

Bellabeat Case Study

How Can a Wellness
Technology Company Play
It Smart ?

Date: June 2025

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Dataset: FitBit Public Tracker Data

Business Task Statement →

”Analyze FitBit data to find trends in user activity, sleep, and heart rate. Then, use these trends to suggest marketing strategies for the Bellabeat app, helping women improve their wellness.”

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What are trends in smart device usage?

- Do people walk or sleep more in weekdays or weekends?

How could these trends apply to Bellabeat customers?

- Bellabeat app could remind women to wind down earlier and walk more steps by monitoring the user activity

How could these trends influence marketing?

- Bellabeat could run social media ads addressing sleep and walk cycle. "Your holistic women wellness app

Data Sources

Description →

”I used the FitBit Fitness Tracker Data from Kaggle (CCO Public Domain). It includes daily activity, steps, heart rate, and sleep from 30 users.”

Limitations: Small sample size (only 30 people) and outdated data (from 2016).

Trends may differ for larger/current populations.

[ROCCC]-Check

Reliable

↓ It is a reliable data contains personal fitness tracker information from thirty fitbit user

Original

↓ This data is made available by Mobius (Owner) via kaggle

Comprehensive

↓ It include information about daily physical activity, steps, heart rate, sleep monitoring etc...

Current

↓ This data is generated between 13/12/16 to 15/12/16

Cited

It a CCO Public Domain dataset via kaggle

Summary

"I cleaned the FitBit data by removing duplicates, formatting, filtering, validating the data, renaming columns and merging data. For activity, sleep data, I extracted dates from timestamps. I documented all steps in a cleaning log."

Documentation of cleaning

Problem	Action Taken
Dates not formatted	- Formatted as Date and formatted remaining column to respective format
Duplicates	- Removed duplicate rows[No duplicate rows were found, 940 unique rows]
Extra time in dates	- Removed time, kept date
Unclear column names	- Renamed to "Total Sleep Minutes" etc
Unrealistic sleep values	- Removed rows with sleep less than 180 min or great than 900 min

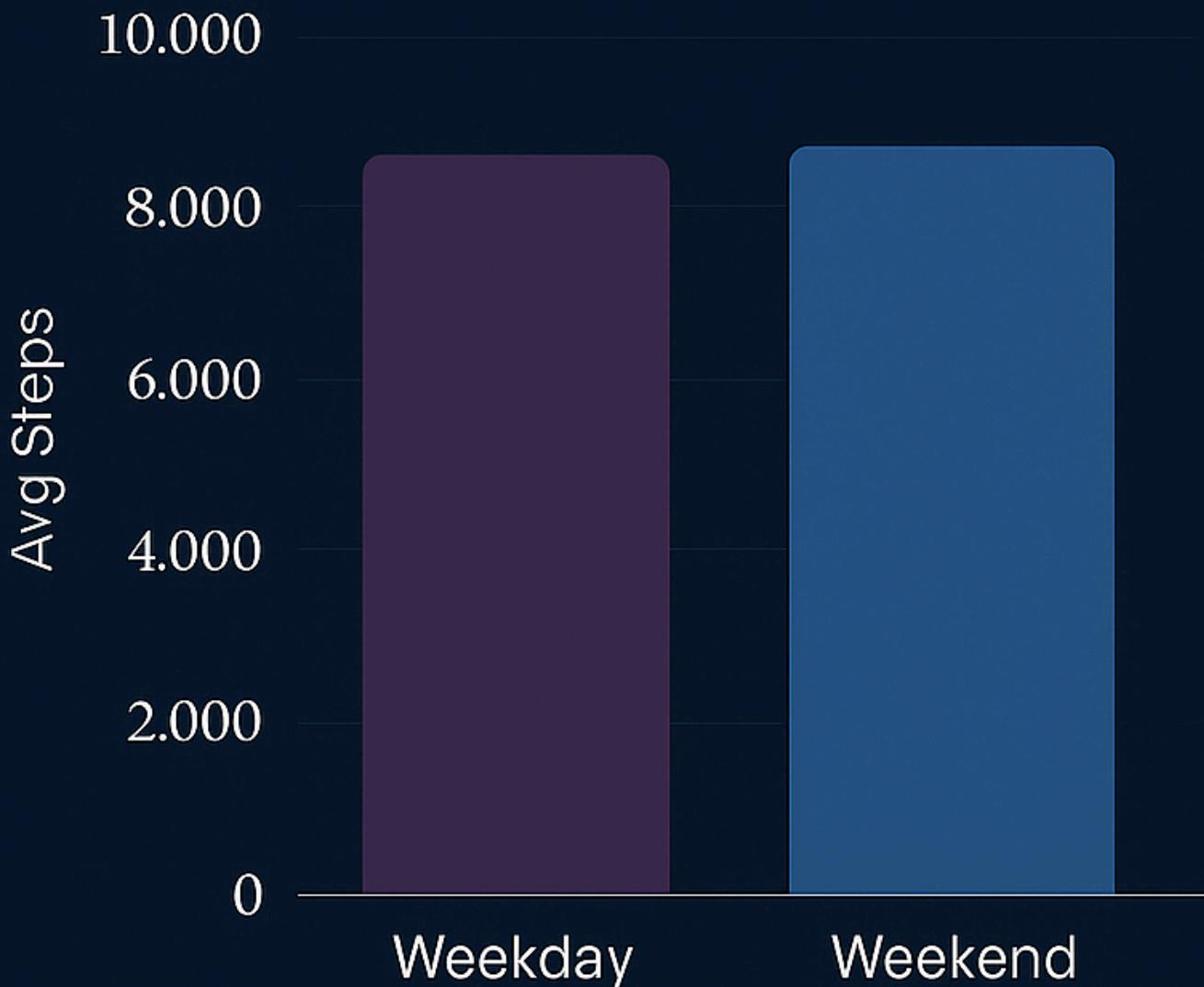
Summary of Analysis

Steps

The average daily steps covered by thirty Fitbit users on weekdays and weekends	- 17,221
The number steps covered by users on weekdays	- 8,498
The number steps covered by users on weekends	- 8,723
The difference between steps covered on weekdays and weekends	- 225
People walk 8,498 steps on weekdays and 8,723 on weekends, thus people walk 225 more steps on weekends	

It is a 2.64% difference between weekdays and weekends

Steps: Weekday vs. Weekend



This chart shows that users walk 225 more steps on weekends.
Bellabeat can encourage weekday movement with motivational alerts like “Let’s catch up to your weekend stride”

Sleeps



The average daily minutes slept by thirty Fitbit users on weekdays and weekends - 894

The number minutes slept by users on weekdays - 425

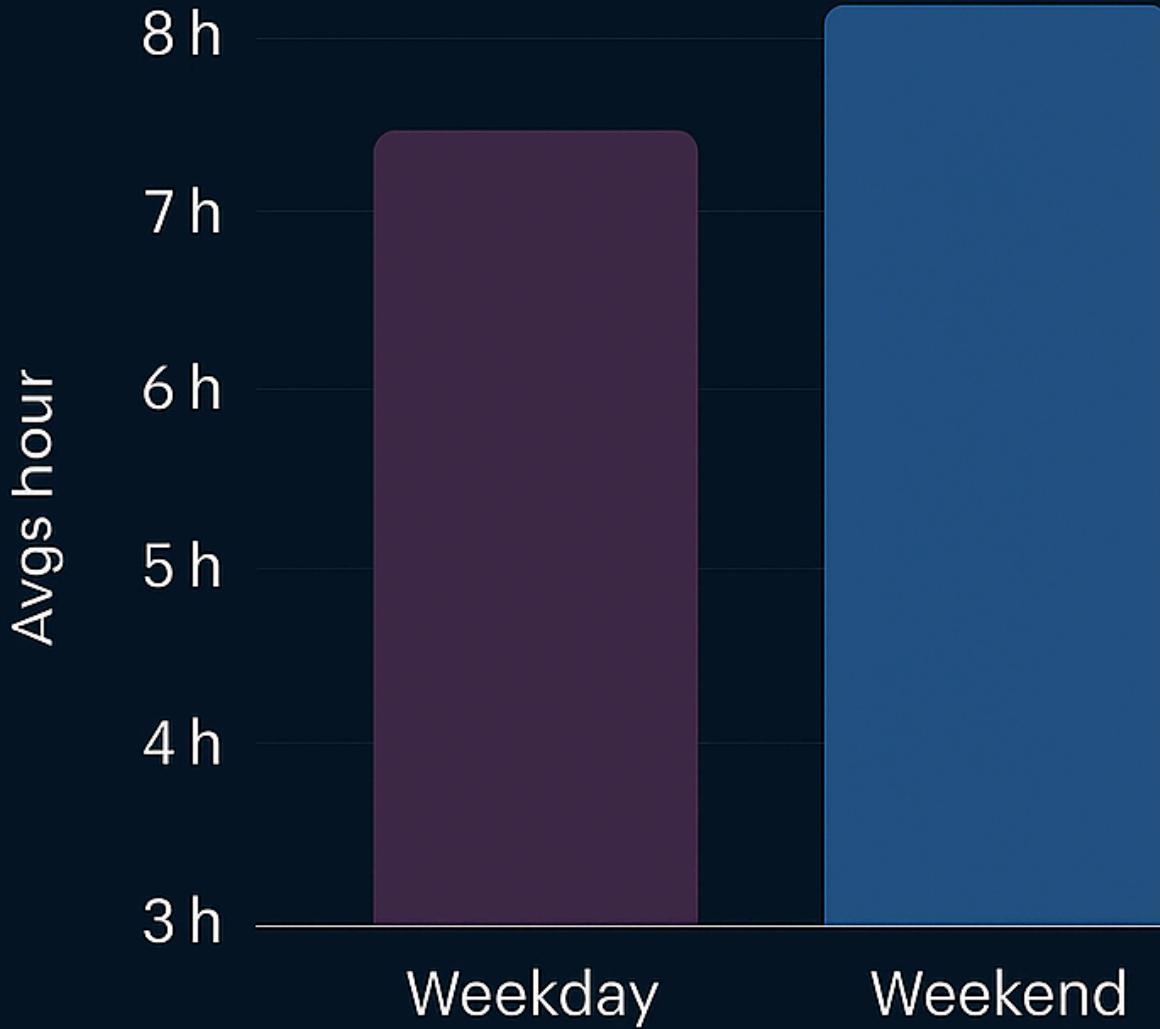
The number minutes slept by users on weekends - 469

The difference between minutes slept on weekdays and weekends - 43

People sleep 425 minutes (7.1 hours) on weekdays and 469 minutes (7.8 hours) on weekends, thus people sleep 43 minutes more on weekends

It is a 10.17% difference between weekdays and weekends

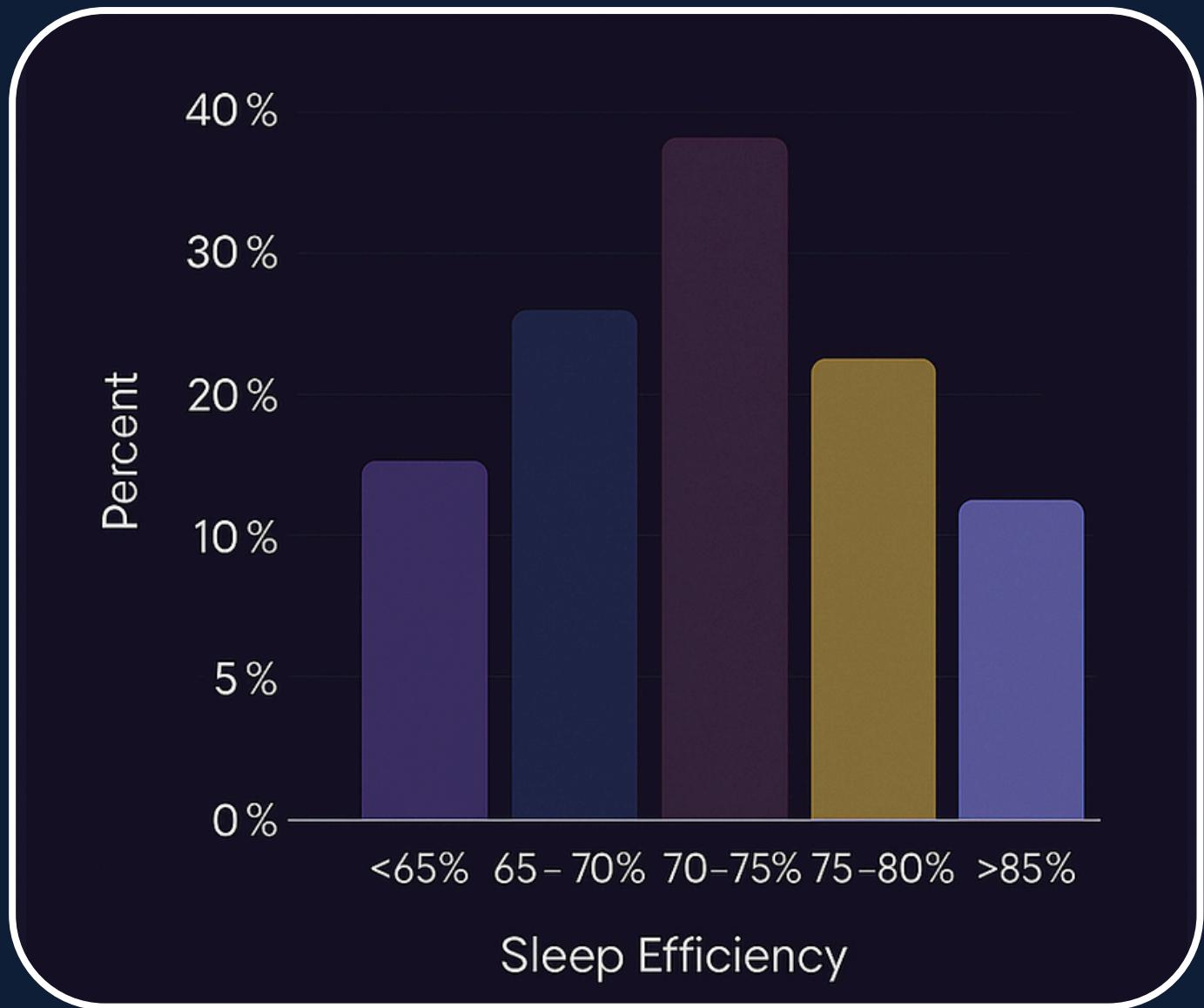
Sleep: Weekday vs. Weekend



This chart shows that users sleep 43 minutes longer on weekends. Bellabeat could prompt users with a friendly “Time to wind down” bedtime reminder on weeknights

Sleep Efficiency Analysis

Do people spend more time actually sleeping (vs. lying in bed) on weekends?

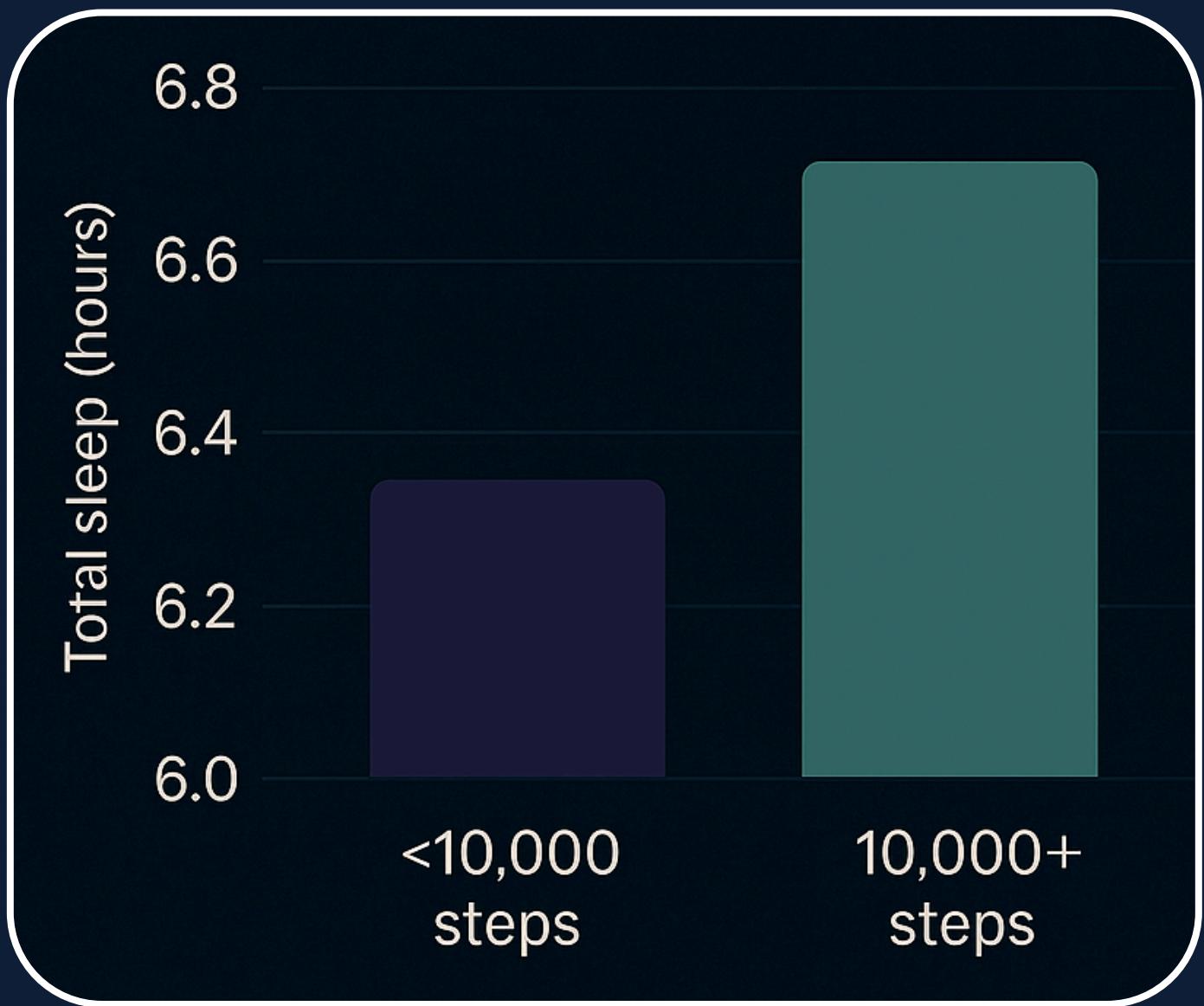


The Average user have a sleep efficiency between 75% - 80%.

Weekday sleep is 91% more efficient!. Bellabeat can detect low efficiency and suggest breathing or meditation before bed

Sleep vs. Activity Correlation

Do people who walk more sleep better?



Steps Impact on Sleep Users who walk 10,000+ steps sleep 47 minutes more. Bellabeat can link daily steps to sleep quality, showing how movement = better rest

User-Specific Trends →

Do all users sleep more on weekends or weekdays?



75% of users sleep more on weekends, but 3 “night owls” do the opposite. Bellabeat can spot and support these outliers with custom sleep guidance

How could Bellabeat use this Analysis?

Bellabeat could remain the user through notification on Bellabeat app by the calculating the steps eventually showing steps count so that the user could walk more and by monitoring the sleep cycle through Bellabeat's Leaf (wellness tracker can be worn as a bracelet, necklace, or clip) or Time (wellness watch combines the timeless look) both connects to Bellabeat app to track activity, sleep, and daily wellness