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An IoT-inspired concept for data-driven service provision and resource planning in the tourism sector, using a campsite as an example

The digitalisation of tourism facilities means that these facilities have access to a wide range of IoT-like data sources. This article presents a conceptual approach that describes how such heterogeneous data streams can be used to systematically improve service offerings, resource planning and operational decisions through targeted short-term, medium-term and long-term forecasts. The analysis is based on the example of a medium-sized campsite, which provides data on the electricity consumption of individual pitches, water consumption, access information for various facilities, occupancy figures, and guests' movement and usage profiles.

The key idea is that, taken together, this data creates a digital representation of the business. This representation makes it possible to identify patterns in infrastructure utilisation, guest behaviour and the demand placed on technical systems. Linking this information creates a conceptual framework that supports predictions for three key areas of application: Firstly, service offerings can be dynamically adapted to expected usage patterns, for example through flexible opening hours or the targeted allocation of resources. Secondly, areas of high wear and tear can be identified from occupancy and usage data, enabling proactive planning of maintenance measures. Thirdly, the analysis of movement and access data forms the basis for demand-driven staff deployment planning in high-traffic areas.

The focus of the presentation lies in the area of data integration and the establishment of the data structures required for the respective analyses; in this context, knowledge of data generation and process rules within the business environment is of paramount importance.

Special/ Invited session

Classification

Both methodology and application

Keywords

Heterogeneous data streams, Data integration, domain knowledge

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