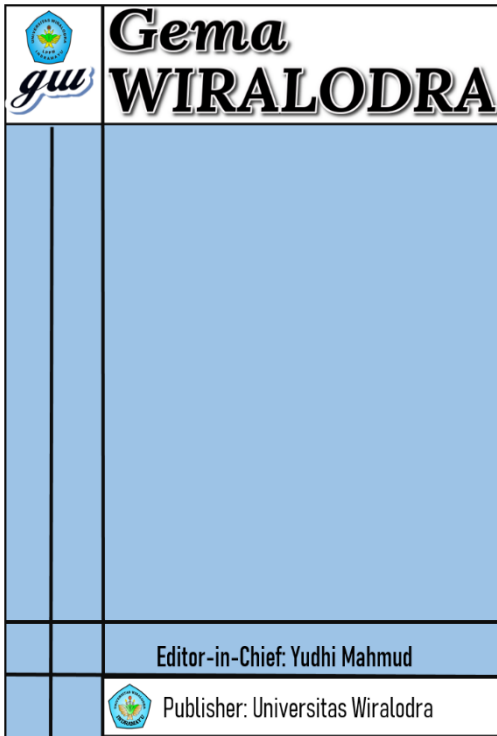




Analyzing the Implementation of Internet of Things to Enhance Service Quality at Bobocabin The Tavia, Bogor

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Abstract

Bobocabin The Tavia is a glamping accommodation that combines the concept of staying in nature with Internet of Things (IoT) based technology. Using a qualitative approach with a phenomenological method, this study explores how the implementation of Internet of Things systems supports service quality improvement from the perspective of guests and operational staff. Data collection techniques include in-depth interviews, direct observation, and documentation.

The results of the study indicate that the six main dimensions of the Internet of Things such as connectivity, interactivity, comfort, security, intelligence, and telepresence contribute significantly to the five dimensions of service quality based on the SERVQUAL model, namely reliability, tangibles, responsiveness, assurance, and empathy. Features such as smart lamps, smart glass, B-pad, and QR code door locks allow guests to independently and in real-time control their cabin environment. However, some technical challenges remain, such as delayed responses from smart lamps and connectivity issues. This study offers practical insights for accommodation providers, particularly in technology-based glamping services, to support digital tourism. Additionally, the findings serve as an academic reference for future research on IoT integration in enhancing service quality in the tourism sector.

Keywords: Internet of Things, Service Quality, Glamping, Bobocabin, Technology, Digital Accommodation.

1. Introduction

Indonesia is an archipelagic country located in Southeast Asia, right along the equator. Its abundant natural wealth such as mountains, beaches, and tropical forests that can offers great potential for the tourism sector. Tourism ranks as the third largest contributor to national foreign exchange earnings, following the coal and palm oil sectors (Setiawati and Pritalia, 2023) also Tourism can serve as a gateway for job creation and can support other industries that also contribute to the development of the tourism industry (Antonia and Facrureza, 2024).

This indicates that the tourism industry continues to grow rapidly and innovatively, attracting many visitors. One of the innovations that has emerged is the trend of glamping accommodations. Glamping, or glamorous camping, offers the experience of staying close to nature while still enjoying modern facilities. This glamping concept can also be integrated with advanced technology as a form of supporting digital tourism. One example of such integration is Bobocabin The Tavia.

Bobocabin The Tavia applies the Internet of Things system in its daily operations to support digital tourism. Advanced technology is also utilized to enhance service quality. The IoT implementation at Bobocabin The Tavia is reflected through several smart features such as Wi-Fi, smart lamps, smart glass windows, bluetooth speakers, and QR codes for smart door locks. all of which are interconnected and can be controlled through a single device. However, there are still technical issues, such as connectivity problems and delays in certain IoT features, which can affect service quality and guest comfort. This shows that the IoT implementation at

Bobocabin The Tavia still requires further evaluation and improvement in order to optimally contribute to service quality.

Although many previous studies have examined the use of IoT in hotels, research on its application in glamping accommodations is still very limited. This creates a significant gap, especially as glamping is growing in popularity in Indonesia's tourism sector. Glamping offers unique challenges and opportunities that differ from conventional hotels, making it important to evaluate how IoT impacts service quality in this context. This study is important because it addresses that gap and provides practical insights into how IoT can be effectively implemented in glamping to improve guest experience. By linking six key IoT dimensions with the SERVQUAL service quality model, the research also offers a valuable contribution to both theory and practice in digital tourism development.

Based on the explanation above, this study focuses on analyzing the application of IoT at Bobocabin The Tavia, specifically examining six key dimensions such as connectivity, interactivity, telepresence, intelligence, convenience, and security and how they impact service quality according to the SERVQUAL model.

2. Method

This research is a field study using a qualitative method and applies Colaizzi's phenomenological method through several steps: transcribing interviews, identifying significant statements, interpreting meanings, grouping them into themes, constructing a full narrative, and validating results with participants. A total of four informants were involved, consisting of one Bobocabin leader, one operational staff, one engineering staff, and one guest. Their demographic characteristics range from ages 23 to 32, with roles that represent both the service provider and user perspectives. Informants were selected using purposive sampling, based on their direct experience with the implementation and use of Internet of Things (IoT) features at Bobocabin The Tavia. Object is the main focus in a study (Nugroho dan Dewantara, 2023) and the aim of this study is to analyze the implementation of the Internet of Things in improving service quality at Bobocabin The Tavia. The research is supported by data triangulation through observation, interviews, and documentation to examine the application of six key dimensions of Internet of Things: connectivity, interactivity, telepresence, intelligence, convenience, and security at Bobocabin The Tavia. The results of this analysis are then linked to service quality to figure out the extent to which Internet of Things implementation contributes to improving service performance (Ali *et al.*, 2021)

Data and Data Collection Techniques

This research will employ qualitative techniques using phenomenology approach. The phenomenological approach aims to understand and examine the lived experiences of an individual or a group regarding a particular phenomenon (Lisnarini *et al.*, 2025). The reason for choosing this approach is to conduct an in-depth analysis of whether the implementation of Internet of Things can improve service quality at Bobocabin The Tavia, based on the experiences of guests and staff. This research using data triangulations (Vera Nurfajriani *et al.*, 2024) involving data analysis methods using information in both oral and written forms. The steps for data analysis in this research are as follows:

Data Collection

The data in this study includes both primary and secondary data. Primary data is information provided directly by the original source through various methods such as interviews, surveys, or experiments conducted by the researcher (Husainah, 2025). The primary data consists of the

researcher's observations dan interviews. Secondary data is information that has been obtained by other parties and can be used by researchers to conduct their studies (*Fili et al., 2025*). for secondary data consists of website, books and journals, previous research findings as well as scientific articles relevant to the topic of this research

Table 1.
Source of Informants

No	sources of information	Reasons and Considerations
1	Bobocabin leader	Understanding the daily operational workflow and guest services, as well as becoming familiar with the Internet of Things features available in the cabin.
2	Engineering staff	The engineering staff has an in-depth understanding of the devices and Internet of Things systems in use.
3	Operational staff	Directly interacts with guests and goes into the field to provide services. Operational staff are also able to handle minor issues related to the Internet of Things devices inside the cabin.
4	Guest	Guests who stay interact directly with the Internet of Things features in the cabin, allowing them to personally experience whether these features enhance the quality of service during their stay.

Data Reduction

Obtaining the desired data does not necessarily mean that the researcher understands the phenomenon being studied. Since qualitative research aims to deeply explore what happens in an event from the participants' perspective, interview recordings and transcripts are akin to a researcher's 'treasure' that needs to be understood and closely connected with the qualitative data obtained. There is no more effective way to truly connect with the data than by reading and rereading the interview transcripts and even listening to the interview recordings again or rewatching the video recordings made during the data collection process. The interview recordings can become an important source in the data analysis process, as the researcher can gain valuable information or insights from the conversations conducted with the participants. Therefore, the researcher should take the time to listen to the recordings at least once. The primary goal in this first stage is for the researcher to start understanding the content of the data obtained and begin to find elements in the data that relate to the research question. To achieve this, it is quite common for the researcher to read the interview transcript at least once, twice, or even three times until they truly feel they understand and are 'close' to the data.

Data Presentation

After data reduction, the next step is data presentation, which can be done in the form of brief descriptions, tables, relationships between categories, and so on. In qualitative research, the presented data is usually in a narrative text form and documentations. The documentation method is a series of efforts to record information in the form of written text, photos or images,

videos, recordings, and other formats (Hasan, 2022) and the narrative text mostly are obtained by interview results (Setiawan et al., 2025).

Conclusion Drawing and Verification

Conclusion drawing and verification is the final stage, which is the result of the previous steps. This stage involves finding or understanding meanings, regularities, patterns, explanations, cause-and-effect flows, or comparisons.

Tabel 2.

Sources of Informants, Reason and Consideration

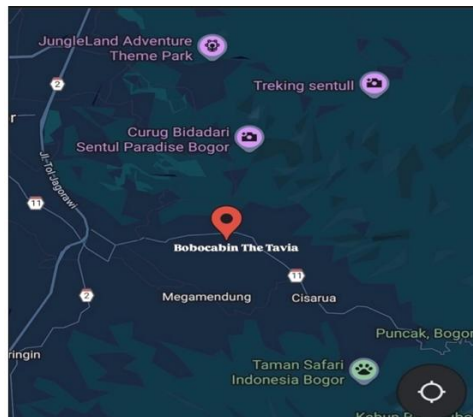
No	Information Source	Reason and Consideration
1	Ms Sinta Maharani	Hold the position of Bobocabin Leader and understanding the daily operational workflow and guest services, as well as becoming familiar with the Internet of Things features available in the cabin.
2	Sir Rahman	Hold the position of Bobocabin operational staff and directly interacts with guests and goes into the field to provide services. Operational staff are also able to handle minor issues related to the Internet of Things devices inside the cabin.
3	Sir Zidan	Hold the position of Bobocabin engineering staff and has an in-depth understanding of the devices and Internet of Things systems in use.
4	Sir Ferry	Guests who stay interact directly with the Internet of Things features in the cabin, allowing them to personally experience whether these features enhance the quality of service during their stay

In Table 2, the informants who will be selected and serve as sources for interviews to complete the data sought in the study are presented. The confirmed informant is the Bobocabin The Tavia leader, operational staff, engineering staff, and guest who stayed.

Location and Time of Research

The research location is the Bobocabin The Tavia located at Jl. Raya Puncak Pass RW.17, Cipayang Datar, Kec. Megamendung Kabupaten Bogor, Jawa Barat.

Figure 1.
Location of the Bobocabin The Tavia, Bogor



Source : Google Maps, 2025

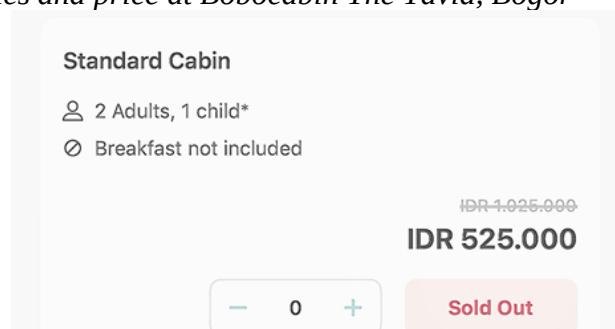
In the figure, location 1 represents the position as seen from a map, indicating that Bobocabin The Tavia located in strategy area and surrounded by tourist site like Taman Safari Bogor.

3. Results and Discussion

Pariwisata is a word derived from the Sanskrit language, consisting of two words: “pari” and “wisata.” The word “pari” means to go around together, while “wisata” means journey or travel (Dewantara & Susanto, 2020). Tourism in Indonesia is supported by abundant natural wealth and is able to attract both international and domestic tourists. The growth of tourism has driven innovation in this sector. One such innovation that has emerged is digital tourism. Bobocabin The Tavia is a glamping accommodation service that applies advanced technology, known as the Internet of Things. In addition to being a differentiating value, this IoT can also be used to enhance the quality of services at Bobocabin The Tavia.

Bobocabin The Tavia Bogor is located on Jl. Raya Puncak Pass, Cipayung Datar, Megamendung District, Bogor Regency, West Java. This accommodation is part of the Bobobox network. Bobocabin The Tavia offering a modern glamping experience integrated with Internet of Things technology. There are four types of cabins at Bobocabin The Tavia such as standard cabin, deluxe cabin, deluxe with hot tub cabin, and executive cabin. Bobocabin The Tavia has 20 active cabins, although the site map shows 22 cabins, the actual number is 20 due to a printing error and the absence of cabin number 13.

Figure 2.
Standard cabin facilities and price at Bobocabin The Tavia, Bogor

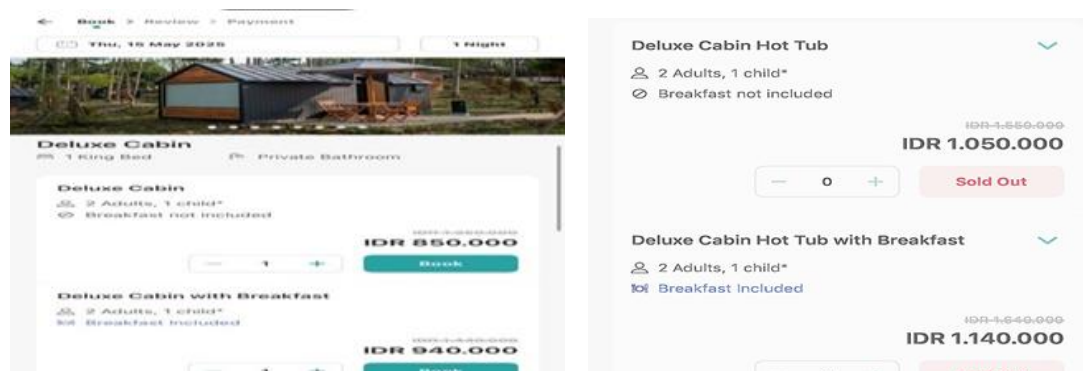


Source : Bobobox, 2025

The standard cabin type has varying prices depending on the package chosen and does not have a bathroom inside the cabin, so guests must use the shared toilet. The standard cabin accommodates 2–3 people.

Figure 3.

Deluxe cabin facilities and price at Bobocabin The Tavia, Bogor

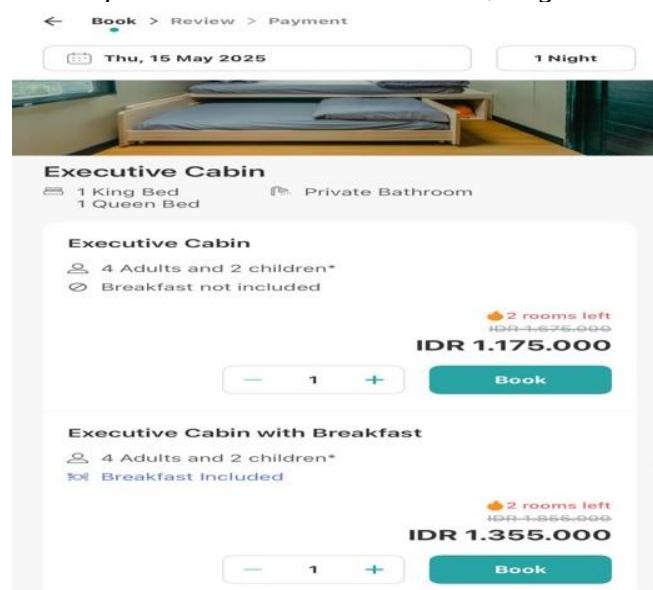


Source : Bobobox, 2025

The deluxe cabin includes a private toilet inside the cabin and can accommodate 4–5 people. In addition, there is also a Deluxe Hot Tub option, where the hot tub is located outside the cabin.

Figure 4

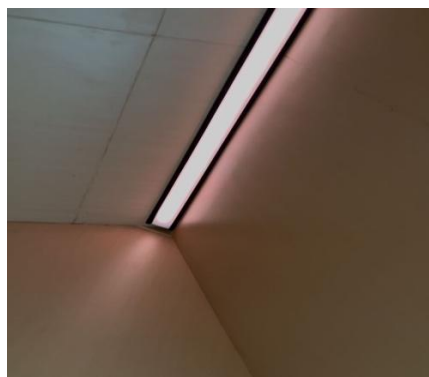
Executive cabin facilities and price at Bobocabin The Tavia, Bogor



Source : Bobobox, 2025

The executive cabin type is the highest and most luxurious, with a capacity for 7–8 people. Inside all cabin types, there are Internet of Things features such as smart lamps, smart glass windows, Bluetooth speakers, and QR lock doors, all of which can be controlled through a single device called the B-pad. Guests can also manage these features via the Bobobox application

Figure 5
Smart lamp inside cabin



Source : Personal documentation, 2025

The smart lamp can be adjusted in terms of color and brightness by guests through the Bobobox app and the B-pad. The lamp colors include purple, white, green, and other colors that create a warmer atmosphere inside the cabin.

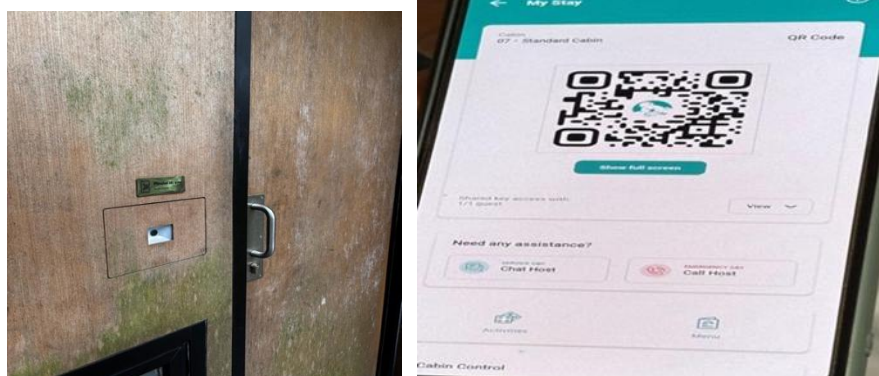
Figure 6
Smart glass window inside cabin



Source : Personal documentation, 2025

The smart glass feature for the window is one of the flagship IoT features at Bobocabin. The transparency level of the window can be adjusted by guests, allowing them to enjoy the view in front of the cabin even during rain or intense sunlight.

Figure 7
Smart QR door lock



Source : Personal documentation, 2025

The image above is a QR code scan for the cabin door. Guests will receive this QR code within the Bobobox application.

Figure 8
B-pad



Source : Personal documentation, 2025

The B-pad is shaped like a tablet, and guests only need to touch the screen to control all IoT features inside the cabin. The following are the features available inside the cabin, which can be controlled through the B-pad or the Bobobox application that has been installed on the guest's mobile phone. The Internet of Things has six dimensions, namely connectivity, interactivity, telepresence, intelligence, security, and convenience (Angkasa *et al.*, 2023). Based on observations and interviews conducted by the researcher, the following is the implementation of the six dimensions of the Internet of Things at Bobocabin The Tavia:

→ Connectivity

Internet of Things features such as smart lamps, smart glass, QR smart locks, and Bluetooth speakers at Bobocabin The Tavia are already integrated into one system and can be controlled via devices such as the B-pad or the Bobobox application. Although there are still technical obstacles and delays, the Internet of Things remains efficient and practical in supporting guests' stays. This supports research by (Sharma & Gupta, 2021) and (Balaguruswamy Naidu, 2024), who state that system integration and network stability are still challenges in the implementation of IoT in the hospitality industry.

→ Interactivity

Internet of Things features can provide a real-time and direct response to guests. This is evident from the ability to control cabin features through applications such as the B-pad, which enables service personalization based on IoT (Phu Vinh, 2024)

→ Telepresence

There is an ambient sound feature in the cabin that can be adjusted via the B-pad. The ambient sound offers several sound options that can be tailored to the guest's mood or preference. With this feature, guests can feel a more immersive atmosphere during their stay, as if they are in another place. This finding is in line with research by (Gajić *et al.*, 2024), who state that telepresence features can provide a virtual experience that enhances comfort and satisfaction in hotel operations. Bobobox also provides an alarm feature that can be set through the B-pad to help guests wake up at the desired time

→ Intelligence

Guests can use various Internet of Things features in the cabin easily and practically. This demonstrates the intelligence aspect because all systems and installations can be controlled automatically and are interconnected (Angkasa *et al.*, 2023), demonstrating the intelligence of the system.

→ Convenience

The implementation of the Internet of Things at Bobocabin The Tavia is supported by the Bobobox application. Within the Bobobox app, there are “call us” and “chat us” features available 24 hours a day, allowing guests to make requests or inquiries simply by opening the app—eliminating the need to leave their cabin. The advanced IoT devices at Bobocabin The Tavia provide efficiency for both guests and operational staff. All features, such as lighting and door locks, can be controlled through the B-pad or the application, so guests don’t have to manually adjust each component one by one. This supports the findings of (Mardani et al., 2023) which state that the application of the Internet of Things can enhance guest comfort and service efficiency.

→ Security

The QR code used to access the cabin door through the Internet of Things system automatically changes every 2–3 hours. In addition, there is a *share key* feature with different capacity limits depending on the cabin type—for example, a maximum of two people for standard cabins and four people for executive cabins. This supports the findings of (Dedy Irawan et al., 2022), which state that the automation of Internet of Things systems can enhance protection and security.

Based on interview and observation results, the Internet of Things (IoT) dimensions have made a positive contribution to service quality. The implementation of six IoT dimensions at Bobocabin The Tavia has contributed to the improvement of service quality based on the five SERVQUAL dimensions (Ali et al., 2021). The connectivity dimension supports reliability, responsiveness, and tangibles, as all devices such as smart lamps, smart glass, and QR locks are integrated into one efficient system. Interactivity enhances responsiveness, empathy, and tangibles, as guests can directly control features according to their preferences. Intelligence supports reliability and empathy, as the system adjusts to user needs without complicated configuration and facilitates daily staff operations. Security features such as QR locks and digital access systems contribute to the assurance dimension. The convenience aspect impacts empathy, reliability, and tangibles, as guests can personalize their cabin atmosphere. Lastly, telepresence (seen in features like ambient sound and independent control) reinforces empathy and tangibles, as it helps guests feel connected to the surrounding environment even while staying inside an enclosed space.

4. Conclusion

The implementation of the Internet of Things has had a positive impact on service quality. The application of six main IoT dimensions—connectivity, interactivity, intelligence, convenience, security, and telepresence—has contributed to the five key dimensions of service quality and improved both guest experience and staff operational efficiency. Data validity in this study was tested using triangulation, both by source (comparing responses from leader, staff, and guest) and by technique (interviews, observation, and documentation). The results showed consistent findings across informants, especially regarding IoT-related issues and service quality, indicating that the data is valid and reliable for analysis.

However, technical issues such as response delays and unstable connectivity still occur, potentially affecting overall service quality. Therefore, Bobocabin The Tavia should address several aspects, such as evaluating IoT features, ensuring network stability, enhancing automation of IoT devices, and integrating all cabin facilities into a single system, as some features like the air conditioner are still manually operated. Additionally, the company could consider implementing extra features such as an automatic insect repellent system. Through continuous development, Bobocabin can provide a safer, more comfortable, and innovative stay for all guests.

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