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Ten Things Data Can Do For You in 2017 - 2/2
(aka Ten Things Power BI Can Do For You in 2017)

We Interrupt Our Regularly-Scheduled Program...

Rather than talking about HOW to do things with data, let's start the new year by spending some time on WHY we care about data investments in the first place.

"BORING," I hear you say, but au contraire! Even though most of your colleagues have accepted that data is the "trendy" thing, that doesn't mean they "get it." And if they don't get it, they won't support (or reward!) you properly.

My goal with this article, then, is to help you convince your colleagues that Power BI (and/or Power Pivot and Power Query) is worth the investment – a hundred times over, actually. Use this as ammunition.

So if you find yourself saying "hey Rob I already knew all of this," that's OK – I'm not talking to the data gene folks here. For once I'm tailoring these messages to the other 15 out of 16. (And hey, maybe even you data gene types will take some new ideas away from reading these.)

Principles Guiding this Article

Before diving in to the list itself, it's important to let you know where I'm coming from. Here are the principles that I'll be following as I go through said list:

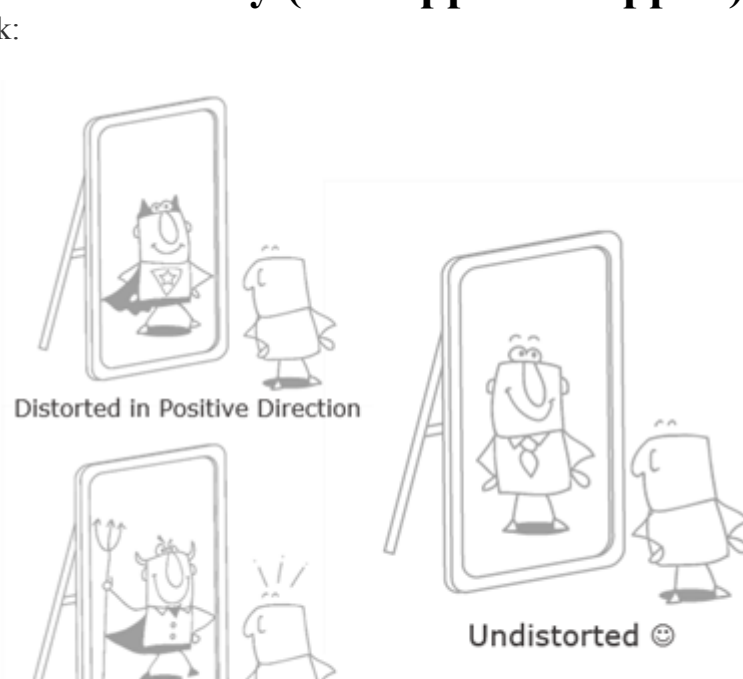
- 1. If you can't explain it simply, you don't understand it well enough yet. I believe in that principle, firmly. So I'm deliberately going to keep things "Fisher-Price" – no jargon, no esoteric examples. Just elementary-school-level explanations and illustrations, because defanging complexity is the first step to defeating it.
2. I'm assuming that your organization has the standard problems. And this is actually a surprisingly safe assumption, because we've found, over the years, that while the specifics vary quite a bit, the fundamental issues are the same old stories, over and over again. Everyone tends to think "MY organization is uniquely dysfunctional," but nope – everyone is struggling with the same handful of problems – and those problems are precisely what inform this list.
3. The ten benefits in this list are well within your organizations' reach. You likely already have the right people. You don't need to hire (or become) rocket scientists. You just need a new toolset and a few tweaks to the workflows.
4. The ten benefits are cumulative, not mutually exclusive. As in, you can do more than one at a time, and reap massive value. Each one is a big deal on its own, but when you start piling them up, they actually multiply each others' value.
5. All ten benefits are readily achievable with the Microsoft suite of tools. In fact, it's our years spent applying those tools (Power Pivot, and more recently Power Query and Power BI that have taught us these benefits. I'm sure you can achieve some degree of these benefits with other tools too, but my personal experience is that the competitive tools are more sizzle than steak (and the MS tools vice versa).

OK, onwards to the list!

Benefit #6: Employ "Fair" Metrics for an Undistorted Reality (aka Apples to Apples)

The following are all inspired by real examples we've encountered in our work:

- 1. "We've sold 17% more dollars of product X this year! We should stock more products like that."
2. "Sales were down 9% in February, but that's expected because February is 10% shorter than January."
3. "Website traffic was down in April, significantly, looks like those changes we made to the site were a mistake."
4. "We sell nearly twice as many dollars of Service A as we do Service B, shouldn't we push Service A more than Service B?"



Well, in reality, there were extenuating circumstances distorting each of those pictures. Respectively:

- 1. Product X was stocked in 25% more stores this year than last, AND the unit price went up 4%, so in reality, units per store were down significantly, rather than up, indicating that consumer preference might be shifting AWAY from this product.
2. Once you account for weekends and holidays, in that particular year, Feb and Jan BOTH had 20 "open for biz" days, so on a per-day basis, Feb WAS in fact terrible.
3. April is a "down" month for this segment of the web EVERY year (thanks to Spring Break), so on a year-over-year basis, this was expected rather than a crisis.
4. In terms of margin (revenue minus the "wholesales" cost of the service), Services A and B are nearly-identical, so maybe leave them alone, or perhaps "favor" Service B rather than A given its higher margin percentage.

More often than not, raw revenue dollar figures paint a distorted picture, so why is "Revenue \$" so often the first column in our reports and dashboards? Well, only because it's the easiest thing to count. Our accounting and billing systems already deal with precisely those numbers, so we get them in that form to begin with. And with older tools, it's simply just... exhausting to perform multi-source/multi-variable calculations (ex: divide by number of days we were open for biz). Not so with the new tools!

Subtracting cost to serve, dividing by number of days we're open, etc. isn't rocket science – far from it! It's just a failing of the old tools. I love telling people that for a living, I perform analytics that return millions of dollars of ROI in short order, and yet 99.9% of the time, the math employed never goes beyond 5th grade level. The modern tools aren't better at math, they just make things infinitely more convenient – they let you feed the right numbers into your usually-simple math at the right time. Revolutionary! Kinda begs the question doesn't it... what took so long? (Short answer: in this case, the software industry was the tail that wagged the real world's dog, but that's a tale for another day.)

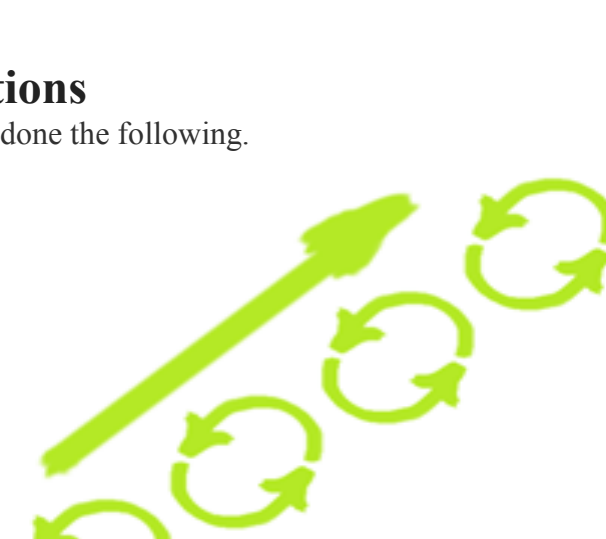
Are undistorted metrics crucial to good scorecards? You betcha! And being able to subdivide and segment your undistorted metrics is important too, as is seeing undistorted metrics from multiple facets of the business in one place, etc. Getting the spirit of this game yet? It's all one big network of wins – each one relatively simple, but the cumulative effect is a Megawin. (That's a real metric-system term for "a million wins." Seriously, you can look it up. OK, fine, I made it up.)

(BTW, the importance of undistorted metrics is one big reason why I've long believed that visualization is the crucial last mile, but it's only as good as the metrics you feed into it. Visualizing distorted metrics is essentially the art of "Getting Deceived Even Faster!" So buyer beware of anyone telling you that "viz" is THE key.)

#7: Foster a Virtuous Cycle – A Culture of Better Questions

I love how naturally these benefits "flow" from one to the next. Imagine that you've done the following.

- Given your analysts and data-driven thinkers a lot more time back – time that they can use to innovate (Benefit 5)
• Whetted everyone's appetites for compact convenience (Benefit 2) and trained them to always expect they can drill down under any number (Benefit 1).
• Conditioned everyone to start asking "but hey, is this metric distorting the picture?" (Benefit 6)
• Transformed data-driven meetings from free-for-all into focused conversations (Benefit 4).

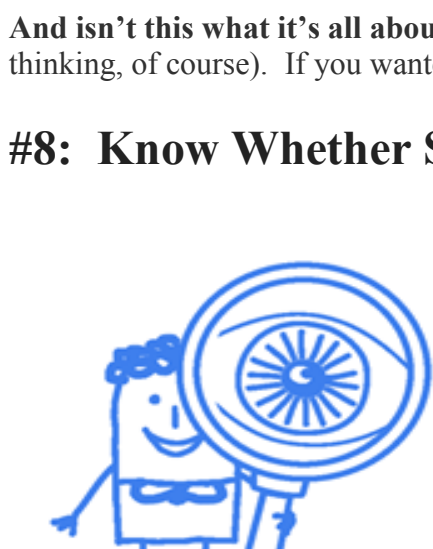


Once you've reached a certain critical mass (in terms of participants who've seen the light), those conditions lead to a steady and sustained acceleration – an ongoing improvement in the quality of thought in your organization. People see an example of smarter metrics, for instance, and once the value dawns on them, they want to apply that same kind of thinking on other problems. Which inspires someone else, and on down the line. And then some day, someone revisits the original smart metrics and says "hey I bet we can improve these too!" It happens. We've seen it repeatedly. And heck, it even happens with our own internal analytics.

The data tools have long limited the questions we can answer, which has in turn subconsciously limited the questions we ask. Once you take the restrictions off, it takes some time for humans to explore those unseen "regions" in their minds and in the business. I call it "tearing down the invisible prison."

And isn't this what it's all about? Data tools aren't the goal, better and more effective thinking is! (And action informed by that thinking, of course). If you wanted to argue that Benefit 7 is the biggest one, I wouldn't disagree.

#8: Know Whether Something Helped or Hurt (aka Forensics)



This one is perhaps obvious once Undistorted Metrics and Subdivide/Segment are second nature, but it's such a common (and valuable) sort of question that it makes the list.

So you've made some sort of change in the business, and now you need to know – did it help or hurt? Well, sometimes it's so hard to measure such a thing that organizations just flat-out skip it. They just trust/hope that it helped. (Happens more than you'd think). But even more commonly, the "help or hurt" analysis takes the form of a single top-level (non-subdivided) report populated with raw ("unfair") metrics.

Yeah, well... if you're doing it that old way, you may as well flip a coin. If the overall report says "meh, it had no impact," that might be masking the reality that a few segments WERE very positively impacted – and you miss a crucial detail that could have been replicated business-wide. Furthermore, if you're using raw/dumb metrics, you might be misled by basic seasonality (or some other fluctuation of the calendar). On net, the impact can be enough to make a positive change look negative, or vice versa.

Well you don't have to be satisfied with looking at the world through lenses caked with mud. Not anymore anyway.

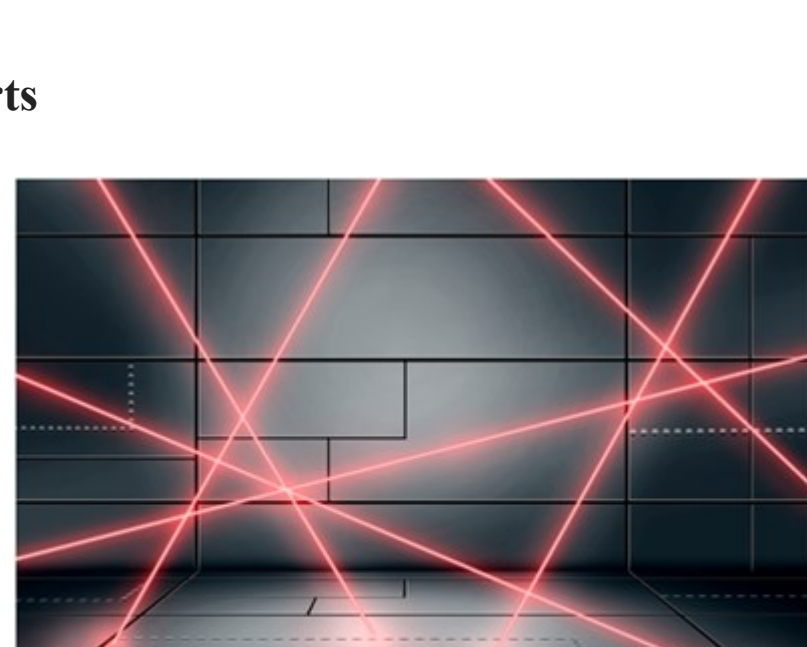
And hey, maybe along the way, you'll inspire others in the org to perform more rigorous forensic testing of their initiatives, too. You know... a virtuous cycle kind of thing...

#9: Deploy "Tripwires" – Exceptions and Alerts

Two of my all-time favorite blog posts – Movers and Fakers and Sara Problem – are examples of this benefit, and I'm tempted to get lazy here and just say "go skim those, I've been writing this for 20+ hours now and I'm getting tired." But no, I'm powering through! Where's that coffee pot...

Even in an environment where you've fully embraced Benefits 1-8, there's still a weakness waiting to trip you up from time to time. Specifically, even with a concise and smart set of dashboards, humans don't have time to drill down into said dashboards in every possible way, nor can they do so every time the data gets refreshed. Because of that, you can miss things.

EX: I once heard a horror story about a hospital surgery department that accidentally stopped billing patients for anesthesia. This was a bug in the billing system and had nothing to do with analytics, but... analytics didn't catch it either. Whoops. Surgeries were still happening, and bills were being sent (for the hospital stay, for the surgeons' time, etc.) – but the bills were "light" by some significant percentage. For months... I'm sure there was some report somewhere that, if someone were monitoring it, they would have seen the problem. But clearly... that wasn't happening.



Try Sneaking an Outlier Through THIS

Imagine instead if there had been a robotic "Night Watchman" in place – watching, tirelessly, for some exceptional change in either direction. (This is precisely what the Movers and Fakers post is about, btw, maybe you should go read it heh heh).

Well, the Power BI suite and its cousin Power Pivot in Excel let you do precisely that – email you when something fishy happens. And while Power BI has some built-in capabilities here, I personally prefer the full-flexibility, formula-based approach enabled by Power Update. You can even set it up to drill down in thousands of different ways, looking for exceptions at the drilled-down level, or even in combinations like "are there any Location-Product pairings that are spiking or plummeting this week?"

Now that hospital example, while authentic and attention-grabbing, is more extreme than it needs to be. You don't need something that big and obvious though – every week there are things we COULD see in our dashboards if we happened to look in the right places, but don't. Sometimes the exceptions are positive too. Wouldn't it be nice to know about those as well, so you can try to replicate them less randomly?

#10: Don't Stop at "Inform." Directly Advise Decisions!

Let's start with a controversial statement: informing people is 100% worthless. Does that raise your hackles? Well, here's the follow-up: what we do with data has zero value unless or until it translates into ACTION – into better decisions and improvements. Aha! That makes it a trivially-true statement rather than a controversial one, but if you keep that principle clearly in mind, it forever changes your approach to data.

Let's do this by example: I once was asked to troubleshoot a report that was running slowly. It was a PivotTable powered by Power Pivot, so it should have been fast. But when I looked at it, the pivot itself was more than 100,000 rows long! Note the source data. The "report" itself! And it looked something like this...

Table with 9 columns: Date, Store, Employee, First Name, Last Name, Ph#, Hrs, Clock In, Clock Out. Row 1: 5/5/2014, 123, 8675309, Tommy, Tutone, 867-5309, 6, 09:45, 16:00.

The So-Called "Timecard Report." Imagine 100k Rows of This – Not Source Data. This Was the End Report.

OK, so, first of all, if it doesn't fit on one screen, it kinda doesn't exist. Stuff that vanishes "below the fold" will almost never be seen, and chances are also decent that even the rows above the fold are too detailed/noisy to be of value. Don't do this. Ever. It boggles my mind, to this day, that there were human beings staring at this.

But the purpose of this "timecard report" was even more fascinating. There were dozens of regional managers consulting this, multiple times per day, to see if there were any stores that were empty – as in, no employees showed up for work, and the store is sitting there dark, not generating revenue.

They didn't need a "timecard report" – they needed the Empty Store Detector. It could look something like this...

No-Show #1. Tommy Tutone, Store 123, Employees Present: 0. Likely Replacements table with Name, Phone, Last Worked.

No-Show #2. Empty store report with Likely Replacements table.

This Whole Thing Would be Empty if All Stores Were Good (Note the information that directly facilitates the follow-up action of getting in touch with the missing employee and/or finding a replacement.)

This is a very powerful concept. It deserves more space than this, and in fact, another one of my favorite blog posts, We Have a Crush on Verbiike Reports, awaits you if you're curious. Which hopefully you are 😊

Honorable Mentions

A few benefits that didn't make this list, but more because they wouldn't "compress" well into a longer list, rather than as a reflection of their value:

- 1. Forecasting and Planning – imagine how much better these processes can be if they are "bedrocked" on a far more nimble, accurate, and trustworthy set of analytics. More articles on this in the future.
2. What If Analysis – a close cousin of the forecasting and planning, you can very readily experiment with various scenarios (ex: interest rates rise by X, price of oil falls by Y, exchange rates fluctuate, you outsource a job function, etc.) without actually "living" them.
3. Facilitating Better IT/Biz Relations – these tools, unlike their forbears, are usually incent and reward cooperation between IT and the business. The longstanding friction between the two is a direct result of the poor tools available much more so than a clash of personalities – at least when it comes to my sphere of operation (data, analytics, BI, whatever you want to call it these days).
4. Finding Hidden Correlations – this one falls more under the machine learning/data science heading, and therefore "mushrooms" into its own top ten list, so I stayed clear. Besides, I see this as the sort of thing you do since you get the "basics" mastered – which very few organizations have done at this point in time. Get your org deep into the ten benefits above and THEN proceed to the next level – but by that time, you will have already reaped MASSIVE benefits.

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Read More at: https://www.powerpivotpro.com/2017/01/ten-things-data-can-2017-aka-ten-things-power-bi-can-2017/

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