METRICS ECOSYSTEM

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Measure not the work
until the day's out
and the labor done.

Elizabeth Barrett Browning,
English poet
(1806–1861)

The way people measure performance in organizations is often just plain wrong. Everyone should learn the twelve rules of good metrics. This would help establish a culture in which people see measurement as a way to learn and improve, and create an organization where all workers participate in the metrics ecosystem.

I had a slice of banana cake accompanied by a small latte in my favorite coffee bar just before I wrote this sentence. That's another 300 kilocalories (or "calories" for our friends in the United States) that I just added to my fitness tracker. I allowed myself this transgression because we ran out of fruit juice at home, which meant I only drank water with my breakfast and my lunch. I was far below my calorie target for the day. Well, until I saw the banana cake.

Besides my daily calorie intake, there are many more things I could measure about myself and my work. Page views per blog post, unique visitors per month, Google rankings, Net Promoter Scores of my workshops, evaluations of my conference sessions, subscribers to my mailing list, stakeholders in Happy Melly, licensed Management 3.0 facilitators, revenues and profits, liquidity and solvency, book sales per month, steps I walked per day, and much, much more. Sometimes, it seems as if I spend half my time looking at numbers and searching for better ways to measure things. Maybe I should consider a measure for the number of metrics I'm working with and kick myself for going over target!

If there's one thing I've learned about measurement in my professional career it's that the set of metrics being used is always changing. That's not because I can't seem to make up my mind about good measurement. It's because I believe a business can be much happier and healthier when it's not always doing the same thing.

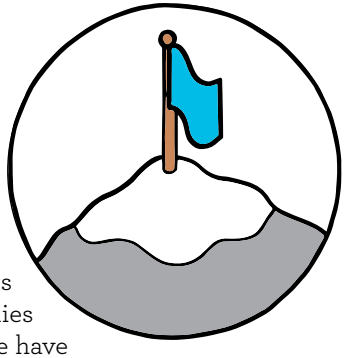
Health and Happiness

Scientists seem to agree that happiness is one of the major goals in a human being's life. [Gautam, "4 Major Goals of Life"] That sounds reasonable. And if happiness is the purpose of the mind, then I would suggest that health is the purpose of the body. Indicators of happiness and health are necessary for us to investigate problems and to make decisions about how to improve. We measure to understand how to live a better life, both mentally and physically. For organizations, it's no different. As managers, we want to know, "Do we take the blue pill, or the red one, or the colorful ones with the letter M on them?" Such decisions require insight. And insight requires measurement.

We measure to understand how to live a better life, both mentally and physically. For organizations, it's no different.

"But measurement is hard, and numbers are boring, and the outcomes are depressing, and the cow is sick, and the horse is dead...." Bah, these are all bad excuses! Most people have no idea how to measure well. They make their organization run a marathon with a thermometer up its rear end, and then they wonder why it's running so slowly (and awkwardly). In that regard, it's no wonder that an organization which measures very little and just runs around blindly usually goes much faster, until it runs into a tree, hopefully not with a thermometer in its mouth.

Measurement can be easy, fun, and motivating, and it's one of the most important activities for any organization. What gets measured gets managed, and what gets managed gets done. It's a cliché because it's true! I measure the number of words per book, blog posts per week, and chapters per month because my purpose is to be a full-time writer. Happy Melly collects stories of happy and healthy companies because its purpose is to help people have better jobs. Google has a transparent system that enables *all* employees to define and track their own objectives. [Yarow, "This Is the Internal Grading System Google Uses"] When organizations end up in the wrong place, it's often because they didn't use the correct measures to discover where they were going. [Spitzer, *Transforming Performance Measurement* loc:431]



Comparing organizations with human bodies is actually not such a good idea. Except when in the vicinity of an attractive person, body parts usually make no plans and decisions on their own. The human body is called an *animated system*, while an organization is a *purposeful system*. [Gharajedaghi, *Systems Thinking*] Cities are better metaphors for organizations. A city is a community of people, many of whom have their own ambitions. The whole city is managed by a few people on everyone else's behalf and is usually endowed by its managers with its own purpose. It's basically the same with an organization, except that the geographical boundary that defines the city is replaced with an economic and legal boundary that defines the organization. But no matter whether we talk about humans, cities, or organizations, there's one thing we recognize among all of them. We measure things in order to make decisions toward a purpose.

- Rule 1: Measure for a purpose.

Proxies and the Unknown

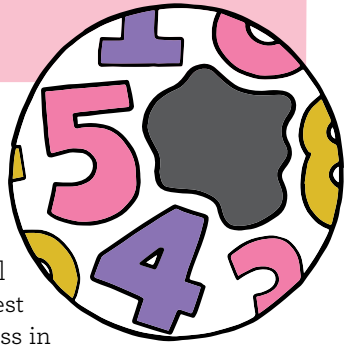
A single number indicating health does not exist. Neither does one single value for happiness, or for most other qualities for that matter. It is often said, "Not everything that counts can be counted." Usually, the best we can do is work with values that are only surrogates or proxies for the real thing. As a result, our measurements are imperfect. We don't measure love by tracking the number of phone calls. [Gharajedaghi, *Systems Thinking* pag:47] And yet, a complete lack of phone calls from a loved one should indicate at least *something*. It is still useful information, as long as we don't jump to conclusions by confusing the lack of phone calls with a lack of love. (I just got my call two minutes ago, no kidding! My happiness increased, a little bit.)

Jumping to conclusions with incomplete information, and not understanding that there's a gap between what is *measurable* and what is *desirable*, is one of the biggest problems with humans. For example, for many decades, governments have used gross national product (GNP) as an indicator of the health of their economies, but this well-known metric ignores the cost of natural resources. It only indicates sales. The metric does not attribute any value to plants, animals, or human lives! When a natural disaster wipes out a number of living things, or even an entire species, the GNP of a country usually goes *up* because of the increased labor and sales of materials. But we'd be stupid to believe that the health of the economy increased as a result of the disaster.

The real health of an economy, like the happiness of a person, is not measurable. But that doesn't mean measurement is a lost cause. On the contrary, there are plenty of things that we can measure! [Hubbard, *How to Measure Anything*] We can at least reduce our ignorance by using multiple imperfect metrics. For example, there are many competing indices that all claim to measure the happiness of people

Just as a human being needs a diversity of measures to assess its health and performance, an organization needs a diversity of measures to assess its health and performance.

Drucker, *Management* loc:1131



across countries [Gedmin, "Our Mania for Measuring Well-Being"]. All of these measures have their own intricate methods, variables, and formulas. They're all imperfect, but together they give the best possible picture we can paint of happiness in the world at large. In organizations it should not be any different. It is one reason why Google lets employees measure their progress toward their objectives by using multiple *key results*. [Yarow, "This Is the Internal Grading System Google Uses"]

Your job is to find the best possible (combination of) proxies that get as close as possible to the thing you *really* want to know. Your measurements should never lead you to ignore the unknown or give anyone else a false feeling of confidence. Unknowingly relying on an imperfect metric could be even more dangerous than knowingly proceeding without one!

The most important information we need is either unknown or unknowable [Deming, *Out of the Crisis* pag:121], but this is no excuse for not measuring at all. [Hubbard, *How to Measure Anything* pag:27] We have a responsibility to refrain from jumping to conclusions and to keep pushing back the boundary of the unknown.

- Rule 2: Shrink the unknown

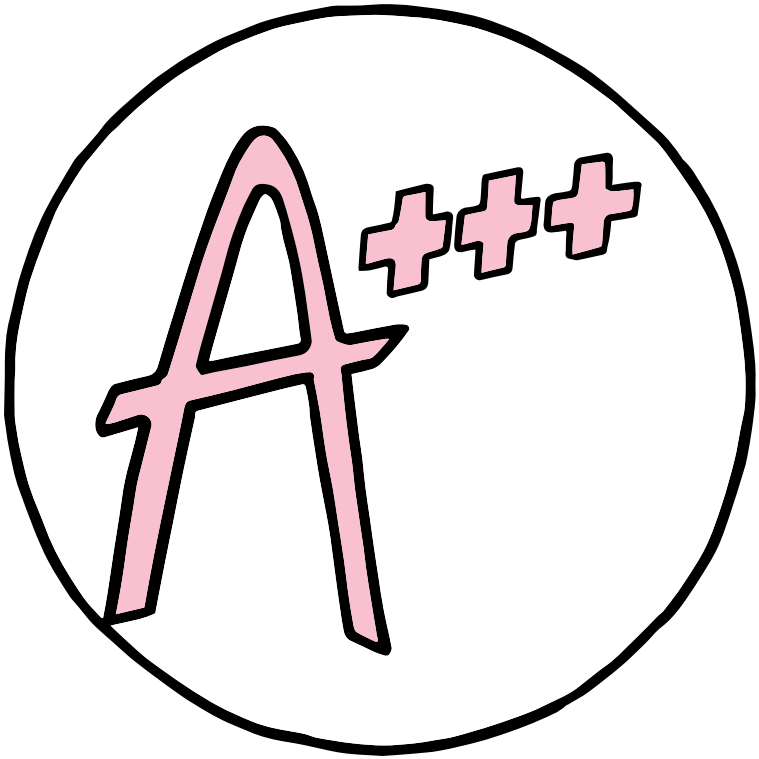
Big Data, Small Progress

We live in an age where having too little information is less often a problem than having too much of it. In many businesses, people have data covering "the number of employees hired, number of training programs implemented, number of help desk calls, number of machines repaired, number of inspections, number of audits, number of invoices processed, number of sales calls, number of clinical trials, number of patent applications, etc." [Spitzer, *Transforming Performance Measurement* loc:784] **Big data** is all the rage these days. [The Economist, "Data, Data Everywhere"] All this data can make people feel good because it makes it clear that a lot is going on. "Look at us being busy!" And there are always at least *some* numbers going up.

But not all metrics are created equal. For any football (or soccer) team, the statistics reporting percentage ball possession, corner kicks, total fouls, key passes, attempted passes, or top salaries are all very nice and interesting, but the only thing that really counts is whether the team wins! [Brownell, "The Most Important New Advanced Soccer Statistics"] For any organization without a clear goal, it is tempting just to report the numbers that say, "We're going fast!" Such numbers have been called **vanity metrics** because they make businesses look good. [Ries, *The Lean Startup* pag:143]

I know what I'm talking about! I've prided myself on the large number of page views on some of my blog posts, which turned out to be completely irrelevant to my goal of writing books. I've been smug and felt pleased because of the high ratings for my workshops, but my real goal was to enable *other* trainers to facilitate my courses successfully. To become happy and healthy as an organization, a bit more is needed than just looking busy and looking good. What you need is a sense of *progress* toward your purpose or goal. What you want is for your measurements to enable you to learn and improve.

- Rule 3: Seek to improve



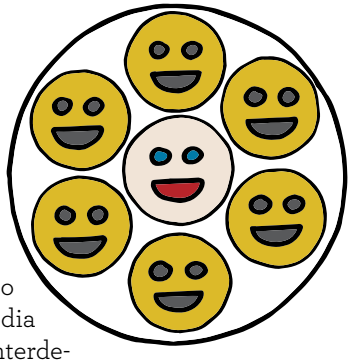
Example:
This Book

Let's take a moment to consider a concrete example. What is my motivation for writing this book? Well, apart from fame and fortune, my purpose for this book is to familiarize people with good practices that can turn organizations into better places to work. But how can I measure that?

One obvious suggestion is to monitor book sales. The more often this book is sold, the more people I have reached with my message. However, as I know very well, a book sold is not necessarily a book read. A better metric might be book reviews. Good ratings by readers are an indicator of a message that is well received, which closes the gap with the unknown.

But book ratings don't help me write a better book. They are great for marketing, but they don't help me improve anything. They are a vanity metric! It's better to measure the effectiveness of my message while writing and before the book is ready, for example, by publishing beta versions of the ideas, checking how often people download the PDF files, and asking readers to share their feedback and personal stories with me. That's exactly what I've done. {8-)

Everything Depends on Everything



There's no shortcut to an optimized whole and no complex system will ever really be optimal.

It's relatively easy to measure the performance of a writer. All mistakes in this book are mine. But how do you measure the performance of those who contribute to a TV program? Or a software product? Or a social media marketing campaign? For a number of decades, the interdependence of work processes has been growing. With more and more people working together in teams, groups, and networks, and with an increased diversity of contributors, it gets harder and harder to measure who contributed how much to which part of the results. Performance measurement of the parts in a network becomes impossible when everything depends on everything else. Is a hospital's rating a measure of its management, or the doctors and nurses, the patients, or the average standard of living in its region? Do school exams measure the performance of the pupils, the school, the exam board, or all three? [Hoverstadt, *The Fractal Organization pag*:102]

The only way to deal with this complexity is to acknowledge that the performance of a part must be evaluated across its dependencies. This means that the efforts and results of one person should not only be evaluated against that person's own purpose, but also against the needs of all of the stakeholders. Yes, a workshop trainer should measure her progress according to her ambitions. But she should also understand the needs of her students, her peers, the training organization, the courseware creator, the venue owner, the government, the trainer's guild, and even her spouse. They are the ones *enabling* her to pursue those ambitions.

Some authors claim that the only purpose that really counts is to delight the customer, and that performance optimization across all stakeholders is mathematically impossible. [Denning, *The Leader's Guide to Radical Management* loc:1385] I agree with that last part. It is one of the messages of complexity science! There is no way to calculate the global optimum for a system in a complex environment. In fact, we'll never know where that optimum is! All complex adaptive systems seek their best performance possible by continuously repeating an **adaptive walk** across an invisible fitness landscape. [Appelo, *Management 3.0* loc:6604] It is never a straight path. There's no shortcut to an optimized whole and no complex system will ever really be optimal. That's how the brain works. That's how nature works. That's how the economy works. That's how the Internet works.

It's naive to optimize conditions for one client (the customer, the shareholder, the employee, or any other) *assuming* that what's good for one will automatically be good for all the others. Arguing that optimizing for all clients is "too hard" should not be an excuse. Try raising a family!

- Rule 4: Delight all stakeholders

A system's performance is the product of the interactions of its parts.

Ackoff, *Re-Creating the Corporation* pag:33

Subjectivity and Reflexivity

I once organized a workshop for a company where I discussed a happiness index with its employees. They told me that their management measured happiness in the organization every three months through the use of elaborate forms that had to be filled out electronically by everyone. After a lot of work, management was able to report that happiness in the company had dropped from 3.8 to 3.5. I asked the employees, "How do you feel about this measurement?" Someone from the back of the room said, "I hate it!" and some of the others started nodding their heads. Apparently, the way management measured happiness in that organization was *destroying* people's happiness. It could be that this metric made only the managers very happy!

An alluring aspect of measurements is that people associate them with research and science. Observation is a crucial part of the scientific method, and it's no coincidence that business improvement methods, such as The Lean Startup, Kanban, Scrum, and others, rely heavily on measuring work. Measurement is considered by many to be an inherently neutral activity that involves analysis, objectivity, and understanding. [Spitzer, *Transforming Performance Measurement* loc:1022] Unfortunately, in a social context, these lofty ideals are hardly ever achieved.

The fact that a person's productivity is being measured causes that person to pay more attention to his work and his productivity goes up. This phenomenon is often referred to as the **Hawthorne Effect.** The introduction of a happiness index can make a team feel good (or bad) about management, which influences the team's happiness. The attempt to estimate the size of a project causes people to add more requirements, which results in the estimate going up. A quality test at the end of a production line can introduce a sense of safety and subsequently more risky behaviors and lower quality among workers. This is referred to as **risk compensation.** A news item about an increase in book sales will further increase the sales of that book. And the announcement that a number of colleagues are stealing office supplies might not be the safest approach to protecting the remaining office supplies since, according to the **broken windows theory,** this could lead to more stealing. In all these examples, the observer influences the system and the system influences the observer. In complexity science we call this **reflexivity**. The only weapon against the **observer effect** is common sense and a skeptical mind toward any "scientific method" in a social setting.

> **The act of measurement is neither objective nor neutral. It is subjective and, of necessity, biased. It changes both the event and the observer. Events in the social situation acquire value by the fact that they are being singled out for the attention of being measured.**
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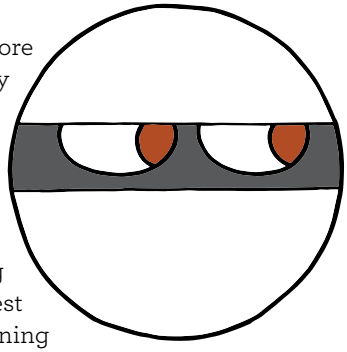
> Drucker, *Management* loc:7160



- Rule 5: Distrust all numbers

Bias

The observer effect is not the only reason you should distrust your numbers. When human beings are involved, you will be certain to encounter a plethora of cognitive biases with any metrics you use.

Most people are overconfident with their estimates (*estimation bias*). Their memories of negative experiences are stronger than those of positive ones (*negativity bias*). They usually only believe data when it supports an opinion they already have (*confirmation bias*). They project their current emotional state onto any expectations for the future (*projection bias*). People overestimate emotional responses to events (*impact bias*). They often think they could have predicted things that are happening today (*hindsight bias*). They believe themselves to be responsible for good results, while bad results are, of course, somebody else's fault (*outcome bias*). In addition, people also suffer from *belief bias, distinction bias, expectation bias, normalcy bias, pessimism bias, restraint bias,* and many, many more.

Cognitive biases are yet another reason to have a healthy skeptical view of any measurements that involve people. They are also another argument in favor of gaining perspectives from different stakeholders. With a bit of luck, each of them suffers from a different bias.

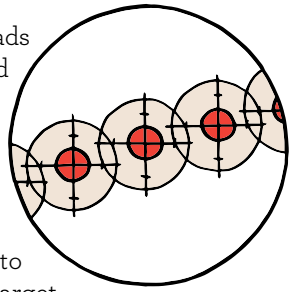
Management by Objectives

While I was writing this book, I set myself a target to write two chapters per month. I did not always succeed, but I knew I would never achieve my purpose if I didn't force myself to make some progress. I also have a target for sleep (at least 7 hours), calorie intake per day (less than 2,500 kcal), and blog posts per week (at least three). We measure ourselves and give ourselves targets to help us stay on track toward the goals that we've committed to.

Peter Drucker offered his **Management by Objectives (MBO)** method for exactly this purpose: to help managers define the purpose of their organization, set targets *for their own work*, and measure progress toward their goal. There's nothing wrong with targets, as long as you don't bother anyone else with them. Drucker specifically said that if managers continuously fail to fulfill *their own* commitments and never reach their objectives, they should make room for others. [Drucker, *Management* loc:6032] I agree. I should also find myself another career (or at least write *other* books) if I continuously fail to inspire people to improve their organizations.

Sadly, MBO has often been misunderstood and badly implemented. Managers set targets for *others* and fire *others* for doing work that is measured incorrectly in order to reach goals that are badly communicated. [Austin, *Measuring and Managing Performance* loc:1899] For example, call center employees are sometimes pressured into reducing the duration of their calls, instead of helping to solve their customer's problems. [Seddon, *Freedom from Command and Control* pag:19] Managers often do this because the wrong metric (call length) is easier to obtain than the right one (happy customers), and it is tempting to measure the things that are easiest to quantify. By adding targets into the mix, the result is that employees do what is counted (reducing call length) instead of doing what counts (helping customers). This perverse style of MBO leads to a decrease in people's motivation and the destruction of the organization which is exactly the opposite of what Drucker intended. [Allan, "3 Deming-Based Alternatives to Management by Objective"]

> There's nothing wrong with targets, as long as you don't bother anyone else with them.



Targets are dangerous. There is no way to set a perfect target. As soon as you set a target for others, they will pursue the target instead of the original purpose. According to **Goodhart's law**, "When a measure becomes a target, it ceases to be a good measure." The best you can do is to keep targets vague, and keep them to yourself. Instead of single points, work with imprecise targets, ranges of values, or merely a direction. [Hoverstadt, *The Fractal Organization* pag:138] Google has solved this by asking its employees to set multiple *difficult* targets for themselves with the strong suggestion that it should *not* be possible to achieve them all. The effect is that the targets become merely a range and a direction instead of one fixed point. [Yarow, "This Is the Internal Grading System Google Uses"]

Instead of aiming to sell exactly 10,000 copies of this book, I could aim for an imprecise five-digit sales figure. Other good enough targets for me would be to sleep better, to burn more calories than I consume, and to write more instead of less. I know it's too hard for me to achieve all of this and I won't make the mistake of imposing any of these targets on you.

- Rule 6: Set imprecise targets

Judgment and Control

It's a pity managers in American management literature are so often compared to sports coaches and creative networkers are then compared to players and athletes. The metaphor simply doesn't hold when we look at the way results are measured across these domains. The very purpose of professional sports is to be *measured* (by computers, referees, arbiters, or juries) in terms of number of games won, points scored, weights lifted, meters run, or seconds completed, in order to decide who *wins* and who *loses*. They are always **zero-sum games**—only one can win! In many organizations, possibly inspired by the data analytics capabilities of the NBA, the NFL, and FIFA, managers are also seeking better ways to quantify team performance. [Schrage, "Team Chemistry"] However, judging creative networkers based on projects completed on time, lines of code written, tests passed successfully, or new customers acquired is the *last* thing you need in an organization. Creative networkers play a **non-zero-sum** game. *Everyone* can win!

Professional organizations, such as Toyota, don't use measurements as a way for managers to judge the performance of their workers. The metrics are available for people's self-improvement rather than for managerial coercion and control. [Liker, *The Toyota Way to Lean Leadership* loc:4056] At Google it's the same; all workers only set objectives and key results for themselves. [Yarow, "This Is the Internal Grading System Google Uses"] For organizations that truly desire to be transformational, measurement must be separated as much as possible from judgment. [Spitzer, *Transforming Performance Measurement* loc:1333] As long as metrics are abused as a tool for control, measurements will give rise to power play, fear, and politics. To any manager who is trying to find the "best" performance metrics for measuring teams I say, "Before you try to measure someone else's performance, please explain how you measure your own."

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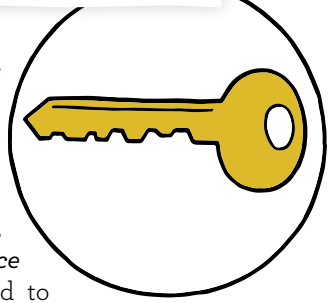

Judging people is the perfect recipe for **measurement dysfunction:** bad organizational behaviors emerge as a result of metrics and targets. These behaviors then interfere with the stated purpose of the metrics. [Austin, *Measuring and Managing Performance* loc:464] This phenomenon is referred to as **Campbell's law**: "The more any quantitative social indicator is used for social decision-making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor." [Lyons, *Social Research and Public Policies* pag:35]

It is easy to see that all metrics should be owned by their users and should only be used by them to judge themselves. [Liker, *The Toyota Way to Lean Leadership* loc:592] It is crucial that creative networkers see measurement as a positive thing, as something that empowers them to improve their work and their outcomes in the areas under their control. For managers it is no different. The objectives of managers are their own objectives. The performance measured by managers across their scope of control is their own performance. Everyone who is held accountable for something needs metrics to improve their own work. The scope of accountability may differ between managers and workers, but the conclusion is the same. We all measure ourselves. [Drucker, *Management* loc:6032]

- Rule 7: Own your metrics

Rewards and Punishments

My life as a robot was brief and depressing. I was about twelve years old, enjoying a vacation with the family in a tent at a French camping site. The owners of the camp had invited all the kids to come to the central building dressed in self-made costumes. I had spent an hour or two raiding our tent and my mom's kitchen supplies, pulling a grey garbage bag over my head, cutting buttons out of wine corks—there are always plenty of those available in France—covering my ears in plastic cup holders, and sticking a part of the tent on my head. Robocop, the Terminator, and smartphone operating systems had yet to be invented. I was the ultimate android. My brother and sister happily joined in the merriment with their own (much less cool) costumes, and everything was great until the organizers picked a winner. A winner? Yes, a winner. And it wasn't me. I was very disappointed. The robot outfit quickly disappeared and I went back to solving my Rubik's cube.

I have addressed the issue many times in my books and on my blog, and I will do it here once again: incentives bring problems. Rewards may briefly motivate people who win them, but they also seriously demotivate those who don't. The net result is often more negative than positive. For every person you make "employee of the month" you turn dozens, hundreds, or thousands of colleagues into "losers of the month". A creative work environment should not be an Olympic game.

The danger of rewards is that they work! They motivate people to win the rewards. [Kohn, *Punished by Rewards* loc:1343] But what is rewarded (and can be measured) is never exactly the same as the true purpose of the organization (which cannot be truly measured). Google does not use people's objectives and targets as input for promotions. [Yarow, "This Is the Internal Grading System Google Uses"]. This makes perfect sense because, when workers feel the targets and results are of the greatest importance, they lose sight of their original objectives, and each of their decisions will be a little worse than what is really needed for the company. [Austin, *Measuring and Managing Performance* loc:2977] We refer to this as the **Law of unintended consequences**, or the **Law of oops-my-bonus-just-destroyed-the-company.**

> **If your parent or teacher or manager is sitting in judgment of what you do, and if that judgment will determine whether good things or bad things happen to you, this cannot help but warp your relationship with that person. You will not be working collaboratively in order to learn or grow; you will be trying to get him or her to approve of what you are doing so you can get the goodies.**
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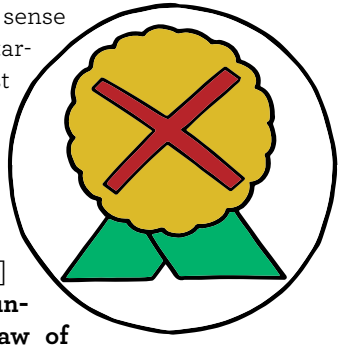
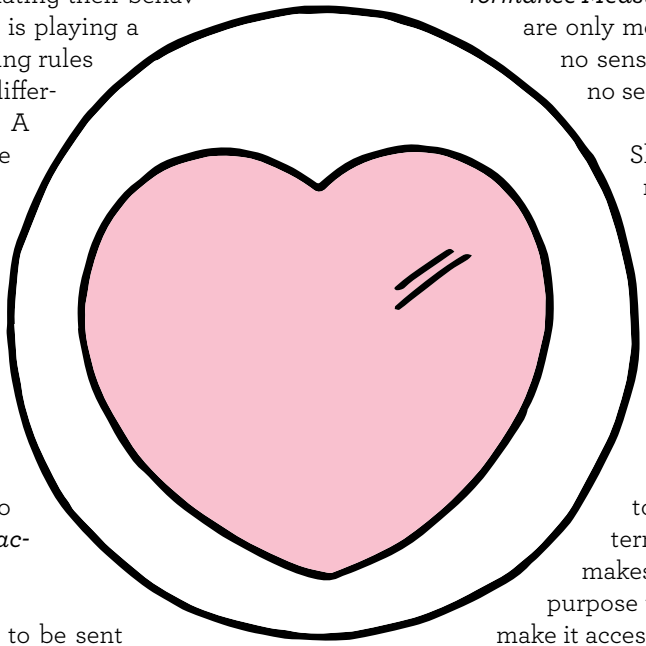
> Kohn, *Punished by Rewards* loc:1159



- Rule 8: Don't connect metrics to rewards

Gaming the System

A **pay-for-performance** environment with metrics, targets, and incentives is the perfect place to work for people who like playing games. A system that rewards workers for achieving certain outcomes is an explicit attempt at manipulating their behaviors. We call that gaming. Management is playing a management game with the workers using rules and numbers. But the actual game is different from what the managers expect. A system designed explicitly to manipulate people's behaviors is an open invitation to everyone involved to use that same system for their own advantage. The actual game being played is the game the workers decide to play with that system. If it's OK for management to manipulate workers with a pay-for-performance system, it is also OK for workers to use that same system to manipulate management. Game theory and complexity theory can predict who will win that game. [Hoverstadt, *The Fractal Organization* pag:109]



I've heard of people scheduling emails to be sent late at night, so that they get rewarded for "working late". I've heard of people repeatedly tapping the spacebar on their keyboards during lunch time, because they got paid for "number of keystrokes". I've heard of people traveling to work twice per day, once to "clock in" and once to "clock out", so that the computer registered "eight hours of work". But why should any creative networker do this? How many of us go to work in the morning, looking forward to their daily targets and incentives, wondering, "How can I manipulate the system today?" An *opportunity* to play the game is not enough. People also need a *motive*. [Spitzer, *Transforming Performance Measurement* loc:905] I am convinced people are only motivated to act this way when they have no sense of purpose, no values, no integrity, or no sense of community.

Shared values and transparency can reduce the desire to game the system. Everyone should be aware of each other's integrity and good intentions. That means that everyone has a right to know all the numbers, all the rules, all the metrics, and all purposes. At Google, employees add their objectives and targets into the employee directory and everyone can see each other's results, including those of the top managers. [Yarow, "This Is the Internal Grading System Google Uses"] It makes sense because Google has a grand purpose to organize the world's information and make it accessible and useful for everyone.

Instead of playing dirty games with metrics, targets, and incentives, we should aim for everyone to be internally motivated, and with transparent values and measures, people will have enough self-assessment information to improve their work while playing nicely.

- Rule 9: Promote values and transparency

Dehumanization

I admit I love numbers, but sometimes, they can be a bit... lifeless. Many managers get their information in the form of figures, which cannot carry any emotional weight. With numbers, someone's hard work becomes merely a statistic. Blood, sweat, and tears are transformed into spreadsheets. Personal passions and tragedies become mundane graphs and tables. Metrics allow us to morph joy and pain into squares and digits, with the help of pivot tables and chart wizards, at the mere touch of a button. The essence of work gets lost with measures. Instead of looking at what is really happening with the employees, management looks at what's happening with the figures.

For every healthy organization, it is imperative that management includes "people management", "floor management", and "visual management". Space in work areas could be set aside for daily meetings, charts, graphs, boards, and color-coded information. When the infrastructure allows it and the people are collocated, the information is placed as close as possible to the people and their work. [Liker, *The Toyota Way to Lean Leadership* loc:3133] Improving the organization with metrics is good, important even, but measurements are even more helpful when you can see, quite literally, what is happening behind the data.

And numbers are often not even needed. Sketches, scribbles, and colors can convey more meaning than digits. People's faces on magnetic buttons have more visual impact than names on sticky notes. It is precisely for these reasons that nicely designed infographics on the Internet have become a very popular alternative to boring tables and graphs. And have you ever wondered why you like business books much more when they have lots of colorful illustrations in them?

- Rule 10: Visualize and humanize

Measurements are even more helpful when you can see, quite literally, what is happening behind the data.

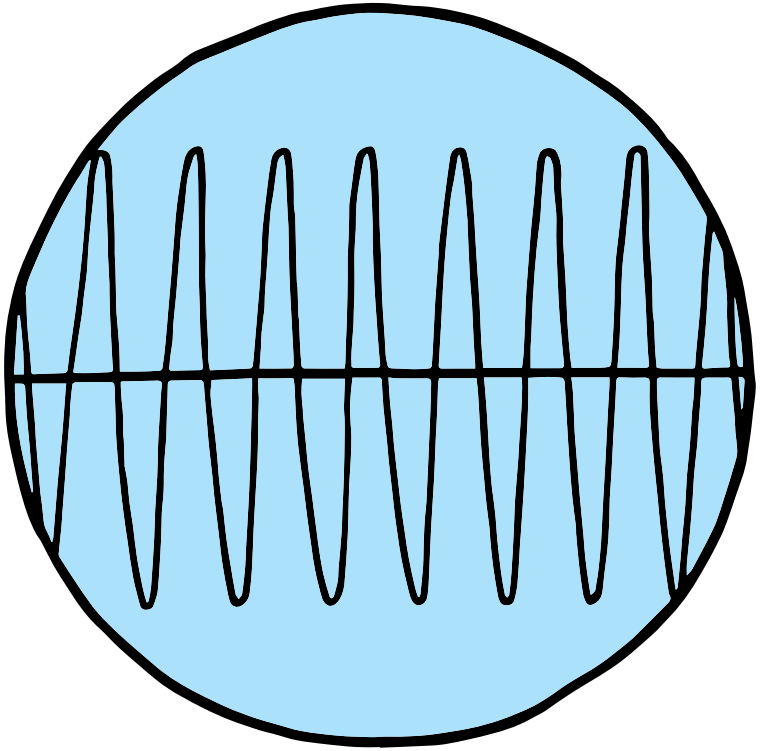
Too Little, Too Late

How often should you have a cardio test? How often do you check your watch when trying to catch a flight? How often should you have the tires of your car checked? How often do you check if your spouse is still happy? There is only one good answer to these questions: "Often enough to ensure problems don't grow too big and risky, and probably more often than you're doing now." Don't delay measurements until symptoms of problems are popping up. If you don't have regular check-ups, your diagnostics and interventions might be too late.

Agile and Lean communities around the world have learned that it makes sense to measure things more often. Customer needs are evaluated not only at the start of a project; they are discussed every week. Progress on a project is reported not once per month but every day. Quality tests on products are not performed once per yearly quarter; they are done continuously. And the happiness of employees is certainly not measured only once every three months; it should be monitored all the time.

Measuring well usually means measuring more often than you're doing now. It also means finding leading indicators that precede lagging indicators. A great chef doesn't need to sample the food every second (a leading indicator), but he certainly needs to do this *before* serving the outcome to the guests and waiting for their feedback (a lagging indicator)! [Weinberg, *Becoming a Technical Leader* loc:659]

In my experience, this means setting up reminders and triggers for myself because, if I don't, I will forget to measure. Without checklists, alerts, and notifications, I will only do what's urgent, not what is important. That's why I have recurring tasks that remind me to check



total and average problem time on the Happy Melly task board, *number of licensed workshops per month* for the Management 3.0 brand, and *useful quotes* I read in non-fiction books. I check *cash flow, profits, debtors,* and *creditors* on a monthly basis; I do the same with *book sales* and *blog statistics*. Each completed book chapter is, for me, a trigger to count the *number of words*, and each business trip with my car is a trigger to make a note of its *mileage*. Oh, and I also have a daily reminder to check if someone should get a *kudo card* or *thank-you note*.

- Rule 11: Measure early and often

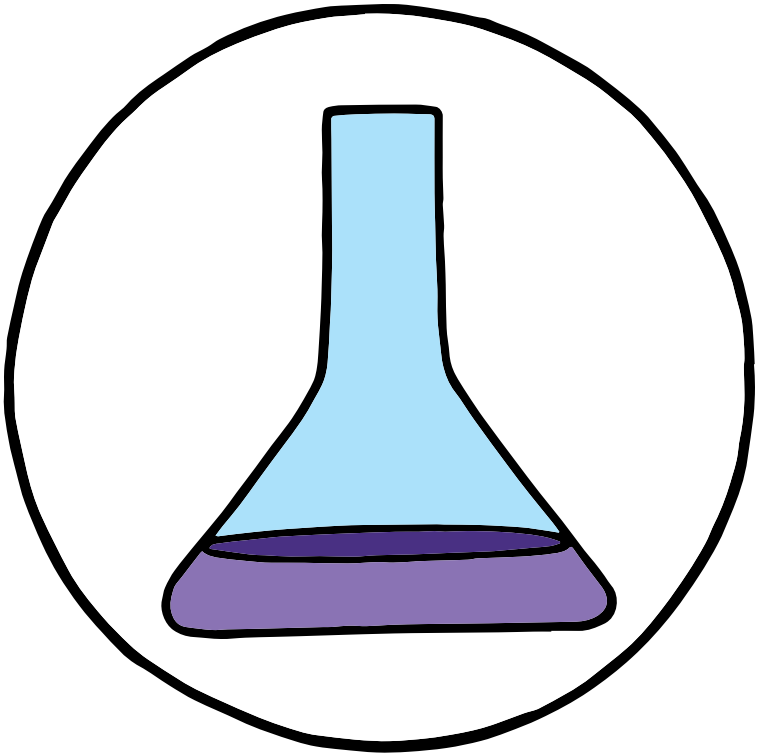
Stagnation and Complacency

So far, we have covered eleven challenges and rules for metrics, which is rather annoying because I don't like the number eleven. I set myself a target of coming up with twelve. Eleven is dumb, twelve is good. It's probably a leftover religious streak in me. Fortunately, I am happy to report that there's one other issue we haven't covered yet with our investigation of measurements. We haven't covered the problem of stagnation.

Many managers are on a never-ending quest to find the "best metrics" for their organizations. They don't seem to realize that measurement is part of the work we do. Measurement *is* work. Considering the fact that the environment always changes, and our work always changes with it, why shouldn't the same thing be true for our metrics? They need to change as our business changes. It is useful to see them as tools for **diagnostics**. We measure to understand things *before* and *after* our analysis of symptoms and our attempts at improvement. We can do that a number of times, until the metric isn't helpful anymore, and then it's time to use something else. There is no Holy Grail of Measurement.

Nobody should hesitate to try out new measures and experiment with different metrics. [Fowler, "An Appropriate Use of Metrics"] People, teams, and organizations will adapt and get used to their own measurements. That's when stagnation and atrophy have a chance to creep in. It's good to try something else after a while. Replacing your metrics not only helps you cover other perspectives and uncover different unknowns, but it also keeps you from being lulled into a false sense of complacency. And for every complex adaptive system that prefers to stay happy and healthy, a regular change in stimuli is a good thing.

- Rule 12: Try something else



Rules for Measurement

Yay, we did it! We found ourselves twelve rules for good measurement.
Let's review them before turning what we've learned into a concrete management practice.

Rule 1: Measure for a purpose.

You must always understand why you are measuring. The metric is not a goal in itself. Never forget that it's just a means to an end. It all starts with *why*.

Rule 2: Shrink the unknown

A metric is just a surrogate for what you *really* want to know. Don't jump to conclusions. Always try to reduce the size of what is still unknown.

Rule 3: Seek to improve

Don't only measure things that will make you look good. There is plenty of data around, but you must focus on what enables you to do better work.

Rule 4: Delight all stakeholders

Your work depends on others, and others depend on you. Never optimize for just one stakeholder. Instead, measure your work from multiple perspectives.

Rule 5: Distrust all numbers

Observers usually influence their own metrics, and they suffer from all kinds of biases. Have a healthy, skeptical attitude towards any reported numbers.

Rule 6: Set imprecise targets

When people have targets, they have an inclination to focus on the targets instead of the real purpose. Avoid this tendency by keeping your targets vague.

Rule 7: Own your metrics

Everyone is responsible for their own work, and metrics help us improve that work. Therefore, everyone should be responsible for their own metrics.

Rule 8: Don't connect metrics to rewards

Rewards often kill intrinsic motivation and lead to dysfunctional behaviors in organizations. Don't incentivize people to do work they should *like* doing.

Rule 9: Promote values and transparency

Human beings are smart and able to game any system. To prevent gaming, be transparent about values, intentions, and the metrics everyone is using.

Rule 10: Visualize and humanize

Numbers tend to dehumanize everything. Replace digits with colors and pictures, and keep the measurements close to where the actual work is done.

Rule 11: Measure early and often

Most people don't measure often enough. Measure sooner and faster to prevent risks and problems from growing too big for you to handle.

Rule 12: Try something else

It's rarely a good idea to do the same things over and over. The environment changes all the time. The same should apply to how and what you measure.

What about KPIs?

Ah, the famous *Key Performance Indicators*. A term much favored among managers! Well, we've already covered the first two parts of that term. A metric is *key* when it helps us make progress toward our purpose, and it is about *performance* when it helps us to improve our work.

Some writers claim that the word indicator means the metric can help you make predictions for the future. [Spool, "KPIs Are Metrics, but Not All Metrics Are KPIs"] I'm not a fan of this particular requirement because I don't believe anyone can predict the future. Metrics are helpful for learning, understanding, and gaining insight for decisions. I gladly leave predictions to those who believe the future is deterministic.

Many other writers simply distinguish KPIs from metrics by suggesting that KPIs involve goals and actions, and they might say that my twelve rules for "good metrics" simply result in what they would call KPIs. Considering that KPIs are usually imposed on workers by managers, I prefer not to use the term in my own work.

Integration and Scaling

Now we arrive at the gates of a huge problem that business consultants and management experts have been struggling with for decades, if not centuries. How does it all come together? How do *your* metrics connect with *mine*? How do we choose metrics as a *team*? And how do we make sure the metrics of multiple teams integrate nicely into a shiny *framework* for the whole organization?

At this point, it's crucial to remember that organizations are complex adaptive systems, like cities and communities. The parts have their own purposes, identities, values, and ambitions, and at the same time, they contribute to the whole system, which also has its own purpose and identity, just like the system next door. And together, with a few other systems, they form an even bigger whole at the next higher level. And so on, and so on. Everything is interdependent, both horizontally and vertically.

Scaling of metrics fails because people don't understand complexity. The integration of metrics is a lost cause when people treat the organization like a machine. The whole system is not improved when we simply replace or improve all the individual parts. On the other hand, we also cannot just instruct everyone to "improve the whole" instead of the parts, because, there are wholes on many different levels. As a result, nobody will agree on what exactly "the whole" is. These are two different problems, and I should clarify them separately.

We find an example of the first problem (optimizing the parts) in the common use of the famous **balanced scorecard**. [Kaplan and Norton, *The Balanced Scorecard*] The good thing about balanced scorecards is that they require managers to analyze performance from different perspectives with multiple metrics. The bad thing is that descriptions of balanced scorecards have relied on the metaphor of a pilot looking at the dashboard of a cockpit in an airplane; in other words, a manager is operating a machine. [Austin, *Measuring and Managing Performance* loc:750]

> There is no right mix of metrics that will result in an optimization of the whole; so don't even try.

This metaphor would only be correct if the parts of the airplane all had minds of their own, and were in a position to control what information to feed back to the pilot and what to hold back. The airplane parts would also need to be able to quit their job and merge with another airplane, all in mid-flight. The wings would report that they were "right on schedule" while trying to make the performance of the jet engines look bad. The engines would be on non-speaking terms with the wheels, and the tail would secretly be planning to split off and start its own skydiving business. Instead of having a dashboard full of objective measurements, the pilot would be looking at a series of green lights while flying straight into a mountain. Obviously, the machine metaphor for metrics is flawed in a social context. (Sadly, the pilot metaphor sells extremely well to traditional managers.)

Examples of the second problem (optimizing the whole) often result from comparing organizations with individual organisms that are trying to survive and thrive as a whole. Checking a person's heart rate, blood pressure, MRI scans, and stool samples can be useful for investigating symptoms and finding problems, and all of this *could* help a person become healthy and happy. But the comparison of organizations with organisms would only be complete if the heart could decide to become a third foot, the left lung had the ambition to take over from the brain, the two eyes were not motivated to synchronize work with each other, and the sexual organs insisted on working remotely. Optimizing the whole is a great idea, and doctors can obviously contribute to the health and happiness of a whole patient, but in the fuzzy multi-leveled context of an organization, simply giving everyone the instruction to "optimize the whole" is naïve. There is no right mix of metrics that will result in an optimization of the whole; so don't even try. [Rother, *Toyota Kata* loc:2428]

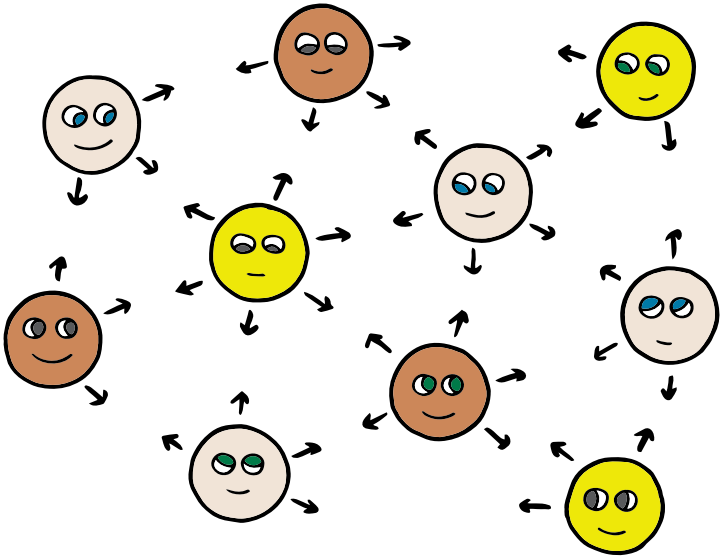
Organizations are purposeful systems. The parts have their own purposes and the whole has its purpose. This pattern repeats itself in a fractal way, with individuals being part of (sometimes multiple) teams and communities, which are part of (often multiple) departments, which are part of (or defined across) business units, which are part of companies, which are part of cities and industries, which are part of countries.

There are purposes and metrics *everywhere*, and they are all conflicting, coordinating, colliding, and cooperating with each other in a never-ending game of competition *and* collaboration. This is not a failure of integration. It is a feature of all complex adaptive systems: they evolve and transform as networks of interdependent parts. Think of a biosphere. Think of the Internet. Think of the gene pool. Treating a business like a machine, and optimizing the parts, is a big mistake because machines don't evolve by themselves—yet. Treating a business like one organism and attempting to optimize the whole is also a mistake, because one organism usually cannot transform itself. You must treat your organization like a community. The community may have its purpose and metrics, but so do all its members.

Dashboards, Scorecards, and Frameworks

The *last* thing we need in a networked, self-organizing, complex system is a "comprehensive hierarchical organization of measures that fit together according to a logical structure". [Spitzer, *Transforming Performance Measurement* loc:2081] What is *logical* is science, and science suggests that things should grow and evolve bottom-up. So let's ignore any suggestions for top-down intelligently-designed measurement frameworks.

We need a philosophy of metrics that can help organizations evolve and transform. Individual metrics between parts and between levels can be both competing and collaborating. They can be in conflict and they can be in harmony. There is no way to create a comprehensive hierarchy of metrics, so we won't even go there.



The solution is for all individuals in the organization to have their own metrics. All workers are given the responsibility to measure whatever is important to them within their own scope of control and given their own purpose (Rule 1). Empowering all workers to create their own information will motivate them to improve their metrics (Rule 2) and improve their work (Rule 3). At the same time, they should measure their work on behalf of their direct clients, covering all interdependencies and their scope of concern (Rule 4). Being responsible for their own metrics should mean people will be more mindful of how they and their clients are influencing the measurements (Rule 5). Maybe some people will even want to set some targets (Rule 6), but neither the metrics nor the targets are created for anyone else but themselves (Rule 7). This also means there are no incentives (Rule 8); and because it is all transparent, everyone can observe each other's intentions and metrics and respond to them (Rule 9). This will help to prevent dehumanization (Rule 10). Finally, when people have full control over their own metrics, it is easier for them to measure as often as they feel is needed (Rule 11) and to change the metrics whenever they feel like it (Rule 12). In other words, what you need to grow is a metrics ecosystem.

Because all metrics are different, with different frequencies of updates and different styles of visualization, it makes little sense for each person to create a scorecard or dashboard of metrics. Why should I put *calories per day* on the same dashboard as *profits per month*? As long as all information is easily available, I don't see the point of designing a framework.

Measurement Examples

I'm sure some of you would like to know what a metrics ecosystem would look like with individuals and teams and bigger structures. Well, it's actually not that difficult. It's just a bit... messy.

A team member might want to have a measure of his own productivity in terms of *number of illustrations drawn, tests completed, scenes shot,* or *lines produced* (just like I have with my number of *words written per chapter*). And each team member could have a different purpose, and therefore, different metrics. However, the self is only one stakeholder.

Each team member has the whole team as another stakeholder because the team depends on all its members and vice versa. Therefore, all members have the responsibility of measuring things on behalf of the whole team. For example, they could measure *team velocity, cycle time, team happiness,* or *hours of overtime*. When team members are of the same opinion about certain measures, they can track them together. But they are allowed to disagree! When some prefer *bug count* and others prefer *escaped defects*, why not track both? Remember, there are no perfect measurements, and having different perspectives on the same goal is more often good than bad. Striving for consensus about one "best metric" can kill a team. More important are transparency, decent values, and a healthy dose of skepticism toward all numbers. Having a few dissenting voices can be helpful and healthy.

The team will also have external clients, such as customers (I hope), a few suppliers, some other dependent teams, and their manager. The team may also be part of a business unit as well as a member of a community or business guild. If team members feel a sense of responsibility toward any of these clients (and I sure hope they do), then they should have measurements to represent those clients' perspectives. One might decide to consider *Net Promoter Score, inventory size,* or *test coverage*. Again, team members can agree, in which case they measure the same things together, or they can disagree, in which case they will cover different perspectives and unknowns. As I said, it could be a bit messy. But that's OK.

If there is a team manager responsible for one or more teams, she must have some measures of her own. Her teams are stakeholders; therefore, she might want to measure her own performance with *Gallup's 12 Questions, employee turnover,* or *impediment resolution time*. But she also has upwards responsibility, and thus, she could keep track of the total productivity within her span of control by using metrics to observe *increased sales, failure demand,* or *customer acquisition cost ratio*. For some measures, these could be the same numbers the teams are already measuring on her behalf. For other measures, she will have an opinion of her own regarding what is important; but then, she will have to measure it herself! And of course, the manager has stakeholders, including her own manager and fellow managers of other teams or other departments. And thus, she will keep track of some measures that will represent those stakeholders' needs.

The CEO will be responsible only for his own purpose and his own measurements.

This pattern repeats itself in a fractal way all the way up to the comfortable chair of the CEO, who, like everyone else, has his own purpose, his own clients, and his own opinions of what is important as a metric. Some of these metrics could include *gross margin, brand recognition, sustainability index,* or *market share*. But like everyone else, the CEO will be responsible only for his own purpose and his own measurements. Yes, the activity of collecting data can be delegated, but they are still *his* measurements. The targets he sets are only targets for him. Judgment of the work of others is only allowed when they're not measuring or not improving.

Measurement is just a way of observing the world. We all need to do that with our own eyes.

Measurement is just a way of observing the world. We all need to do that with our own eyes. We can help each other improve observations or show someone new methods of observation, but we cannot just become another person's eyes. We must observe for ourselves and share our findings in an ecosystem of observations. When this ecosystem performs well, people will copy metrics from each other, and they will improve upon each other's work. Measurements will be invented, merged, discussed, criticized, discarded, and replaced, which is all fine. The point is not to optimize certain measurements. The point is to improve the work and enable everyone to achieve their goals in a never-ending game of local optimizations and iterations across interdependencies. Just like in any other complex adaptive system.

Conclusion

Measuring performance might be one of the most problematic issues in organizations, and not in the least because people's approaches to metrics are so often completely wrongheaded, as in this story, shared by my good friend Lisette:

> **My job was to collect and analyze the company metrics. Well, I was presenting the metrics in the meeting last Monday morning, and now the CEO wants me to stop because 1) he doesn't see the value (the forecast is grim); and 2) the numbers were depressing the team. Go figure!**
>
> Lisette Sutherland,
> *from email correspondence*

I firmly believe a situation like this could be resolved by taking into account the twelve rules of good measurement. Note that I don't expect you to memorize all twelve of them. That's not the point of this chapter. But I do expect that you will help establish a culture that is conducive to measurement; one in which measurement is seen as a great way to learn and improve towards a purpose, and where everyone participates in evolving the metrics ecosystem. [Austin, *Measuring and Managing Performance* loc:2968]

What Now?

Anyone who has ever performed fitness exercises knows that *measuring yourself* is a crucial part of all workout programs. In organizations, it's no different. Start measuring the right way and then lead by example.

1. Evaluate the things you measure regularly and see if they help you learn to improve toward your purpose.
2. List all your stakeholders (which includes the teams and groups you belong to) and check if you measure your performance for each of their perspectives.
3. Visualize your metrics in a way that makes them interesting, and keep them close to where the work actually happens.
4. Be transparent about your metrics. Show them to others and ask the same courtesy from them. Discuss it all together, and feel free to collaborate and compete on measures.
5. Now scale this to the whole organization, where everyone maintains responsibility for their own measurements.

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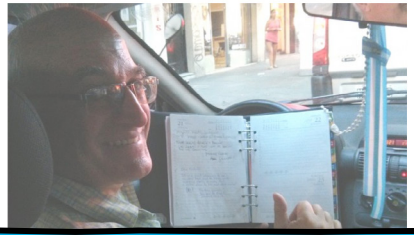

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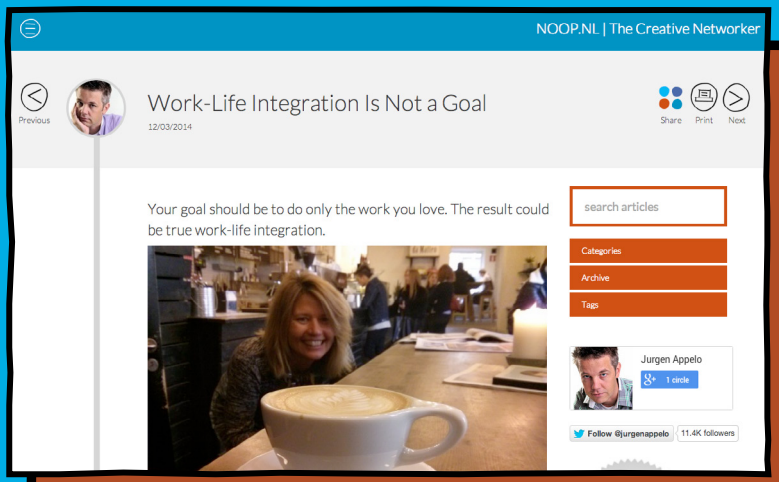
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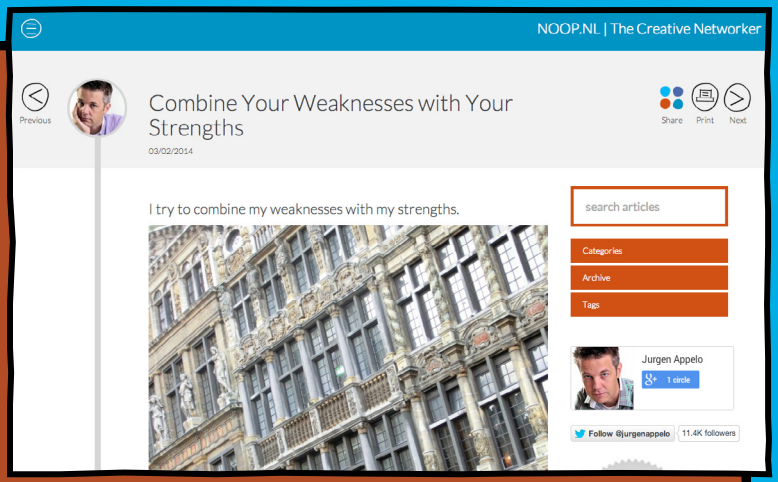
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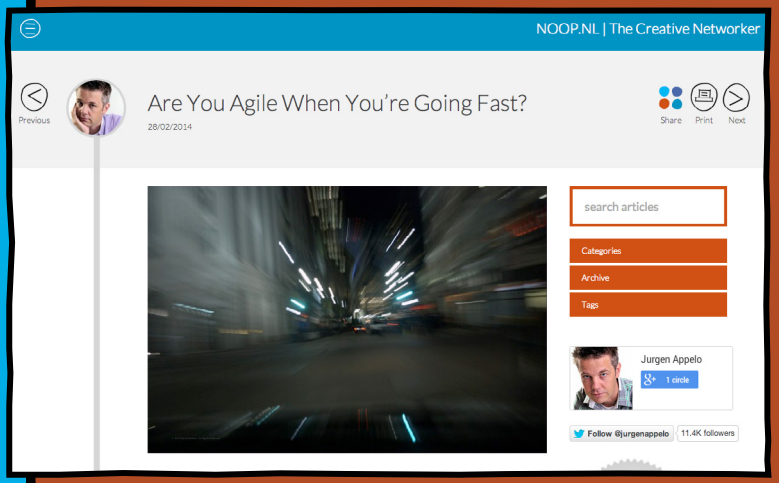
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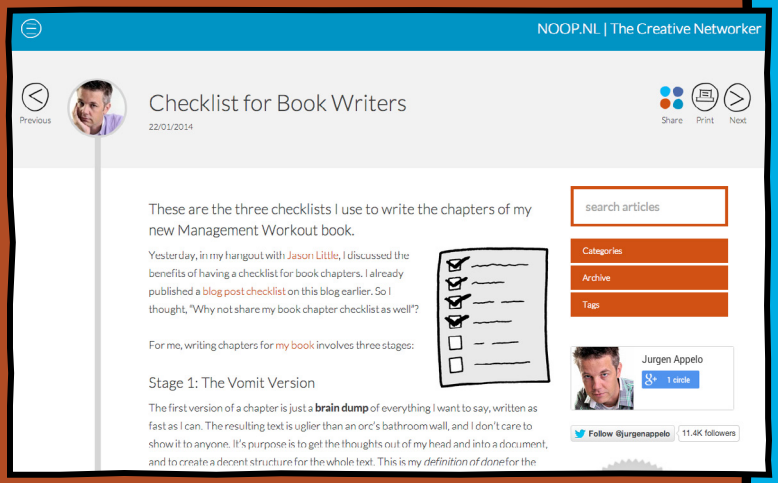
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Checklist for Book Writers
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These are the three checklists I use to write the chapters of my new Management Workout book.
Yesterday, in my hangout with Jason Little, I discussed the benefits of having a checklist for book chapters. I already published a blog post checklist on this blog earlier. So I thought, "Why not share my book chapter checklist as well"?
For me, writing chapters for my book involves three stages:
Stage 1: The Vomit Version
The first version of a chapter is just a brain dump of everything I want to say, written as fast as I can. The resulting text is uglier than an orc's bathroom wall, and I don't care to show it to anyone. It's purpose is to get the thoughts out of my head and into a document, and to create a decent structure for the whole text. This is my definition of done for the
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