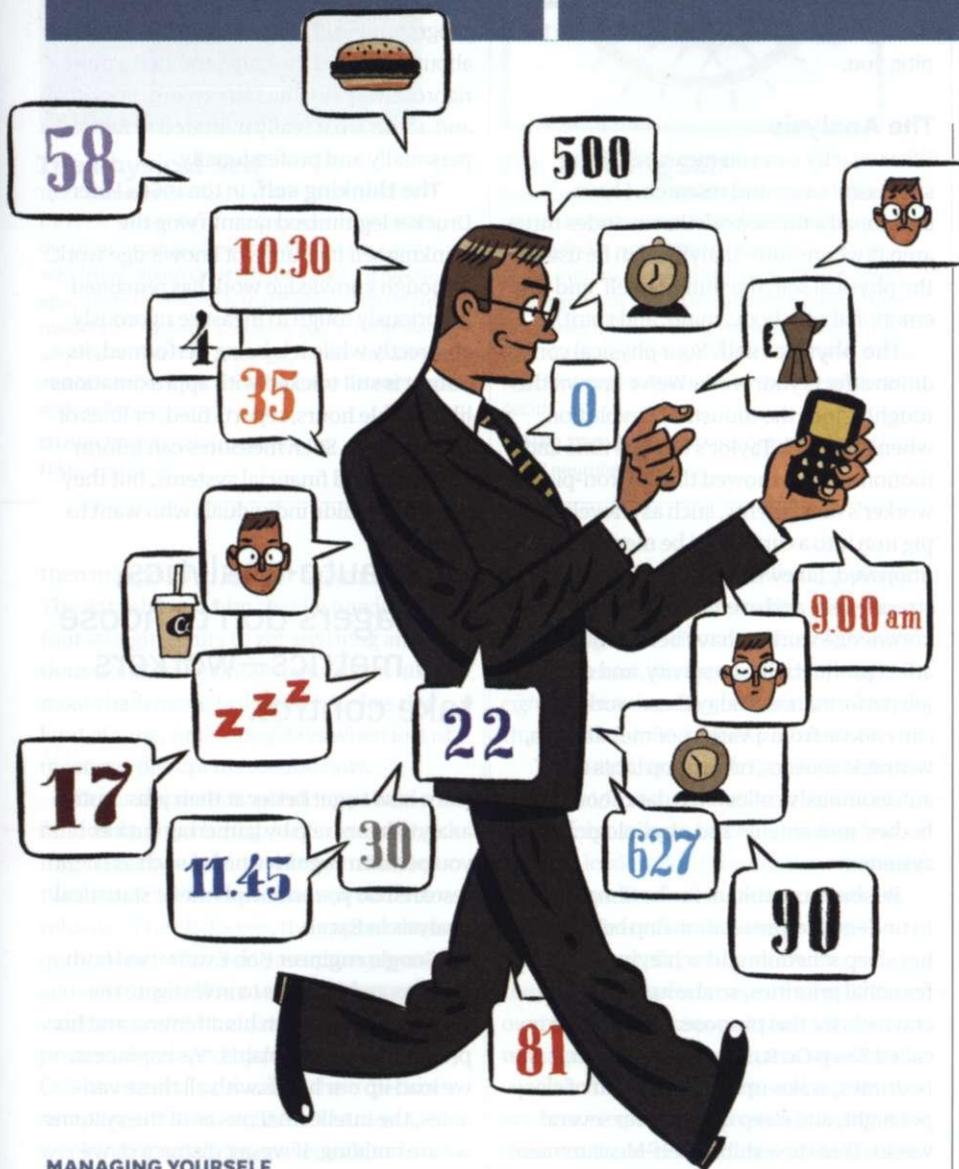


# Experience

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MANAGING YOURSELF

## You, By the Numbers

Better performance through self-quantification  
by H. James Wilson

ILLUSTRATION: JASON FORD

This past March entrepreneur and scientist Stephen Wolfram wrote a blog post titled “The Personal Analytics of My Life.” In it, he mapped data about his e-mail usage, time spent in meetings, even the number of keystrokes he’s logged—for 22 years. The resulting charts and graphs are mesmerizing, and somewhat instructive. Wolfram has documented that he’s a man of routine who likes to work alone late at night. He knows that although his scheduled telephone calls usually start on time, his in-person meetings are less predictable—and that he’s hitting the backspace key 7% of the time he’s on the keyboard.

This “effort at self-awareness,” as Wolfram described it, makes him a trailblazer in the growing discipline of *auto-analytics*—the practice of voluntarily collecting and analyzing data about oneself in order to improve. Athletes have long used visual and advanced statistical analysis to ratchet up their performance. Now auto-analytics is flourishing in the workplace, too. With wearable devices, mobile and computer apps, and sophisticated data visualization, it has become fairly easy to monitor our office activity—and any factors that might affect it—and to use that information to make better choices about where to focus our time and energy.

This heralds an important shift in how we think about tracking work performance and even career planning. Employees have long been measured, but managers have traditionally chosen the tools and the metrics—and, more important, decided how to interpret the findings. With auto-analytics,

individuals take control. They can run autonomous experiments to pinpoint which tasks and techniques make them most productive and satisfied—and then implement changes accordingly.

Wolfram's insight was that his "shockingly regular" routine liberated him to be "energetic—and spontaneous—about intellectual and other things." But he did not use the data to discover ways to improve his performance, and in that way his blog post is as much cautionary as it is pioneering, for it highlights the pitfalls of embracing auto-analytics without first adopting a plan. Lacking a clear goal at the outset, Wolfram took two decades to synthesize his vast collection of data. Even then he stopped at observation rather than progressing to analysis and intervention. What improvements could he have made on the basis of his findings? Would it have been more useful to map, say, project time lines against stress levels—or, given that he runs his company remotely, moods against time spent with others?

If these kinds of questions are not tackled up front, auto-analytics runs the risk of becoming a promising concept that's poorly applied and then dismissed as just another tech fad. To do it right, you need to understand the tools and develop an approach. The aim is not merely to increase self-awareness but to become better at your job and more satisfied with your life.

## The Tools

Two broad types of auto-analytics tools exist today. The first are *trackers*, which reveal patterns and help you set goals. They allow you to document routines and physical responses such as sleep hours, heart rate, and food consumed or calories burned—information you can use to learn, for example, how your caffeine and sugar consumption affects your work output or which office interactions spike your blood pressure. Trackers are best used longitudinally (over days, weeks, or longer) and iteratively, to test interventions and their results until the right balance is struck. You gather a baseline of personal data and then run cycles of data collection and analysis.

That analysis readies you for the second type of tools, *nudgers*, which guide you toward your goals by asking questions or prompting action on the basis of the data they've received. Nudgers are often apps or online tools that might tell you to work out, to stop drinking coffee, or to slow down during a presentation. They usually require some up-front investment to make the algorithms "know" how and when to ping you.

## The Analysis

What exactly can you measure? Using successful cases and research, I have developed a framework that includes three arenas where auto-analytics can be useful: the physical self, the thinking self, and the emotional self (body, mind, and spirit).

**The physical self.** Your physical condition affects your work. We've known this roughly since the Industrial Revolution, when Frederick Taylor's famous time and motion studies showed that an iron-plant worker's movements, such as shoveling pig iron into a cart, could be measured and improved. Likewise, the sleep patterns, stress levels, and exercise regimens of knowledge workers have been shown to affect productivity, creativity, and overall job performance. Today these workers can choose from a variety of mobile apps, wearable sensors, or desktop tools that autonomously collect rich data about their bodies' movements and physiological systems.

Business consultant Sacha Chua wanted to understand the relationship between her sleep schedule and achieving her professional priorities, so she has tested several tools for this purpose. Using a tracker called Sleep On It, she monitored her bedtimes, wake-up times, amount of sleep per night, and sleep quality over several weeks. (See the exhibit "Self-Measurement at a Glance.") With this baseline and a hypothesis that she was sleeping later than she should, she then tried waking up earlier—at 5:40 rather than 8:30 AM.

Chua discovered, to her surprise, that she was getting *more* and better sleep with

the new wake-up time, which improved her engagement and performance at work. It seemed to be forcing her to eschew unimportant late-night activities, such as browsing the web, so that she could go to bed earlier. Instead of squandering much of her morning in low-quality sleep while hitting the snooze button over and over, she could spend the time writing and programming. This exercise was nominally about sleep, but the data provided a more rigorous way for Chua to explore, prioritize, and act on what really mattered to her personally and professionally.

**The thinking self.** In the 1960s Peter Drucker legitimized quantifying the thinking self into units of knowledge work. Although knowledge work has remained notoriously tough to measure rigorously or directly while it is being performed, its output is still tracked with approximations like billable hours, reports filed, or lines of code written. Such measures can inform managers and financial systems, but they do little to guide individuals who want to

## With auto-analytics, managers don't choose the metrics—workers take control.

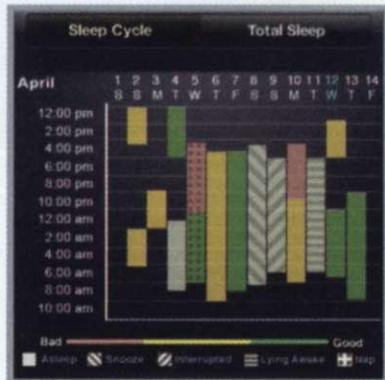
learn how to get better at their jobs. Auto-analytics can help by gathering data as you perform cognitive tasks, such as client research on your smartphone or statistical analysis in Excel.

Google engineer Bob Evans used both trackers and nudgers to investigate the relationship between his attention and his productivity. He explains, "As engineers, we load up our heads with all these variables, the intellectual pieces of the systems we are building. If we get distracted, we lose that thread in our heads."

With a tool called MeetGrinder, which interacts with online calendars, Evans analyzed how frequently he was shifting between solitary thinking and collegial interaction across his days and weeks—and

## SELF-MEASUREMENT AT A GLANCE

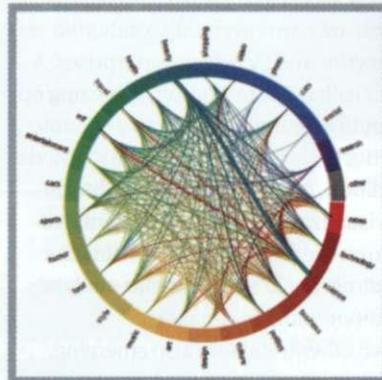
Tools in the field of auto-analytics often employ behavior-based algorithms to make recommendations to users. The analyzed data may be visualized by mobile apps, on wearable devices with sensors, or on a laptop or desktop computer. Most tools focus on one of three personal domains.



### The Physical Self

Tools that measure and monitor physical movements and body functions help you make better decisions about professional effectiveness and well-being. **Sleep On It** (shown here) is a mobile app, made by MedHelp, that gathers data on sleep quantity and quality. It enables you to understand why you feel alert (or lethargic) on certain workdays and how to optimize the relationship between rest and performance.

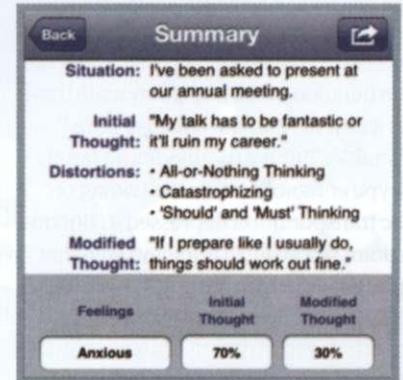
**OTHER TOOLS:** Fitbit, Jawbone Up, Nike+ FuelBand



### The Thinking Self

Tools focused on the thinking self gather data related to the routines, habits, and productivity of knowledge work. **Voyurl**, made by a company of the same name, visualizes patterns that reflect where and how much your attention flows across categories while browsing the web during a workday. The web-browsing pattern shown here is from an advertising researcher in the beauty products sector.

**OTHER TOOLS:** RescueTime, Quantified Mind, EPOC neuroheadset



### The Emotional Self

Tools that measure emotions increase users' awareness of how professional decisions, situations, and actions correlate with mood. **MoodKit**, made by Thriveport, helps you track your mood over time, as shown here. Then it makes recommendations, derived from clinical practice insights and research data, about how you can improve job performance and satisfaction.

**OTHER TOOLS:** MoodPanda, 750 Words, Mappiness

then mapped that against his work output. The data showed him that he needs about four straight hours to get anything ambitious done, so he's now focusing on his most challenging tasks when he has that kind of time, not during days when lots of meetings disrupt his mental flow.

Evans also uses a mobile app that randomly pings him three times a day, asking, "Have you been working in the past two hours?" If he hasn't, he's prodded to refocus. If he clicks yes, the app asks more questions: "What was your primary work activity?" and "What was your secondary work activity?" This data-gathering approach, developed by psychologist Mihaly Csikszentmihalyi, is called the experience sampling method, or ESM. Just over a week into Evans's three-week experiment, the ESM data began to show that he was responding to work e-mails too frequently, which distracted him from more-important tasks. So he began to answer e-mail just twice a day to see whether that increased his productivity. It did. In

the third week, every time the app pinged him, he was in the midst of his core programming work. (Notably, one of Evans's colleagues set the app to check in with him *eight* times a day. He grew so frustrated that he abandoned the experiment.)

The emotional self. Daniel Goleman asserted 15 years ago that nearly 90% of the difference between outstanding and average leaders is attributable to emotional factors, not intellectual acumen. Indeed, many professionals are intrigued by the role emotions play in their careers, and they aspire to become more aware of their own emotional states and their ability to manage them. Yet assessment tools and coaches focusing on emotional intelligence are expensive, intrusive, and often reserved for select members of the C-suite.

Auto-analytics tools don't measure emotional intelligence per se, but they provide an easier way to gain insight into emotions and use data to enhance our predictions of what will make us happy in our daily work and careers. Many apps and

tools track moods by prompting the user: "How do you feel right now?" If you use one on a GPS-enabled mobile phone, you can discover correlations between your emotions and your location. Are you happiest working at home, at Starbucks, or at the office? Are you less happy at certain client sites or when you travel? Or, using a tool that crunches textual data—such as the types of words in your e-mail communications or journal entries—you can quantify feelings about a particular assignment or job opportunity.

These tools are no substitute for personal reflection, but they can facilitate the process. A case in point is that of Marie Dupuch, a branding strategist who had long envied people who "could recognize their mood and know exactly what put them in it." Realizing she wasn't that intuitive, she instead tried a quantitative approach to understanding her emotions.

With college graduation looming, and the pressure to "reflect and figure things out" before entering the job market, she

began tracking her moods. During her three-month final semester, she used a beta version of a tracker app that asked her to rate her mood on a five-point scale three times a day. At first, the findings were predictable: Talking to friends and family on Skype enhanced her mood; riding on public transportation depressed it. But one data point stood out: Thursdays were her happiest days, which surprised her given that they were also her busiest.

## Auto-analytics can become the impetus for a full-on career switch.

On Thursdays Dupuch drove from her college campus to the city for a course on advertising that featured guest lecturers and required interaction with advertising executives and other creative types. She hypothesized that it was the exposure to the advertising world in an urban location that made her hardest day her happiest. So she decided to test her theory: She scheduled six informational interviews over five days with ad agencies in Manhattan and measured her mood the whole time. She reflects, "Through this test I was able to see with real data that advertising was a good bet, that this was the kind of career that would make me happy." Today she is working happily and productively in the advertising industry in New York.

Of course, effectively tracking your emotions presupposes that you can take an analytical—even a clinical—view of your mood when data are being gathered. That's quite different from tracking hours of sleep or number of e-mails sent. Dupuch is among many I've spoken to who say that the process is unnatural at first but that it gets easier with practice and eventually improves your ability to sense and react to how you're feeling.

### The Future

It's still early days for auto-analytics. Nevertheless, important new streams of

research, based in cognitive and behavioral science, are currently being conducted at universities and by private enterprises. A project called Quantified Self is hosting opportunities for individuals to try out auto-analytics tools and experimental methods. In addition, new field-based insights on data visualization and algorithm innovation from the field of business analytics have direct application for auto-analytics practitioners and toolmakers.

Two other trends are also emerging. First, the tools will become more sophisticated. Some will be smarter, with algorithms that make the nudging function more nuanced so that, for example, the technology knows better when and how to ping you. They may also allow for more accuracy, even greater than that of the new device from Body Media that collects some 5,000 physical data points per minute and uses IBM analytics code to tailor suggestions related to diet and physical activity. Some tools will become less visible—woven into clothing to capture physical data, for instance, or embedded in professional tools such as spreadsheets and word processing apps. Second, a more holistic approach to auto-analytics will develop. Applications will consolidate many kinds of measurements in a single dashboard and allow us to analyze ourselves across ever more complex dimensions.

Tools like stickK and Beeminder, for example, already combine tracking and nudging—and can add a social dimension. They ask you to create a goal, such as increasing your number of sales calls or conversations with direct reports each week, and then use digital displays to help you analyze your daily progress toward achieving it. To increase your motivation, they use nudges or even levy small financial penalties when you veer off track. And they can be used socially so that people—even strangers—working toward the same goal can share data and encourage one another, as people do in a weight-loss club.

Tech entrepreneur Nick Winter has used this methodology to great success. When he felt he was on a productivity

plateau and sensed that his new business was in jeopardy, he began gathering data on his work activities and output. Over a 10-month period, Winter tested four distinct approaches to being more productive, from spreadsheet tracking to nudger tools. He settled on an auto-analytics technique called "percentile feedback graphing" to help him see trends clearly. He has now assembled an online group of like-minded colleagues who compare—and compete on—their metrics.

Another example of data consolidation is Personal Analytics Companion (PACO), an open-source mobile app designed by Google's Bob Evans, whose story appeared earlier. "Instead of having all these vertical apps, from mood trackers to meeting trackers, this is one place where you...can mash all your data together and compare," Evans says. "You can see trends, distributions, relationships."

Imagine the auto-analytics app that helps a manager reschedule his innovation session because it knows he didn't sleep well, his extra-long commute created stress, and he has a dull budget meeting right before the session. Or consider the knowledge worker who arms herself before a performance review with personal benchmark data that will support or counter her manager's assessment.

That's where auto-analytics is heading. When analysis reveals higher performance on noncore tasks, auto-analytics can even become the impetus for a full-on career switch. Think of how much less anxiety that life-altering decision would cause if you had data to support it.

Applied the right way, auto-analytics can provide hard evidence in situations where traditionally we've relied on intuition and anecdotal feedback. Quantifying yourself is a revelatory experience—and perhaps the best thing you can do to improve your career and your life.

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