



The incalculable potential—and potential pitfalls—of the quantified organization

Science fiction can have a funny way of becoming science fact in the real world. Handheld communicators appeared to morph into cell phones.¹ Computer-assisted cars may have presaged, well... computer-assisted cars.² And gadget-laden wrist watches seem to have anticipated biometric fitness trackers.³

That last example likely has significant implications for business leaders. Advances in biometrics—once used primarily to authenticate someone's identity using fingerprints or retina scans—have made their way onto the factory floor and office, enabling companies to track worker movement and safety.⁴ Similarly, wearables based on neurotechnology can now deliver

detailed and accurate information about employees' mental activity.⁵

Likewise, long-gestating concepts like AI and machine learning can now make it possible for businesses to process—and analyze—previously untapped sources of worker information. Email, for example, tends to produce voluminous amounts of data. Harnessed properly and appropriately, deep learning tools can provide high-resolution snapshots of, among other things, worker interaction and collaboration, well-being, and engagement.

The upshot? Businesses may have an unparalleled opportunity to make operational and strategic decisions

based on now-quantifiable facts, not assumptions. The information can help managers identify production bottlenecks and uncover unused skills across the business. For finance, likely applications include linking new sources of operational data to financial data to generate insights into what's driving product or service demand and profitability in specific units. CFOs will likely have a part to play in other areas as well, such as risk management, compliance, and ROI analysis.

Wringing value from data collection requires thoughtful planning. Indeed, the collection of employee data tends to come with its own set of challenges.

The incalculable potential—and potential pitfalls—of the quantified organization

Senior executives should take great care to comply with rules and regulations governing access to, and use of, worker information. They should also address any worries workers or other stakeholders might have about tracking worker data. A key consideration: employers should strictly limit data collection efforts to employees who have been informed properly—and given their consent beforehand—regarding the data their employers seek to collect. Additional requirements and restrictions exist outside of the United States.

In this issue of *CFO Insights*, we examine the rise of the “quantified organization”—what it is, the potential impacts on businesses, and what it could mean for chief financial officers.

It’s on my calendar

The quantified organization may be a logical next step in employers’ quest to gauge how workers influence a company’s performance. At its core, the quantified organization involves deploying leading-edge tracking and sensing technologies coupled with artificial intelligence. The basic idea is to record and analyze employee-generated data, including movement, mental processes, physical states of being, and unstructured data (emails, for example). Ultimately, the network of sensors and deep learning tools is intended to provide fact-based

metrics and analysis of worker activity and outcomes.

Reliance on more typical, industrial-era metrics used to gauge employee productivity (measuring worker output, for example) may fail to provide detail or context. Given what seems to be the increasing focus on the value of employees, measures that do not capture the human element of work may not be entirely fit for purpose. Moreover, AI’s seemingly unlimited capacity to process and analyze huge data sets can make it possible to glean insights from unstructured (text) data as well. Beyond emails, unstructured data can include things like internal social collaboration sites, calendars, and video conferences.⁶

Given the wide array of available technologies, the quantified organization model can be deployed across a range of corporate functions, if not the entire organization (to see a breakdown of potential uses by departments, see Figure 1).

For CFOs, collecting and using employee-generated data will likely involve finance in four ways, including:

- 1. Compliance:** Currently, several states in the US have laws governing employee data and AI tools used in the course of employment.⁷ In addition, several states have passed or have

pending bills that govern the use of personal data generated by biometrics.⁸ New technology may also assist with location-based tax compliance.

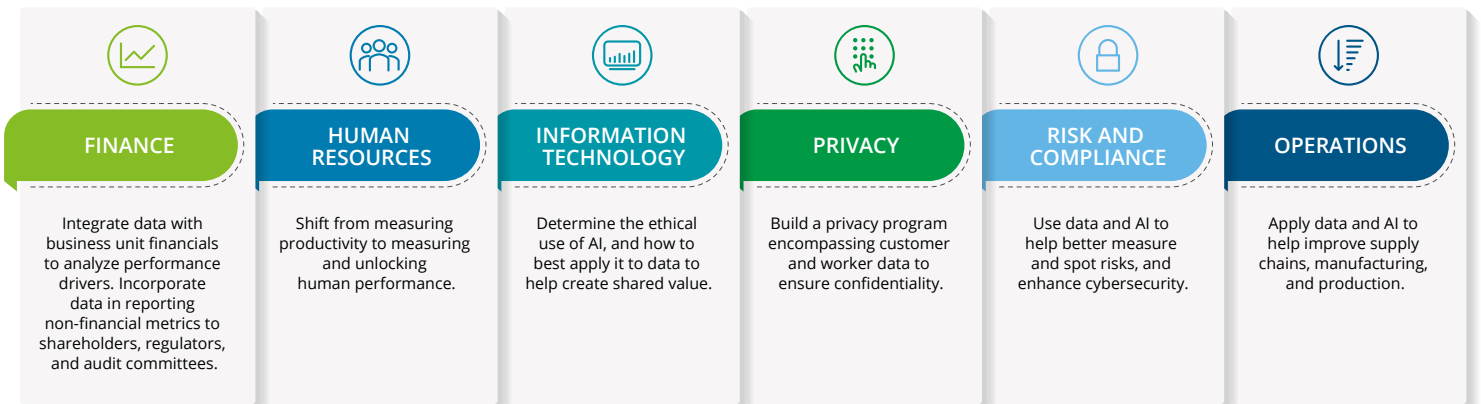
- 2. Reporting:** Voluntary disclosures of non-financial, employee-generated data to shareholders, audit committees, and boards could bring another perspective to what’s driving performance. In addition, CFOs may be tasked with calculating the ROI for employee monitoring programs.

- 3. Analytics:** Data generated by employees could be used to enhance FP&A capabilities. A detailed view of worker behavior—and how those behaviors contribute to or hamper business unit performance—can help support forecasting and budgeting. Likewise, that kind of on-the-ground information can be used to help inform decisions on capital allocation.

- 4. Enterprise risk:** Knowledge about employees’ on-the job behavior and work habits could help risk managers better measure and spot exposures.

As long as data collection and processing complies with the law and employer policy, CFOs and other C-suite leaders may stand to gain from quantifying employee actions and movements in other ways. At a basic—yet vital—level,

Figure 1. Possible use cases for the quantified organization



Source: Deloitte analysis

The incalculable potential—and potential pitfalls—of the quantified organization

location information and data from wearables like smart glasses may help prevent worker accidents, particularly in factories, warehouses, and distribution centers. Tracking physical information and locations, along with unstructured data like emails and comments on team sites, might also uncover production bottlenecks and their root causes.

Similarly, analysts in finance can match data related to employee work habits and physical states to data pertaining to the financial performance of a team or business unit. The overlay may provide fact-based evidence as to *why* high-performing units are performing highly. Lessons learned might then be applied to help boost results at other operations. Quantifying workflows can also help senior executives apply a fact-based approach to crafting big-picture organizational designs that dovetail with core strategies.

Analyzing workers' actions and communications can also inform talent decisions. A company's management may be fully committed to diversity, equity, and inclusion—and put full resources behind such initiatives—but blind spots may still exist. Employee communications, to the extent they are accessible in consideration of employee expectations of privacy, may potentially reveal non-inclusive behavior within the organization. Likewise, accessible emails or texts may reveal dynamics in how employees interact with other employees. The information can help managers identify potential areas of concern. In turn, they can work with these employees to improve soft skills like social fluency and relationship building.

Productivity theater

Tracking workers tends to present challenges, however. Privacy laws, regulations, and case law limit the access and use of employee data and are constantly being updated.⁹ And while 79% of company leaders in a [Deloitte survey](#) agree that their organization has a



responsibility to create value for workers as human beings,¹⁰ some of those human beings may have doubts that monitoring their movements and emails is the right way to go about it. Deploying leading-edge monitoring technologies like biometrics could be considered invasive, and it runs the risk of potentially alienating workers and negatively affecting a company's reputation. As such, C-suite leaders will want to take a well-thought-out, well-planned, and, yes, measured, approach to expanded tracking of worker-derived data. One guiding principle: look to collect data that will likely benefit both employers and employees. In other words, measure what you should, not what you can.

Companies will also have to steer clear of compliance snares. In Europe, the General Data Protection Regulation and local case law govern the handling of employee data and include substantial penalties for violations.¹¹ Monitoring activities will have to be tailored towards what's permitted. In the US, companies generally have wider latitude, but laws and case law vary by state.

An enlightened—and potentially more successful—approach to employee tracking

tends to go beyond meeting regulatory and legal requirements. Enterprise risks considerations include:

- **Ethics:** Is the technology being used for appropriate reasons?
- **Transparency:** What assumptions are AI programs relying on to make decisions or suggestions? Is the underlying reasoning or logic easily explained? What is the data being used for, and why?
- **Bias:** Are erroneous assumptions built into a deep learning system? Who chooses the data sources and sets that are analyzed? And could their biases be transferred into algorithms?
- **Brand:** Could the misuse of employee data or breaches of databases housing employee information tarnish a company's reputation?
- **Accountability:** Ultimately, who takes responsibility for decisions informed—or made—by machines?

It's important to work with legal counsel to understand the requirements of applicable law, as well as to work through any questions on how to appropriately implement any data collection and usage.

Define benefit

A Deloitte study on [skills-based organizations](#) showed that the majority of surveyed employees are “completely open” to employer data collection of demonstrated skills and capabilities (79%), teaming and collaboration styles and preferences (70%), and interests and passions (59%).¹²

Still, providing workers with details on how monitoring could benefit them could go a long way in gaining trust. One example: demonstrating how data generated from wearables can improve the on-the-job health and safety of workers. (For more on what workers may gain from advanced monitoring technologies and AI, see the accompanying story, “For employees, what gets monitored can get measured”).

To determine boundaries, CFOs might consider involving workers in employee data collection programs. Involving workers at the start could ease potential misgivings about how data will be used. What’s more, getting input from employees—essentially, a view from the playing field—could serve as a guide in deciding which data points to monitor and the outcomes to strive for. Employees will likely take a dim view of employee monitoring programs if only negative data shows up in performance reviews or hinders their career progression.

Employers will generally be well served to demonstrate how untapped sources of unstructured employee data can be mined to support career advancement and mobility. This can be particularly true for uncovering “latent skills”—existing employee expertise or competencies that go unused, or potentially unnoticed. Uncovering and cataloging these skills could go a long way in getting the right people in the right seats—something that talent-strapped CFOs would undoubtedly appreciate.

For employees, what gets monitored can get measured

Introducing high-tech tools can sometimes cause disturbances, even displacements, within a company’s workforce. To help overcome employee skepticism—and gain trust—employers may need to address the thought that’s likely on many workers’ minds: What’s in it for me?

This seems particularly true when using advanced technology to monitor employee activity. Indeed, tracking data from, among other things, wearables and emails, may well raise questions about privacy, confidentiality, and trust.

Laying out the benefits workers stand to gain from the technology may help. Neuro-technologies like augmented reality headsets can measure the cognitive load of workers in physical work environments, detecting and alerting for overloads that can lead to on-the-job injuries. To the extent relevant and permissible, wearables, sensors, and video analytics can also be deployed to record physical wellness, including stress levels. Such information can serve as a barometer of employee wellness. (See “[The human touch: How CFOs can support a culture of well-being,](#)” *CFO Insights*, July 27, 2023.)

Perhaps an even more significant selling point: data derived from workers could open up new career possibilities for them. For example, data collection can uncover hidden talents, or employees who possess competencies adjacent to the skills for which they were hired. Managers do not necessarily catalog these sorts of competencies, risking that they could remain untapped. Monitoring can also flag employees who are gradually picking up expertise, experience, and additional hard skills. Soft skills come into play, too. Network analysis and employee communication, for instance, might be brought to bear to help identify workers with leadership skills.

On the other side of the desk, managers might match employee emotional data to once hard-to-gauge metrics—degree of belonging, interactions with peers, growth, and the like. This might help measure an employee’s engagement and help predict attrition.

End notes

1. "Why Captain Kirk's Call Sparked A Future Tech Revolution," *Forbes*, April 3, 2013.
2. "Where to? A History of Autonomous Vehicles," Computer History Museum, May 8, 2014.
3. "How Science Fiction Influenced Modern Smartwatch Design," *Gear Patrol*, March 11, 2022.
4. "Warehouses Are Tracking Workers' Every Muscle Movement," *Bloomberg*, November 5, 2019.
5. "Neurotechnology at Work," *Harvard Business Review*, March-April, 2023.
6. "Your boss can monitor your activities without special software," *Washington Post*, October 22, 2022.
7. "Spying on Your Employees? Better Understand the Law First," *Business News Daily*, March 29, 2023.
8. "New 2023 Legislative Proposals Could Reshape the Biometric Privacy Landscape," *National Law Review*, February 18, 2023.
9. Ibid.
10. "Outcomes over outputs: Why productivity is no longer the metric that matters most," *Deloitte Insights*, Deloitte Development LLC, July 19, 2023.
11. "Fines for breaches of EU privacy law spike sevenfold to \$1.2 billion, as Big Tech bears the brunt," CNBC, January 18, 2022.
12. "The skills-based organization: A new operating model for work and the workforce," *Deloitte Insights*, Deloitte Development LLC, September 8, 2022.

Contacts

Steve Hatfield

Global Future of Work Leader
Deloitte Consulting LLP
sthatfield@deloitte.com

Sue Cantrell

Vice President, Products,
Workforce Strategies
Deloitte Consulting LLP
scantrell@deloitte.com

About Deloitte's CFO Program

The CFO Program brings together a multidisciplinary team of Deloitte leaders and subject-matter specialists to help CFOs stay ahead in the face of growing challenges and demands. The program harnesses our organization's broad capabilities to deliver forward thinking and fresh insights for every stage of a CFO's career—helping CFOs manage the complexities of their roles, tackle their company's most compelling challenges, and adapt to strategic shifts in the market.

For more information about Deloitte's CFO program visit our website at:

www.deloitte.com/us/thecfoprogram.



Follow us @deloittecfoprogram

Deloitte CFO Insights are developed by Patricia Brown, Managing Director and Global Research Director, CFO Program; Josh Hyatt, Editor, CFO Insights, CFO Program, and John Goff, Senior Manager, CFO Program, all Deloitte LLP.

This publication contains general information only and Deloitte is not, by means of this publication, rendering accounting, business, financial, investment, legal, tax, or other professional advice or services. This publication is not a substitute for such professional advice or services, nor should it be used as a basis for any decision or action that may affect your business. Before making any decision or taking any action that may affect your business, you should consult a qualified professional advisor.

Deloitte shall not be responsible for any loss sustained by any person who relies on this publication.

About Deloitte

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee (DTTL), its network of member firms, and their related entities. DTTL and each of its member firms are legally separate and independent entities. DTTL (also referred to as "Deloitte Global") does not provide services to clients. In the United States, Deloitte refers to one or more of the US member firms of DTTL, their related entities that operate using the "Deloitte" name in the United States and their respective affiliates. Certain services may not be available to attest clients under the rules and regulations of public accounting. Please see www.deloitte.com/about to learn more about our global network of member firms.