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A background image of a modern office building's interior, featuring a wide, multi-level escalator system. The image is heavily blurred and has a strong cyan/blue color cast. Silhouettes of people are visible on the escalators, suggesting a busy corporate environment.

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Wearable Devices: The Future of Employee Productivity

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INTRODUCTION

Employers looking for more precise ways to measure productivity can outfit their employees with wearable technological devices—similar to those currently worn by fitness enthusiasts—that measure brain activity, record movement and even monitor posture.

According to tech experts, these devices can make employee identity authentication more seamless, and tell under which conditions your workforce is most productive, alert and more satisfied in their jobs.

While developing a more productive, engaged and innovative workforce is a fundamental function of human resources, maintaining employee privacy and complying with local, state and federal employee privacy restrictions is equally important.

This issue of Workforce Strategies offers employers insight into how wearable technology will impact the workplace and examines how these devices offer both solutions and raise questions for human resources.

TECHNOLOGY OFFERS SOLUTIONS, RAISES QUESTIONS FOR HR

Brent Blum, wearable technology practice lead for Accenture Technology Labs, told Bloomberg BNA that the challenges that employers and HR will face are interesting because in some ways, wearables are just another mobile device, “but that’s not the whole picture.”

Blum argues that if data collection is in support of a work function and is a part of a job, then there is some validity to the use of wearables. He added that a radical shift in the way workers think about this technology is needed.

“Human resources is going to need to be able to make the case that this makes the company more profitable, more secure, more successful and that employee data is private and secure,” he said.

Blum noted that certain employee relations problems might arise in assigning tasks, determining job duties or designing promotion structure based on data collected through the use of wearable technology. “The unions are not going to like the perception of reassigning duties and monitoring employees this way. That’s the big battle ahead,” he said.

He predicts that there will be some cases that are very “cut and dry” but there will be other scenarios where privacy concerns and employers over-stepping ethical boundaries will be clear. “The interesting area is in the middle where politicians, unions and the legal community will need to get involved to define how the data is used and what use cases are appropriate,” Blum said.

An Adjustment Period for Employees

There will be an adjustment period where employees will need to be properly educated on what is and isn’t being monitored, what data is collected, how data is secured when the device is in motion and how it is secured in rest, Blum said.

Robert Scoble, startup liaison at Rackspace and co-author of *Age of Context: Mobile, Sensors, Data and the Future of Privacy*, told Bloomberg BNA that he thinks most employees will consent to wearing these devices in the workplace because most won’t turn down a job or opportunity for professional advancement because they are asked to use a wearable in the workplace.

“I’m sure there will be consequences in the workplace if [an employee] doesn’t consent, but I don’t think it is going to be about consent,” Scoble said.

Scoble said if wearables like the Apple Watch or fitness monitors will improve one’s health, overall quality of life or work performance, most employees will agree to use them.

“If you get a discount on your health insurance rates by wearing it, you are going to wear it. Now, some people might say ‘I don’t want the discount or a bo-

“HR is going to need to make the case that the use of wearables makes the company more profitable, more secure and more successful”.

nus in my paycheck.’ Then there is a consequence monetarily to not wearing it. Some employers won’t give you the opportunity to waive it; they will say it’s mandatory,” Scoble said.

He predicts there will be a lot of pressure from employers to get around privacy rules. “If you can reduce insurance costs \$1,000 a year, why not give \$500 back to everybody for wearing a band that helps reduce costs? I think there is a lot of stuff coming. I don’t know if it is here today; it’s more of a theoretical conversation,” he said.

Lots of Communication Needed

Carol Olsby, a member of the Society for Human Resource Management’s technology panel, who also served as an HR executive at several tech companies, told Bloomberg BNA that employees who are more “technology-centric” are more likely to embrace this. She said depending on the “population,” companies might have to do more communication, based on their workforces’ experience with technology.

Olsby added that sharing with employees why the company is incorporating wearables into the workplace and how both employees and the company will benefit is important. For example, she said, an employee might think a company is trying to track how long processes are taking in order to decide if they need all of their employees, “With something like that people might be skeptical,” she said.

“Theoretically it can be used to manage and monitor performance,” she said. “So I think there needs to be a lot of communication around the ‘why’ if people are not in a technology-centered company.”

Olsby said that for companies that are thinking about deploying wearables in the workplace, it is important to have a dialogue with employees rather than simply releasing a memo or issuing a mandate.

“I think really understanding your population, industry, sector, the type of workers you have and recognizing who they are, then creating a conversation and being clear about why you are collecting this data and how information will be used, is critical,” Olsby said.

“If [employees] are not technology-centric, perhaps, going even further by having town halls or ways in which employee could share their viewpoints” might put workers at ease, she said.

However, she said, if a company does have a town hall or hosts a Q&A session, they should come prepared to answer any questions or address any concerns employees might have. “Not being prepared to do so is a symptom of a lack of transparency,” Olsby said.

“Those kinds of issues are symptoms of a company that is not a good communicator or is not transparent. I think what the company has to be is very transpar-

“The organization should be very transparent about why they are adopting wearables.”

ent about why they are doing this. If [employees] are clear and are educated on how to use the devices, they understand and trust the company and then trust that the information is not being used against them, adoption will be easier,” she said.

Olsby said piloting wearables among a group of employees gives both the company time to make sure the technology is working properly and to address any concerns employees might raise.

“If you are going to introduce something like this, you want to make sure that it is functioning properly and then address any employee concerns in the general communication to the larger workforce,” Olsby said.

Increased Productivity and Efficiency

He said that “common workplace” access management is where these devices will be most and best used— rather than the monitoring of biometric data and tracking capabilities. “If this device is able to use my unique biometric data to passively grant me access to the proper resources without my involvement, I still think that is useful. As an industry we need to identify how that data is stored and how that is communicated to employees,” Blum said.

Blum said that some wearables will allow employers to see which workers “are not functioning optimally” in the current work environment.

He said wearables that integrate ECG monitors into helmets, hats or even smart glasses can help employers identify problems areas within a task or among teams of people working together.

“Employers can see your focus, your stress level and your concentration as you perform a task as a team. When [managers] see that an employee has difficulty with step four, they can get [the employee] the things [he or she] needs to be more efficient at completing the task” he said.

“That might start out at the macro level where an employer says ‘OK, I can see that step number four in the process needs more training or that people always get stressed out when they are at a certain phase. A manager might say ‘let’s give everyone some help on that,’ but the next step after that might be ‘Bob in particular is stressed out on step four. We should help him on that or re-sequence the work such that the most focused employees are performing it.’ That is a radical shift in the way that tasks are assigned,” Blum said.

Employee Attitudes on Wearables

Blum said if widespread use of wearables devices in the workplace is defined as “early adopting Fortune 500 companies,” he predicts that smart glasses and smart watches, which are already being used in some workplaces today, will be most widely used.

“I wouldn’t say use is wide spread by any means. That said, in the next two years I would think that these kinds of devices will completely change the way deskless workers do their jobs,” Blum said.

Some wearables will allow employers to see which workers “are not functioning optimally”.

A Pricewaterhouse Coopers survey of 314 wearable technology users found that 77 percent of respondents said an important benefit of wearable technology is its potential to make them more efficient and more productive at work.

Seventy percent said they expect their workplace to permit the use of wearable technology, and 46 percent say they think their company should fund the wearable technology, rather than a BYOD (bring your own device) model, the survey showed.

Seventy percent of respondents also said they would wear employer-provided wearables that stream anonymous data to a pool in exchange for a break on their insurance premiums.

The survey found that millennials in particular are most enthusiastic about wearable technology in the workplace—83 percent say its potential to make them more efficient and more productive at work is an important benefit. The survey also found that millennials are more than twice as likely as adults ages 35 and older to say they want their device to provide information about their personal productivity on the job.

How Wearables Will Be Used

Scoble said information gleaned from wearable technology can be used to aggregate things like an employee's schedule, location and heart rate, thereby generating "personal identifiable data profiles."

Scoble echoed Blum in positing that enterprise smart watch applications will likely be the first wearable trend to emerge in the workplace with widespread use.

"The Apple Watch is just starting to ship, and we haven't seen the [mobile applications] yet. In five months, I think the Apple Watch story is going to radically change," Scoble said.

He said that although many employers are concerned with privacy, most are pretty open about how they monitor employees. "When there is safety involved, I see employers being more willing to incorporate wearables in the workplace," Scoble said.

He predicts there will be a lot of pressure from employers to get around privacy rules. "If you can reduce insurance costs \$1,000 a year, why not give \$500 back to everybody for wearing a band that helps reduce costs? I think there is a lot of stuff coming. I don't know if it is here today; it's more of a theoretical conversation," he said.

Security Challenges

There are some security challenges that are similar to those with mobile devices, but there are others that are unique to wearables, tech professionals told Bloomberg BNA.

A survey found that millennials in particular are most enthusiastic about wearable technology in the workplace.

“They present new challenges. You still want to secure the network, have proper mobile device management and be able to do remote [data] wipes,” Blum said.

However, Blum said companies will get to a point where a wearable device is baked into devices similar to a smart watch or wrist band.

Then, he said, users will be able to authenticate identity to open doors, unlock computers and operate forklifts.” However, he added, these devices aren’t “quite ready for prime time because identity management is a hard problem to solve.”

“Being able to reliably identify someone just based on the variability of their heart rate or other really intimate personal biometrics is a tremendous engineering challenge, among other things,” he noted.

WHAT IS WEARABLE TECHNOLOGY?

Smart watches, health monitors, pedometers, activity trackers, and virtual reality headsets are all part of the emerging landscape of wearable technology.

A 2014 report released by Accenture Technology, *Putting Wearable Displays to Work in the Enterprise*, defines wearables as “always-on, connected computing displays that are worn on the body for easy, hands free access to show contextually relevant information. This functionality makes it possible to support, augment and optimize the workforce, especially for ‘desk-less’ employees who need the ability to do hands-free work and access to real-time information.”

An example of a more advanced form of wearable technology is the Nymi Band, a wearable device that identifies the wearer’s unique electric cardiac signature (electrocardiogram or ECG) to authenticate and confirm the wearer’s identity.

A Better Understanding of the Workforce

Use of wearables can give employers a way to understand what people actually do at work. Wearables can provide managers with the information they need to maximize the configuration of the workplace and enable subtle changes in the work environment, tech experts told Bloomberg BNA.

“This technology gives employers a way to understand, on top of existing behaviors, what people actually do at work. Often employers don’t know what people are doing at work. That’s the core of business, and employers should have a method of measuring that,” Dr. Chris Brauer, professor at the Institute of Management Studies at Goldsmiths, University of London, told Bloomberg BNA.

A 2014 report released by PricewaterhouseCoopers, *The Wearable Future*, identified how wearables can be used in the workplace. “In manufacturing, wearable tech can help expedite production by creating hands-free guidance tools. In service industries, wearable devices can speed access to information in real time and enable seamless action. In medical centers, wearable devices can improve accuracy of information, streamline procedures and increase clinical trials,” the report said.

“Through fitness devices and corresponding incentives, wearable technology can drive significant decreases in health care costs. In all of these cases, effective implementation of wearable technology stands to benefit both the user and the company,” the report said, “increasing efficiency and efficacy.”

Use of wearables can give employers a way to understand what people actually do at work.

LEGAL CONCERNS FOR HR

Employee privacy attorney Christin McMeley, a partner at Davis Wright Tremaine's Washington office, told Bloomberg BNA that employers have been looking at monitoring employees and employee privacy issues for quite some time.

"I think that the new technology has the potential, and it is in many instances, to be more invasive than some of the other forms of monitoring, but the issues are the same," she said.

"Does the employee have an expectation of privacy? What kind of notice is the employer going to give to defeat that expectation of privacy?" she asked. "The legal issues can be dealt with," she said. "I think that it is really more about the culture of the workplace and workplace morale."

The question for employers, she said, is: "How are employers going to use this technology to benefit both the employee and the company and get buy in from employees?"

McMeley said that when incorporating wearables into the workplace, employers should set clear parameters covering the use of the devices, including what the information will be used for and how they are going to give notice to the employee.

Employee Consent

McMeley said an employee can give consent, but added, "if you have unions in certain locations, this certainly will be a point of notice and negotiation with your labor force."

Whether employee consent unpins an employer's risk of violating employee privacy restrictions will depend on the type of information collected and how it is being used, McMeley said.

"In general if the device is the company's property, it is being used for business purposes and the employer gives notice to the employee that they have no expectation of privacy, [the employer] defeats any expectation of privacy that [employees] have. Then the employer is going to be able to do a lot of things with that information," she said.

Employers should set clear parameters covering the use of wearable devices.

MINIMIZING RISK

McMeley said it would be prudent for employers to consider the privacy rights of employees when using wearables in the workplace.

“If companies start to use this technology, for their own legal protection they are going to want to make sure they have given notice to the employees, that they have policies about how the technology will be used, what information will be collected and that the policies are employed and enforced consistently across the workforce,” she said.

“When you look at how wearables have been deployed in beta testing, it is in groups,” McMeley said. I think that it gives employees a lot of comfort to the extent that [the employer] will not be reviewing individual information.”

“I think that is where notice, while it may not legally required, is a best practice,” she said. “Get the proper consent from employees to use that information and to use it to the employee’s benefit.”

Although [wearables] are very new and are more intrusive, she said, employee privacy has been an issue for quite a while.

“At the federal level, we are so slow to do anything in the privacy or information security space, but look at the response by state legislatures when employers started accessing social media accounts. You had a rash of state legislation introduced and passed to prohibit access, except for fraud investigations or for other investigations. I could see [wearables] spawning a lot of this type of state legislation,” she said.

Privacy by Design

Karl Martin, founder and CEO of Toronto, Canada—based Nymi, told Bloomberg BNA that he believes that organizations are “going to have a ton of push back” if they don’t consider employee privacy when incorporating wearables into the workplace because “there is a concern about privacy and there is a concern about how information might be used against people.”

While an activity tracker can be used as part of a wellness incentive program, he said, “at the same time it can also feel like it’s not just a carrot but it is also a stick—where people could be punished for not being active enough in the workplace.” Employers need to incorporate wearables “in a way that is very friendly to your employees,” he added.

“We can’t forget this is not the same as carrying around a badge; this is saying ‘wear this device’ and that is not a trivial ask,” Martin said. “You have to do it in a very individual-centric way.”

One expert said it would be prudent for employees to consider the privacy rights of employees when using wearables in the workplace.

Martin said he was “closely connected” with the privacy commissioner of Ontario, Canada, before founding Nymi because he believes that not taking privacy seriously is a bad business decision.

Nymi embraces a philosophy called “privacy by design,” he said. “The concept of privacy by design is that you can’t make something privacy protected by adding it as a feature later. You have to build the product from the ground up with privacy in mind,” Martin said.

“I think the whole ‘privacy is dead’ thing is just a short-term view. I think these things ebb and flow, and for us, we view ourselves as being in the business of trust, so we put a stake in the ground right from the beginning that to create that trust we need to respect privacy,” he said.

“We are not putting up this device as a Trojan horse. We don’t capture any data. We keep everything local with the user and give them control of how to manage it. We think that is the best way to establish trust,” Martin said.

CASE STUDY

The Human Cloud at Work study, by a team at Goldsmiths, University of London, led by Dr. Chris Brauer at the Institute of Management Studies, was carried out in March 2014 and involved 120 employees at the global media agency Mindshare UK's offices in London.

The participants were equipped with one of the three devices—the GENEActiv high-velocity accelerometer wristband, which measures movement and activity; the NeuroSky Mindwave portable biosensor EEG, which monitors brain activity; or the LUMOback posture and activity coach, which issues a pulse to remind its wearer to sit up straight. Readings from the devices contributed to the employees' performance at work (PAW) scores.

Wearing devices such as brain activity sensors, motion monitors and posture coaches can significantly increase employees' productivity while also improving their job satisfaction, according to the study. Researchers found that productivity for people using wearable technology increased 8.5 percent, while their job satisfaction levels were up 3.5 percent.

The study found that 50 percent of those wearing the GENEActiv and 46 percent of those using the NeuroSky reported improved PAW. The proportion reporting decreased PAW was 36 percent for both.

By contrast, only 36 percent of participants wearing the LUMOback reported improved PAW. The discrepancy has been attributed to the fact that while both the GENEActiv and the NeuroSky provided data that could be acted upon, the Lumo Back was a direct intervention which some participants found disruptive at first.

Further insights were gained through blogs posted by 10 of the active participants. Their comments were used to identify five dominant behavioral trends in workforce engagement with wearable technology:

- **Augmentation:** The act of using the device created a new sense of productivity helped steer participants towards their goals.
- **Visibility:** The chief characteristic here is “seeing is believing.” Having access to usually invisible data about behaviors resulted in the user modifying his or her behavior, thereby increasing productivity.
- **Gamification:** The competitive environment that gamification—turning an otherwise rudimentary task into a game—and knowledge of what others are doing has an impact on individual choices. Tracking development against other participants also affected employee confidence in other areas of work.
- **Balance:** Participants looked at the data as a way to uncover how certain behaviors affect their performance at work and then used the information to develop habits that improved performance and enhanced productivity.

■ **Monitoring:** The wearing of technological devices may enhance performance simply by creating a feeling of attention. One participant said that “even when I had little to compare my brain activity to (or a real understanding of it) and no obvious desire to be good at the tests—the very fact I was being monitored enhanced performance.”

“The depth and distinctiveness of profiles that can be built without any directly identifying personal information is startling. Using just data gathered from wearable devices, it is possible to develop rich behavioral and lifestyle profiles of individuals and/or employees,” Dr. Brauer explains.

CONCLUSION

Increasingly, wearable tech products are being designed with business applications in mind with the promise of improving workplace productivity and the overall efficiency of organizations.

There is some validity to the use of wearables in the workplace if it supports a work function and is job related; however, a radical shift in the way workers think about this technology is needed, practitioners said.

“Human resources is going to need to be able to make the case that this makes the company more profitable, more secure, more successful and that employee data is private and secure,” Blum said.

The kind of slow-moving resistance that happened with smartphones because employers were worried about security is not going to work with wearables, practitioners told Bloomberg BNA. Employers and employees will want to use wearables in the workplace and both will have to embrace the new technology rather than see it as a threat to the policies that are in place.

In a 2014 Pricewaterhouse Coopers survey, 70 percent of consumers said they would wear employer-provided wearables streaming anonymous data to a pool in exchange for a break on their insurance premiums.

As it's been with employers monitoring phone calls, e-mail, the advent of BYOD and now wearable technology, employee privacy will remain a concern for both employees and employers, practitioners said.

Attorney Christin McMeley said two important issues employers will face is employee morale and how employers use information gleaned from wearable devices. “It will be interesting to see how the law responds to this,” McMeley said. “Understanding your employees, creating a conversation and being clear about why the company is collecting this data and how information will be used is critical.”

RESOURCES

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Other Resources

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<http://www.dol.gov/dol/ppii.htm>.