QUANTIFIED SELF:

YOUR BODY AND HEALTH AS A DATA SYSTEM

when everything is programmable: LIFE IN A COMPUTATIONAL AGE

People are applying sensors, social networks, and online data repositories to view their biological processes and behavioral patterns through the lens of data. Using a mix of medical, athletic, and DIY self-tracking technologies, they collect, analyze, and compare information about sleep habits, disease symptoms, caloric intake, mood, and other personal states. These early practitioners of self-surveillance point toward a future where our devices and environments will continuously monitor our lives in great detail. The resulting data streams will create a potent network for grassroots R&D and help us reprogram our lives for better health, work, and social relationships.

TRACKING INTEGRATED WITH LIFE

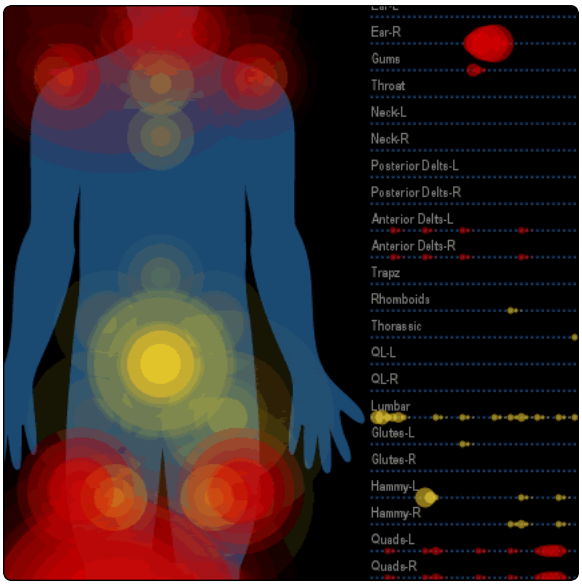
The current tools for tracking self-data are often cumbersome and, for many categories of measurement, still analog. But rapid growth of products, services, and platforms for self-tracking will enable continuous automated capture of new types of data. Low-cost sensors that monitor our bodies and environments will be embedded in, or designed to work with, the objects already in our lives—homes, cars, clothing, and mobile phones. These devices will be networked together and always online, rendering nearly invisible the process of recording and storing measurements. New services and platforms will add the crucial element of "sensemaking"—from rich visualizations that create stories from personal data to instant communities of other trackers offering support and suggestions.

SOCIALIZED SELF-IMPROVEMENT

Largely individual actions of self-knowledge and self-improvement will evolve to become massively collective efforts at data collection and analysis that rival the capabilities of traditional R&D structures. Practitioners of self-tracking are already collaborating today—to create or agree on metrics, pool their personal data sets, unearth new patterns and interactions, and share insights, theories, and suggestions. They're repurposing flexible Web 2.0 platforms or building their own open solutions that enable any participant to easily re-arrange a group's data and test hypotheses. Farther out, these citizen scientists will be initiating millions of grassroots clinical trials potentially outside of traditional clinical or academic settings. New authorities will emerge that challenge notions of expertise; the most effective research models will involve engaged self-trackers and experts alike.

PROGRAMMING FOR IDEAL SELVES

Kevin Kelly, co-founder of *Wired* magazine and co-investigator of the quantified self trend, describes the desire to track data as driven by the self-improvement motive. In his words, "Unless something can be measured, it cannot be improved." Many quantified self practices use technology to sense data or prompt self-reflection and course correction. As our devices and environments become more reactive and dynamic, this self-tracking and mindful self-improvement will evolve into a more passive form of programming our lives by setting ideal outcomes and letting technologies change conditions to encourage healthy behaviors and nudge us toward our goals. We will increasingly see our environments and interactions through the lens of what they do for us and our well-being.



A visualization of the physical pain experienced by artist and quantified selfer Tim Graham physical pain

Simulation:
Modeling possibility space

Neuroimaging:
Peering into the open mind

Cloud Computing:
Supercomputing on demand

Bioinformatics:
Life as data

Sensory Data Interfaces:
Re-routing perception

Location-based Computing:
Everything knows where it is

Sensors and Sensor Networks:
Everything in its right place

Pervasive Wireless:
Continuous connection

Genomics:
Reading the book of life

Signals:

FITBIT (TRACKING INTEGRATED WITH LIFE)

Fitbit is one of the first mainstream hardware products to target self-tracking. The wearable motion sensor detects movement in three directions and is small enough to be unobtrusively worn day and night, capturing data about fitness, overall daily activity, and duration and quality of sleep. The device sends the data wirelessly and automatically to a base station; the accompanying online service generates reports and visualizations of a user's activity over time.

Source: www.fitbit.com

CURETOGETHER (SOCIALIZED SELF-IMPROVEMENT)

CureTogether is a platform for aggregated, self-reported data. The site brings a systems approach to sharing health information online with a framework that "unpacks" diseases and conditions into discrete symptoms, treatments, and causes. Users of the service indicate which of these components they've tried or experienced and rate the effectiveness or severity. This systemization of grassroots health reporting is yielding new hypotheses for cross-disease connections that traditional medical research is not nimble enough to pursue or validate.

Source: http://www.curetogether.com

MYLIFEBITS (PROGRAMMING FOR IDEAL SELVES)

What if you could digitally store a lifetime's worth of photos, letters, emails, IM conversations, web pages, and such, and then analyze it for patterns and meaning? That aspiration has driven the MyLifeBits project from Microsoft Research, a combination of hardware and software that logs the information a person creates or encounters each day. The work promises to provide instant access to previous knowledge and experiences when relevant in real time and with greater depth than our brain's own built-in recall ability.

Source: http://research.microsoft.com/en-us/projects/mylifebits/

What difference does this make?

Millions of people sensing the world, tracking their lives, and sharing all of these findings will create nothing less than a platform for fast research, continuous discovery, and commercial innovation.

RISE OF SCIENTIFIC "FOLK WISDOM"

A critical mass of self-trackers reporting varied types of data will quickly discover unexpected correlations, though the primacy of quantifiable data may imply more rigor and credibility than many of these discoveries merit. As people pool collected information about their bodies, moods, habits, and environments, the conditions will be ripe for anyone to correlate even wildly disparate factors and consequences at inner-personal, interpersonal, and societal scales.

SWAPPING "LIFE PROGRAMS"

Just as computer programmers routinely write lines of code to be borrowed and repurposed, self-trackers will build successful interventions and strategies from observed data to share with others. Some will offer instructions for wearable or even implantable devices, while others will share procedural how-to's like the (10+2)*5 attention hack that incorporates our brain's habit to wander into a realistic and repeatable process for increased productivity.[1]

DEMOCRATIZED ACCESS TO SENSING TOOLS

Demand for knowledge about our bodies and environments will catalyze new products for sensing and tracking, through commercial offerings and collaboratively created grassroots alternatives. For example, during the Chinese toy lead scare in 2008, a maker of industrial sensing equipment quickly reconfigured a professional-grade lead scanner for concerned parents; and instructions for building a DIY electrocardiogram for $1 in commonly available parts have been published on the Web at www.kk.org.

BACKLASH TO THE EXAMINED LIFE

The sea of camera-phone LCD screens at any big event attests to the growing sense that people are documenting more than living life. As capturing and tracking information becomes more common, expect backlashes to both a pervasive layer of monitoring and the underlying interest in programming an optimized life. The emerging backlash to social networking—including paring down connections or complete withdrawal—may be the beginning of this response.

What to do differently?

While growing interest in self-tracking will open up new commercial opportunities, it also raises questions of trust and privacy that organizations will need to address.

APPEAL TO A GROWING CULTURE OF SELF-TRACKING

So far the quantified self story has largely been written by people using repurposed techniques and tools for measurement and relying on their own instincts and communities for making sense of the data. Products such as the Fitbit signal a growing market for tools to facilitate and improve self-tracking. Products, services, and environments that sense and adapt to not only their users' preferences but also factors such as health and emotional status will be increasingly prized.

MAKE TRUST AND RELIABILITY OF PERSONALIZED OFFERINGS PARAMOUNT

Organizations can leverage existing associations as trusted, reliable agents to position themselves for a growing market of self-trackers. While style and cutting-edge functionality are often key selling points, these qualities will be less valued when the interactions involve health data, behavioral observations, and even our life's memories. Instead, look for accuracy, reliability, and expertise to be crucial advantages.

EMPHASIZE PERSONALIZED OVER INTRUSIVE

The challenge in offering services and products that store, interpret, and adapt to deeply personal information will be downplaying their intrusive nature and emphasizing the customized aspect. Even as self-tracking goes mainstream, the grassroots origins of the quantified self trend will remain inherent to the practice, and knowing when to merely reflect and report data and when to act on a user's behalf will be both tricky and crucial.

REFERENCE

1. www.43folders.com

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