



Smart Building technology: Managing transformational change

Best practice in preparing staff and customers
for a data-driven journey

By Michael Moran and Michelle Brigoli





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Executive Summary: Retrofitting a structure with Smart Building technologies and Internet of Things (IoT) sensors brings an array of new insights on costs, safety, business processes and sustainability in real estate and infrastructure assets of all kinds. Like anything new, however, the appearance of these tiny sensors around an office without proper messaging can raise eyebrows or even spur a backlash based on privacy or labor relations issues. Tenants, staff and customers passing through a Smart Building naturally will ask questions about the motivation for such installations. Microshare's decade of experience helping lead Fortune 500 and FTSE 100 clients through the learning curve suggests that preparing the ground for change goes a long way toward preventing friction, bad feelings or even vandalism of the new technology. Our experience has fed a burgeoning store of change management 'lessons learned' which can be drawn upon to ensure that project goals and sensor capabilities are thoroughly understood before the first sensor appears in the wild. Successful introduction of Internet of Things (IoT) sensors in workplace and other environments should include four distinct phases of outreach:

- **Expressing a Vision for Change:** Articulating to staff and/or tenants an overarching vision that these sensors advance, whether that is economic resiliency and cost savings; employee productivity and job satisfaction; occupant comfort and safety, or a broad effort at sustainability;

- **Identifying Stakeholders:** Inviting leaders from various parts of the organization to help shape the project, set its goals and answer questions from peers, tenants and/or staff.
- **Get ahead of the message:** Through internal communications channels like newsletters, email or physical bulletin boards, make sure the benign intentions of the deployment are well publicized. In appropriate circumstances, a news release may also make sense to help you frame public goals rather than leave it to media or outsiders.
- **Demonstrating Impact:** Providing straightforward evidence early in the project of the benefits accruing from the new data streams, seeking quick wins early, while providing clear channels for feedback from every tenant or employee they touch.

'Can you believe they put a camera in the women's bathroom?'

Introduction

For Facilities Management, Property and Asset Managers alike, the introduction of new technology to a building can often prompt harsh early reviews. Some of these – like the comment above from a real-life client deployment – are the result of misconceptions. Most Smart Building technology relies on sensor data that is entirely anonymous, does not violate privacy laws and genuinely aim to improve the customer experience, safety and sustainability of a given asset. But in this age of brittle sensibilities and social media, we have all learned that just because something isn't true doesn't mean it isn't believed. That it is vital to make the goals and realities of any Smart Building initiative known to internal stakeholders and the wider public, too.

The introduction of IoT sensors and other unfamiliar devices into the workplace, retail outlet or residential environment can be expected to raise eyebrows. This is particularly true of deployments that seem, at least to those uninvolved with project management, sudden or even surreptitious. Microshare, in the vanguard of the Smart Building retrofit movement, has led dozens of such installations over the past three years and has helped clients manage the concerns of staff, tenants and management. Working with some of the world's largest corporations and facilities management firms, we have first-hand experience through of EverSmart solution set in addressing the questions, concerns and objections that may be raised, and in trouble-shooting problems typically associated with new IoT deployments. These can range from sensors which fail to transmit data or are torn off of walls to more serious accusations from employees or customers that the new technology is contributing to an unfriendly workplace, violating their privacy or in breach of local government data regulations.



1. A VISION FOR CHANGE

Change is most abrupt when it disrupts established routines without warning and absent a clear rationale. Decreeing that all employees will engage in yoga every morning for 15 minutes before getting down to business may have positive effects. But you can be sure it will be deeply resented by some and could even lead to litigation. From dress codes to vacation policies to what does or does not get stocked in the office fridge, a change in routine procedure always goes over better when a direct line can be drawn from the decision to a larger vision statement that defines corporate culture and worker expectations in a positive light. The same is true of public infrastructure or residential settings. Broadcasting goals and expectations early to those who will interact with the new technology creates a foundation for acceptance down the line.

Most companies define success as something like this: revenue growth leads to profitability, and that financial success accrues to employees in the form of higher pay, promotions and equity grants. Residential properties stress comparative rents and amenities to retain tenants and bolster net operating income. These are a fine and time-tested approach for a shareholders' meeting or investor communications. But current market and regulatory trends warrant an expansion of this definition and to include as goals employee and tenant satisfaction, staff diversity, occupant safety and the overall sustainability of the facility in question. In today's business environment, the reputation of a firm or asset owner must align with the times. Additionally, the economic realities of the moment have their own effect. For corporations, a tight labor market that makes skilled jobs more difficult to fill has put a greater premium than ever on employee retention and labor savings. In the multifamily residential space, margins are squeezed and every good tenant is thus all the more valuable. In both, investor and regulatory pressures put a new premium on being able to measure and constantly improve sustainability (also known as ESG or Environment, Social, Governance) metrics like carbon emissions, water use and employee health & safety.

This is the lens through which an IoT sensors and data deployment project must be viewed today. For most employees, the workplace represents a significant slice of their lives. Some may spend more time at the office than they do at home; others view it as a significant social network and an important factor in their identity. And for residential tenants, of course, this is literally "home" and visceral reactions to sudden change are even more likely.

For all these reasons, staff and/or tenants as well as customers must be viewed as significant stakeholders when planning an IoT sensor deployment. Our experience suggests the following course of action:

Express a clear vision for the deployment of IoT sensors before they begin appearing in workspaces and common areas. This will help win support and manage the concerns of those working, transiting or residing in a building.

This high-level vision should come from senior management and ideally will fit neatly into a larger, strategic goal pursued by the organization. For instance:

- An organization might stress the need to curb energy waste and improve sustainability within its property portfolio as part of a green building strategy.
- Anonymized feedback or occupancy sensors can provide an early warning of trouble, from plumbing leaks to supply problems, in common areas and washrooms.
- A company with hot desking and/or a significant volume of meeting spaces, can improve employee productivity and satisfaction by providing real time availability information of desks and meeting spaces.
- Hospital managers can stress the goal of lowering internal infection rates (Hospital Associated Infections (HAIs) when installing predictive cleaning and other sensors in restrooms, labs and wards.
- Property managers can align such deployments with health, safety and productivity goals, whether the sensors are testing water for proper temperature characteristics to avoid Legionnaire's Disease (Legionella), or the quality of indoor air to prevent concentrations of carbon monoxide or other elements.

- Sensors that track assets, like luggage carts in a high-rise apartment building, wheelchairs in a large hospital, or expensive tools and cleaning equipment in any facility, keep overhead under control and make life safer and easier for tenants and staff alike. Staff currently tasked to hunt these things down, for instance, can now spend more time doing their real jobs.
- Sensors that provide a way to anonymously feedback or to report problems can rightly be associated with transparency and accountability initiatives. Suppliers of products and dispensers.

'What Is That Thing, Anyway?'

In most workplaces, employees may expect to have a say in their physical environment and the technologies deployed there, but at the end of the day these things are generally beyond their control. This is particularly but not exclusive to unionized workplaces. Residents of a large multifamily apartment complex will likely be even more insistent and may have a Homeowners Association (HOA) or other governing body consulted to manage changes to landscaping, fixtures or other amenities. These dynamics can be a source of friction if the goals of a technology initiative are not properly explained and stakeholder consulted.

The unexplained appearance of sensors will invariably tap into these insecurities. Will that sensor be used to track my movements? Is it recording my voice? Am I being photographed or assessed against some consultant's arbitrary productivity or desirability standard? Is building management trying to save money on energy at the expense of my comfort? These are not unreasonable questions, and they should be dealt with directly.

Each installation is unique, and indeed the goals of building owners who launch IoT data projects in offices or other facilities also differ. Microshare's experience suggests that anonymization of data and a clear promise from building owners that no PII (Personally Identifiable Data) data collected is the key to addressing the most serious concerns.

Abuses of data privacy by major technology companies, hackers and foreign governments are a major issue in most of the world's more advanced economies. Privacy law itself is evolving, and companies choose to steer clear of IoT projects that attempt to leverage individual data as a substitute for traditional performance measurement systems. Microshare does not sell these so-called "bossware" products, which can violate local labor codes, national data privacy regulations and, in our judgement, are anyway unethical unless some deeper form of tracking is a matter of protecting the health and safety of the workforce. (See Michael Moran in Forbes, Fighting the Big Brother Fallacy in Workplace Tech).

In advancing an overarching vision for the project, senior management should consider grappling directly with some of the most common fears directly.

- Stress the anonymization of any data collected.
- Ensure staff that none of the sensors record audio or video.
- Make it clear that the sensors are aimed at measuring the performance of physical assets and business processes, not individual human beings.
- Highlight the positive safety, performance and sustainability goals of the project and how these directly benefit employees and/or tenants.
- Such messaging will not entirely dissipate concern among a large corporate workforce, but it will go a long way toward establishing credibility with the new project will cement once it's up and running.

2. STAKEHOLDER ENGAGEMENT, PLANNING AND MESSAGING

During multiple installations in large corporate environments around the world, Microshare has found that the engagement of internal stakeholders is best done during the planning, pre-installation phase. Every organization is slightly different and sometimes the list below can be streamlined. But, ideally, at least one person from each of the following areas of a corporation would be aware that an IoT Data Advisory Panel to assess and help communicate the goals and details of the installation has been formed. Remember, the new can be shocking, especially if it comes as a surprise. It is better in our estimation that the stakeholders below are fully aware of your plans.

- **Facilities Management (FM):** A key stakeholder and a primary customer for the IoT data produced by the project, and possibly the department which will install the sensors. This department is often the Sponsor of the project, as well.
- **Human Resources (HR):** Representing the voice of employees and their relationship with corporate management.
- **Marketing and Internal Communications:** Responsible for developing an internal communications plan for the project as well as corporate reputational – and sometimes, sustainability issues.
- **Digital Transformation and sustainability professionals:** Chief Digital Officers, Chief Sustainability Officers and their teams have a vested interest in digitization and especially in producing data that track the operational efficiency of real estate assets as well as the safety and wellness of staff and occupants.
- **Legal:** Responsible for compliance or other issues including data privacy and adjudication of employee or labor union contract grievances.
- **Information Technology (IT):** Holding the general remit over digital technology; often partly or entirely responsible for cyber security. Because most IoT installations avoid interaction with sensitive corporate networks, IT should be engaged early to stress that such systems are effectively quarantined from the corporate networks they oversee.
- **Security:** Responsible for the physical security of the building but in some companies, this can include partial or full responsibility for cyber security, as well. Depending on the type of sensors installed – for instance, “open-shut” sensors for windows and doors offered by Microshare’s EverSmart Alert solution – Security professionals can also be primary data customers.

Convening an Advisory Group

As in most corporate initiatives, the onus for organizing and convening a Smart Building Data Advisory Panel will fall to the sponsor of the project. In Microshare’s experience, this has tended to be someone in Facilities Management or Digital Transformation, the areas with the greatest incentive to instrument a building and apply the resulting predictive and usage intelligence to improve and make more efficient day-to-day business processes like maintenance, cleaning, energy and water use.

The group’s remit should be as follows:

1. Review plans and timeline for Smart Building sensor installation;
2. Discuss employee messaging and concerns that may need to be addressed at a second, follow up session;
3. Implementing a Q&A system – to include anonymization – to address any staff concerns post-installation; This should also include information about how to report a malfunctioning sensor or one which has fallen from or been moved from its bracket.
4. Produce messaging to be distributed to the staff via the organization’s employee communications channels (e.g., email, Slack, Teams, etc.) and potentially signage in work and/or common areas.
5. Issuing a short memorandum approving the project launch. This can often be done concurrently with Step 4.
6. Be a lasting conduit for feedback from the larger staff and/or tenant population.

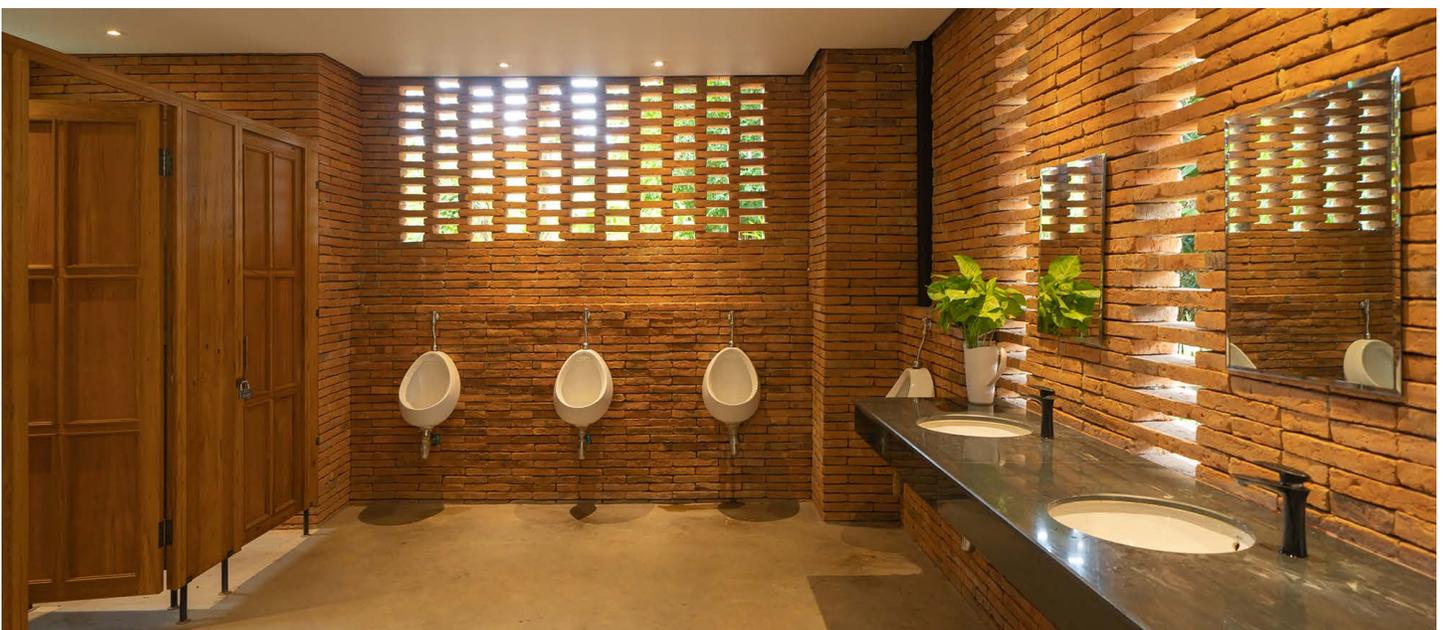
Often, it is useful to include in such sessions a representative of the vendor company handling the project (like Microshare) or at least to have prepared a detailed plan that stakeholders can review ahead of the first meeting. The plan should share and reinforce the Corporate vision for the installation, reinforce the anonymity of the data and its specific use cases, and describe any disruptions anticipated during the installation.

It is important, again, to remember that Smart Building and other IoT installations are new and that one or more of the stakeholder groups may have concerns or express a need to consult with department heads. It is best to build a review period and feedback session into the process, reconvening if necessary a few days after the initial meeting to deal with any issues.

Issues that may arise: Stakeholder preconceptions

While Smart Building deployments are expanding rapidly, appreciation of the enormous value of IoT data for facilities management is barely a decade old, and many corporate leaders have yet to grapple with the issue such projects raise.

- **HR departments** likely will approach such projects warily, knowing that anything that touches on data privacy or that makes changes to the physical environment of an office will generate unhappiness if not handled carefully. Particularly important today are issues of retention and recruitment. At any given moment, HR often understands who within an organization has a propensity to resist new things and who tends to be receptive when it comes to changes of any kind, particularly technological changes. The value of creating a formal channel for expressing such concerns will be very clear to HR professionals. Some employees will feel empowered to go straight to HR with their concerns; others may prefer an anonymous system. It is especially important for HR to answer such concerns as quickly as possible after they are raised to assure the staff that the initial vision for improving the workplace and the company's performance and reputation is being followed and that no ulterior motives exist for the project. The desire for greener operations will be a useful narrative in that regard.
- **Marketing professionals** also will quickly recognize the value to the corporation of any technology that allows them to demonstrate a commitment to stated Corporate goals, be it greener operations, technological savvy, attracting and retaining employees, etc. As communications professionals who generally have responsibility for internal communications, too, the advisory panel should rely on the marketing representative to draw up a plan for communicating the project's details to staff. This plan should stress the original Vision,



details of any disruptions during installation, as well as a follow up phase in which staff will be informed about the performance of the new data flows and the kinds of changes, savings or improvements resulting from them. Marketing may also have the remit to collect ESG/sustainability data for the company and will want to understand details about how department staff can access information on energy use, waste management, water safety and other metrics that are relevant to sustainability.

- **Digital transformation or sustainability professionals:** In an era when new technologies are evolving and being adopted to support important business goals, these people may prove important allies for Smart Building initiatives. The Digital Transformation professional likely wants solutions that bolster productivity, efficiency and employee well-being. That last goal overlaps with the agenda of Chief Sustainability Officers, along with lower and more efficient energy use (for reduced carbon emissions), occupancy and traffic data for right-sizing carbon footprints, and other questions like air quality, responsiveness and sanitation that can be driven by Smart Building data.
- **Legal departments/General Counsels:** Don't be surprised if initial exposure to the project raises some eyebrows in the office of the General Counsel. As in any scenario, change will require a reassessment from legal about the liability exposure such a sensor array may raise, as well as a determination of its compliance with current employment agreements and public law. Another issue may involve assessments of whether such sensors somehow run afoul of new data protection legislation in the EU (the General Data Protection Regulation – GDPR) and California (California Consumer Privacy Act – CCPA), the Swiss Federal Data Protection Act and many others. The good news here is that anonymized data is widely regarded as compliant, even when sold on to a third party, by both of these regulatory regimes. Microshare has encountered delays in some projects due to concerns raised by legal departments, however none of them have ever cancelled a project. In the end, these systems, which do not bear a traceable individual's data, are judged to be compliant.
- **IT Professionals:** For good reason in an era of cybercrime and breaches, Information Technology teams want to fully understand any digital applications that exist within the corporate walls. At least in the case of Microshare's LoRaWAN deployments, the IoT sensors, the gateways that connect them and the data that they produce do not enter corporate networks that are the Crown Jewel of IT departments. This eliminates the risk of opening a window into sensitive areas like the treasury or a corporate Intellectual Property vault, the most frequent targets of cyber criminals. It can also be useful early on to let IT departments know they will not be expected to install or maintain the sensors or gateways, as this generally being handled by FM teams or possibly contracted to third parties. Regardless of these facts, IT professionals will want to understand fully how such systems operate, who has access to them and how data produced from them will be shared internally and, if required, with third parties. IT should be engaged immediately upon launch of any such project and kept informed about progress and any problems during initial phases of the project. Finally, IT may ask to certify the equipment involved in the installation. This can pose a delay to or even threaten a project. Internal Sponsors should urge that such projects be expedited and keep senior management informed if undue delays are imposed. However, it should always be remembered that IT feels responsible for any digital elements within the corporate umbrella and alienating or dismissing their concerns can threaten the success of your project unduly.
- **Security:** Security teams sometimes but not always have some responsibility for cybersecurity issues, and their sign off – after the separate, quarantined nature of the IoT sensor network is made clear – may be required. Certainly, certain types of sensors will be enormously relevant to Security teams. Air Quality or Water Quality sensors, for instance; Room or Desk occupancy sensors; sensors that indicate if fire doors are closed or if windows are left open. A good security team will immediately see the value of the new streams of intelligence a properly instrumented building will produce and should become a primary customer of that data.

'Is the landlord spying on me?'



3. RESIDENTIAL AND TENANT OCCUPIERS: PRIVACY, SECURITY AND QUALITY OF LIFE

The dynamics of large residential apartment buildings or rented office space differ significantly from the worker/employer relationship of a corporate headquarters or other company-owned office space. However, these relationships generally shrivel and die without respect for the tenants' privacy, their physical and digital security, and a keen eye on improving or at least maintaining the creature comforts promised when a lease is signed.

In a leased facility, the rights of tenants and landlords generally are spelled out in great detail in the lease itself, and examining these strictures is a good bit of due diligence before proceeding with a Smart Building sensor deployment. Knowing whether the landlord's discretion extends beyond common areas and the building's physical plant spaces will help define the potential scope of a project (for instance, if IoT sensors to detect leaking sinks or monitor restroom cleanliness in apartments or individual office spaces would be compliant with lease terms).

In some jurisdictions, notably the European Union (EU) and California, data of any kind derived from human interactions can be subject to evolving legal interpretations. Again, it is wise up front to understand the legal implications of any data project to ensure compliance with all local and national data privacy and protection laws.

Furthermore, some buildings and developments may have HOAs, Co-op or Condo Boards which will stand separately as essential stakeholders in and of themselves. These entities have varied powers to approve or disapprove modifications to the property which may or may not include such things as IoT sensors and also may have significant rights regarding the ownership of the data these systems produce. Such boards exist to represent the rights of residents and/or owners and have their own bylaws and procedures for considering and approving any initiatives within the bounds of the property.

As in office facilities, however, the anonymization of data collected from Microshare solution sensors is compliant to meet all relevant legal and regulatory obligations. That should always be part of the messaging to tenants, along with these three change management steps:

- Developing a Vision for Change that explains to both tenants and building management the overarching goal of the sensor deployment;
- Identifying and Engaging Stakeholders, including residents, HOAs, Condo and Coop Board representatives in a way that addresses concerns and reassures residents that goals will be met without undue inconvenience, security or privacy issues;
- Devising a system to Demonstrate impact from the new data streams, especially early on in the process, while providing clear channels for feedback from every tenant or members of staff they touch.



4. DEMONSTRATING IMPACT

Too many change management efforts fail just on the cusp of victory: they forget to follow up. Victory in the deployment of IoT sensors is not the deployment itself, after all: it is the impact that newly discovered insights can have on staff wellness, building efficiency, safety, sustainability and the company's bottom line.

For office installations, this can range from greater comfort, convenience and safety, cleaner restrooms, new avenues for feedback, down to the satisfaction of knowing the company takes its sustainability goals seriously. In residential buildings, convenience, improve quality of life, cleaner common areas, and the efficient and management of potentially expensive and disruptive maintenance problems like leaks that cause flooding or HVAC outages that not only pose safety issues but also can result in special assessments or rent increases.

Microshare recommends that an All-Points thank you memorandum be issued upon completion of the installation, with a promise of updates to come on a periodic basis. We suggest they be sent monthly for three months then quarterly thereafter. These updates should highlight new insights and any actions planned as a result of the new data streams. These impacts may fall into some or all of the following buckets:

Energy efficiency and carbon footprint: Spending less on energy is a universal good, and our EverSmart Space solution captures data to allow this to happen in real-time with real-time and historical data that indicates building occupancy and traffic patterns. Facilities managers can program their Building Management System (BMS) accordingly, saving up to 30 percent on energy for lighting, cooling and heating. Adding temperature and humidity monitors and sub-metering of rooms that lack thermostats can amplify the energy savings.

Water use and safety: Water savings from leak detection sensors (EverSmart Alert) that can forestall the disruption and damage caused by burst pipes, leaking rooves and other sources of leaks that begin slow and go unnoticed until they've become a serious issue. Leak Detection also saves on consumption from faulty plumbing or seals. Another Alert feature will warn if water supplies range have fallen out of acceptable temperature range to protect your occupants the risk of Legionnaire's Disease (Legionella).

Air quality and environmental monitoring: Carefully monitoring temperature and humidity in a building reduces wear-and-tear on physical plant and can warn of imbalances that could lead to mold or other structural problems. Meanwhile, studies show that more granular control of temperatures and proper monitoring of CO2 levels retard the spread of virus in an enclosed space and reduces the stress level of your workforce, customers and tenants. Microshare does this with EverSmart Air for detailed monitoring, or through EverSmart Alert for tracking these issues within acceptable ranges.

Feedback stations: Anonymous push button sensors and key-fob activators empower facility managers to monitor public facing spaces for anonymized customer/tenant feedback. For instance, EverSmart Washroom and EverSmart Clean both included detailed push-button panels for customers to send alerts like "Paper Needed" or "Water on Floor" to report problems easily to responsible staff. There are also magnetic check-in fobs to hold staff responsible for responding.

Asset tracking and loss prevention: Real-time location of assets improves user experience, staff productivity and prevents expensive losses. Facilities managers or other staff can track wheelchairs, luggage carts, tools and cleaning equipment. In one deployment at London's Royal Hospital for Neuro-Surgery, the solution led to labor and cost savings in excess of \$1 million annually and a rise in customer and worker satisfaction.

Room and desk occupancy: Microshare’s EverSmart Space supports a number of sensors designed to monitor desks, conference rooms and open-air spaces. Monitor and optimize the usage of desk space, common areas and conference rooms. This can help with right-sizing real estate leasing portfolios, scheduling hybrid work patterns and understanding energy, catering and/or cleaning needs on various days of the week.

Washroom/bathroom cleanliness: An overlooked risk to reputation and employee satisfaction, anonymized motion sensors, active key fobs for staff check-in and user feedback panels to facilitate a more efficient cleaning schedule and to report emerging problems can change the game. Microshare recently won a competitive RFP to install EverSmart Washroom to handle the 700+ washrooms at Zurich Airport, which regularly tops global lists of customer satisfaction, safety and innovation.



5. CONCLUSION

Transparency and responsiveness are good bywords for sound corporate management generally, but these are particularly important features when the initiative in question raises fears among staff about violations of their privacy, depersonalizing productivity metrics or other Orwellian issues that dwell just below the surface in many organizations.

By engaging key stakeholders at the start of a Smart Building deployment, explaining in real, human terms the value of the data being collected, the fact that it is anonymized and ultimately for the common good, a foundation for understanding and tolerance can be laid.

Opening clear channels, anonymous or otherwise, for addressing concerns and then acting on legitimate issues demonstrates a commitment to your people. Feeding back on the results of the project, stressing the greater good of sustainability, safety, efficiency and a more secure financial position

for the firm, will drive this all home. An IoT deployment that truly aims high will clear the inevitable hurdles thrown up by concerned staff. Aim high and you will soar above it all.

About us: Microshare® creates Smart Building data at scale that drives cost savings and efficiencies and improves safety, risk management and sustainability in commercial and public infrastructure of all kinds. Microshare is digitizing the real world.

More at www.microshare.io



This white paper was co-authored by Michelle Brigoli and Michael Moran of Microshare.

