Achieving Desk-Level Accuracy with InnerSpace's Wi-Fi-Based Solution

The Challenge

Proving InnerSpace's Wi-Fi Based Solution Can Deliver Sensor-Level Accuracy

A large consulting firm, with offices across the United States, set out to solve a fundamental problem in modern workplace strategy: how to reliably understand occupancy at the desk level without relying on expensive, maintenance-heavy sensor infrastructure.

Historically, the industry has operated under the belief that only dedicated sensors could offer the granularity required for desk-level insights. Wi-Fi-based space utilization platforms were often dismissed as too imprecise, plagued by 20-foot margins of error or inaccurate positioning models. The consulting firm wanted to challenge that perception, and InnerSpace was ready to prove that Wi-Fi had evolved.

The firm's goals were clear:

- Determine which desk types and arrangements were most popular.

- Analyze how long employees actually stayed at the desks they booked.

- Compare behavioral occupancy data with reservation records to uncover discrepancies.

- Explore whether underutilized, but popular, desks could be freed up more efficiently.
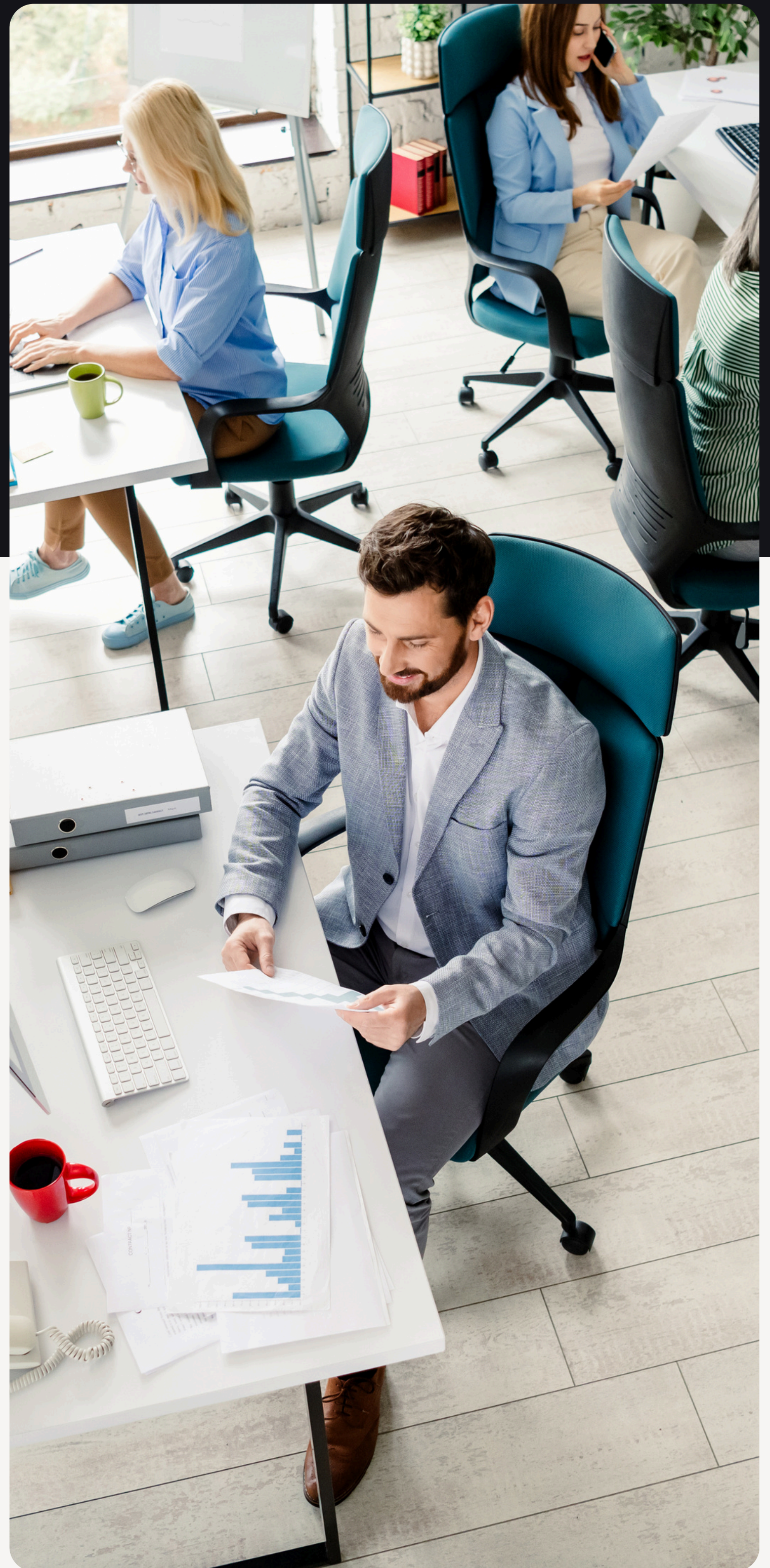
To evaluate accuracy, the client deployed a combination of technologies, most notably an existing network of Wi-Fi-enabled IOT devices installed at every desk. These devices were not used as sensors by InnerSpace but instead served as fixed calibration points, allowing the InnerSpace platform to measure user dwell times and movement with high precision.

The Findings

Wi-Fi-Based People Counting With Desk-Level Precision

The result? InnerSpace achieved desk-level accuracy using its advanced Wi-Fi fingerprinting (Patented pHLF technology) and behavioral analytics platform, without relying on proprietary hardware or sensor grids.


Sensor Data
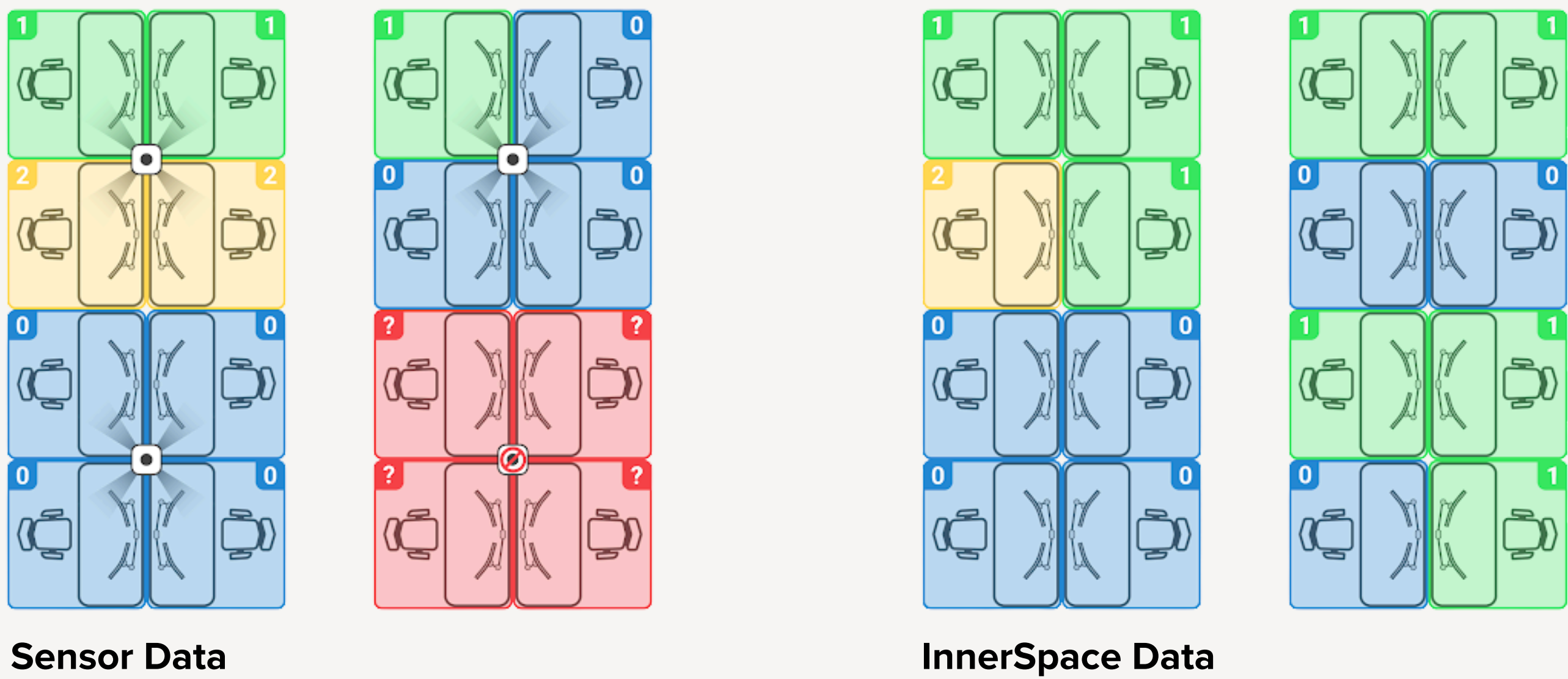
InnerSpace Data

QUADRANT	SENSOR FINDINGS	INNERSPACE FINDINGS	DETAILS
Top Left	Occupancy detected; two desks doubled	Occupancy detected; one desk doubled	Both agree on doubled desk use. Our data suggests it was a short visit or pulled-up chair.
Bottom Left	No activity	No activity	Identical results.
Top Right	Detected only one occupied desk.	Detected one additional occupied desk	Minor discrepancy: our data shows a user the sensor missed.
Bottom Right	Sensor offline- no activity recorded	3 of 4 desks occupied	Major difference due to offline sensor.

In side-by-side comparisons with the firm's existing sensor data, InnerSpace was able to deliver comparable, and in many cases superior, people counts and desk utilization insights. Where sensors showed gaps and duplications, such as multiple people appearing to occupy the same desk, or desks being marked unavailable due to sensor outages, InnerSpace's software-only platform offered cleaner, more reliable data.

Key outcomes:

- Accurate people counts, including from what department/role, and behavioral groupings, at the desk level in a dense floorplate environment.

- Dwell time tracking, allowing the client to see how long employees stayed at desks and how that aligned with booking behavior.

- Identification of most and least popular desks, informing future space planning decisions and targeted workplace improvements.

- Demonstration that Wi-Fi-based infrastructure could produce sensor-equivalent accuracy without added hardware or operational overhead.

Why This Matters
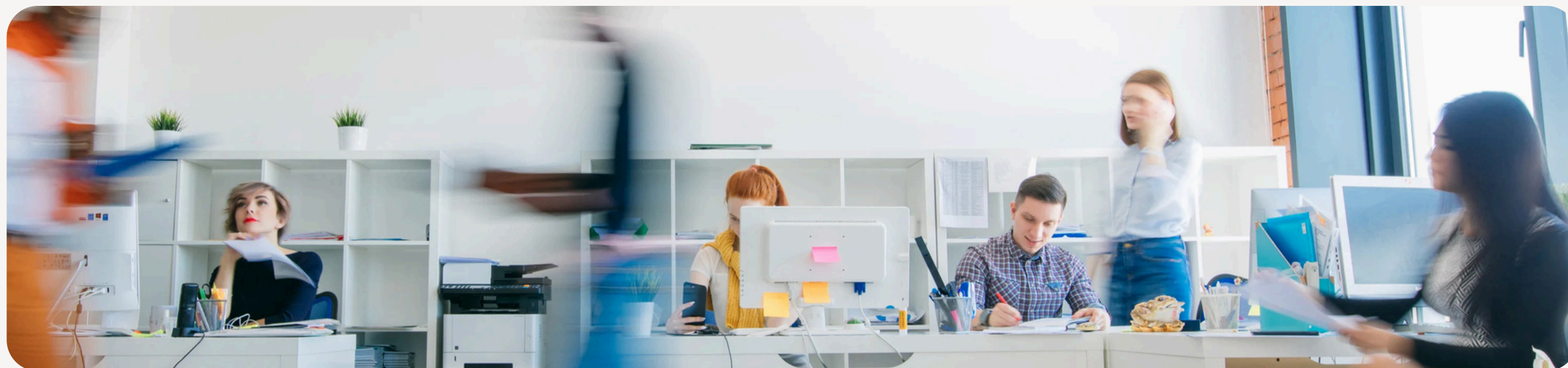
Rethinking the Need for Sensors

This proof-of-concept didn't just validate the InnerSpace solution, it helped dispel the long-standing myth that Wi-Fi-based platforms can't deliver the accuracy required for real estate optimization. InnerSpace's fingerprinting technology, which leverages **existing Wi-Fi infrastructure and patented pHLF technology**, showed that **dedicated sensors are no longer a prerequisite** for detailed, accurate workplace data.

The U.S. Patent Office cannot patent pure speculation or something you cannot plausibly describe in detail. If someone challenges the patent and proves it doesn't work or isn't replicable, you lose the patent.

By removing the need for sensors, companies can avoid:

- Costly installation projects and ongoing sensor maintenance

- Increased IT complexity and support requirements

- E-waste and sustainability concerns associated with hardware refresh cycles

Instead, with InnerSpace, organizations can extract high-fidelity space utilization data from the network they already own and trust - with no new cables, no new hardware, and no compromise on accuracy.

Let's talk about how InnerSpace can help your organization achieve precision-level occupancy intelligence - without the installation of a single sensor.

sales@innerspace.io

Real-World Implications for CRE Leaders

For corporate real estate and workplace leaders, this project provides a powerful blueprint for how to think beyond traditional people counting and sensor grids. Instead of asking "How many people are in the building?", leaders can now ask:

- Which desks and zones are actually being used, and by what teams of people?

- How long are employees staying, where did they come from and where do they go next?

- Is there alignment between room bookings and actual attendance, with the booker and invitees present as scheduled?

- Are collaborative zones or quiet spaces being used as intended?

  With InnerSpace, these questions can be answered quickly, clearly, and cost-effectively.

Wi-Fi Accuracy Has Arrived

This POC proved that the next generation of workplace analytics doesn't need to rely on legacy sensor systems. InnerSpace has developed a software-only platform that delivers desk-level accuracy, behavioral insights, and real-time visibility - without the complications of physical hardware.

For CRE teams looking to modernize their workplace strategies and eliminate the guesswork, the message is clear: **Your Wi-Fi network is all you need.**