Oiling the 'Tireless Selling-Machine' – Exploring Requirements for the Deployment of Social Bots in Social Commerce

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Abstract

Social media have become major platforms of commerce and changed the way we communicate and consume. Phenomena such as social bots add new dynamics to discussions and the spreading of information with the possible aim to influence or shape opinions and decisions. This study examines the requirements under which organizations would use social bots for commercial purposes. Interviews with 12 experts yielded a collection of requirements, including limitations, ethical considerations, and potentials for possible uses in marketing, social commerce, and customer service. It can be concluded that using social bots can be beneficial for commercial organizations, but that there is still a need for clarification of legalities.

1. Introduction

Social media have become major platforms and changed the way we communicate and consume [1, 2]. They also play an important role in the current development of consumer preferences, demand predictions as well as peer-to-peer and targeted marketing techniques [1]. Consumers use social media to gather information about products, brands or events [3]. In recent years, a transformation has taken place in how people gain access to information because of the possibility of gathering information via a worldwide network [2], with new actors entering this space: *social bots*.

The fundamental problem for individuals, in their role as consumers, voters, or employees, is the difficulty of identifying an opinion or information as authentic or not [4]. As a result, there is growing concern as to whether social bots are trying to form or manipulate opinions or even scatter false information [4]. Studies have already shown that social bots are programmed to influence public opinion [5].

Social bots can be characterized as agents that "automatically produce content and interact with humans on social media, trying to emulate and possibly alter their behaviour" [6:96]. At the same time, bots make it possible to quickly share content like links, texts, or pictures. They can easily spread specific information to other users without being identified as a piece of software [7].

Research could already identify that social bots are used in political election campaigns [8], during online protests [5], in entrepreneurial contexts [9], but also during natural disasters [10]. Apart from the potential threat to democracy or political issues, the triggering of panic in emergencies or the danger of influencing algorithmic trading can also damage the reputation of organizations [11, 12].

However, organizations and brands, too, use social media to influence the buying intentions of potential customers [13]. It quickly becomes clear that these platforms are particularly interesting for organizations when it comes to the fact of influencing a discussion on a selected topic [14]. News distribution such as dissemination of information on certain topics, large scale advertisement or spam can easily be achieved through the use of social bots [14]. For this reason, the use of these bots has recently become much more attractive for organizations.

On the one hand, it is a cost-effective way to distribute automated messages and reach as many recipients as possible. On the other hand, it also offers the possibility to change opinions of other users [14]. Therefore, it is very important that human users are aware of social bots and recognize their strategies. Simultaneously, promotion and advertising have by no means as much influence on purchasing decisions as, for example, product information shared by peers [9].

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This obviously increases the interest of organizations in being able to influence customer ratings and to increase the visibility of their products or services on social media platforms [9]. Nowadays, social bots can contribute to the success of an organization, especially when they generate most of their revenue online [9]. All these opportunities could be of interest to organizations and could be potential applications for marketing and customer service.

In order to identify the type of content that increases the turnover of social commerce and which possible strategic elaboration it could mean for organizations, the social commerce taxonomy [15] offers a good theoretical foundation. It distinguishes between relational and transactional social commerce activities. The former means all pre-transactional, post-transactional and support services. In terms of transactions, the authors see possibilities for payments, purchases and order processing [15]. Through this classification of posts, a strategical elaboration of social bots and an increase of social commerce may be achieved.

If an organization decides to implement an information system (IS) such as social media with social bots as (partially) automated actors, this success of this process can be determined based on certain criteria. Such criteria are presented, for example, in the Technology-Organizational-Environmental (TOE) framework [16, 17]. The question of how to optimally combine certain capabilities of an IS with internal business strategies is examined more closely here. The consideration is based on the following three dimensions: technology, organization and environment [17].

Before introducing an IS with (partially) automated actors, an organization should therefore consider criteria as suggested by TOE and evaluate whether its implementation could increase its competitive advantage. This paper aims to analyze the extent to which the potentials of social bots can be identified and under what conditions organizations would deploy social bots.

Furthermore, organizations recognize social commerce as an interesting trend [18] and the use of social bots is becoming increasingly attractive [14]. At the same time, organizations are not even aware of the possible use cases of and the requirements for a social bot in social commerce. In order to close this research gap, the Social Commerce Taxonomy [15] and the TOE framework [17] are consulted, and the following research questions are formulated:

RQ: *What are technological, organizational, and environmental requirements for organizations to adopt social bots for social commerce activities?*

To answer this research question, we conducted 12 semi-structured expert interviews in Germany. Applying the perspective of TOE framework, we aim to align the findings towards central dimensions for innovative decision making in organizations. Through this research, this study enriches information systems research identifying central conditions for the social bot readiness on an organizational level in a commercial context.

2. Background

2.1 Social commerce on social media

By the increasing growth and influence of social media during various social, political, and economic events, the utilization of social features raised economic attention. In this context, the term social commerce describes the relationship between sellers and buyers via social networks [19] and can be regarded as a subset of e-commerce [20]. Combining structural functionalities of both e-commerce and social Media catapults social commerce into a new context [21, 22]. Thus, social commerce umbrellas various social media actors as well as all commercial activities that are mediated by social media [23].

The integration of social features into e-commerce platforms also creates a new opportunity for organizations to generate revenue [24].

Traditionally, e-commerce, focuses on aspects such as search engines, product categorizations or shopping baskets [25]. However, e-commerce platforms such as Amazon or Alibaba started to integrate social features such as product reviews in their established websites [15]. Today, it is a common feature to integrate e-commerce features on social media such as Instagram or Facebook [25]. This allows people to share their experiences of purchased products or services with their personal networks on social media to reach a large-range audience.

To better understand social commerce activities, the social commerce taxonomy differentiates between transactional (pre-transactional, post-transactional, and transactional) and relational activities [15]. Business activities that focus on new relationships with stakeholders, such as pre-transactional, post-transactional and support services, are part of the relational activities in the taxonomy of social commerce. This includes, for example, building relationships with new suppliers, customers or potential employees [15]. Moreover, organizations can also apply transactional activities such as payments, order processing or purchasing (selling products) in regard to the social commerce taxonomy [15]. Social commerce can make it easier for organizations to carry

out pre- and post-transaction activities [15]. To attract the attention of users, organizations also rely on physical and virtual campaigns, which are then presented to various demographic target groups via predefined social media platforms [15].

However, if one considers the use of social media as a technology resource in social commerce, this technology must also be developed so that the organization can gain competitive advantages The passing through of several stages during a possible adoption is also indispensable here. From the founding phase, through the development phase, the testing phase and up to the degree of maturity [24].

2.2. Social bots

The rising popularity of automated agents, so called (social) bots, has also increased the range of possible applications online [26]. Bots can be classified into different types. For example, spambots send unwanted messages to users [11] or news bots, who are responsible for the distribution of news and information through their automated behavior [27]. A further differentiation can be made between conversational bots (also referred to chatbots), which are computer programs that can talk to a person via speech or text [28].

A social bot differs in that it tries to imitate human behavior and interaction with humans [7, 11]. They can be described as "artificial social media accounts that try to hide their artificial nature by behaving as human-like as possible in order to be taken fully by other social media users" [29:3]. Social bots make it possible to quickly share content like links, texts or photos and to easily spread specific information to other users, without being identified as a piece of software [7]. At the same time, they are autonomous programs that act and operate in social networks, where they play an influential role in the daily use. In doing so, you will find use in placing topics specifically in the public's perception and changing opinion formers [29].

A distinction can be made between automated and semi-automated accounts [30]. The latter includes so-called cyborgs, which can be understood as accounts, "representing human-assisted robots or robot-assisted humans" [30:384]. Compared to that, automated accounts, are controlled solely by an algorithm. The tasks of social bots include the automatic sharing of news such as the weather or current events [7]. But also, the simple (re)posting of information is part of their work [31]. This kind of bots always try to perform their tasks in a human-like way, so that they are not recognized as a social bot [7]. It allows them to interact with people within a network and create comments and likes [31].

Interactions of social bots on social media network sites have been observed for years [31, 32]. The main goal of those bots is to distribute ideological content on a specific platform to the largest possible audience [33]. In that context, research identified several strategies of social bots such as overstate trends, astroturfing, or smoke screening [21, 34, 35].

3. Technology-Organization-Environment framework

Increasing competitive pressure and a highly dynamic business environment are forcing organizations to use state-of-the-art Information Systems (IS) and Information Technologies (IT) on the global market [36]. Through this use, they try to promote corresponding innovations and thus be able to survive on the market [36]. The Technology-

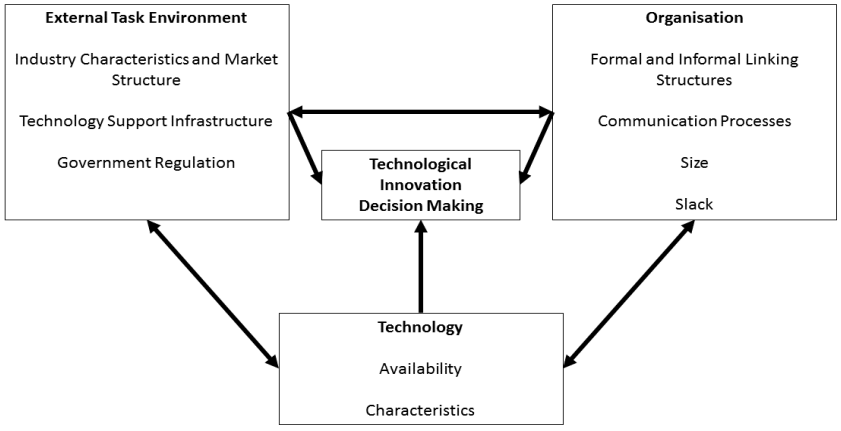

Figure 1. TOE framework

Organization-Environment (TOE) framework (Figure 1) can serve as an assistant for an organization because it describes factors that can influence decisions when it comes to the implementation and adoption of an innovation [17, 37].

The framework is designed to support the investigation of the introduction and use and value creation of technologies [36]. But it can also help to examine the three influencing factors (technology, organization, environment) and to better weigh up the implementation or acceptance decision of the respective innovation [37, 38]. However, it is important to note that the TOE framework is intended for the implementation of Information Systems innovations [39]. An advantage of the TOE framework compared to other models is the consideration of the environmental context of an organization and the resulting overall approach [40].

The perceived characteristics of possible IT innovation are determined by the technological context factors [37]. However, the technological components also have an important influence, sometimes overlooked, on the decision as to whether an innovation is adopted in an organization [17]. In addition to the availability of technology, it matters whether this available technology fits into the organization at all [17]. Both, the internal and the external relevant technologies, are considered when an organization takes into account whether an innovation should be implemented or not [17, 39].

The organizational context factors are those which influence the structure of an organization and that the organization might adapt to fit changing environments [37]. These factors can also simplify or constrain the adoption of an innovation. Typically, the factors involved in this aspect of the framework are defined in descriptive measures [17]. Figure 1 illustrates important aspects such as the size of the organization, centralization, complexity of its managerial structures, formal and informal linking structures or the communication process [17, 39, 41]. The amount of internally available slack resources and the quality of its human resources is also taken into consideration [17, 39, 42].

However, the authors here also underline the informal linkages between the employees of an organization and their transaction. This includes, among other things, internal communication and making decisions [17].

Because it is difficult to distinguish between organizational and environment items, the authors define the organization as followed: “any person, entity, or process that is managed by the firm will be considered to be part of its internal organization” [17:154]. The context factors of the environmental dimension relate to both opportunities and threats to an organization [17] and those relate to the communication with external, and thus the environment. These factors usually cannot be controlled by management [37].

Regarding the adoption of social media, a lack of resources, the hierarchical structure and a lack of guidelines and knowledge could be identified as challenges in the organizational crisis context for the adoption of social media. On the third dimension of the TOE framework, the environment, challenges such as infrastructure failure or legal issues can be identified [40].

Summarizing, the TOE framework can serve as a good basis for the demands of organizations on social bots, as it is assumed that technological readiness, technology integration, organizations’ size, management obstacles [43] and other aspects already mentioned have an impact on the integration of information systems. In this paper, information systems refer to social media and their (partially) automated actors, the social bots.

4. Research design

To identify possible requirement for organization’s application of social bots, we conducted 12 semi-structured expert interviews. Both, organizations, and social media agencies that act as interview partners were contacted in the next step (Table 1). Experts were consulted if their daily work relates to social media. These include, for example, social media specialists or managers, HR specialists with a focus on social media.

Table 1. Characteristics of the interviewees related to their position, organization’s size and type, age, and education

ID	Position (time of employment)	Type and Size of the Organization	Age, Education
1	Senior Manager Social Insights (2 ¼ years)	Organization (1.100, B2B & B2C, Beauty)	36, Master
2	Social Media Specialist (2 ½ years)	Organization (7.000, B2B, Industrial Automation)	30, Master
3	Digital Community Specialist (1 ½ years)	Organization (400, B2B, Sporting Goods Manufacturer)	30, Bachelor
4	Head of Sales (4 years)	Organization (18, B2B,	30, Master

		Service Technology)	
5	Social Media Consultant (1 year)	Agency (700, B2B)	24, Bachelor
6	Social Media Manager (2 ½ years)	Organization (1.000, B2C, Electrical Industry)	29, Bachelor
7	Director (4 ½ years)	Agency (50, B2B, Consulting)	35, Diploma
8	Social Media Manager (4 years)	Organization (47.100, B2B, Discounter)	28, Master
9	Head of Employer Branding - Social Media (1 year)	Organization (160.000, B2B, Industry & Technology)	31, Master
10	Social Media Manager (1 year)	Organization (35.000, B2C, Discounter)	33, Master
11	Director (10 years)	Agency (17, B2B, Service Provider)	34, Diploma
12	Social Media Manager (1 year)	Organization (43.300, B2B & B2C, Energy Supply)	24, Bachelor

Next to organizations that may manage social media in a designated (small) department, agencies' business model is often fully focused on social media management. Thus, agencies offer products with a focus on social media to their customers that could be other organizations. This suggests that both organizations with a B2B and organizations with a B2C communication relationship were considered in the data acquisition process. The industry is not narrowed either since it is intended to gain a comprehensive insight into the requirements of organizations for social bots here. Also, the size of the organization, the previous use of bot technologies, nationality or internationality of the organization were not restricted in advance.

Contact with the experts was established via e-mails, contact forms and the corresponding LinkedIn profiles of the experts, but existing contacts were also used. Everyone received a standard cover letter in which the purpose of the work was briefly explained. Subsequently, an interview appointment was arranged with the experts. Before the interview could take place, however, the experts needed to sign a declaration of consent. This is followed by a brief description of the background and objectives of the study, the procedure and a reference to voluntary participation and the right of termination. Besides, the reference to incomplete information, the right to information and results after the study, the guarantee of anonymity and data protection are mentioned. This was followed by an agreement to accept the information and an agreement to record the conversation.

The interviews were conducted in German via Skype, telephone, or face to face. All conversations were recorded with a recording device. The conversations should be both half-structured interviews and open-ended interviews [44]. Although there was a matrix of previously defined questions that did not have to be strictly followed [44]. This made it possible to ask follow-up questions. Because of the open-ended questions, there is the opportunity to participate in a discussion. First, sociodemographic data such as gender, age, education, work experience, position, and experience in the job, as well as the size of the organization and the sector of the organization or agency were queried. Furthermore, questions related to social bots are asked such as "What private experiences do you already have made with social bots?", "What requirements would you place on social bots if they were planned to be used in your organization?", or "What requirements would you place on social bots if they were planned to be used in your organization?".

On average, the interviews lasted about 30-40 minutes. At the end of each interview, the respondents received a debriefing in which further information on the purpose and aim of the work was described. In the period from 18th June 2019 to 29th August 2019, a total of 103 organizations and agencies were contacted. This resulted in 12 expert interviews, which were conducted in the period from 26th July to 4th September.

After the expert interviews were completed, the transcription took place, which was carried out with the help of the tool Amberscript[1]. The interviews were transcribed using the "clean read or smooth verbatim transcription" [44:46]. Resulting in a simple text, the transcription was transmitted word for word and at the same time, filler words such as "uhms" or "ahs" were extracted [44]. The interview data was then analyzed for content using the Inductive Category Formation [44]. The advantage of this procedure is that it provides an accurate and authentic description since an understanding of the material can be created during

[1] https://www.amberscript.com/

category formation. For this reason, it is also called "open coding" [44:79]. If a part of the transcription was detected that matches a category, the category was created. In the next step, it was checked if the content fits into the previously defined category or whether a new category had to be created [44]. A revision of the created category system requires a holistic revision after processing of about 10-50% coded transcripts. Special attention is paid to the overlapping of the created categories and it is possible that categories can be summarized or named differently [44].

5. Findings

Overall, 12 interviews were conducted that lasted between 24 and 58 minutes and none of the interviews were cancelled. The size of the interviewees' organizations ranged between 17 to 160,000 employees. The considered industries varied greatly to obtain a broad overview of the conditions under which branch would make use of social bots. Furthermore, the distinct communication channels B2B and B2C are also considered. The findings are aligned to the TOE framework categories (1) technological, (2) organizational, and (3) environmental.

5.1. General requirements

First, regarding basic requirements for social bots, a high reach and a human-like behavior appears to be central for the interviewees (ID 1, 6, 8). Another important aspect is the variety of languages that the algorithm of the social bot can handle. This point could be assigned to the technological category. However, if this is seen as a requirement in the organization, i.e., if the organization is represented internationally, this would include comprehensive communication (ID 6). At the same time, the understanding of semantics and irony must also be imparted through use in the organization (ID 11).

In comparison to chatbots that act reactively, it is not clear from the interviews whether a social bot should act proactively or reactively (ID 7, 8). In e-commerce on one's social network side, proactive action is not a problem, otherwise ethical aspects play a role, which will be discussed later (ID 8). Irrespective of whether the behavior should be proactive or reactive, behavior patterns in the political and social context also play an important role. It is of great relevance to the reputation of a organization that the social bot acts as non-politically as possible (ID 4). Concerning the social aspects, social bots should not act or comment in a way that despises women or is racist (ID 4). If a racist or anti-woman post is liked by a social bot, it could already be harmful to the organization. It would also be harmful if he could not feel empathy and thus "attack" users (ID 6, 7, 10). Such communication also requires a certain eye level at which one talks to the potential customer (ID 10).

According to an expert (ID 6), some bots that deliberately make spelling mistakes so that they are not recognized as such, and act covertly. Professionalism is the keyword when it comes to grammar and spelling (ID 6). At the same time, the social bot should try to avoid redundancies (ID 6). Because, as one expert argues, there is this cliché that you are having a conversation with a chatbot ending up at the same point. This is rather frustrating for the user (ID 6). The social bot should also be able to recognize when the support of a person is necessary to avoid frustration. Therefore, another requirement would be that the social bot is intelligent enough to detect, assess and hand over the topic to a human employee (ID 6).

But all this also includes the kind of communication that a social bot exercises on the social network pages. Here the opinion diverges a little, whether they should set off own posts, only share contents or only comments and likes. The question of the legal situation already arises for almost all experts, as this condition requires the implementation of social bots. They are only used if everything is legally correct

5.2. Technological requirements

In addition to the general requirements on social bots that the experts mentioned in the interviews, technical components also play a decisive role. The technological requirements act as foundation to enable the other requirements. There is agreement on the condition that they must have interfaces to internal systems (ID 1,2). These contains, for instance, the SAP system, including product databases (ID 1, 6, 8, 11, 12), category management (ID 6), Customer-Relationship-Management (CRM) (ID 2, 4, 8, 12), FAQs (ID 2), the online shop (IID 3), press releases (ID 6, 12) or very general organization information (ID 12). When connecting to these systems, it must be ensured that all information can be read automatically by the social bot. Additionally, all of this should be verifiable and auditable by employers (ID 8). In cases of mistakes and errors, it can be reviewed and adjusted.

By looking at the CRM, the system should then be able to recognize whether the user is an existing customer and what sales volume he has. In this step, for example, the sales representative in charge could also be included (ID 2). An enrichment of the databases by collecting customer data would also be important here (ID 4). At this point, the question

arises, who is this user and on which channels does he already interact with the brand (ID 4)? If the social bot is also used in customer service, the product database and category management are important in addition to CRM.

Finally, the observation and test phase during the introduction of such technology (ID 6) plays a striking role for the experts when implementing the aspects mentioned earlier. The fundamental question is whether the use of one or more social bots would not require the creation of completely new databases to which the social bot would then have access to. Whether this is then a hurdle for the integration of social bots, of course, also depends on a variety of other variables (ID 2). Naturally, there are also fundamentally different technical requirements if one distinguishes between an obvious and a covert social bot and between a reactive and proactive social bot. Nevertheless, it is necessary to consider where the competences for the implementation of the technical aspects are located

5.3. Organizational requirements

It is precisely this distribution of competencies within the organization that goes hand in hand with the conditions under which a organization would use social bots. Every organization is structured differently and may already have an integrated IT department that can assist in the development and implementation of social bots.

It must be determined on an individual basis if there is enough IT competence and knowhow available in-house. If this skillset is not integrated into the organization, as it becomes clear in most interviews, the subject must be outsourced to external agencies or service providers (ID 2, 7, 9). Of course, it is also possible to combine the organization's know-how with that of an external service provider (ID 7).

On the agency side, it was mentioned by a managing director, who offers services such as chatbots, that most organizations approach agencies on such topics because exactly this knowledge is not available in the organization. One expert also emphasizes that this is not directly related to the size of the organization (ID 2). The size of the organization could only be related to the responsibility that a possible firestorm could entail by unmasking a concealed social bot (ID 5). Such a decision is influenced by the objectives of the respective organization and the environment (ID 2).

The decisive factor for this is also the culture of the enterprise, which is influenced, among other things, by the founding country (ID 3). If, for example, the organization has its origin in the USA, it is probably more open to the introduction and deployment of such technologies than in Japan, which tends to be more conservative (ID 3). In this case, the organization's reputation again ranks first (ID 3).

Simultaneously, the internationality of a organization also raises the question of how self-sufficient the individual countries are and whether both the technical knowledge as well as the support of such a technology should be maintained self-sufficiently bundled at one location or in the individual country (ID 6).

It must also be considered whether the organization pursues the B2B or B2C communication channel. A B2B organization often offers only a few direct or handy products going to the end-user, but the B2B sector still offers great potential according to the expert (ID 9). Another variable that would cause the adoption of social bots in the positive sphere would be a potential reduction in employee workload (ID 5). This must also be compatible with the structures of the organization (ID 5) and it must be clarified which department is responsible for which maintenance or checking of the social bots (ID 8).

5.4. Environmental requirements

Another important aspect, influencing the conditions for the decision to use a social bot in a organization, are the environmental factors, which especially include legislation aspects but also competition.

At the outset, it can be said that none of the experts in the interviews were aware of the current legal situation and that there is still a large knowledge gap. Words such as unfair competition (ID 1), surreptitious advertising (ID 3), free-riding (ID 11) or legal grey areas (ID 11) were mentioned. In any case, an important dimension is the topic of data protection (ID 2). As an example, an expert mentions the CRM comparison, which is only allowed to be carried out under certain laws (ID 2, 12).

Where, for instance, are the data generated by interaction with the social bot stored (ID 4)? According to one expert, European data protection law is well-positioned here (ID 4). In addition, a organization could rely on the basic knowledge of a specialized agency when outsourcing the topic (ID 4). Also, the question of data evaluation with reference to the legal situation remains open (ID 4).

Particularly when it comes to integration of social bot into marketing as a kind of advertising medium, the question of labelling of advertising arises (ID 3). For the consumer, the handling of such things must be as transparent as possible (ID 3). The analysis of the

expert interviews also revealed that it is not clear where the legal responsibility lay.

Is it part of the governmental responsibility or part of terms of use of the respective platforms or social network sites (ID 5)? If it is the latter, how do they differ on the different platforms? Once again it can be summed up that, in addition to the lack of knowledge about the legal situation, it is obvious that social bots can only be used under the conditions that they comply with legal regulations and data protection

6. Discussion

This study revealed important conditions and major concerns that might influence an organization's readiness for the use of social bots in a commercial context. Applying the perspective of the TOE framework central conditions could be assigned to one of the three central dimensions (Table 2).

Table 2. Major conditions for organizations' social bot readiness

Dimension	Conditions
Technology	A social bot must be able to… 1. quickly build up a high reach 2. identify customers characteristics 3. be integrated into common interfaces (e.g., CRM. FAQ, SAP)
	Technological availability is crucial. Integration of social bots is inseparable from IT support within the organization.
Organization	Organizational structure and culture need to fit to the social bots and vice versa. Upcoming fields of responsibilities needs to be clearly assigned (e.g., legal and ethics).
	The social bot needs to be adapted to the specific market. B2C as well as B2B organizations are suitable for the deployment of social bots. The B2B domain hides unused potential.
External Task Environment	Legal, privacy, and data protection regulations (e.g., *General Data Protection Regulation (GDPR))* might act as an obstacle.
	Organizations need legal planning security to plan and calculate for the long term.

This dimension highlights the structures within an organization, which must also be taken into account when considering whether a new technology should be introduced into an organization [17]. The experts also name areas of responsibility and the possible IT support in-house or through agencies. Slack resources include the organizations' availability of know-how [17]. The area of responsibility named by the experts can also be regarded as part of the communication process within the organization [17]. Problems may arise if it is not clear who is responsible for which fields of the new technology. The findings revealed many potential areas of application for social bots in addition to marketing, customer service and promotions. Next to that, the experts also mention limitations with respect to the recognition of sarcasm, emotions, and irony.

They also argue that if they let social bots operate undercover, they would also adapt it to the human posting behavior. Admittedly, the preference is going clearly in the direction of letting social bot act transparently. Regarding the technical support, it must be clarified whether the implementation should be managed in-house or by an external agency and which interfaces must be set up and connected to internal systems. The organization should also consider if the product variety can be represented by a social bot. The most important thing is to make sure that the legal situation is checked before implementation, otherwise an implementation would rather not be an option.

However, the experts cannot see an explicit relation between the size of the organization and the possible implementation of social bots, which supports the results of previous research [45]. If an organization is larger, it is likely to have more budget available. This refers to the slack resources, which include human resources as well as financial aspects [17]. Besides, the country in which the organization was founded plays a decisive role in its corporate culture. This also includes the management, who do not play a passive role [17].

They indirectly determine the communication process or informal linking structures. Simultaneously, research also highlights the connection between systems already integrated in the competitive environment as a possible requirement.

7. Conclusion and outlook

This study investigated a) the status-quo of organizations' social bot readiness, and b) revealed

conditions that are crucial for the future deployment of social bots in a commercial context. To this end, the TOE framework is applied to align the findings against literature. By interviewing various organizations, we identified that current organizations are not ready among the dimension's *technology* and *organization*. As social bots could make use of individual data, we highlight that the social bot readiness of organization is also highly depended on (inter-) national legal regulations such as the GDPR.

This study contributes to knowledge by identifying specific conditions and requirements for the use of social bots by an organization in a commercial context. By taking the perspective of the TOE framework, we align the findings to well-known dimensions in the information systems research. The findings of this study provide a first step for technologically innovative decision making considering the phenomenon of social bots. Likewise, the findings outline also practical implications. As decision-makers may use the insights of this study to further improve innovative process within their organization. A first step might be ensuring a technological foundation by developing information systems that allow an integration of social bots into the organization's ecosystem.

Our qualitative research design taxes distinct limitations on our findings. Even though we reached a particular level of saturation through our interviews, the generalizability might be compressed through the organizations' cultural and German legal context. In that context, future research may take this study as a foundation to compare the revealed conditions against organizations facing other cultural and legal backgrounds. Furthermore, some conditions were mentioned more often than others. Although the quantity of statements less relevant in qualitative research, future studies may consider potential relationships between frequently mentioned aspects and their importance.

7. References

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