

The Intelligent Connected Workplace Leveraging an Intelligence Platform to Optimize Workplace Experience & Management

WHITE PAPER



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WORKPLACE CHANGE AND THE CHALLENGES FOR BUILDING MANAGEMENT

Post-COVID, real estate teams around the world are confronting enormous uncertainties around building occupancy, new usage patterns, and changing employee expectations. Following the massive remote work experiment caused by the pandemic, most employees now want the option to work from home at least part of the time. And especially at the high end of the labor market, employees have never had more leverage than today.

Hybrid as a long-term option

As a result, many companies are assessing the implications of a 'hybrid workplace' as a long-term option. They are increasingly shifting to flexible seating arrangements and are reconfiguring their workspaces to accommodate new ways of working. In doing so, they need insight into how much space is still needed and what types of space and amenities they should provide going forward. To make decisions with confidence, organizations can no longer rely on disparate, incomplete, and disconnected utilization data. They need more granular and connected data, advanced analytics, and powerful data visualization tools. And to successfully run and service a flexible workplace with a distributed workforce, businesses need real-time data, too.

Real-time data insights

Think of it this way: running an office becomes more like driving a car. You expect your car's engine computer to monitor and control all essential functions in real time. And even to adapt to changing conditions and your own driving patterns. You also want live information on speed, lights, fuel, etc. And you expect to get an alert as soon as anything is malfunctioning or when a risk emerges (low temperatures and risk of slippage, for example). This is precisely the type of live data that FM teams in a flexible workplace require as well, so that they can act on information as it happens. Even more importantly, real-time data helps employees smoothly navigate the complexities of a hybrid workplace and have a productive workday.





Opportunities and impact of IoT-related technologies

Even before the pandemic, the rise of coworking spaces, the explosion of the Internet of Things (IoT), and growing awareness of the potential of machine learning and artificial intelligence for transforming workflows were already driving speculation about the future of building and workplace management. These advancements, along with the benefits they bring in terms of flexibility and efficiency, rest on a backbone of connected software tools that capture Smart Buildings data and transform them into actionable information, often through automated processes.

Across the industry there is a recognition of the transformative power of increased connectivity and analytics from the IoT. To reflect the profound changes brought about by IoT-related technologies and the shift to hybrid workplace strategies, consulting firm Verdantix in May 2022 launched a new software category: Connected Portfolio Intelligence Platform or CPIP.

"Across the industry there is a recognition of the transformative power of increased connectivity and analytics from the IoT."







CONNECTED PORTFOLIO INTELLIGENCE PLATFORM (CPIP): THE NEXT ERA OF IWMS SYSTEMS

As Verdantix states in its report <u>Market Insight: The</u> <u>Transformation Of IWMS To Connected Portfolio</u> <u>Intelligence Platforms (CPIP):</u> "Since the 2000s, firms have used integrated workplace management systems (IWMSs) as a central point of integration across assets, space, maintenance, energy and workplace management processes. Today, IWMS solutions are evolving into a new era, shaped by analytics, the Internet of Things (IoT) and employeefacing functionality, to offer new value to customers."

Verdantix defines CPIP solutions as: "Cloud-connected platforms that help firms enhance the performance of buildings across portfolio management, operations and employee experience. These platforms intelligently combine data from building systems, smart building devices and IoT sensors with advanced analytics, workflow management engines and mobile solutions."

According to the consulting firm, key components of CPIPs are:

- Broad suite of modules
- Real-time data input from sensors, building equipment and existing systems.
- Integrations across third-party and bestof-breed solutions (using application programming interfaces or APIs)
- Consistent user interfaces across modules and devices
- Advanced analytics across multiple modules





LEVERAGING AN INTELLIGENCE PLATFORM TO OPTIMIZE THE WORKPLACE

The workplace can uniquely benefit from the ability of IoT sensors and devices to bring in near-real-time data. Coupled with powerful analytics, this enables to gain better insights and create smarter workflows. Key workplace scenarios are in the areas of:

- Optimizing occupancy, utilization, and space efficiency
- Monitoring indoor air quality and improving health and vitality
- Providing real-time guidance to occupants and facilitating collaboration
- Enhancing thermal comfort and increasing energy efficiency
- Improving the efficiency of facility service management

For a good understanding, a workplace can be an office building, but it can just as well be a hospital floor, an airport, a warehouse, or any other type of facility where work gets done or services delivered.



TOP 5 MOST IMPACTFUL USE CASES

CPIP offers unique advantages for creating humancentric workspaces that positively impact employees' health, wellbeing and performance. It allows to capture data at a granular level and connect all these data points in near real time.

Thereby enabling us to really understand how spaces are used, not as an average over a building or floor, but down to the individual meeting space or workstation at any particular time of day. It also provides powerful insights into thermal comfort, indoor air quality, the quality of lighting, and other environmental conditions. And by making this data available through user-friendly touchpoints (smartphone, other touchscreens, LED status lights, etc.), it empowers employees and gives them choice and control over their environment.

Health and vitality



The pandemic heightened people's awareness of the indoor environment and brought a new focus on air quality. Considering that in industrialized countries we spend more than 90% of our lifetimes indoors, we now expect the buildings we use to make a positive contribution to our long-term health. Employees want to be confident that the air in their workspaces is clean. And employers are realizing that good indoor air quality is a business advantage. As JLL's June 2022 workforce preferences barometer points out, quality of life and health and wellbeing have become the top priorities for office workers. "Working in a company that supports my health and wellbeing" has in fact moved up from a pre-pandemic 5th position to second position in 2022



What are your top work priorities today?

Source: JLL Workforce Preferences Barometer, 2022



Monitoring occupancy utilization, and aligning space with purpose



Office attendance has become a factor of uncertainty. According to recent surveys a majority of knowledge workers prefer working from home for most of the week. For example, six out of ten WORKTECH Academy members globally anticipate spending 2 days or less in the office (World of Work 2022 survey). A fifth of this survey (21 per cent) opts for three days a week. Only 18% plans on spending 4 or 5 days in the office. Under these circumstances, occupancy becomes less predictable and tends to vary more widely during the week. In such an environment, smart workplace technologies – and the data derived from them – provide much-needed support.

A connected intelligence platform provides an indepth understanding of how space is used by building occupants. Organizations can learn about occupancy levels, popular days or times of day, footfall and desire paths. They can assess what density and desk-toemployee ratio works best in terms of space efficiency and user experience in a flexible environment. Furthermore, it also enables them to right-size – and often reduce – the office footprint. And to reconfigure their spaces based on what the data tells them about employee needs and behavior. Rather than based on guesswork. What organizations save on under-used space, they can invest in improving the remaining spaces. The goal? Fewer but better buildings, which also helps to achieve energy transition and sustainability objectives.







2. Indoor air quality and health monitoring

Poor air quality is not only harmful to physical health, but there is also growing evidence for its impact on mental health, including depression, anxiety disorder, and burnout. Poorly circulated air in buildings also **impairs our cognitive function** – the ability to think clearly and creatively. Carbon dioxide levels that are too high, for instance, negatively impact our ability to focus and our decision-making.

A real-time monitoring system provides reliable data at a localized level. This will quickly alert you to air quality anomalies. And it will allow you to take a data-driven, proactive approach to improve indoor air quality.

Another aspect impacting health is sufficient exercise. Office workers tend to sit down too much, which increases the risk of lower back pain, diabetes, cardiovascular disease, obesity and even premature death (that's why sitting is also called the new smoking). Sitting for too long also makes people less productive and less creative. Something that helps with this is a sit/stand desk. Alternating between sitting and standing prevents many complaints. Ergonomists emphasize that it is already healthy if you spend about 20% of your working time standing instead of sitting. A (built-in) sensor can track this and via a customer touchpoint the system can give suggestions to the user.







3. Real-time workplace guidance 📩

In a flexible workplace environment, CPIP utilization data is also extremely useful to assist employees in real time. To locate team members, for example. Or for wayfinding. And to instantly book that last conference or huddle room on a busy day. All from a smartphone or other user-friendly touchscreen devices, such as room panels, or kiosks placed in high-traffic areas. Reservations systems connected to occupancy sensors can also auto-cancel reservations when a space has been booked but no one shows up.

4. Comfort and energy-efficiency (

Building IoT sensors can capture detailed information about environmental conditions, including temperature and humidity. This provides insight into the health and comfort level of various spaces, a factor that influences why some spaces are less popular than others. By overlaying this information of floor plans and dashboards, we can start improving thermal comfort while also making sure there is sufficient ventilation. Sensor data also enables us to save energy, for example, by not heating spaces that remain vacant when there are fewer people in the office. Continuous monitoring by sensors that are independent of building HVAC systems can also ensure that equipment is performing as intended. So that buildings remain comfortable and energyefficient over time.



5. Efficient services



Data-driven insights visualized on floor plans and dashboards are essential not only to right-size the office footprint and optimize its configuration, but also to successfully plan agile workplace services in a changed office environment. Workflow-based software streamlines the process with statuses and alerts, best practices and SLAs. Adding sensor information allows to make the process more dynamic, enabling FM teams to act on information as it happens.





THE VALUE PROPOSITION

A connected intelligence platform offers numerous advantages over separate solutions for facility management and smart buildings. Three categories of benefits are of particular note, generating financial and human benefits in the short-term while also positioning clients to implement transformational solutions in the long-term. While these benefits can be captured to various degrees by each of the separate software types, a connected solution can unlock the full potential of these technologies.

Streamlining benefits

First, and most obviously, it can offer **streamlining benefits** in the form of lower costs and higher efficiency. For clients that already use IWMS and Building IoT platforms, switching to a unified solution can:

- Reduce the risk of data translation errors or losses,
- Eliminate compatibility issues,
- Facilitate data sharing or pooling across business silos to enhance analysis capabilities,
- Improve automation capabilities,
- Enhance the user experience by presenting a common interface that can be accessed from a single mobile app,
- Lower subscription fees by reducing the number of vendors, and
- Simplify troubleshooting by directing all service requests to a single touchpoint.



Among companies that do not yet use Smart Buildings solutions, expanding from IWMS to a CPIP platform can become an enormous competitive advantage, particularly as the COVID-19 dislocations have raised competition in the commercial real estate market. Whether by improving comfort levels, increasing the responsiveness of maintenance ticketing, or reducing time spent finding workspaces in an agile office environment, IoT data informing smarter workflows can enhance the user experience in dramatic ways.





Innovation benefits

Second, a connected intelligence platform forms the foundation for cutting-edge technologies like machine learning and artificial intelligence in building management, which rely on huge quantities of reliable, relevant, and easily processed data. Thus, CPIP generates tremendous innovation benefits. The potential for machine learning in building management has been gaining recognition in recent years, covering such possibilities as predictive maintenance and real-time management of temperature and light to achieve cost savings and optimal comfort. These applications require not just ongoing data collection, but also training data to set initial baselines and pattern analytics. Early adoption of CPIP to ensure rapid migration is thus essential to gain competitive advantages.

However, CPIP innovation potential extends beyond these high-profile applications. CPIP can facilitate rapid responses to emerging science about how to capture health improvements in office environments by monitoring air quality, temperature, humidity, carbon dioxide levels, VOCs, particulate matter, radon, and other metrics relevant to human health. Such monitoring may be required for certifications like the WELL Building Standard® or LEED. For clients involved in all aspects of a building lifecycle - design, build, and manage - the insights developed by CPIP, which optimizes the management phase, can be used to enhance design and build requirements, such as by helping to optimize the placement and design of sensor technologies or shape floorplans to enhance user satisfaction.

Ultimately, many of the innovation benefits of CPIP will depend on the particular goals and needs of its users. What is clear, however, is that technologies that collect data and – more importantly – are able to translate those data into actionable insights will form the basis for future competitive advantages for businesses of all types.





Resilience benefits

Third, CPIP generates **resilience benefits**. The key to maintaining resilience in an ever-changing market is to continuously optimize, anticipate, and adapt, all of which require in-depth understanding of how buildings are being used and how patterns of usage are changing. CPIP can facilitate decision-making about office footprints, floor design, maintenance strategies, and enhance user satisfaction and thereby ensure tenant loyalty in a competitive market.

Already, CPIP is being used to optimize agile workplace conversions, allowing building managers to save space while also ensuring user comfort and functionality by leveraging data on actual usage patterns. For example, by tracking both whether rooms are being used and whether occupancy rates align with room size, building managers might be able to reduce their footprint or alter their floor plans to align their usable space with their actual needs. As norms around remote work continue to change, we are likely to see substantial changes in the space requirements for offices around the world. Resilience also can mean deploying systems that can direct users into new behavioral patterns. For example, at one of its client sites, Spacewell discovered that a smart workflow-driven change in its reservations system that automatically cancelled bookings when rooms remained unoccupied translated into significant behavioral changes. Once users realized that they were guilty of recurring "phantom bookings," they began to change their reservation behavior, freeing up valuable office space. As a result, rather than keeping standing reservations that were infrequently used, users began to make reservations on an as-needed basis. These changes are non-trivial: with real estate typically comprising the secondlargest cost for an organization after payroll, reducing an office footprint or reducing man-hours spent searching for available space can yield significant returns on investment.

Together, streamlining, innovation, and resilience benefits thus have the potential to generate financial returns from cost savings, reputational returns from being a market leader, as well as substantial benefits from enhanced user satisfaction and health. The size of these returns will vary from client to client, but just as benefits can depend on the individual, so can CPIP solutions be tailored to individual circumstances.





CPIP in a Disrupted World

The dislocations to workplace produced first by the rise of coworking spaces and even more dramatically by the extensive shift towards remote working caused by COVID-19 reveal the importance of implementing systems that can help workplace teams efficiently and flexibly adapt to a changing world. CPIP forms the technological backbone for many of the improvements that workplaces will need in order to both capture the upside potential and manage the risks of the modern work environment. Its value proposition comes from streamlining, innovation, and resilience benefits, making it a crucial technology in a disruptive world.

Many firms, however, continue to depend on legacy technology systems, which can hamper progress and their ability to innovate. Eight in 10 respondents do not have a fully modernized core system that can easily incorporate emerging technologies, according to <u>Deloitte Insights 2022</u>.



CPIP enhances its users' adaptability and is highly flexible and connected itself, with extensive options for customization and constant investment in innovation and improving the user experience. Because of its licensing model, clients will capture those gains by always being kept on the newest versions of the software.





Spacewell and CPIP

Spacewell is at the forefront of developments in CPIP. We are one of the select few companies to be classified as a "Leader" in the Verdantix Green Quadrant reports for both Integrated Workplace Management Systems (IWMS) and IoT Platforms for Smart Buildings in 2022. These types of solutions are powerful alone, but elevated together. Therefore, Spacewell has enabled customers to leverage its IoT platform alongside its IWMS solution since 2018. In 2022 we officially merged both solution types into a Workplace intelligence platform with a unified user interface and design, enabling to address workplace experience, analytics, and management in an integrated way. And we're invested in further extending the scope of our solutions, for example in the area of energy management, where Spacewell has added the <u>AI-powered Dexma Energy Intelligence</u> platform to its solution range.

Spacewell's product offerings are designed for outof-the-box functionality coupled with configurability. This means that clients can roll out proven products with extensive testing and real-world application while still retaining the power to customize nearly every aspect of the product to their own needs, ranging from mobile displays to module settings to language preferences. Everything about Spacewell's products is designed to improve the user experience, whether that user is a decision-maker leveraging aggregated data from across the product portfolio, a building manager dealing with changing contracts, or maintenance staff responding to occupant demands.

Significantly, Spacewell is hardware-agnostic and can also work with other software platforms through standard APIs. In a world of rapid advancement in IoT technologies, we are continuously searching for and testing new sensor technologies to achieve the best solutions for our customers, across all brands and vendors. And thanks to our SaaS/Haas licensing model, our customers capture these gains by always being kept on the newest versions of the software and staying current with advances in sensor technology. Our software is also designed to work with others – whether that means connecting to a building management system (BMS/BAS) or interfacing with an organization's preferred analytics software.

Finally, Spacewell is part of the <u>Nemetschek Group</u>, a publicly-traded AEC/O company with a market capitalization of over \$7.5 billion. The group's innovative solutions cover the entire building lifecycle and are used by approximately six million users worldwide. This means that our clients can be confident that Spacewell will be a stable partner even in turbulent times.



For more information on Spacewell's capabilities, solutions, and thought leadership please contact us.





Selected Research Sources

Leesman Index

https://www.leesmanindex.com/hybrid-where-are-the-risks-hidden-in-the-hype/

Verdantix Market Insight: the Transformation of IWMS to Connected Portfolio Intelligence Platforms CPIP https://spacewell.com/resources/white-paper/verdantix-market-insight-the-transformation-of-iwms-to-cpip/

Deloitte Insights, 2022 commercial real estate outlook 2022 commercial real estate industry outlook | Deloitte Insights

Mirvac & WORKTECH Academy, From space-centric to human-centric Mirvac calls for an overhaul in the way we measure the value of office space | Mirvac

Cushman & Wakefield, Office of the Future Revisited, Three New Realities Shaping Hybrid Workplace Strategies <u>https://www.cushmanwakefield.com/en/insights/office-of-the-future-revisited</u>

Hub Australia & WORKTECH Academy, Liberated Work, 2022 https://www.worktechacademy.com/liberated-work-where-does-the-corporate-workplace-go-next/

WORKTECH Academy, World of Work 2022 survey World of Work 2022 survey: what you told us about the future - WORKTECH Academy

JLL, Workforce Preferences Barometer, June 2022

https://www.jll.be/en/trends-and-insights/research/workforce-preferences-barometer https://www.jll.be/content/dam/jll-com/documents/pdf/research/global/jll-workforce-preferences-barometermar-2022.pdf





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