally vary in technological adoption readiness, which constitutes a critical determinant of the success of using XR in sales. Sales managers could begin by implementing XR technologies with tech-savvy

salespeople and customers to provide best-practice examples for technology laggards. In addition, sales managers need to develop an understanding of how and where XR technologies can facilitate salespeople's day-to-day tasks. When introducing XR, we recommend focusing on the most beneficial phases of the sales process, for example, in the early customer decision phase. As many interviewees reported, early successes resulting from using XR in sales interactions under the most promising conditions can be a crucial driver of other salespeople's willingness to initially adopt the technology and expand its use to further cases.

Declaration of interest

No potential conflict of interest was reported by the author(s).

ORCID

Janina Riether http://orcid.org/0000-0002-5731-1649
Robin-Christopher M. Ruhnau http://orcid.org/0000-0002-8174-7071
Christian Homburg http://orcid.org/0000-0002-3584-9181

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