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When Does Marketing & Sales Collaboration Affect the Perceived Lead Quality? – The Moderating Effects of IT Systems

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Abstract

In the realm of corporate dynamics, lead management remains a relatively underexplored subject, despite its increasing significance and annual resource allocation. This study addresses the enigmatic "sales lead black hole" by investigating the influence of enhanced collaboration between marketing and sales on the perceived quality of marketing-generated leads. A research model was crafted to delve into this relationship and assess the impact of contemporary IT systems on collaboration, subsequently bolstering the perceived lead quality. Findings reveal that active collaboration in planning lead management activities and exchanging information elevates the acceptance of marketing-generated leads, prompting increased follow-up engagement by sales personnel. IT systems play a pivotal role in fostering such collaboration, amplifying its effect on the perceived quality of leads. This research contributes vital insights for scholars by dissecting key drivers of perceived lead quality and proposing solutions for the sales lead black hole. For practitioners, the study offers actionable implications to enhance subjective perceptions of marketing-generated leads, curbing resource wastage through improved follow-up strategies.

Keywords: it-systems; lead management; marketing & sales collaboration; perceived lead quality; sales engagement

1. Introduction

Digitalization has greatly changed the way companies search for information and interact with each other (Järvinen & Taiminen, 2016). Customers are better informed than ever before, with up to 60% of the typical B2B buying process already completed before they contact a manufacturer or sales representative (Adamson et al., 2012). Nevertheless, or maybe especially due to this fact, new customer acquisition remains one of the biggest challenges for marketing and sales (Torkornoo, 2020). To keep up with the changed customer behavior, companies are spending up to 10% of their revenues on marketing initiatives to position themselves as a viable supplier as early as possible in their customers' buying journey (Gartner, 2021).

Especially online marketing is an important and fast-growing trend. Not only because old-fashioned lead channels, like trade shows, need to be replaced due to the pandemic, but also because online leads are often far more cost-efficient than traditional lead channels (Fröhlich, 2021; Team Linchpin, 2022). Around 70% of marketing resources are spent on digital marketing initiatives which, combined with the right automation tools, can lead to a strongly increasing number of leads (Gartner, 2021; HubSpot, 2022a; Moran, 2022; Mrohs, 2021). Leads are often described as the lifeblood of companies, which is why an increasing number of leads can be seen as positive and is often used by marketing as a metric for measuring the success of their activities (Monat, 2011; Wenger, 2021).

However, this metric does not consider the important follow-up of these leads. In practice, up to 70% of leads generated by marketing are not followed up by sales. This phenomenon is also commonly described as the "sales lead black hole" (Michiels, 2009; Sabnis et al., 2013). Due to this insufficient follow-up, companies constantly loose ready-to-buy customers (Hasselwander, 2006; Sabnis et al., 2013). The poor follow-up can be attributed to a variety of causes like missing information, delayed processes or miscommunication and distrust between marketing and sales (van der Borgh et al., 2020).

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Many researchers have tried to develop mechanisms to prioritize leads and evaluate their quality (D'Haen & van den Poel, 2013; Monat, 2011; Yan et al., 2015). Unfortunately, there is no uniform consensus on the criteria that determines the quality of a lead. In practice, qualification is usually based on intuition, supposed competence, and heuristic rules (D'Haen & van den Poel, 2013; Jolson, 1988). Therefore, a salesperson's follow-up effort is largely determined by their perception of lead quality, or more precisely their perception of the marketing department's lead prequalification process (Sabnis et al., 2013).

The factors that can influence the perceived lead quality have not yet been discussed. One of the most important factors can be identified as the collaboration between marketing and sales. Miscommunication, unclear processes and definitions represent a major hurdle for companies in establishing efficient lead management processes (Michiels, 2009). In particular, if sales is not involved in the planning and processes are untransparent, this can have a massive impact on the perceived lead quality, as marketing and sales may have different expectations of leads (Malshe & Sohi, 2009b). The influence of technology is creating numerous opportunities which enable the collaboration between marketing and sales to be even more efficient (Järvinen & Taiminen, 2016; Wiersema, 2013). IT-systems play a central role in optimizing the flow of communication and information and create new opportunities for collaboration between the two departments (Speier & Venkatesh, 2002). Good collaboration between marketing and sales should be essential to ensure common quality standards in lead management and to avoid the waste of resources. Especially in light of the increasing amount of resources spent on online marketing to generate leads and new business, it should be closer examined how good collaboration could influence a salesperson's perception of marketing-generated leads and how IT-systems enable these effects.

This paper will contribute to the lead management literature in filling this research gap and showing that marketing and sales collaboration has an important impact on the lead management process. First, the perceived lead quality will be confirmed to have a significant impact on a salesperson's lead follow-up effort. Second, the degree of joined planning and information sharing will both be identified as predictors of the perceived lead quality. Third, a positive influence of IT-systems on the collaboration between marketing and sales, as well as a moderating influence from IT-systems on the relationship between joint planning and perceived lead quality will be identified.

Based on these findings, interesting implications can be derived for research and practice. The results shed light on the key drivers of the perceived quality of marketing-generated leads and provide a more accurate understanding of the causes of and solutions to the sales lead black hole. The study also helps managers better understand what affects their team's follow-up rate and how they can improve it.

The remainder of this paper proceeds as follows: First, the conceptual framework underlying the study is presented. Then, previous literature on lead management, marketing and sales collaboration, and IT-systems is reviewed. Based on this, hypotheses are developed and tested in an empirical study, which is presented in the following section. Finally, the research findings and conclusions are discussed, including implications for both theory and practice.

2. Conceptual Framework

The research framework is illustrated in Figure 1. The framework assumes a direct influence from the collaboration of marketing and sales, represented by joined planning and information sharing, on the perceived quality of marketing-generated leads. The perceived lead quality will then have a direct impact on the follow-up efforts of marketing-generated leads. Furthermore, IT-systems, represented by the quality of lead information in the systems and the systems support in prioritization and planning, are expected to increase the collaboration between marketing and sales and also to moderate their relationship with the perceived lead quality.

The following sections review the literature on lead management, marketing and sales collaboration, and IT-systems before developing hypotheses and empirically testing the models.

3. Literature Review

3.1. Lead Management

Lead management is a topic of increasing importance, which however has been mostly neglected in research (van der Borgh et al., 2020). The term 'lead' describes a potential customer who has expressed an interest in a company's products or services, regardless of whether this is an existing customer or a new customer (Monat, 2011). Therefore, lead management describes the process by which potential buyers are developed into customers and is part of the sales funnel (Cooper & Budd, 2007; D'Haen & van den Poel, 2013). The sales funnel categorizes potential customers based on their buying stage, illustrating the ongoing narrowing and selection from all potential customers interested in a company's products and services to those customers who actually make a purchase (Cooper & Budd, 2007; Järvinen & Taiminen, 2016). The exact form of the sales funnel, as well as the number and arrangement of the different phases, differs from study to study (Järvinen & Taiminen, 2016). A frequently used framework is the model from D'Haen and van den Poel (2013), which divides the sales funnel into four phases: *Suspects*, *Prospects*, *Leads,* and *Customers*. Taking into account cross- and up-selling opportunities with existing customers, the last phase can also be replaced with *Deals*, turning the classic funnel model into a loop into which existing customers can re-enter (Järvinen & Taiminen, 2016; Patterson, 2007).

The process starts with the generation of leads, which is usually conducted by the marketing department. After the

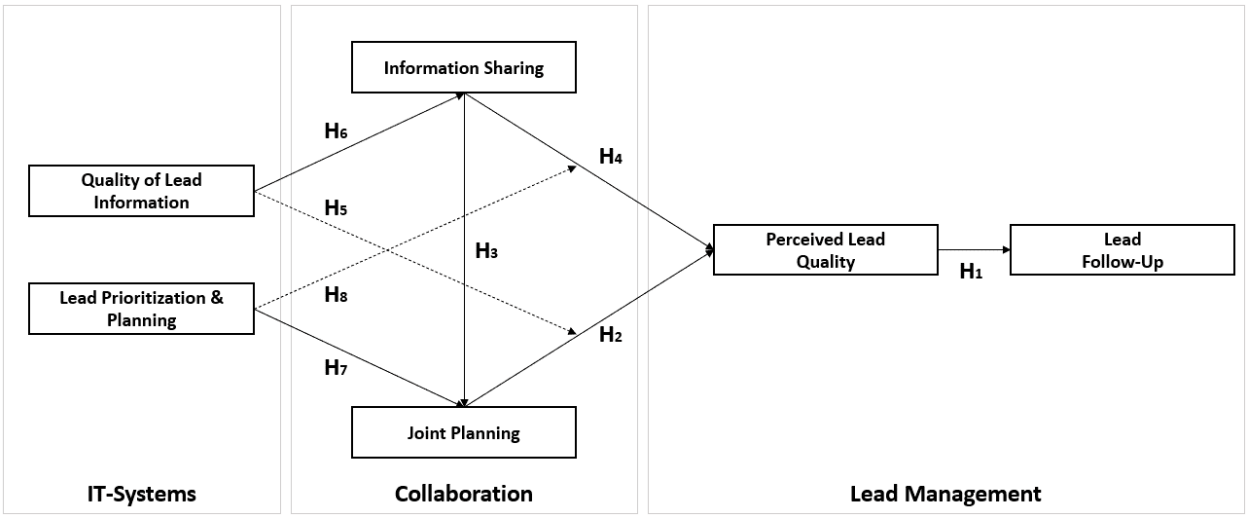

Figure 1: Illustration of the Conceptual Framework

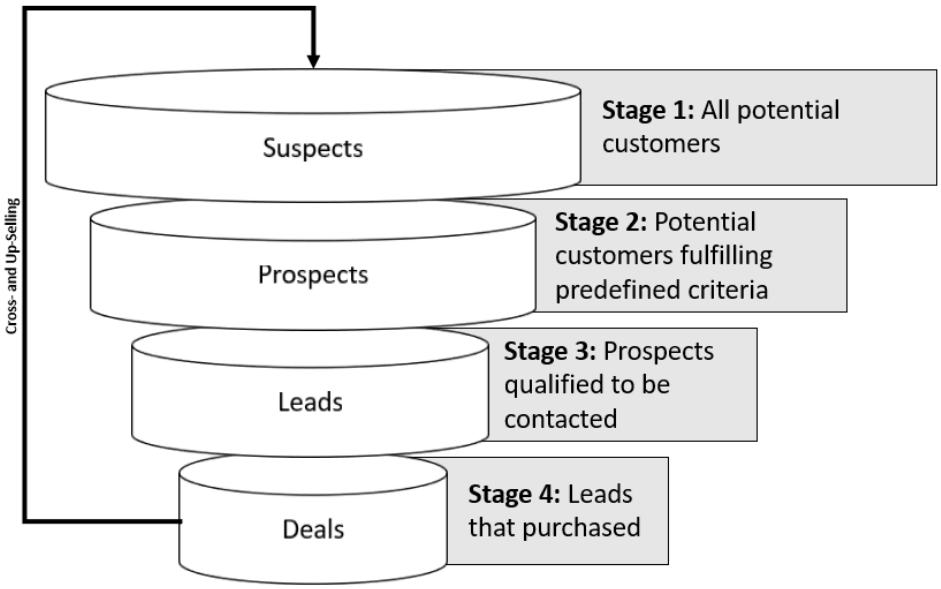

Figure 2: Sales funnel Framework (adapted from Järvinen and Taiminen (2016) and D'Haen and van den Poel (2013))

initial generation, leads are ideally pre-qualified and prioritized based on company-specific criteria before the leads are passed on to sales for follow-up (van der Borgh et al., 2020). Sales reps are normally expected to contact every lead they receive from the marketing department, but in reality, studies show that up to 70% of those leads are never contacted by sales (Michiels, 2009; Sabnis et al., 2013). Sales often argues that marketing-generated leads lack potential and that the quality is uncertain and unobservable (Banerjee & Bhardwaj, 2019; Oliva, 2006).

This perception can be traced down to a variety of different reasons. One problem is that leads often contain limited information about the prospect, making it difficult for marketers and salespeople to assess potential value and make informed decisions (Järvinen & Taiminen, 2016). Another common reason are inefficient and manual processes causing delays and preventing opportunities to smoothly transition from lead to sale (Michiels, 2009). Delays in the lead process can have a damaging effect on the chances of success in lead follow-up. The more time elapses after a customer inquiry, the less likely it is that a deal will be closed (Oldroyd et al., 2011; Smith et al., 2006).

These two reasons are likely connected to a third problem, the collaboration between marketing and sales. Various studies suggest that the gap between marketing and sales leads to a variety of problems in the lead management process (D'Haen et al., 2016; van der Borgh et al., 2020). Lack of coordination and unclear processes and definitions in the cooperation between sales and marketing represent a significant obstacle in lead management for companies (Michiels,

2009). In addition, insufficient involvement of sales in the planning of lead management activities can influence the perceived quality of the prequalification and, accordingly, the perceived lead quality (Malshe & Sohi, 2009b).

All those reasons can lead to a negative reputation of marketing-generated leads, resulting in reduced follow-up efforts and a waste of resources on both sides.

3.1.1. Lead Quality

To overcome the bad reputation of marketing-generated leads, researchers and practitioners have tried to develop models to evaluate the quality of leads and estimate the likelihood of a successful sale (D'Haen & van den Poel, 2013; Monat, 2011; Yan et al., 2015). The pre-qualification process is of particular importance in order to protect sales reps from a flood of poorly qualified and unpromising leads (Hise & Reid, 1994). When poorly qualified leads are handed over to sales, this has a strong negative impact on the sales funnel. First, sales reps waste their valuable time, in which they could have focused on selling products, following up on hopeless leads (Bradford et al., 2016; D'Haen & van den Poel, 2013). At the same time, the poor quality of leads reduces the motivation of salespeople to follow up on these leads, so that in the long run they are most likely to significantly reduce or even stop following up. (Sabnis et al., 2013).

Lead quality can be divided into objective and subjective quality. So far research and practice have mainly focused on the objective lead quality developing models to identify the most promising prospects (e.g., D'Haen and van den Poel, 2013; Michiels, 2009). The objective quality of a lead can be determined by various criteria; some of the most important include: the source of the inquiry (e.g., website, trade show, telemarketing), the need and urgency of the prospect, the budget and authority of the lead, the willingness to provide information, whether the contact was initiated by the company or the prospect, and whether the prospect has done business with the company before and/or fits the profile of a key account (Järvinen & Taiminen, 2016; Jolson, 1988; Jolson & Wotruba, 1992; Monat, 2011).

Unfortunately, the weighting and specification of the criteria varies from company to company and cannot be generalized (Monat, 2011). Furthermore, not all needed information about a lead is freely available, rather it is only known once an employee has contacted the prospect (Banerjee & Bhardwaj, 2019). As a result, companies are often forced to rely on publicly available information that is readily available but does not necessarily provide insight into the contact's interest in the company's products (Järvinen & Taiminen, 2016; Long et al., 2007). This is a major disadvantage, as signals of interest in a company's products are considered the most important indicators of purchase intentions among prospects (Bhattacharyya, 2014; Järvinen & Taiminen, 2016).

The objective quality of leads is therefore difficult to measure and cannot easily be observed by the sales reps. Consequently, salespeople are motivated by their subjective perception of the lead prequalification process and lead quality. van der Borgh et al. (2020), for example, found that both the speed and quality of lead assignment have an inverted U-shaped relationship with lead follow-up and must be consistent to achieve positive results. Their findings were based on the fact that if leads were frequently misassigned, and if the assignment of leads was too fast or too slow, salespeople would get the impression that the entire process, and thus the leads themselves, were of poor quality. If the quality of the prequalification process is low in salespeople's perception, they are more likely to focus on their self-generated, familiar leads than on leads from marketing (Sabnis et al., 2013). In their study, Sabnis et al. (2013) showed that better perceptions of the quality of the prequalification process led to higher expectations of success and greater willingness in following up on leads from marketing among salespeople.

In consequence, the focus should shift from the determinants of objective lead quality to the determinants of subjective lead quality instead, as this perception has a direct impact on the follow-up of leads from marketing. The exact factors influencing subjective lead quality have not yet been empirically investigated, but possible factors can be derived from related literature (Järvinen & Taiminen, 2016; Mero et al., 2020; Ohiomah et al., 2019; Wiersema, 2013).

3.2. Marketing & Sales Collaboration

Collaboration between marketing and sales seems to be one of the biggest problem drivers in lead management. In practice and in research, it has been repeatedly found that the cooperation between marketing and sales is not always harmonious and constructive (Biemans et al., 2010; Rouziès et al., 2005). Especially in lead management, sales reps often complain about the poor quality of marketing-generated leads, and marketing in turn complains about the poor follow-up efforts from the sales team (Biemans et al., 2010; Sabnis et al., 2013). The literature names a wide variety of reasons for the conflicts between marketing and sales, such as: different objectives (Strahle et al., 1996), poor communication and coordination in planning (Colletti & Chonko, 1997; Matthyssens & Johnston, 2006), different perspectives and thought worlds (Beverland et al., 2006; Homburg, Jensen, & Krohmer, 2008), lack of interfunctional integration (Rouziès et al., 2005), and lack of clarity about the roles and responsibilities of the other side (Biemans et al., 2010; Homburg & Jensen, 2007; Le Meunier-FitzHugh & Piercy, 2011; Malshe & Sohi, 2009b).

And yet, successful collaboration between marketing and sales can have a strong positive impact on the effectiveness of activities and the overall business performance of a company (Homburg & Jensen, 2007; Le Meunier-FitzHugh & Piercy, 2011; Rouziès et al., 2005). The interface between marketing and sales should actually be well-equipped for effective collaboration because marketing and sales both deal with potential customers. Marketing is tasked with supporting sales, running campaigns, and building a consistent brand image, and sales is responsible for more tactical tasks such as contacting customers, implementing the strategies, and closing deals (Biemans et al., 2010). There are even certain activities that can only be carried out effectively through coordinated

efforts of sales and marketing, among which lead management can be counted (Rouziès et al., 2005; Schmitz et al., 2020).

The literature provides various approaches to improve collaboration between marketing and sales in order to achieve this ideal state. Oliva (2006), for example, found that a common language as well as organizational and systematic links are of particular importance. A precise definition and understanding of core terms, such as leads, must be created among all team members. Especially companies in which the roles of marketing and sales and the entire sales process are clearly defined seem to achieve much better results. Malshe and Sohi (2009a) showed that if marketing makes strategic decisions independent of sales, sales reps tend to view these as irrelevant. Therefore, it is important to receive a buy-in from sales which can be achieved when marketing and sales engage in joint planning, operate in a fact-based environment, and share information (Malshe & Sohi, 2009a). Le Meunier-FitzHugh and Piercy (2011) noted that marketing and sales collaboration is positively associated with business performance and that information sharing, supportive attitudes, joint planning, and aligned goals are essential to receive results.

The communication of customer and market information across departments was identified as a key factor for an organization's responsiveness to customer needs because marketing and sales can provide each other with invaluable information to better address and target customers. (Colletti & Chonko, 1997; Kirca et al., 2005). This interfunctional communication was also identified by Hulland et al. (2012) as an important factor, but they also showed that increased communication is only beneficial if marketing and sales both perceive their interactions as fair. It is therefore not enough to increase the frequency of meetings and the exchange of information, instead the communication between marketing and sales must be perceived as collaborative and consultative (Dawes & Massey, 2005; Kahn & Mentzer, 1998).

Homburg, Jensen, and Krohmer (2008) found that a high level of knowledge sharing, structural linkage between departments, and a high level of expertise in both departments had a positive impact. In addition, Homburg, Jensen, and Krohmer (2008) showed that teams were more successful when sales adopted a more long-term perspective, matching marketing's naturally longer-term perspective. This was also confirmed by Homburg and Jensen (2007), who showed that although different perspectives can have a positive effect on market performance in some cases, the quality of cooperation between marketing and sales suffers as a result.

Lack of communication, coordination, and transparency in lead management can lead to doubts about the quality of lead pre-qualification and thus the quality of marketing-generated leads, as there has been no buy-in from sales into these processes (Malshe & Sohi, 2009a; Malshe et al., 2017) and marketing and sales may have different requirements and expectations of a lead (Malshe & Sohi, 2009b).

Improving collaboration through increased sharing of information and joint planning could therefore help to improve perceived lead quality and also resolve the problems of delayed processes and lack of information. Since marketing and sales can then better coordinate the processes and goals in lead management, and both sides will know exactly what lead information is needed and how delays in processes can be avoided.

Despite the importance of the topic and the well-researched marketing and sales interface, the impact of collaboration in lead management has not yet been empirically investigated and should therefore urgently be investigated in more detail.

3.3. IT-System Support

The potential of IT-systems in sales and marketing has been recognized early on (Collins, 1985). Today IT-systems like Lead Management (LMS), Salesforce Automation (SFA) or Marketing Automation Systems (MA) are already an integral part in the day-to-day activities of many companies, often fully integrated into one CRM-platform, offered by software vendors like HubSpot (HubSpot, 2022b). Organizations continuously invest in these state-of-the-art technologies to keep up with the competition by improving communication, information, and customer management (Jelinek et al., 2006; Peterson et al., 2011; Tanner et al., 2005). These technologies not only improve the quality and speed of information gathering (Speier & Venkatesh, 2002), but also help their users to become more efficient in managing customer interactions and information and to automate all kind of marketing and sales processes (Hunter & Perreault Jr., 2006; Zoltners et al., 2001). Vendors of different software solutions claim that the tools can help align companies marketing and sales interfaces, therefore improving and accelerating lead management processes (Järvinen & Taiminen, 2016). This would indicate that the support of IT-systems can improve the collaboration between marketing and sales and thus contribute to overcome the sales lead black hole.

In a recent survey 80% of the respondents noted that the implementation of marketing automation software increased their marketing and sales collaboration (Hannig et al., 2019), this might be due to the fact that such software requires constant interaction and sharing of information between both parties (Mrohs, 2021). By creating a 360°-view of the customer and their interactions, IT-systems provide the foundation for collaboration, knowledge creation and opportunity exploitation (Mero et al., 2020; Peterson et al., 2011; Plouffe et al., 2004). Marketing gets deeper insights into customer data and can better customize campaigns, whilst sales reps get more information about marketing-generated leads and their activities (Järvinen & Taiminen, 2016; Wiersema, 2013). This provision of more accurate and easily accessible information, combined with IT-support in selecting and qualifying leads, helps sales reps to better understand customer needs and customize proposals to cater these needs (Ahearne et al., 2007; Moutot & Bascoul, 2008; Román & Rodríguez, 2015).

Leads are information products and IT-systems help to organize, manage, and share this information effectively

(Ahearne et al., 2007; Kuruzovich, 2013). Nowadays sales and marketing have access to extensive amounts of data, but to be successful, they need to convert this data into useful information (Hunter & Perreault Jr., 2006). IT can support this process, for example, through the analysis of which lead sources are most profitable, and thus make the extensive amounts of data available useful for planning (Hunter & Perreault Jr., 2006; Kuruzovich, 2013; Tanner et al., 2005).

This means that both the collaboration of marketing and sales and IT-systems focus on improving the exchange of information and establishing clearly defined processes. The most important tasks of IT-systems in lead management are thus the provision and sharing of information, as well as transparent and, at best, automated processes (Ahearne et al., 2007; Ohiomah et al., 2019; Park et al., 2010). Since the introduction of IT-systems does not magically produce the desired status quo, complex IT-systems likely promote collaboration between marketing and sales to a degree that was not necessary before (Michiels, 2009). IT developments and shared systems between marketing and sales create the opportunity to reduce the perspective divide between both parties and allow them to better coordinate their activities, share information, and set shared goals (Hulland et al., 2012; Järvinen & Taiminen, 2016; Kotler et al., 2006; Tanner et al., 2005; Wiersema, 2013). Therefore, it could be concluded that IT-systems support the collaboration of marketing and sales in its core objectives and possibly enable it in its best possible form in the first place.

The influence of software on the lead management process has only been studied by Ohiomah et al. (2016, 2019). However, their study only considered a mediating relationship through an increased number of sales calls, which showed mixed results. Yet, the above discussion indicates that the impact of IT-systems on lead management is more likely to come from its impact on collaboration, which influences the perceived lead quality. Better IT-systems enable marketing and sales to more effectively scale lead processes, ensure timely and high-quality communication and make sure that existing data can be better used for planning and adjusting existing processes (Kuruzovich, 2013; Matthyssens & Johnston, 2006; Tanner et al., 2005). Therefore, it is likely that IT-systems influence the lead management process on the one hand by enabling better planning and information sharing between marketing and sales and on the other hand by enhancing the positive effects that collaboration has on perceived lead quality.

The research gap in the predictors of perceived lead quality is evident and needs to be examined in more detail (see Figure 3). The next section therefore investigates this research gap by developing a research model that examines the influence that marketing and sales collaboration has on the perceived quality of marketing-generated leads and how IT-systems enable better collaboration and affect its relationship with the perceived lead quality.

4. Hypotheses Development

Previous research has identified the perceived lead quality as one of the major predictors for sales rep's lead follow up (Sabnis et al., 2013). As the topic of lead management was neglected for a long time, it is not surprising that the factors that can influence this perceived lead quality have remained unexplored so far. This paper will address this research gap by investigating the collaboration of marketing and sales as one predictor of perceived lead quality. Additionally, the potential influences of modern-day IT-systems on collaboration and its relationship with the perceived lead quality will be investigated.

In order to analyze the effects of collaboration on perceived lead quality and identify possible moderating effects, it is first necessary to theorize how these influences may work. Therefore, it is useful to draw on empirical findings from previous research on lead management, collaboration, and IT-systems.

First, consistent with previous research, perceived lead quality is expected to influence the follow-up effort of sales reps. Then, we will explore how collaboration between marketing and sales may influence the perceived lead quality. Afterwards, we hypothesize about how different aspects of IT-systems can have an influence on collaboration and how they could moderate the relationship between collaboration and perceived lead quality.

4.1. Lead Follow-up Efforts

The follow-up of leads is an essential part of a salesperson's day-to-day activities (Ohiomah et al., 2019; Pullins et al., 2017). According to Sabnis et al. (2013) lead-follow-up characterizes the customer acquisition effort a salesperson dedicates to either self-generated or marketing-generated leads. It describes the ability of a salesperson to thoroughly follow up on leads and maintain contact with those leads until the completion of a sale or the abandonment of the lead (Ohiomah et al., 2016).

A sales rep's follow-up efforts are largely determined by his motivation, which can be divided into intrinsic and extrinsic motivation. Intrinsic motivation describes motivation that arises from the activity itself and from there emanates from the employee himself, while extrinsic motivation arises from the result of the activity as well as from external stimuli (Deci & Ryan, 2000; Pullins, 2001; Ryan & Deci, 2000).

One of those external stimuli has been identified as the perceived quality of the lead prequalification (Sabnis et al., 2013). Prequalification is the process of reviewing newly generated leads and deciding whether to pass them on to sales reps or further nurture them by the marketing department (Michiels, 2009; Mrohs, 2021; Sabnis et al., 2013). As described earlier, the objective quality of leads is difficult to measure and cannot easily be observed by the sales reps. Therefore, sales reps depend on their perception of lead quality or more precisely their perception of marketing's ability

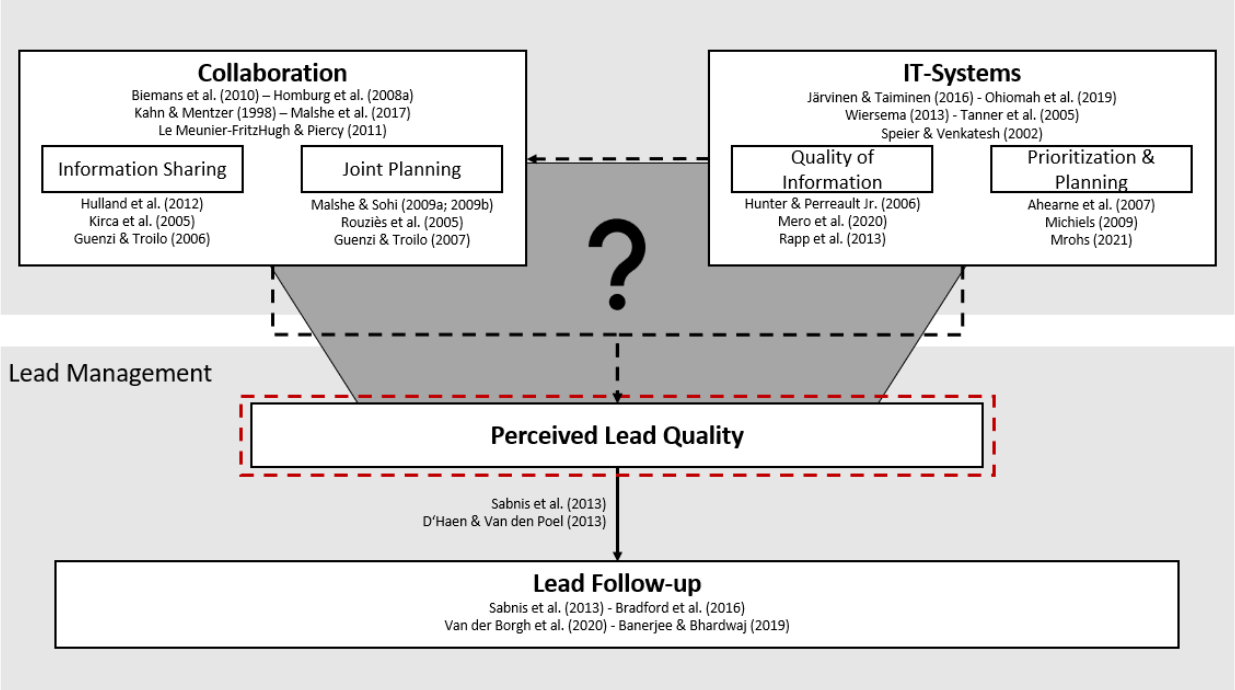

Figure 3: Illustration of the Research Gap

to screen and discard unattractive leads as well as to efficiently and timely assign leads to the right person (Sabnis et al., 2013; van der Borgh et al., 2020).

The assignment of unqualified leads has a negative effect on salespersons' motivation since they more often receive negative feedback, leading to disappointment and wasted resources (Jolson, 1988; Monat, 2011). If sales reps develop an unfavorable opinion of the prequalification process, they are more likely to spend their time on self-generated leads than on marketing-generated leads (Sabnis et al., 2013).

Consequently, an improvement in the perception of the prequalification process should increase the sales reps' expectations for success in pursuing these leads. If the sales rep becomes more confident that marketing has eliminated low potential prospects, this should in turn improve his extrinsic motivation to follow-up on those leads. Hence, in line with the results found by Sabnis et al. (2013), the following is hypothesized:

> *H1: A sales rep's perception of the quality of marketing-generated leads is positively associated with his follow-up efforts to these leads.*

4.2. Marketing & Sales Collaboration

Collaboration is defined as an affective and volitional process in which departments work together with mutual understanding, a shared vision, and shared resources to achieve common goals (Kahn & Mentzer, 1998). This mutual understanding, collective goals, and sharing of information and resources promotes goodwill between departments so that employees are more satisfied working with other departments (Kahn & Mentzer, 1998; Schrage, 1990; Souder, 1987).

As discussed above, literature already identified various ways how collaboration between marketing and sales can be improved. Almost all of them stress that joint planning and information sharing are of particular importance, which is why their influence will be investigated in more detail (Homburg, Jensen, & Krohmer, 2008; Le Meunier-FitzHugh & Piercy, 2011; Malshe & Sohi, 2009a). How these variables might affect the perception of lead quality will be discussed in the following sections.

4.2.1. Joint Planning

Joint planning between marketing and sales is defined as the co-development of goals, processes, and activities and in the case of this paper refers in particular to joint planning of lead management activities (Homburg, Jensen, & Krohmer, 2008). Existing scholars stressed that sales needs to be included in marketing strategy decisions and that marketing and sales must synchronize their strategic and tactical activities in order to design strategies that create, deliver & communicate superior customer value (Guenzi & Troilo, 2007; Malshe & Sohi, 2009b). This should be of particular importance in the case of lead management, where marketing typically is responsible for the first few steps, like creating brand awareness, marketing plans and leads for sales, and sales is then expected to execute the marketing plans and follow-up on those leads (Kotler et al., 2006).

In examining the development of marketing strategies, Malshe and Sohi (2009b) highlighted that for successful strategy development and implementation, both marketing and sales must be equally involved in the entire process. Similar results were found in another study by Malshe and Sohi

(2009a), confirming that sales needs to be involved in strategy creation and that marketing has to make sure to show them the bigger picture and the value that is added to their day-to-day activities. Mutual participation in the development of goals and processes is critical for sales acceptance of goals and their motivation to pursue them. It creates a sense of ownership and therefore makes it easier for marketing to receive sales buy-in (Malshe & Sohi, 2009b; Rouziès et al., 2005). Furthermore, through the joint development both sales and marketing should gain a better understanding and appreciation of the other functions issues and perspectives (Rouziès et al., 2005).

Joint planning of processes and goals should have an important impact on lead management, and especially on the lead qualification process. When marketing and sales determine criteria for qualified leads together as well as standardized processes for handling these leads, there should be fewer arguments about lead quality and follow-up practices (Järvinen & Taiminen, 2016). Sales reps therefore know what to expect from a lead, how to handle it, and who to turn to with feedback. Thus, one can hypothesize:

> *H2: Marketing and Sales engagement in jointly planning lead management activities is positively related to the perceived quality of marketing-generated leads.*

4.2.2. Information Sharing

Information Sharing encompasses the scope of cross-functional information dissemination and knowledge exchange (Homburg, Jensen, & Krohmer, 2008). The importance of information sharing has been highlighted in the literature on intraorganizational interfaces (e.g., Fisher et al., 1997) and especially in the literature on the sales and marketing interface (e.g., Homburg, Jensen, and Krohmer, 2008; Le Meunier-FitzHugh and Piercy, 2011).

Biemans et al. (2010), who studied different marketing and sales interface configurations, noted that in the most advanced interface configuration the integration of marketing and sales was realized through a mix of formal and informal communication, with people in both departments feeling motivated to exchange information. The sharing of lead and customer information between marketing and sales is important to stay responsive to changing customer needs (Hulland et al., 2012; Kirca et al., 2005). Both parties can provide each other with valuable information. For example, sales can provide marketing with information about which lead campaigns are generating the most promising prospects and suggest modifications that will fit customers' changing needs. Marketing, on the other hand, can help sales with information and tools that enable them to better target and approach customers (Colletti & Chonko, 1997).

The exchange of information creates a common understanding of situations and helps to bring sales and marketing on the same page (Biemans et al., 2010). Bidirectional communication, sharing of information, and feedback loops helps to identify problems in the lead process and allow both parties to fine-tune the existing strategy (Malshe & Sohi, 2009b; Wenger, 2021). From this, the following hypothesis can be concluded:

> *H3: The amount of information sharing between marketing and sales is positively associated with their engagement in jointly planning lead management activities.*

Malshe and Sohi (2009a) further noted that sharing information about feedback is of particular importance, especially when the feedback was not implemented, so that the other party knows what happened to their feedback and why it may not have been acted upon. This ensures that the dialogue and sharing of information between marketing and sales is maintained and does not break down. Fisher et al. (1997) even noted that setting norms for the sharing of information can significantly contribute to the creation of such an ongoing dialogue.

Better information sharing helps sales reps to become more efficient, since the provision of more accurate customer information enables salespeople to better customize proposals to the unique needs and concerns of their leads (Moutot & Bascoul, 2008; Ohiomah et al., 2019; Park et al., 2010).

Well-informed salespeople are perceived to have a higher level of commitment and trust in the existing structures (Matthyssens & Johnston, 2006; Siguaw et al., 1994). Guenzi and Troilo (2006) found that sharing of information fosters increased effectiveness and efficiency of market knowledge development and decision-making, while supporting an organizational climate of commitment and trust.

It can therefore be concluded that if marketing and sales frequently share information, it should not only promote joint planning behavior, but also create an environment in which sales reps have less doubts about the quality of the lead prequalification and of the leads themselves. This is because they receive more information about leads, which allows them to better approach those prospects. Additionally, they get a better understanding of what happens with their feedback, that it is heard and that strategies are adjusted if needed, which generates a feeling of trust and commitment in the existing processes, leading to the following hypothesis:

> *H4: The amount of information sharing between marketing and sales is positively related to the perceived quality of marketing-generated leads.*

4.3. IT-System Support

As described earlier, IT-systems simplify the daily tasks of marketing and sales while creating new opportunities for increased collaboration between the two parties. They can help bring marketing and sales together, as the systems can help them to better understand and trust each other's contribution (Tanner et al. 2015). The following describes how IT-system support, represented by the systems quality of lead information and the systems support in prioritization and planning, could improve collaboration, and further enhance the impact from collaboration on perceived lead quality.

4.3.1. Quality of Lead Information

The quality of lead information describes the usefulness, clarity, and accessibility of information about marketing-generated leads in a company's IT-systems. Nowadays, companies have access to a vast amount of data about their current and prospective customers and IT-systems can help to turn these data into useful information (Hunter & Perreault Jr., 2006). According to Ahearne et al. (2007) they enhance the richness, complexity, and mobility of information and knowledge by increasing the communication speed, information availability and remote accessibility.

Effective information is a meaningful input for successful planning of lead management activities. IT-systems can facilitate and enable increased information effectiveness, making it available not only for sales but also for planning activities (Hunter & Perreault Jr., 2006). When different IT-systems are synchronized, the data can provide a complete record of customer interactions in a timely and readily accessible manner, creating a holistic picture of customers and sales operations (Mero et al., 2020; Tanner et al., 2005). The ideal situation is a clear and easily accessible unified database that provides an 360° view of the customer. Marketing and sales are then provided with a better decision-making base in the joint creation of lead management activities, which also creates a higher degree of consistency in marketing and sales work (Mero et al., 2020; Mrohs, 2021).

The information gains through well-presented and high-quality data in those systems can help everyone to better understand the needs and purchasing abilities of the marketing-generated leads and how to best capture these opportunities (Moutot & Bascoul, 2008; Ohiomah et al., 2019; Park et al., 2010) also mentioned that one of the biggest benefits of IT-systems is that they help to learn more about customers and leads and can ultimately shape the way how those customers are approached. They found that IT usage was positively associated with market information processing, which indicates that IT-systems allow marketing and sales to work with information more quickly and effectively. Moreover, good and organized IT-systems also help to focus on the most important information, which enables everyone to develop winning strategies in less time (Rapp et al., 2008).

All this should create a better foundation to discuss and jointly plan strategies in lead management. A better quality of lead information in the systems should enable all parties to better coordinate and jointly adjust processes, as increased data quality and accessibility allows faster and more accurate decision-making. This should also generate a higher level of trust into the processes agreed upon, as they are backed by better information. Accordingly, the following hypothesis can be formulated:

> *H5: The positive effect of joint planning on perceived lead quality is expected to be higher the better the quality of lead information in the IT-systems is.*

Furthermore, when the IT-systems provide Marketing and Sales with more useful and qualitative data and give them easy and quick access to this improved data, it is likely that Marketing and Sales therefore begin to better understand the value of high-quality information. As a result, they should be more willing to share information and knowledge at the customer level to ensure a certain level of data quality in the systems. (Tanner et al., 2005).

Well organized IT-systems make sure no relevant data is lost or overlooked (Engle & Barnes, 2000; Matthyssens & Johnston, 2006). Additionally, those organized systems allow everyone to identify, gather and share relevant information more easily (Rapp et al., 2008). Especially when different sources are combined to one source of truth, relevant information no longer needs to be tediously gathered from different sources or queries, making it easier to find, handle, and analyze for everyone (Järvinen & Taiminen, 2016; Kotler et al., 2006; Wiersema, 2013). Accordingly, as the organization and quality of data in IT-systems becomes better the threshold for sharing relevant information between marketing and sales should decrease, as the information in the systems is more complete and easier to access and handle. Thus, it can be hypothesized that:

> *H6: The quality of lead information in the IT-systems is positively related to the amount of information sharing between marketing and sales.*

4.3.2. Lead Prioritization & Planning

In addition to improving the quality and availability of lead information, which should create a better basis for joint activities and promote the sharing of this information, the systems also provide functions that can directly help with the prioritization and planning of lead activities. The degree to which IT-systems enable marketing and sales to assess the probability of success of marketing-generated leads and to focus and tailor their efforts on these leads is defined as support in lead prioritization and planning.

The early and appropriate identification of leads, especially of leads with higher purchase intent, has a strong impact on the conversion probability to sales (Ahearne et al., 2007; Ohiomah et al., 2019; Román & Rodríguez, 2015). Lead segmentation, scoring, and nurturing functions can help to better assess prospect's attractiveness and intent and define the best time to involve the sales rep (Mero et al., 2020; Michiels, 2009; Mrohs, 2021).

Lead scoring assigns a score to all the prospect's interactions with the company and reactions to marketing activities, as different activities may indicate a higher level of customer intent. Additionally, also basic criteria like company size, industry, or the seniority of the contact can be scored if an influence on the purchase intentions of the lead can be assumed (Mrohs, 2021; Wenger, 2021). As these criteria, scores, and thresholds for passing a lead to sales highly depend on the situation of the individual company they should be developed through marketing and sales jointly (Monat, 2011). IT-systems then offer the functionalities to manifested and automated agreed on rules and thresholds, making the designed processes more reliable and trustworthy.

Furthermore, IT-systems can help to create formalized ways to distribute leads from marketing to sales based on the scoring thresholds, and from sales back to marketing when necessary. Leads that are not ready for sales yet, can be nurtured with fitting content until they pass scoring thresholds. "Best-in-class" companies use a range of nurturing campaigns specifically designed to nurture new leads, inform prospects, reactivate inactive or closed leads, or cross-sell and up-sell to existing customers (Michiels, 2009). These functions assure that only promising leads are assigned to sales in a timely and correct manner, as the assignment and follow-up time can have a critical influence on success probabilities, especially for online leads (Oldroyd et al., 2011; Smith et al., 2006).

Nevertheless, IT-systems are only as good as the processes that are automated and defined in them. Organization cannot expect them to magically produce better processes (Michiels, 2009). This indicates that the support of IT-systems in the prioritization and planning of lead activities can help to make processes more efficient and effective, but their existence is not a sufficient condition for successful lead management. Instead, these functionalities should promote marketing and sales to actively engage in jointly determining the criteria, scores and thresholds needed to let the systems live up to their full potential. In fact, the more functionalities such systems offer the higher will be the complexity of manually setting rules and triggers (Mero et al., 2020), therefore requiring more and frequent interaction between all parties working with the system. Accordingly, the following hypothesis can be concluded:

> *H7: The IT-systems support in prioritizing and planning lead management activities is positively related to marketing and sales engagement in jointly planning lead management activities.*

The IT-systems support in the prioritization and planning of lead management activities provides both marketing and sales with valuable information about prospects and leads as it identifies and scores relevant information that can be used to assess customers purchase intent (Järvinen & Taiminen, 2016; Wenger, 2021). Based on the scores and thresholds, leads are passed to sales at the right time and marketing can consequently share more relevant information together with the lead handover. The IT-systems allow marketing to not only share basic information about a new lead but also to highlight important information they gathered like the lead score or recent activities e.g., downloads or video views (Järvinen & Taiminen, 2016; Woelke, 2021).

Properly set up systems should constantly improve the quality and informativeness of lead information in the systems (Wenger, 2021). As the systems gather as much information about customers and prospects as possible, marketing can equip sales with more accurate and detailed information about the customer's needs and purchase intent (Järvinen & Taiminen, 2016; Woelke, 2021). This allows the sales reps to better assess the quality of different leads and adjust their approaches, which should strengthen their trust in marketing's shared information and their ability to provide them only qualified leads (Ahearne et al., 2007; Moutot & Bascoul, 2008). Accordingly, as marketing is able to share more and higher quality information about the leads that are passed on to sales, the sharing of information between marketing and sales should have a stronger positive influence on the perceived quality of marketing-generated leads. Correspondingly, the following is hypothesized:

> *H8: The effect of information sharing on perceived lead quality is expected to be higher the better the IT-systems support in prioritizing and planning lead management activities is.*

5. Method

In order to analyze the research gap described above, a questionnaire was developed that addresses sales reps who regularly receive leads from their marketing department. The questionnaire contains questions regarding the constructs considered in this paper, as well as demographic questions and control variables. The sample, measures and analytic approach will be presented in more detail below.

5.1. Sample

The questionnaire was distributed to more than 1000 sales employees via LinkedIn In-Mail messages and was shared directly on LinkedIn and in different sales-specific LinkedIn groups. 495 people viewed the questionnaire, of which 159 finished it. After cleaning the data for participants not working in sales, answer biases and cases with more than 10% missing answers, a usable data set of 151 participants was obtained. The values still missing after adjustment were calculated using the Expectation Maximization (EM) method, which calculates the most probable answer based on the information provided by all other participants (Dempster et al., 1977). The Little-test (1988) indicated that missing values were missing completely at random, fulling the requirement to conduct this method. The EM method was conducted for all variables except for the control variables marketing lead volume and age, where the missing values and one outlier were replaced by the mean value because these values cannot be adequately estimated using the EM method.

Almost all the participants worked for B2B companies (B2B, N=131; B2B & B2C, N=17), only three respondents worked for B2C companies. The data set includes companies of all sizes from small and medium-sized businesses (1-99 employees; N=30), to mid-market companies (100-999 employees; N=45) and large enterprises (>1000 employees; N=74). Around one third of the respondents worked for companies with more than 5000 employees. The companies were distributed across nine different industries, with information technology & telecommunications accounting for almost two third of the sample (N=99), followed by services (N=17) and building and construction (N=9). The high proportion of companies from the information technology & telecommunications industry can probably be attributed to

the fact that these companies are more active on LinkedIn compared to other industries (Gonzalez, 2022). Potentially, it would have been useful to further divide information technology and telecommunications into different sub-industries to get a better picture of the distribution.

21.2% of the participants were female and 78.8% were male. The sample shows an age range from 21-66 years with a mean age of 38.64 (Median = 38; SD = 9.78). On average, respondents had 13.08 years of sales experience (Median = 11; SD = 9.23), had been with their current company for 4 years (Median = 2; SD = 6.12) and received 24.22 Leads per month (Median = 10; SD = 46.45).

5.2. Measures

Most of the scales used in the questionnaire were taken from previous research and adapted and extended to fit the context of this study. The questionnaire was divided into four sections, which thematically dealt with different aspects of the study.

Collaboration measures: Joint planning (JP; α=.924) was measured using a five-item scale which was adopted from the joint planning and teamwork scales of Homburg, Jensen, and Krohmer (2008) and the interfunctional coordination scale from Le Meunier-FitzHugh and Piercy (2011). The amount of information sharing (IS; α=.823) between marketing and sales was measured using a scale received from the information provision scale of Homburg, Jensen, and Krohmer (2008) which was extended by another item (IS_4 = "Marketing and sales share information about successful and unsuccessful leads fast."), based on the marketing-sales interface configurations by Biemans et al. (2010).

IT-system support measures: The quality of the lead information in the IT-systems (LI; α=.953) was measured using a six-item scale that was adapted from the perceived informativeness scale used by Choe et al. (2009) and Buaprommee and Polyorat (2016). The scale was adjusted to fit the context and extended by an item from the knowledge scale from Ahearne et al. (2007) and self-developed items. The scale for the system support in prioritization and planning (LPP; α=.94) was inspired by the customer prioritization scale used by Terho et al. (2015) and Panagopoulos and Avlonitis (2010) and the ability to assess customer profitability scale from Homburg, Droll, and Totzek (2008).

Lead management measures: For the measurement of the perceived lead quality (PLQ; α=.932) the existing scale from Sabnis et al. (2013) was used. The follow-up of marketing-generated leads (MLFU; α=.891) was measured by a four-item scale developed from two scales by Ahearne et al. (2007) and Schillewaert et al. (2005) that were modified to fit the context.

All these constructs were measured by a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Control measures: It is probable that other variables, besides those hypothesized about, have influence on the model. Therefore, additional variables were included to control for their effects. These include how frequently the sales rep uses the IT-systems (ITU: IT Usage) and if their managers are tracking their follow-up activities (MT: Managerial Tracking of marketing-generated Leads). Both were measured using one-item on a seven-point-scale. In addition, the number of marketing-generated leads received by sales reps per month (MLV: Marketing Lead Volume), their age, gender, sales experience (SalYrs), company seniority (ComYrs), and company size (ComSze) were recorded.

All utilized scales and their item reliabilities are presented in the appendix in more detail (see Table 7 in the Appendix).

Reliability and validity of the scales: Internal consistency reliability was assessed using Cronbach's Alpha and Composite Reliability. As reported above, all constructs are reliable with a Cronbach's Alpha greater than .80. With Composite Reliability ranging from .841 to .951, both measures are well above the .70 benchmark (Bagozzi & Yi, 1988; Cronbach, 1951). The results are summarized in table 3.

The reliability and validity of the scales were further assessed by performing both exploratory (EFA) and confirmatory (CFA) factor analysis. The EFA extracted six factors with an Eigenvalue greater than 0.95 that explained 74.95% of the variance among the items in the study, confirming the six-dimensional structure theoretically defined (detailed results are reported in the appendix). Since the Eigenvalue of the sixth factor was 0.957, the EFA was performed forcing it to extract six factors which should be acceptable as the Kaiser's criterion has already been labeled as too strict in some cases (Field, 2009). Nonetheless, in this EFA the Item IS_1 failed to load on the right factor and therefore was removed from the analysis, which was also supported by an increase in the Cronbach's Alpha for Information Sharing (α=.823 → α = .835).

The CFA also confirmed that the six-factor model yields a great model fit for the data as all values were within their common acceptance levels (Hu & Bentler, 1999), the results can be seen in table 1.

The AVE values of all constructs were above the .50 threshold, indicating that each construct explains more than 50% of their indicator variance. Discriminant validity was assessed using the Fornell-Larcker (1981) Criterion. None of the squared correlations of the construct pairs did exceed their AVE values, therefore fulfilling the criterion (see appendix for detailed results).

5.3. Analytical Approach

The software Statistical Package for Social Science (SPSS) and the Analysis of Moment Structures (AMOS), version 26.0, were used to analyze the data. First, the reliability and validity of the scales and measurement model was tested as described above. Next, a first model (Model 1) was fit to confirm the relationship between Perceived Lead Quality (PLQ) and Follow-up of marketing-generated Leads (MLFU), and to test for indirect effects from Joint Planning (JP) and Information Sharing (IS).

After the relationship between PLQ and MLFU has been confirmed, the main effects model (Model 2) was developed

Table 1: Fit Indices for the Measurement Model

Fit Indices	Estimate	Threshold	Interpretation
CMIN	469.901	-	-
DF	306	-	-
CMIN/df	1.536	Between 1 and 3	Excellent
CFI	.956	$\geq .95$	Excellent
TLI	.949	$\geq .95$	Almost Excellent
SRMR	.0488	$\leq .05$	Excellent
RMSEA	.060	$\leq .05$	Acceptable

to test for the influence of IT-systems and to serve as a baseline model for the interaction tests. Notably, the relationship between PLQ and MLFU in this model was dropped as it has already been confirmed, and this study focuses on the predictors of PLQ. The interaction effects were measured in a third model (Model 3) that included the two interaction terms as antecedents for PLQ. To reduce potential multicollinearity effects, all variables were mean centered before the interaction terms were calculated (Dawson, 2014; Hofmann & Gavin, 1998).

6. Results

The correlations, means, and standard deviations of the variables employed in the models are displayed in table 3. As expected, there are high correlations between JP and IS, as well as between LI and LPP, as they are measuring different aspects of collaboration (JP & IS) and IT-systems (LI & LPP). The high correlations between the different variables included in the model already indicate relationships between these variables. The estimation results and model fits of all three structural models are reported in table 2.

Model 1 was designed to confirm the relationship between PLQ and MLFU, which was first described by Sabnis et al. (2013), and to test for indirect effects from JP and IS. The fit measures of this structural model, reported in table 2, indicate that the model fits the data well (Hu & Bentler, 1999). The effect of PLQ on MLFU is positive and highly significant ($\beta = 0.339$, $p < 0.01$). This offers support for H1 and further supports Sabnis et al. (2013) findings that a salespersons perceived lead quality has a significant influence on their follow-up efforts. Furthermore, a positive and significant effect from JP on PLQ was found ($\beta = 0.333$, $p < 0.01$) as well as a positive and slightly significant effect from IS on PLQ ($\beta = 0.221$, $p < 0.10$), providing support for H2 and H4. As hypothesized in H3 the results also showcase a strong positive and significant effect from IS on JP ($\beta = 0.675$, $p < 0.01$).

In addition, a mediation analysis was conducted to explore the indirect effects of IS and JP. The results are summarized in table 4. The analysis confirms a positive and significant indirect influence from both JP and IS on MLFU. PLQ fully mediates the effect of JP on MLFU as well as the effect from IS on MLFU. Additionally, it was also found that JP partially mediates the influence from IS on PLQ.

The main effects model (Model 2), now including the effects of the IT variables, was tested next. All effects already tested in Model 1 stayed positive and significant except for the effect from IS on PLQ which is now almost zero and insignificant ($\beta = 0.013$, $p > 0.10$). In support of H6, a positive and significant effect from LI on IS was found ($\beta = 0.516$, $p < 0.01$). The effect from LPP on JP also turned out to be positive and significant ($\beta = 0.236$, $p < 0.01$), providing support for H7. Additionally, a strong positive and significant effect from LI directly on PLQ ($\beta = 0.416$, $p < 0.01$) was found, which was not hypothesized.

The mediation analysis, shown in table 5, revealed that JP fully mediates the relationship between LPP and PLQ, while the indirect effect from LI on PLQ through IS turned out to be insignificant. Furthermore, it was shown that the effect from IS on PLQ is now fully mediated by JP.

Model 3 was tested last; in this model the study assessed the moderating role of LI on the relationship between JP and PLQ as well as the moderating role of LPP on the relationship between IS and PLQ. The results revealed a positive and significant moderating impact of LI on the relationship between JP and PLQ ($\beta = 0.120$, $p < 0.10$). The moderating effect of LPP on the relationship between IS and PLQ was not present and found to be insignificant ($\beta = 0.050$, $p > 0.10$). The data therefore only offers support for H5, that a higher quality of lead information in the IT-systems strengthens the effects of JP on PLQ, and H8 needs to be rejected. The interaction effect from LI on the relationship between JP and PLQ is plotted in figure 4.

A robustness check of the model was performed excluding the control variables and indicated that the results are robust (see appendix for detailed results). All effects remained significant. The only notable deviation from the Models with control variables was that the interaction effect from LI on the relationship of JP and PLQ was slightly stronger and more significant than before ($\beta = 0.143$, $p < 0.05$).

7. Discussion

This study seeks to contribute to the literature stream of lead management by presenting an empirical model that explores the influence of marketing and sales collaboration on a salesperson perceived lead quality, which can be seen as a key predictor of their lead follow-up efforts. In addition, the study also takes into account the moderating influences that

Table 2: Standardized Parameter Estimates and Model Fits

Relationship		Model 1	Model 2	Model 3
H1:	PLQ → MLFU	0.339***	-	-
	JP → MLFU	0.111	-	-
	IS → MLFU	0.198	-	-
H2:	JP→ PLQ	0.333***	0.256***	0.254***
H3:	IS → JP	0.675***	0.564***	0.564***
H4:	IS → PLQ	0.221***	0.013	0.030
H5:	LI × JP → PLQ	-	-	0.120*
H6:	LI → IS	-	0.516***	0.516***
H7:	LPP → JP	-	0.236***	0.235***
H8:	LPP × IS → PLQ	-	-	0.050
	LI → PLQ	-	0.436***	0.417***
	LPP → PLQ	-	0.154	0.168*
Control variables:				
	MLV → PLQ	-.084	-.051	-.048
	ITU → PLQ	0.188**	0.029	0.028
	MT → PLQ	0.098	-.013	-.013
	Gender → PLQ	0.037	0.070	0.058
	ComSze → PLQ	0.103	0.009	-.009
	ComYrs → PLQ	0.000	0.043	0.040
	SalYrs → PLQ	-.061	-.026	-.031
	Age → PLQ	0.053	0.074	0.076
Model Fits:				
CMIN (df)		299.856 (201)	517.070 (379)	611.061 (419)
CMIN/df		1.492	1.478	1.458
RMSEA		.057	.057	.056
SRMR		.054	.056	.055
CFI		.953	.949	.947
TLI		.936	.938	.933

= Significant at p<.10; **= Significant at p<.05; *= Significant at p<0.01*

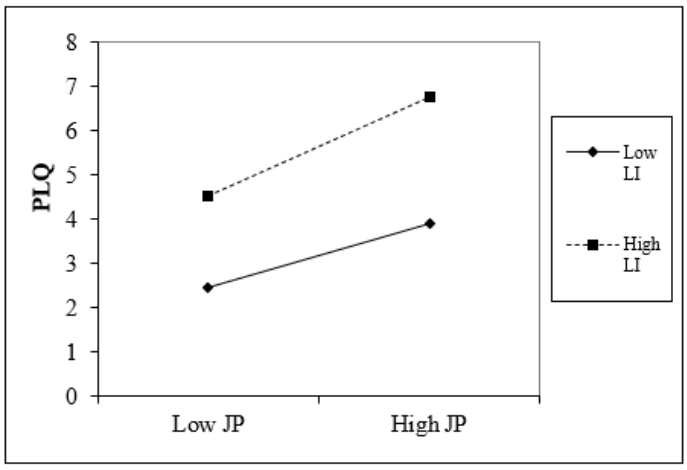

Figure 4: The Moderating Role of LI on the JP-PLQ Relationship

IT-systems can have on these relationships as well as how IT-systems could increase marketing and sales collaboration. All this should help in revealing how marketing and sales managers can best set up their lead management programs for success.

The study proposed eight different hypotheses and found support for six of them, an overview of the results can be found in table 6.

Table 3: Correlations, Means, and Standard Deviation of the Used Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Joint Planning														
2. Information Sharing	.595**													
3. Quality of Lead Information	.395**	.464**												
4. Support in Lead Prioritization & Planning	.427**	.334**	.684**											
5. Perceived Lead Quality	.494**	.412**	.655**	.585**										
6. Lead Follow-up	.366**	.362**	.461**	.432**	.492**									
Control Variables														
7. IT Usage	.233**	.192*	.383**	.376**	.314**	.271**								
8. Marketing Lead Volume	.215**	.152	.034	.072	.026	.033	.023							
9. Managerial Tracking	.225**	.112	.317**	.309**	.238**	.260**	.205*	.141						
10. Gender	.017	.023	-.018	.069	.061	.145	.036	-.004	.005					
11. Age	.103	-.006	-.165*	-.167*	-.051	.065	-.160	-.021	-.088	-.185*				
12. Company Size	-.185*	-.145	.015	.019	-.029	-.077	-.229**	-.110	-.071	.084	-.184*			
13. Company Seniority	-.199*	-.127	-.240**	-.274**	-.164*	-.226**	-.114	-.091	-.188*	-.048	.271**	.009		
14. Sales Experience	.043	.015	-.169*	-.181*	-.078	-.051	-.145	-.054	-.070	-.223**	.806**	-.117	.383**	
Mean	4.52	4.64	4.35	4.21	3.48	5.10	6.23	24.99	4.42	1.21	38.64	4.08	4.47	13.08
Standard Deviation	1.58	1.51	1.67	1.69	1.69	1.56	1,16	46.45	1.95	.41	9.78	1.83	6.12	9.23
Cronbach's Alpha (CrA)	.924	.823	.953	.941	.932	.890								
Composite Reliability (CR)	.921	.841	.951	.941	.937	.894								
Average Variance Extracted (AVE)	.700	.640	.764	.760	.788	.680								

**= Significant at p<.05 (two-tailed); **= Significant at p<.01 (two-tailed)*

Table 4: Mediation Analysis - Model 1

Predictor (X)	Mediator (M)	Outcome (Y)	X→ M	M → Y	X → Y	Indirect Effect
JP	PLQ	MLFU	.333***	.339***	.111	.113**
IS			.221*		.198	.075*
IS	JP	PLQ	.675***	.333***	.221*	.225**

Note: Standardized Estimates are reported
= Significant at p<.10; **= Significant at p<.05; *= Significant at p<0.01*

Table 5: Mediation Analysis - Model 2

Predictor (X)	Mediator (M)	Outcome (Y)	X→ M	M → Y	X → Y	Indirect Effect
LI	IS	PLQ	.516***	.013	.436***	.007
LPP	JP	PLQ	.236***	.256***	.154	.060**
IS	JP	PLQ	.564***	256***	.013	.144**

Note: Standardized Estimates are reported
= Significant at p<.10; **= Significant at p<.05; *= Significant at p<0.01*

Table 6: Summary of Results

Hypothesis	Independent Variable	Dependent Variable	Moderator	Results
H1	PLQ	MLFU	-	✓
H2	JP	PLQ	-	✓
H3	IS	JP	-	✓
H4	IS	PLQ	-	∼
H5	JP	PLQ	LI	✓
H6	LI	IS	-	✓
H7	LPP	JP	-	✓
H8	IS	PLQ	LPP	✗

✓= supported; ✗= not supported; ∼ = partially supported

7.1. Research Issues

The predictors of perceived lead quality have remained widely unexplored as research has mainly focused on options to determine the objective quality of leads (e.g., D'Haen and van den Poel, 2013). This paper addressed this research gap by examining the influence of one of the most important factors in lead management, the collaboration between marketing and sales, while also considering potential effects the support from IT-systems may have. With a sample of 151 salespersons that regularly work with marketing-generated leads, this study gained interesting insights on the interplay between IT-systems and collaboration in influencing the perceived quality of marketing-generated leads.

First, the results of this paper were able to further strengthen the findings from Sabnis et al. (2013), that the perceived quality of marketing-generated leads has a significant influence on a sales rep's follow-up effort. The better a salesperson's perception of marketing-generated leads gets, the more willing they are to follow-up on these leads. This fact already stresses the importance of a good prequalification process for marketing-generated leads that needs to match sales expectations.

The beneficial effects of marketing and sales collaboration have already been discussed in interface literature but have not been transferred on lead management research yet. The results of this study showcase that collaboration has an important impact on the lead management process, as it was confirmed as an important predictor of the perceive quality of marketing-generated leads. Therefore, also influencing the follow-up efforts of sales reps through indirect relationships.

Joint Planning showcased the strongest effect on the perceived quality of marketing-generated leads among the collaboration variables. The more and the closer marketing and sales plan lead management activities and processes together, the higher is the perceived lead quality of the sales reps. This can be explained by a higher level of commitment and trust in the jointly developed processes, as it is ensured that the perspectives and requirements of both parties are taken into account. The influence from information sharing on perceived lead quality was weaker and only remained significant as long as the IT variables were not considered. The insignificance of the effect within the full model may be explained by the fact that, if the IT-systems provide sales and marketing with high-quality and well-organized information about marketing-generated leads, the beneficial effect of addition-

ally sharing this information becomes very small. The not hypothesized strong direct effect from quality of lead information on the perceived lead quality supports this interpretation.

IT-systems were also confirmed to play an important role in lead management processes. It was found that different aspects of IT-systems can significantly influence the collaboration between marketing and sales. The quality of the lead information in the IT-systems was found to positively influence the amount of information sharing between marketing and sales. This can be explained by the fact, that high-quality and well-organized IT-systems decrease the thresholds to share information by making information easier to access and share, while also highlighting the value and necessity of sharing relevant information. Furthermore, IT-systems support in the prioritization and planning of lead management activities was found to positively influence the amount of joint planning between marketing and sales. As IT-systems cannot magically create or improve lead management processes, it is necessary that marketing and sales consult about the setup of such systems and therefore also about the lead management process in general. This is an important contribution, as it demonstrates the potential of IT-systems in aligning marketing and sales.

IT-systems are not only able to improve the collaboration between marketing and sales but were also found to strengthen the positive effect of collaboration on the perceived quality of marketing-generated leads. A high quality of lead information in the IT-systems creates a better foundation for marketing and sales planning activities. Decisions can be made faster and are based on better and more relevant data, creating more confidence in agreed processes. This finding further strengthens companies need for high quality IT-systems and stresses the importance of good data management and the integration of different systems in a single source of truth. No evidence was found that IT-systems support for prioritization and planning had a strengthening effect on the relationship between information sharing and the perceived quality of leads generated by marketing. This might be attributed to the same reason as the reason for the missing relationship between information sharing and perceived quality of marketing-generated leads in the model with IT variables.

It can be concluded that both collaboration between marketing and sales and IT-systems play an important role in lead management and are essential for building a good perception of marketing-generated leads. Further can be noted that IT-systems seem to enable lead management in its best possible form as they not only strongly increase the collaboration between marketing and sales, but also enhance the effects that this collaboration has on the perceived quality of marketing-generated leads. All in all, there is a complex interplay between collaboration and IT-systems, which implies that only successful initiatives in both areas promise a maximum of success.

7.2. Managerial Implications

Each year, a large portion of marketing budgets is spent on the creation of new leads, increasingly through online marketing channels (Gartner, 2021). If marketing generates leads and sales does not follow up on them, a lot of valuable resources are wasted. The value of this study for exploring ways to improve sales reps' response rates to marketing-generated leads is therefore obvious. Valuable implications on how to design lead management processes to reduce the waste of resources can be derived from this study.

First, evidence has been found that the joint planning of lead management activities has an important impact on salespersons' perception of lead quality. This illustrates that lead management must be seen as neither a marketing nor a sales task, but as a joint process in which both parties must be equally involved. When marketing and sales coordinate and plan their processes together, both parties are more committed to the process and know how to address and resolve issues in the process. This ensures that the different expectations and requirements that marketing and sales may have on a lead, or the lead management process, are factored in and that everyone knows what to expect.

Information sharing was also found to have a positive impact on the perceived quality of leads generated by marketing. However, as this influence fades once IT-systems are included in the model, it is recommended that sales and marketing managers should focus more on implementing high-quality IT-systems instead. Systems with high-quality and well-organized data were found to increase the amount of information sharing between marketing and sales. In addition, the functions of IT-systems that help prioritize and plan lead activities encourage marketing and sales to plan processes and activities together to a greater extent.

Furthermore, the study stresses the importance of high-quality and well-organized data within the IT-systems. A high quality of lead information in the systems was shown to significantly enhance the effects that joint planning has on the perceived lead quality by creating a better foundation for joint decisions. On top of that, it also had one of the strongest direct effects on the perceived lead quality. These results show the great benefits of good data management. It should prompt marketing and sales managers to ensure that the most important data about leads is kept up to date and presented in a way that allows everyone to access key information quickly and easily. Especially the integration of marketing and sales systems should be of great benefit in this, as recommended by others before (see e.g., Wiersema, 2013).

7.3. Limitations, Conclusions and Directions for Future Research

There are some limitations to this study that can restrict its generalizability and interpretation. These are discussed in the following section, including possible directions for future research.

One limitation can be seen in the fact that the study only measured data on the salesperson level. Therefore, not only

the perception of lead quality, but also the collaboration and IT variables were measured solely on the subjective level of the salesperson. This can be justified with the studies focus on the subjective quality of leads, which of course should be most influenced by a salesperson's subjective perception of collaboration and IT-systems. Nevertheless, measuring the data also from the marketing perspective may generate further insights in the processes and could be considered in future research.

Another limitation resulting from the one level measurement is that the follow-up efforts were self-reported by the salespersons. This means that the self-reported data may be biased, and results would have been more robust if the follow-up efforts had been measured on the sales manager level or through actual CRM-Data about lead management activities (see e.g., Gramzow et al., 2003).

As reported in the description of the sample, around two third of the respondents worked in the information technology & telecommunications industry. Due to the high percentage of respondents from the same industry, it might be possible that the sample is biased, and certain effects only arose due to specific policies especially applied in this industry. Therefore, the generalizability of the results to other industries may be restricted and needs to be interpreted with caution. Future research that replicates the results of this study, while focusing on other industries, could help to further strengthen and validate the findings.

Collaboration and IT-systems were both assessed via two different aspects. It is obvious that there are more facets of collaboration and IT-systems, and therefore likely more ways how collaboration and IT-systems can influence each other and the perceived quality of marketing-generated leads. Examples of other influencing factors could include knowledge about the other parties' day-to-day activities, the quality of the exchange and interaction between both parties, or the user-friendliness of IT-systems. In addition, it may be interesting to further investigate which specific types of IT-systems, e.g., sales force automation or marketing automation, contribute most to successful lead management. All these points might be interesting to consider in future research.

Despite the above limitations, this study makes an important contribution to the literature on lead management and paves the way for further research in this area. It is demonstrated that both collaboration between marketing and sales and IT-systems make a significant contribution to successful lead management, and that the successful combination of both open up opportunities to overcome the sales lead black hole.

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