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Investigating Early Adopters' Use of Location-based Social Networks: Implications for Local Businesses and Service Providers

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ABSTRACT
Social media has been defined by what happens on people's computer screens. But what happens when people turn off their computers and take social media to the real, physical world? Now, with recent advancements in mobile technology, early adopters build communities around the concept of 'check-ins'. They broadcast their location to friends, learn about other people's whereabouts, and share location-based information about bars, parks, cities, and virtually any kind of location. We present a study of 63 early adopters who use location-based social networks in their daily lives and analyze their behavior with respect to the impact on local businesses as well as service providers. Our results show that users derive real value from connecting information to location and indicate significant potential for customer-to-customer marketing. Further, our findings provide support for claims to include privacy and context-related constructs into technology acceptance theory.

Keywords
Location-Based Social Networks, Online Social Networks, Location-Based Services, Mobile Social Networks, Usage, Adoption

1. INTRODUCTION
The use of online social networks (OSNs) for information sharing is not a novelty. Twitter has built a billion-dollar company [63] around the question "What are you doing?" delivering real-time information about what is happening in people's lives all around the world. Now, innovative location-based social networks (LBSNs) develop rapidly around the concept of 'check-ins,' i.e. answering the question "Where are you?"

By connecting information to GPS-coordinates, LBSNs create a rich body of user-generated content around locations. People use their mobile phones to check-in to places varying from parks to bars to cities they visit. That way, they broadcast their whereabouts to others nearby as well as friends. Just as it became common to tag pictures or blog posts and comment on them on the "Web 2.0," people adopt LBSNs to mark locations, express opinions, and share know-how about places in the real world.

Location-sensitive functionality is integrated into OSNs in various ways. Generally, we define an LBSN as an OSN that provides location-sensitive features and is accessible through mobile devices.

Considering "all actual life is encounter" [10], knowing where friends are and finding interesting people nearby, literally adds a new dimension to computer-mediated communication and provides significant potential for social value, and consequently, business value.

Further, being able to attach user-generated information to virtually any location vests consumers with even more power - a trend that has already been witnessed on the internet [54] as brands and shops are exposed to publicly available reviews and comments. On the other side, businesses manage to turn LBSNs into a feedback channel are provided with a unique opportunity to gain customer insights.

Overall, pinning information and people to location provides tremendous potential for consumers, service providers, and local businesses. Already, regular social networking is one of the most important activities among mobile users [50]. Adding location-sensitivity is likely to increase the importance as studies project global revenues through LBSNs to amount to US$ 3.3 billion by 2013 [1]. However, due to technological limitations, the integration of location-sensitive functionality is still in its infancy. Therefore, little is known about LBSNs and how people (will) use geo-location features.

The literature on the Social Shaping of Technology (SST) describes the development of technology as an interactive process

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in which (early) uses of an innovation determine future use [7, 42, 65]. Further, Diffusion of Innovations Theory [55] suggests that early adopters tend to be social leaders whose use of a technology will influence others.

Given the emerging importance of LBSNs, we investigate 63 early adopters to explore (1) why people use LBSNs, and (2) what effect the integration of location-sensitive features has on individual usage.

Extending our preliminary results [BLINDED Usage patterns on mobile networks, 2010], we derive practical implications for two major stakeholders: service providers and local businesses. Further, we examine our findings with respect to their implications for technology acceptance theory.

Considering the case of the LBSN provider "Brightkite," we perform an explorative study using qualitative data analysis. We chose Brightkite because (a) it provides users a multitude of location-features, and (b) because of its established user base that provides a unique opportunity to explore drivers and concerns of using LBSNs and to uncover the role location-features play.

To this end, we proceed as follows: In the following section, we review related work. Then, we give an overview on emerging LBSN concepts and describe Brightkite in more detail. In the subsequent sections, we present our approach and the results of our study. We conclude by deriving theoretical and practical implications from our findings and reflect on areas for future research.

2. RELATED WORK

Chen and Rahman [11] analyzed LBSNs from a technical perspective and identified a need for better privacy protection to handle "mash-ups" with other services. Li and Chen [39] investigated movement patterns of users of an LBSN to identify relationships between physical locations and gain insights on users' travel patterns. Further, Li and Chen [40] examined connections among LBSN users to derive friend recommendation methods.

Fusco et al. [20] conducted a comprehensive review on the research on OSNs, LBSs, and LBSNs. They found that in the absence of mature LBSN incarnations, the limitation of many studies "and prior research on LBSN technologies was the hypothetical nature of the research, or that the research took place within a controlled environment" (p. 9) [e.g. 4, 5, 13, 19, 24, 52].

However, a number of recent studies deal with actual implementations of LBSNs. Tsai and Kelley [61] implemented a Facebook application that shares a user's location with others. Then, they investigated the influence of system feedback on individual privacy managing. They find that users are more comfortable about sharing their whereabouts when they know who accesses this information. However, peer opinion and users' technical savviness contributed the most to participants' decision whether to continue to use the location sharing application or not.

In another study, field trials of a mobile micro-blogging application were conducted [62]. The application under study automatically shared users' location. The focus of the study was on the aspect of automated location disclosure and how automation affects individual usage behavior. The study showed that automated location sharing caused issues related to control, understanding, and privacy.

Fusco et al. [19] conducted four focus group sessions discussing the use of Google's automated location sharing service Latitude. Only two participants had actually tried an LBSN before, so the discussions were of hypothetical nature. Participants who would use such a service named monitoring and tracking of friends, family, and employees, keeping a travel journal, and fun as reasons to adopt. The majority of participants, however, indicated that they would not use an LBSN. These people perceived automated location sharing as intrusive and expressed concerns with respect to trust and privacy. In addition, they mentioned a lack of critical mass as well as technical issues.

Another study that deals with automated location disclosure presents preliminary results from 12 interviews with both users of Google Latitude as well non-users [51]. The authors argue for an integrated research approach that studies LBSNs in the context of other social networking and communication technologies.

Humphreys [27] explores the social and behavioral norms of Dodgeball, a text message-based LBSN. Among other things, the results indicate that users see an LBSN as a tool to enable and coordinate social interactions among loosely tied groups of friends. Humphreys' work makes an important contribution towards an understanding of emerging patterns of social interaction through LBSNs. Meanwhile, she acknowledges the rapid development in LBSNs and suggests investigating "ways in which people adopt and integrate these kinds of systems into their everyday lives" (p. 357) in future research endeavors. We intend to contribute to this research stream by exploring why people use LBSNs and what role location-features play.

In particular, we regard further research necessary as the current development shows that LBSNs emerge around the concept of check-ins rather than automated location sharing. Check-ins require users to pro-actively share their location which may lead to different attitudes towards uses of LBSNs as compared to automated LBSNs which were the focus of past studies.

3. LOCATION-BASED SOCIAL NETWORKS

3.1 Overview

Until recently, technological limitations did not allow for full-fledged incarnations of LBSNs. Now, a multitude of concepts and business models emerges around the idea of LBSNs. In the months between February and May 2010 alone, their number doubled to over one hundred [19, 57].

Among the more mature networks is Google Latitude which builds on the concept of (automated) tracking to let people share their current location with friends. Further, in early 2010, Google introduced Buzz which allows users to share geo-tagged status updates as well as other media content. In this sense, Buzz is similar to Twitter which launched a Geo-API in late 2009. Their API lets third parties build services on the basis of geo-tagged content posted on Twitter.

Foursquare and Gowalla apply the concept of check-ins which gives users control over when and where to reveal their location. The overall concept of the two competitors is the same. As people

check-in, they can leave notes and recommendations and see the ones other users left. For example, in a restaurant, users may leave a note on how they liked the food or suggest a nearby bar. Meanwhile, people learn about places their friends frequent. Furthermore, they include a game element as people collect points and earn badges or pins for checking in to locations or accomplishing tasks. Gowalla even lets people collect and trade virtual goods.

As of August 2010 Facebook integrates geo-location features into their platform [18], potentially bringing half a billion people [17] to location-based social networking. As on Brightkite, Facebook users can now share information about locations and broadcast their whereabouts to friends and to strangers who are at the same venue. Further, Facebook allows for the integration with other LBSNs and will also provide third-party applications to access users' location-data (upon the user's approval).

3.2 Brightkite

Launched in beta in April 2008, Brightkite is one of the largest LBSNs with approximately two million active users [35]. Through web interface, email, SMS and mobile applications, users check-in to locations to reveal their location at varying levels of granularity, from actual address to city to country to "somewhere in the world." Through the same channels, messages as well as pictures can be published. These are then linked to the location to which one checked-in most recently.

Users have profile pages showing a small picture and information such as name and gender. Further, profile pages feature the user's check-in history as well as the messages and pictures attached to the locations. Other users can comment on check-ins, messages and pictures.

In October 2009, Brightkite introduced an update along with several major changes. Most importantly, rather than following the example of Facebook, which builds a closed world that offers users no value outside their social graph, the concept of one-way friendships was introduced. Like on Twitter, one can follow other people's activities without their approval. This way, Brightkite creates a public space that provides a multitude of user-generated content connected to both people and specific locations. However, users may make individual check-ins, messages and pictures available only to their friends. In addition, Brightkite lets users cross-share check-ins, messages and geo-tagged pictures with Facebook, Twitter and Flickr.

4. DATA ANALYSIS

4.1 Methodology

The qualitative data obtained from our study of early adopters reflect people's "lived experience" and is therefore "fundamentally well suited for locating the meanings people place on the events, processes, and structures of their lives […] and for connecting these meanings to the social world around them" [46, p. 10]. Data analysis took place by using the open-coding [3] and content analysis methodology [45].

We choose these methods due to their ability to analyze data systematically and obtain a comprehensive view on underlying attitudes and behavioral factors of LBSN usage. We justify our inductive approach with the absence of research among actual users of modern LBSNs as described in the section on related works.

The data collection took place between December 2009 and January 2010. Brightkite users were asked to fill out a standardized online questionnaire. Participants were recruited through different channels within the Brightkite system. For the most part, users received a survey link via direct personal-message enquiries. In addition, some of the most active users were asked to post the survey link to recruit participants among their peers. Besides demographics and frequency of use, participants answered five open-ended questions using free text entry:

1. Why do you use Brightkite?
2. What reasons would you name to convince someone to use Brightkite?
3. In which situations do you use Brightkite?
4. What are your concerns about using Brightkite?
5. What reasons would you name to talk someone out of using Brightkite?

The first two questions aim at identifying drivers of LBSN usage. As we intend to explore a multitude of uses and gratifications, in addition to asking for personal reasons to use the system, we also checked for reasons that could drive other people to adopt LBSNs. This approach has also allowed us to diminish social desirability bias in the responses. The third question intends to find out when and where people access LBSNs, i.e. the context of using the system. The fourth and fifth questions were designed to identify possible inhibitors of using LBSNs.

63 users completed the questionnaire. The sample comprises 34 males and 29 females with a mean age of 33 years. Overall, participants were active users of the system. 59 participants stated they would use the system at least several times a week, most of them even several times a day (n=43).

Another method to explore uses and implications of emerging technologies is the analysis of focus groups where people discuss a topic based on stimuli and questions presented by a moderator. We chose our approach over focus groups as it allows us to grasp diverse insights from a larger number of LSBN users from various places around the globe.

4.2 Coding Procedure

Following [46], our analysis was performed in three concurrent flows of activity. First, we reduced the data by applying the procedure of open-coding [3, 14]. We derived conceptual categories by comparing and contrasting similar incidents and phenomena as articulated by participants regarding their usage of the LBSN in question. Second, the reduced data was displayed in the form of tables (see Table 1, 2 and 3) and diagrams to reveal overlaps and relative importance of categories. Third, based on the data displays, preliminary conclusions on the participants' use of the LBSN in question were drawn. If conclusions could not be verified based on the displays and original data set, categories were reevaluated.

Finally, we extracted a total number of 400 relevant quotations from the data and derived 22 conceptual categories with respect to reasons for using LBSNs, context of using LBSNs, and concerns

of using LBSNs. The quotations were assigned to the coding categories by two independent coders. Inter-coder reliability constituted 0.760 (p-value < 0.000) suggesting a high level of agreement between the coders [37].

Sometimes, participants mentioned the same category multiple times within as well as across questions. In fact, we expected redundancies for both drivers and inhibitors as we intentionally asked congeneric questions pairwise. Therefore, if a category was assigned multiple times throughout the answers of one participant, it was counted only once. Consequently, the count of a category (i.e. "n") equals the number of participants who mentioned it.

4.3 Results

(1) Reasons and concerns to use the system are closely related to (2) the system's location-sensitive features. Therefore, building on preliminary results [58], we examine both research questions concurrently.

4.3.1 Context

Participants use the system in their free time (17%) and alongside daily routines (38%) such as being "in the office" or "while traveling with public transportation." Meanwhile, the vast majority of participants stated to use the system on occasions like in "situations that have a significant impact on me" or when they feel the urge to communicate something "simply noteworthy" or "feel like venting."

Mostly, occasions are related to locations and refer to being in an "unusual location," "interesting places" or when "I see something eye catching or am in a place I find interesting." In particular, participants indicated to use the system "at new locations" like when being "in a new city" or "somewhere new for definite."

This shows that the LSBN's mobile aspect leads people to share more "me now" information compared to OSNs where people usually reflect on an occasion after it happened.

Categories describing the context of system usage are not mutually exclusive. In fact, 24% of the participants explicitly stated to use the system in "all situations," "everywhere possible" or "pretty much […] 24/7."

Table 1. Context

Category	n	
On Occasions	43	68%
Daily Routines	24	38%
All Situations	15	24%
Free Time	11	17%

4.3.2 Reason to Use

Meeting People

Meeting people emerged as central driver for participants to use the system. In fact, 44% of all participants use the system to connect to "new people who share the same interests and hobbies" or "meet new folks." For another participant the system is a way to "overcome my fear of meeting new people."

This contrasts interaction patterns among people on OSNs which were found to reflect or deepen relationships with users that people have met socially offline [36].

Participants did not always make it clear whether they were referring to real world encounters or meeting purely online. Half of all participants who indicated to use the system to meet people explicitly mentioned location-related factors. In line with our findings on the role of location in the creation of a community-feeling proximity did not emerge as a requirement to meet people, e.g. a participant "met some good friends from around the world."

However, a number of participants actually make use of the system's location-sensitivity to meet people nearby as "the concept of checking in to a place" enables users "to meet people nearby using the same service." For one participant it is "a great way to meet people in your area you may never otherwise meet" while for another one it "is super easy to find people close (nearby) to you and to engage them (drinks, bar, even a date!)" Others meet people through the system when attending events: "You go to a concert, you find out someone you know is there."

Sharing Information

Interesting patterns of usage emerge around the exchange of information. Sharing information in terms of updating status, writing messages, and commenting is regarded as a major reason to use the system. Participants share information as it is common practice on traditional OSNs, for instance to "capture thoughts and moments in text."

However, messages shared through the system are pinned to the sender's location and participants understand the value of the additional context to messages as they appreciate the "added dimension to sharing with my social network." The majority of participants who mentioned information sharing as a reason to use the system explicitly referred to location-aspects of the information.

In that sense, the location-context establishes an "information ground" where "information sharing emerges as a byproduct of social interaction" [15, p.2]. Participants share "information about locations with other people and friends" or leave "comments to locations checked-in." Participants seem to derive pleasure from writing messages knowing they are connected to their current location: "posting a lot of different things at locations possible" or "it's so interesting to post locations."

Partly, this motivation may be explained by the "performative function of saying that one is aligning oneself with a particular venue and its branding" [27, p. 349]. For example, one participant shares information when "in a place I find interesting or want to brag about."

Community

Even though one can selectively hide check-ins and messages from public access, the system is basically open. Yet, users appear to have a close community-feeling towards other members of the network. Participants praise "a great community, with cool people" who "make the site great" or "wonderful." Another participant names "the community itself, it's an amazing fun and caring crowd, from all over the world." The community-sense seems to emerge despite the network's public nature and geographical dispersion of its users. This is consistent with previous findings from research on LBSNs indicating that physical distance between regions does not necessarily correlate with how closely these regions' populations are connected [40].

However, location does play a role for the formation of the community-sense among users of the system. It is less geographical proximity that creates this sense, but rather the joy of finding "people all over the country and the world who are some of the nicest people I've NEVER met." One reason why participants even seem to appreciate geographical distance may lay in an interest to explore faraway places in order "to get a small taste of other people and cultures from around the globe."

Weaver and Morrison [64] describe the mass adoption of OSNs as "evolution in human social interaction" (p. 97). In this way, LBSN usage - as presented by the participants of our study - may be interpreted as "the logical extension of our human tendencies toward togetherness" (p. 100).

Keeping In Touch

In line with the research on OSNs without location-features [34, 36], participants emphasized the use of the system to keep in touch with people, e.g. to "catch up with friends" by "sharing just-in-time activities with friends." One participant even uses the system "to share my life with my friends."

Meanwhile, the system's location-features allow others to be in the loop "where friends go" or "friends currently are." Another participant finds it "nice (in a non-stalker way) to know where people are and see what they're up to."

Sharing Photographs

One out of four participants uses the system to share "photographs of things around me wherever I am." In particular, participants make use of the system's feature to geo-tag pictures and find it "great being able to add geographic metadata to my photographs so easily." Pinning photos to particular venues such as restaurants was mentioned by participants who find it "fun to post food pictures to specific locations."

Learning

As users generate a multitude of location-related content, a ubiquitous body of information is created around places. Even though some users' motivation to publish photos or textual information may be to show off, they can provide real value. For instance, participants "really enjoy seeing pictures of food from restaurants nearby" and utilize them for "learning about restaurants, etc., on the fly." In general, the system seems to provide social capital as it lets participants "learn from others" or "getting to know your city better."

Another participant uses the system to "learn more about what's happening out there. You may not have heard it on the news." The vast amount of information on the system is public and related to locations. This enables users "to learn about an area" as well as to "discover new places and see what people may think (i.e.: quick opinions of a restaurant or views from a hotel)." In particular, if "You come to a strange city, you find photos of places you'd like to see" and one can "search for different local places."

Fun

It is "very exciting" for participants to use the system. Fun was mentioned by 21% of the participants and is an important driver for participants to use the system who "use the service mostly to keep myself entertained during the day." One participant puts it in a nutshell: "It's social and fun."

Diary

In line with findings from studies on another mobile social network [27], participants appreciated the system's geo-tagging features "to track places you've been to" and keep "a sort of spatial diary." The system locates people automatically and lets them check-in and post notes or pictures with as little effort as the click of a button. This makes it very easy to keep "a record of where I've been and what I've been." Due to the integrated geo-tagging functionality, using the system to communicate and share information implicitly creates "a journal of my life, and it's great because not only am I able to log what I do on a daily basis but where I do them!"

Getting Response

Furthermore, participants benefit from using the system as they "see what people think of what you post" and are "hearing the responses." Not only, does the system provide information about locations, people also stated to utilize the community itself as a handy resource for knowledge on demand as participants use the system if they "need an answer to a question" or "to solicit feedback when you have a question."

Other Motivation

46% of the participants also articulated other motivation to use the system.

22% of the participants make use of the system's feature to cross-share information across multiple platforms. Participants "like to be able to post updates to Twitter and Facebook at the same time, as well as upload photos to both plus Flickr." That way, some participants use the system less for its network, but rather as a convenient tool to access other networks.

In fact, ease of use of the system's mobile application and website combined with other technology/design-related reasons were emphasized by 44% of the participants.

Other motivation to use the system includes interest in the technology itself. One participants use the system "because location-based social networking is the future and I am a trend setter."

Table 2. Reasons to Use

Category	n	
Meeting People	28	44%
Sharing Information	28	44%
Community	24	38%
Keeping In Touch	20	32%
Ease of Use	19	30%
Sharing Photographs	16	25%
Learning	14	22%
Cross-Sharing	14	22%
Fun	13	21%
Technology/Design-Related Reasons	9	14%
Diary	7	11%
Getting Response	5	8%
Other Motivation	29	46%

4.3.3 Concerns

Privacy

Privacy emerged as the single most important concern among participants. Related concerns were mentioned by 46% of all participants. For example, one participant said that the system "is nothing for people who are rather conservative regarding privacy" while another one would be concerned about "a female possibly posting sensitive information about herself."

Whereas privacy is an inherent issue on OSNs [e.g., 16, 25, 28, 38, 47, 56, 60], the LSBN's location-features raise particular privacy concerns. In fact, almost half of all participants who express privacy concerns are specifically concerned about risks related to the disclosure of location data as participants mentioned "geo-location privacy issues." Another participant recognizes that "Once in a while I get a twinge that someone could use this to figure out when you're on vacation, and loot your home."

Overall, most participants seem to be aware of privacy issues. Meanwhile, they stress personal responsibility of the user. One participant is aware that the system "maps out where you go... BUT" that it would be "really up to the user as to how specific the location is." Another participant is just as aware of potential privacy issues related to disclosing "location of house or school and whereabouts from your home" and recommends that "if you are concerned with privacy then be certain about those settings and controls."

Stalking

Closely related to privacy concerns, participants expressed fear of "stalkers, creeps, and such" or "crazy stalkers." Participants are worried that the system "could be good as a stalking tool" and "could help stalkers." Analogue to their attitude towards privacy on the system, participants are aware that "people with less than honorable intentions" could use "information they may find to stalk someone." But again, they refer to users' personal responsibility to share location data. One participant asks: "…but it's not really stalking if you choose to be found, right?"

Other Concerns

A few participants expressed fears of identity theft [8] and the "trustworthiness of other users." Other concerns dealt with critical mass of the system, e.g.: "small size of the community is the biggest problem."

LBSNs are still young and the technology has not reached maturity. Therefore, technology-related concerns regarding the mobile application, website, connectivity, and overall usability are frequently reported by participants. Meanwhile, a number of participants expressed management-related concerns. For example, participants complain about the company being "unresponsive to user concerns" as well as "horrible customer relations."

No Concerns

27% the participants explicitly stated to have "no concerns at all." The commitment to publish personal and location-related information seems to be a conscious decision as participants seem to be aware of potential privacy and stalking issues. However, they "don't foresee any real issues […] as long as you are sensible with what you divulge." Other participants have "no concerns. I can keep things as private as I want to" or are just "not the overly paranoid type."

Table 3. Concerns

Category	n	
Privacy Concerns	29	46%
Other Concerns, Technology	16	25%
Stalking	14	22%
Other Concerns	11	17%
Other Concerns, Management	7	11%
No Concerns	17	27%

5. CONCLUSION

5.1 Practical Implications

5.1.1 Service Providers

The LBSN market is getting highly competitive as a large number of LBSNs emerges quickly and major players like Google, Twitter, and Facebook add location-features to their products. Many LBSNs turn out to be "me too" applications and of Schapsis' [57] list of 116 LBSNs, nearly 10% already shut down. Service providers need to develop concepts with a distinctive value proposition to attract users and foster usage. Here, our investigation of early adopters provides some hints.

Generally, our study showed that participants derive real value from location-sensitive features and the contextual information they imply. Therefore, OSN providers can improve the user experience by providing ways to integrate location-context. Already, users of OSNs deal with the problem of information overload [30]. Building a bridge between the real, physical world and the vast amount of user-generated information on OSNs facilitates innovative algorithms to allocate and filter relevant information. For example, Facebook developed the "EdgeRank" algorithm to filter users' news feed based on how long ago some piece of content was created, an affinity score between the viewing user and the content creator, as well as the content type. Incorporating the viewer's as well as the content creation's location to the formula can increase the news feed relevance greatly, for example by showing news about places around a user, or pictures of places a user used to frequent. Exactly those use cases where important drivers for participants of our study to use LBSNs.

Integrating our research with Joinson's [34] findings on motives and uses of Facebook lets us derive further extensions that would improve user experience and engagement on OSNs: (1) "Keeping in touch" gets more interesting when people know from where friends write their updates, (2) "social surveillance" is brought to the next level when people can keep track of friends whereabouts, (3) people can "Re-acquire lost contacts" when they happen to be in the same neighborhood, (4) "Communication" can be initiated based on geographic proximity, and (5) geo-tagged "Photographs" let people share pictures based on where they were taken.

Users of the studied LBSN showed a strong community-sense. Interestingly, this feeling is not necessarily created through physical proximity. Rather, our results indicate that awareness of other people's whereabouts creates an emotional attachment - regardless of the geographic distance between them. That way,

OSNs can create customer loyalty by implementing location-features.

Meanwhile, meeting people is an important reason to use the system. For one thing, users connect with people online like on traditional OSNs without location-features. However, our study shows that people do also use location-based information to physically meet friends as well as new people.

In this context, LBSN providers need to consider privacy and security issues. For example, 'www.pleaserobme.com' launched as an online service which fetches people's check-ins from various LBSNs claiming to provide burglars with tips where to break in. While this is an attempt to bring attention to the threats connected to the disclosure of location data, we find that users are very well aware of the dangers and consciously weigh them against the benefits they obtain on LBSNs. Therefore, LBSN providers are advised to deal honestly with threats related to location-disclosure and offer granular privacy settings.

5.1.2 Local Businesses

Sharing information, getting response to questions, and gaining knowledge from user-generated content emerged as major usage categories and demonstrate that people derive real benefits on LBSNs. The current study shows that people particularly use location-based information to find out about nearby places and learn about new locations they travel to. Participants made it clear that they enjoy sharing information on occasions, especially when they visit a new place. When customers leave a comment about a location it is broadcasted to their friends and made available to everyone who wants to learn about places in the respective area. This is a unique opportunity for businesses to gain recognition throughout their customers' social graph and attract clientele in the vicinity. Given the power of social networks to spread news virally with enormous speed and reach [e.g., 35], local businesses are advised to provide incentives for customers to check-in and share their experiences on LBSNs.

Meanwhile, as consumers share their experiences with the products and services from different venues local businesses may investigate customer satisfaction by extending the classical approach [26] towards a location-aware element. Not only can businesses gain insights about how their customers experience their place, they can directly react to feedback and complaints. In addition, businesses may not only learn about their clientele, but also find out about potential customers who check-in to places nearby or visit competitors. Therefore, customer oriented businesses should monitor LBSNs and have mechanisms in place to react quickly to feedback regarding their own matters as well as incidents in the neighborhood.

5.2 Theory Implications

Our results on the use of LBSNs indicate the relevance of some constructs that are not captured by traditional technology acceptance theory.

There is a multitude of (potential) location-sharing applications [20], e.g. for the monitoring of employees [29] or patients [66], government surveillance [59], locating family members for safety [9, 12, 44], locating students at school [23] or socializing with friends [48, 51]. Certainly, an individual's attitude towards location-sharing differs subject to the context of the application. Therefore, Mallat et al. [43] argue that traditional technology acceptance theory may be extended with respect to the specific nature of the studied technology and show the significance of mobility and usage context on an individual's decision to use a mobile commerce application. Our findings underline the relevance of these constructs with respect to LBSN usage.

Further, we recognize the collaborative nature of LBSNs and find that privacy-related constructs play an important role for individual adoption. Therefore, the inclusion of privacy-related constructs may be necessary to explain LBSN adoption sufficiently. Krasnova et al. [32] already showed the significant influence of privacy on people's decision to use OSNs. While privacy issues on OSNs have been investigated from various angles [e.g., 16, 25, 28, 38, 47, 56, 60], LBSNs raise particular concerns with respect to the disclosure of location-information. Our results show that awareness of privacy risks and potential stalking issues can go hand in hand with LBSN usage and, consequently, location-sharing. This confirms the results from a hypothetical study on the usage of LBS [6].

It will be interesting to investigate interdependencies between context of use and privacy concerns. Already, studies showed that in situations of emergency, individuals have a higher willingness to give up some of their privacy [2, 44]. Our findings hint at Context as a potential moderator also in all-day situations. For example, participants who stated to use LBSNs to inform themselves about places when they are on a holiday may perceive the benefits of finding information about locations less useful when they are in their hometown.

Theories claiming the Internet would diminish social capital by drawing people away from family and friends and reducing interest in the local community [6, 49] are objected by our findings on LBSNs. Generally, the value of a social network rises as the number of its members increases [31]. As LBSNs continue to grow, fewer people will miss out on chances to physically meet friends or new people. At the same time, more auxiliary information is aggregated around locations. In this way, LBSNs are likely to play an increasingly important role in people's everyday life.

5.3 Limitations and Outlook

Since LBSNs are still in the early stages of development, our sample comprises only early adopters. The participants of our study illustrate how they integrate LBSNs into their lives and why they do so. However, usage patterns of early users may diverge from the way the majority deploys a technology later on (see [52]). On the other hand, various studies in the domain of the SST literature [e.g., 7, 42, 65], as well as the Diffusion of Innovations Theory [25] suggest that early adopters' usage shape future patterns of use.

LBSNs' tremendous growth numbers [53] suggest that the "early majority" [55] is about to follow and adopt. Future research should verify our findings on a broader scale and explore how people use LBSNs as the density of users and available location-based information increases.

Furthermore, the current study examined one particular concept of an LBSN. Research on different classes of LBSNs may reveal other uses and gratifications. For instance, examining gaming elements and the concept of virtual items on LBSNs also provides a rich field for future research.

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