Enhancing Employee Productivity and Quality of Life with Big Data

A Future of Work Roundtable
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QUALITY OF LIFE SERVICES

BACKGROUND

Organizations today have an unprecedented ability to capture data about both their facilities and their workforce's activities. However, while FM professionals hear a great deal about smart buildings and how Big Data supports facilities management, there seems to be far less attention being paid to smart behaviors and almost nothing to smart management.

There is plenty of buzz about Big Data, but the reality is that Big Data is nothing without Big Judgment. How can FM leverage the data already being captured about workplaces and the workforce in order to raise the bar on employee productivity, engagement and quality of life? What additional data can take FM to the next level of relevance and enhanced organizational performance? How can FM leaders ensure that the data they capture is used appropriately and responsibly?

IFMA and Sodexo collaborated to sponsor and host a Future of Work Roundtable conversation on the challenges and opportunities surrounding these questions at IFMA's Facility Fusion 2015 conference in Orlando in April 2015.

The Roundtable was facilitated by Dr. James Ware, Executive Director of *The Future of Work...unlimited,* Global Research Director for Occupiers Journal Limited, and immediate past president of IFMA's Corporate Real Estate Council.

Jim also prepared this summary of the roundtable conversation.

Participants

The roundtable participants were invited by IFMA, Sodexo and The Future of Work...unlimited. As a group, they represented a broad range of industries, professional roles and geographic regions. They are senior FM practitioners, consultants, workplace designers and FM service providers.

The Conversation

The roundtable conversation, which lasted approximately two hours, focused on exploring the issues surrounding the collection and analysis of data that describes employee demographics and behaviors in the workplace. The group was particularly interested in how the CRE/FM function can affect both the benefits and the risks of tracking employee activities. The following questions drove the conversation:

1. What are the newest and most powerful opportunities for capturing data about employee work activities and experiences?

2. What are the most compelling benefits of work activity data for employers? For employees?

3. What are the dangers and risks?

4. What are the most important Dos and Don'ts regarding work activity tracking? Should organizations establish and communicate formal policies about tracking and using work activity data?

5. What is the appropriate role for FM/CRE leaders to take in defining and enforcing employee monitoring policies and practices?

ISSUES AND INSIGHTS

Opening Comments

Our conversation began with a broad overview of the "state of the art" regarding the monitoring and analysis of employee-related data. Employee monitoring is already very common, whether it involves video surveillance of lobbies and other "public" areas within corporate facilities or more discrete behavioral data like keystrokes or individuals' movements within a facility.

With the growth of the Internet of Things, or "IoT," and the advent of smart buildings (and smart chairs, smart floors, wearable computing and more), it is also possible (and happening with increasing frequency) to monitor employees virtually anywhere they go, including their work activities at home and anywhere else they access their laptops, tablets or smartphones.

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The most exciting aspect of the Internet of Things is the potential for remote sensors to capture and transmit useful data automatically (and at very low cost), enabling all kinds of predictive and preventive information to enhance employees' performance as well as their quality of life, and to reduce risks. For example, though not technically a workplace example, consider smart concrete that can warn drivers of patches on ice on the road ahead. What could smart buildings tell us about their physical condition that would help determine preventive maintenance, minimize costs, and reduce the risks of accidents and physical deterioration?

And on the behavioral side, there are now smartphone apps that can, for example, monitor and report on the tone of voice that individuals use during phone conversations. That may seem a little creepy and more than a bit invasive, but it is also possible to imagine that a group-based emotional assessment could alert management to a brewing controversy or degradation of employee engagement.

The important management question, of course, is how this kind of data can enhance individual and organizational productivity as well as employee quality of life.

There are also important ethical questions about capturing and using behavioral data of which individuals may not be aware. As one expert said recently in a private conversation:

> We know that, in parts of the world, you are on camera almost anywhere you go. If you have ever worked at a retail store or gone into one, you're on camera. Why does it come as such a shock that it is now being brought into the office? I believe Samsung has admitted that their TVs can actually listen to you, record what you say and share it with third parties.

> WebEx can monitor and report your attention level. I recently heard, although I haven't verified it, that the WebEx conversation, including the voice, can actually be retrieved even if the record button wasn't turned on.

> There is software that can turn your computer audio and video on without your knowledge. I keep what I call a "camera condom" over my webcam. I use a little round bandage [to cover the camera] on my workstation computer.

> Certainly what you look at on the Web is being monitored, along with what you buy at the grocery store, which is why those pop-up coupons are remarkably like what you were just looking for. You really want to be careful what you share with the application[s] you are using.

Certainly it is now possible to capture and analyze far more data about employee work activities than ever before — and it is happening on a regular basis. The promise of Big Data is powerful; it presents opportunities for deep learning about work activities — learning that can lead to significant redesign of work flows and dramatic improvements in office ergonomics and employee quality of life. It also offers the ability to enhance the quality of the work experience and to mitigate workplace risks (e.g., liability insurance costs, health insurance costs, business continuity planning).

For example, monitoring the body temperatures or coughing frequency of a group of employees could raise a yellow flag about an impending flu outbreak, which could lead to some preventive measures, or if it's too late for prevention, at least some advance warning about multiple sick leaves and the need to bring in substitute employees to maintain a critical work flow.

Similarly, proactive monitoring of keystroke patterns could enhance productivity by identifying employees who are using the Delete key regularly and might benefit from additional training. Or tracking and analyzing food consumption patterns in the company cafeteria could identify employees at risk of obesity or heart disease (which could predict health problems and increased absences in the future).

Today, there are chairs that can tell an employee to get up and move around after sitting for too long (of course there are personal wearable devices like the Fitbit® and the Apple Watch that can do the same thing, and also track pulse rates and even blood pressure — all information that can enhance employee health and identify potential risks as well.

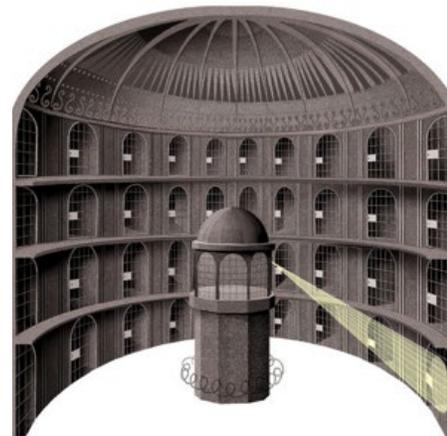## "Not everything that counts can be counted, and not everything that can be counted counts."

On the facilities side, there are also major opportunities to monitor more closely building data, producing more effective management of variables like air quality, temperature variations, energy costs, lighting impact, and a wide variety of safety and maintenance issues. These environmental factors have a major impact on performance and productivity, as well as quality of life and workforce satisfaction.

All that is promising, but it also raises the question of when does Big Data become Big Brother?

As with all technologies, Big Data is a tool that can have positive impacts, but its value depends on how it is used. Employees may balk at what they consider excessive monitoring, and they may resent even well-intended efforts to enhance their health and safety if they feel the surveillance is being imposed on them without their knowledge or consent.

It is imperative for organizational leaders to approach Big Data thoughtfully and responsibly. We don't want to re-invent the panopticon, which was a device used in the 18th century to enable prison guards to see into every cell and monitor even the private activities of their prisoners (see Figure One).

Figure One

(Image: Adam Simpson, New York Times)

As sociologist William Bruce Cameron said in a 1963 book, "Not everything that counts can be counted, and not everything that can be counted counts." In other words, Big Data is nothing without Big Judgment.

When organizations implement Big Data strategies, they must build commitment and understanding of its implications across the entire organization. Management must ensure that there are proper controls and meaningful supervision policies and practices in place, both to leverage the data and to be certain it is interpreted and applied in a meaningful way.

How will the "Internet of Things" impact FM?

That broad opening question led to an intense conversation not so much about the Internet of Things as about the fundamental impact of Big Data – the information-rich environment that the IoT creates.

Big Data has the potential in some cases to displace, or replace, some middle management functions (and some middle managers). As we develop more comprehensive databases in the FM arena, we may see a reduction in our need for middle managers. Systems are providing the information we need in a less labor-intensive way.

The data is nothing but a bunch of numbers; it's an enabler, not an end in itself.

And while that may enable us to reduce the cost of providing FM services to our organizations, it may also make it more difficult to recruit and grow the next generation of FM leaders. And this is not just a "big corporation" issue; Big Data is now available and cost-effective even for small businesses.

The information that we can produce today enables FM to provide services at lower cost; it makes FM more efficient. But more importantly, it enables the workforce at large (not just FM) to make more effective decisions and to run the business more productively.

It is also important to realize that the concerns about privacy and opt-in/opt-out are really not part of the Big Data equation. By definition, Big Data is aggregated information about patterns and broad implications; data that is used for individual feedback or assessment purposes is something else altogether (although it may come from the same sources, individual data raises very different management and ethical challenges).

One insurance company implemented a work-from-home program that was justified and validated on the basis of group productivity data. The data was so positive that the program survived two complete turnovers in the C-Suite. Even though the new executives were focused on turning the company around, they supported the program because it was clearly producing business value; the remote employees were 18% – 22% percent more productive than their in-office colleagues.

Unfortunately, however, the executives began boring into the group data and using individual keystroke metrics to reward and punish individual employees. Tragically but unsurprisingly, those actions essentially destroyed employee support for the program; it communicated (accurately it turns out) that senior management did not trust the employees.

From a workplace strategy viewpoint, Big Data used correctly can very effectively enable strategic decision-making around big-picture issues like space utilization, cost and energy usage. Again, that's using Big Data to understand broad overall patterns, not to monitor individual behaviors.

We need to educate FM professionals about how to use Big Data effectively — how to make data-driven decisions, and what kinds of information they should be tracking to operate their facilities more efficiently and more effectively.

Understanding what data is important is the first step. All too often, FM professionals get all excited about benchmarking even though they don't have any basic Key Performance Indicators (KPIs) or performance indicators even defined, let alone in place and in use.

Before getting all caught up with Big Data or even defining KPIs, FM leaders must get clear about what outcomes they want to achieve. Only then will Big Data be useful; it is an enabling capability that is forcing FM leaders to get more focused on what outcomes are important. But never forget that the data is nothing but a bunch of numbers; it's an enabler, not an end in itself.

However, we also cannot ignore or fail to pay attention to Big Data. The Internet of Things will have a broad and fundamental impact not just on FM but on the nature of work and business itself. FM is part of it, but we're going to see a much more intense focus on data and data-driven decision-making in all functional areas. FM cannot afford to be left behind. And one question we have to pay attention to is who within the organization is going

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For example, the kind of discrete and detailed data that we can collect and analyze now about individual health and well-being is going to change the whole concept of personal insurance and perhaps even property and liability insurance as well. FM should be thinking through what that means for building life cycles and cost management.

And given the growing talent shortages in key areas, in combination with the globalization of talent markets, it is very likely that the future will include fewer and fewer full-time employees on W-2s and more and more "free agents" or solopreneurs whose talents are attractive to many different organizations. That will impact not only HR and the whole meaning of employment, but it will also lead to more distributed project teams, where a high percentage of work is being done outside traditional corporate facilities (or in multiple facilities spread all over the world rather than in one physical place).

We may see corporate organizations shrinking to their essential core functions — and FM having to provide facilities for fewer full-time employees along with many more short-time "visitors" who come and go as they are needed on particular projects.

It is also important to pay attention to data about the communities or cities that surround the organization's facilities. Community development efforts affect the services (restaurants, grocery stores, mass transit, etc.) that are available to employees and contractors, let alone the families of employees who live nearby.

The only appropriate way to view FM is in terms of how well it leverages people.

Again, Big Data and the Internet of Things are generating broad and wide-reaching changes in the nature not only of business and work, but of society more generally. And those changes may drive basic shifts in the role of FM. Some experts are predicting that FM may evolve to become responsible not just for the physical facilities but also for the people, teams, and even communities who use those facilities.

And that evolution leads to questions about what we mean by quality of life and healthy communities (not just healthy individuals). Identifying (and then tracking and analyzing) the metrics that contribute to quality of life, while challenging, will become imperative for the FM function.

As several people pointed out during the roundtable, organizational spending on people (payroll, benefits, etc.) far exceeds spending on support tools like facilities and technology. So the only appropriate way to view FM is in terms of how well it leverages people.

And that means that FM's incorporation of Big Data is ultimately leading to more complex questions about how to track organizational productivity — meaning the impact of facilities on people. It's not just about cost per square foot or air temperature anymore. That means FM must develop new skill sets — and not just about how and what data to capture.

Communication with other functional areas has also become much more important. It's not just a new skillset; we must develop a whole new **mindset** about FM's role as well as its responsibilities.

The most important skills and mindsets we need to explore include areas such as:

- interpersonal communications and relationship-building
- knowledge of functional areas like marketing, finance, product design, and marketing
- understanding of organizational culture and how to influence attitudes and values
- knowing how to formulate organizational change programs and deal with resistance to change
- program and project leadership
- how to lead effective meetings that engage others and produce meaningful results

FM must also become more forward-looking, offering anticipatory guidance to the larger organization rather simply reporting historical data. The past is far less important now because conditions are changing so rapidly. Research and benchmarking have taken on a different focus; the kind of research we do, and the things we benchmark, must be re-examined from the ground up.

Another impact of extensive data collection capabilities is the ability to define more discrete "employee market segments" and determine the particular needs and desires of different categories of employees. For example, mid-career marketing professionals no doubt have very different workplace design preferences than younger IT workers.

Just as consumer product companies have learned to define and market to small market niches, Big Data is helping FM learn more about the connections between workplace design and individual work styles. In the future, FM may find itself under pressure to provide custom-fit (but cost-effective) workplaces for specific project teams and even individual knowledge workers. The good news is that data to inform those design decisions will be readily available.

What are the benefits of capturing employee data? What are the dangers and risks?

One of the primary values of having employee productivity data is that it enables FM to report on workplace ROI and effectiveness to senior management. One FM leader was able initially to sell senior management on supporting a work-from-home program because of a decision support tool that projected how workplace, HR and IT costs could change as a result of implementing the new program.

More importantly, she was able to "re-sell" the program after the company replaced its senior leadership team — and then do it all over again several years later when that team was replaced once again (the organization as a whole was experiencing serious performance deterioration in a very dynamic and unpredictable economic environment). Being able to demonstrate the program's bottom-line impact on productivity was the only reason it survived a major cost-reduction initiative.

However, when an organization begins monitoring employee work activities, there is a risk that the employees will see the effort as micro-management and "Big Brother," and even a precursor to workforce reductions. Management must be very careful that this kind of data collection is not seen as indicating a lack of trust in employees.

There is a core principle in scientific research (known as the Heisenberg Uncertainty Principle) that you cannot measure anything in the physical world without having an impact on the thing you are measuring. For example, to measure the speed of an electron, you have to bounce a photon off it, which then deflects the electron and changes its speed.

The same idea generally holds true with the measurement of human behavior; knowing they are being observed and measured often leads people to change their behavior — which may have either positive or negative consequences. But it is almost never neutral.

It is well worth remembering that most employees are not totally oblivious to how work and personal data might be used, and what it can imply. They usually know (or think they know) what management is looking for, and they are often capable of manipulating the data to produce the results they think management wants, or that will make them look good in management's eyes.

The management risk is interpreting data without context. And people are generally becoming far more sensitive about personal data and its possible misuse. That is partially attributable to the several instances of major data theft that have been in the news over last year or two. But it also reflects a general fear of how personal data will be used.

On the other hand, social media tools like Facebook and Twitter enable people to voluntarily share all kinds of personal data. While many of it seems trivial (cat videos, selfie pictures at parties, family gatherings), it is also affecting society's mindset about having and sharing personal data. Some people have become much more comfortable with having information about them and their activities widely available online; others are far more concerned about privacy issues.

As many as 30 million Europeans have requested that all of their digital identity information be removed from the Internet. And while accomplishing that may be

essentially impossible, the desire for it is a social force to be reckoned with. There has been a very vigorous debate at the highest levels in the European Union about digital privacy and how to balance the interests of individuals with those of society.

An article in The Guardian ("How to Delete Your Digital Life," April 13, 2013) offered several suggestions about how anyone can minimize their online presence and remove much of their personal information. However, the article concluded:

> Expunging yourself from the internet is very, very hard. As far as is known, nobody's succeeded — though of course if they had, how would we know?

Professor Alexi Marmot of University College in London commented in a private conversation that:

> ...we increasingly have lots of data and very little knowledge of what to do with that data. The concept that you can fundamentally hide was part of the creation of the United States. I think this is going to be more and more important as we move on, and I think this is a very important [issue] to be watching.

Within the social research community there are very strict requirements about what is called "informed consent." Research subjects must be clearly informed about any data that is captured during a research project and how it will be used. No research data can be collected without first of all conforming to a set of very clearly delineated ethical practices, which describe what the researcher is allowed to gather, how the data is stored, who can see it, and how it can be used.

This "opt-in" approach, along with restrictions on data storage and use, will likely become an important component of organizational "research" in the workplace as well.

And one way to move in that direction, and to convey respect for and trust in employees, is to communicate transparently with them about any data-gathering initiatives. And an even more powerful means of engaging staff is to include them in planning and design conversations about the data collection effort and its purpose, intended use and benefits.

One of the biggest risks organizations take is to begin collecting data without informing their employees —

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and then having the employees discover that the data is being collected and used without their knowledge.

However, the biggest risk of all may be not thinking big enough. The potential value of becoming much more data-intensive is enormous; it is now possible to be far more analytical about what skills, personality types and work experiences characterize successful employees. And that knowledge can guide future hiring decisions that produce dramatic improvements in productivity, creativity and organizational performance.

For example, HireVue (*www.hirevue.com*), an online recruiting and candidate selection service, records online video interviews and then applies up to 50,000 different characteristics to determine the best candidate for a particular job. Those characteristics include the content of what you say, your tone of voice and other nonverbal communication). HireVue claims that its process produces:

- a 44% reduction in external recruiting costs
- a 25% reduction in time to hire
- a 23% cost-per-hire savings within one year

While this makes a very compelling case for using data to guide decision-making, it also raises many yellow flags. For example, what if this kind of data is stolen or leaked? Could a small mistake in a candidate's response to a question become a life-long stigma that makes it difficult for that person ever to be hired again? And perhaps most importantly, what is the risk that relying on this kind of data could lead an organization to make numerous hiring decisions that reduce diversity and intensify its culture rather than encouraging the creativity that deliberate diversity so often enables?

What are the Dos and Don'ts Surrounding Big Data?

It is important to remember that, while the capability to capture so much data (and so many different kinds of data) is relatively new, the experience of learning to use new technologies and to apply them effectively is not. Organizations have been assimilating new technologies and other drivers of change in work processes that impact decision-making for decades. We have learned many lessons in the past that are just as important today as they were then.

Here are several important, time-tested principles for ensuring that Big Data enhances organizational effectiveness:

- Involve all employees in the conversations about what data to track and how to apply it to management decisions;
- Stay focused on data that will help employees and the organization as a whole become more efficient and more effective;
- Require employee agreement to any data collection efforts;
- Focus on continual improvement;
- Offer employees some benefit in return for sharing their data (i.e., lower insurance premiums for reporting weight losses or healthier eating habits or regular exercise);
- Be very clear and open about how you are using the data;
- Recognize that your organizational culture will affect the way any data is understood — and the very act of becoming more data-driven will change the culture;
- Treat data as an enabler and an input to decisions, not as a formula that determines outcomes; and
- Be completely transparent about both data capture and data use, and establish opt-in policies and programs.

In contrast, here are several Don'ts:

- Don't allow any surprises — in other words, don't track behaviors in secret and then suddenly surprise employees with the information you have captured;
- Don't collect data and then let it disappear into a vacuum — share what you learn with the people who produced the data;
- Don't collect data for its own sake — always know why you are gathering any particular kind of data and how you will use it;
- Don't manipulate data, or use the data, to justify a decision you intended to make anyway;
- Don't sell the data without the permission of those who produced it; and
- Don't set up opt-out programs that require employees to take positive action to prevent you from collecting data about them or their work activities.

We can almost certainly expect the development of new and stricter data privacy and data security laws. There have been so many examples of data thefts in the last few years that it is only a matter of time before consumer protection and labor laws will require the signing of consent and opt-in agreements.

Ultimately, the issues surrounding Big Data come back to the employee experience. Even with opt-in programs and various incentives for providing work activity data, employees are likely to feel social pressure to conform, or to behave in certain ways. Realistically, that's a good news/bad news situation. Employees can certainly benefit from programs that reward them for health behaviors (weight loss, stop-smoking programs) but they can also be at risk of being micromanaged in their work activities.

What is the appropriate role for FM/CRE leaders to take in defining and enforcing employee monitoring policies and practices?

In the end, we want to enable FM leaders to be more successful at ensuring that the built environment provides cost-effective support to their organizations and employees. FM will be judged on the outcomes it produces relative to the cost it takes to achieve those outcomes.

Data can help FM discover cost-reduction opportunities, but it can also help identify workplace designs and strategies for increasing employee productivity, creativity, engagement and satisfaction — ultimately enhancing their work experience and quality of life.

Big Data is nothing more or less than a tool for fulfilling those responsibilities.

And this brings the issue of Big Data full circle; the most important principle to remember as organizations implement data collection efforts is that Big Data is nothing without Big Judgment. As with so many other organizational tools, the first question that must be asked is "Why?"

Before you embark on any Big Data initiative, be sure to address the following fundamental questions:

Why are you collecting this particular data?	*What results are you attempting to achieve?*	*How will the data help achieve those results?*	*What decisions will be influenced by the data?*
Who will have access to the data?	*Whose interests will be served?*	*What are the risks of the data being misused?*	