CONSIDER DATING YOUR DATA

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WHAT DOES YOUR DATA DATING STYLE LOOK LIKE?

Whether we believe matchmaking to be an art or a science, we can admit that we have some control over the outcome. Yet, we must establish good selection habits early on.

In this paper, we distinguish the difference between having:

- Chemistry,
- Complacency, or
- Compatibility

with your data.

Have we found data that is "hot stuff", "you'll do", or "ever after"?

The only way to find out is to read on!

DO YOU HAVE CHEMISTRY, COMPLACENCY, OR COMPATIBILITY WITH YOUR DATA?

Consider this. Organizations analyze their data as people analyze their dates. Sometimes, it's all about that instant chemistry, that flash-in-the-pan flavor-of-the-week, because "We have to impress the CEO," or "I need to show her that she's wrong," or "He just wants a thorough-looking report on his desk, but he doesn't want to read it." Data might fizz and pop on first acquaintance, but without context or goal alignment to offer perspective those figures feel stale and flat the morning after.

On the other hand, some people keep company with the same data for years, comfortable with the consistency and predictability, happy that nothing goes wrong even when they aren't looking. Such complacency can lead to laziness leaving organizations vulnerable to being swept off their feet by the next big thing, but love-birds and data analysts alike must be far more wary of falling for chemistry.

Chemistry is that excited, giddy feeling, that live wire connection. Unspoken and intangible, chemistry sparks passion and delight. Though chemistry can be romantic, it can also explode. When organizations fall instantly in love with their data, the danger as with our dates, is that we might overlook glaring issues, jump to conclusions, or misperceive reality and make bad decisions.

Compatibility, on the other hand, has long-term potential. Some see it as an internal checklist of traits or beliefs, a way of life or a set of core values. Determining compatibility is similar to gathering data requirements. Expectations for compatibility, as with requirements, must be relevant, prioritized, and achievable.

Compatibility can't sustain an organization if it remains an out-of-reach itemized list. Relationships with data, like those with mates, require a balance of chemistry and compatibility. Chemistry draws organizations to certain data, compatibility weeds out the irrelevant, the unqualified, and the unjustifiable. The search, whether for a solution or a soul-mate, should consider longevity – what's the life-span of the relationship? How long will it deliver long-term value?

For an organization, pursuing the wrong data can be even more detrimental than chasing the wrong date. A bad date may make or break our evening, but data can make or break a business. The ways we choose mates offer surprising insights into ways to select and analyze data and perform analytics.

BE FLEXIBLE, BUT FOCUSED

For a data analyst, keeping options open can be limiting. Loose guidelines or a lack of discrimination may identify *more* answers, but not always *the* answer. Just because someone likes blondes doesn't mean that every blonde is a potential match. The fan of blondes looks for them locally, among age-mates, or interest groups.

Workforce analytics works the same way. Organizations that want to curb overtime do not look at every single employee receiving overtime. They look for employees with high or consistent overtime, unscheduled shift overtime, or unapproved overtime. A broad, general approach that may cover all potential variables can often result in reduced precision and misleading results. For example, if an organization looks at all overtime equally, they may not notice that certain departments always have higher overtime due to the workload at this season, or that overtime among retirement age workers may rise because they want to increase their wage based pension after they leave the workforce.

Some organizations collect so much data that the variables become endless; for them, choosing where to begin measuring may become a chore. Others that use a traditional or typical set of variables, or specific analytics models or methods, may feel tremendous pressure to stick to those. "We look at headcount to measure turnover here. Don't waste time seeking another variable or running another analysis. If doing that gained us anything, we'd have done it already." Analysis takes many forms because it often takes more than one try to get things right. Do not rule trial-and-error or regression analysis out when selecting variables to solve new problems. Sticking to a select set of variables limits an organization's grasp of the past and strategies for the future.

On the other hand, chasing after junk variables – irrelevant or incompatible data – is futile. The chemistry we had with those alluring and mysterious variables may fade into meaninglessness, crack under pressure, or stifle continued growth. They don't call such encounters flings for nothing! Data, like dating, has limits; sometimes today's perfect fit is tomorrow's wardrobe malfunction. Turnover, for example, may be this financial quarter's main metric, but next quarter it will be more valuable to ensure funding for the correct cost centers. Good data analysts know when the ride is over and the thrill is gone. They can change directions or let go when necessary.

Unforeseen conditions may also change compatibility. A variable within the study may turn out to have no statistical significance, or to arise by chance. External circumstances, for example, laws restricting certain data access, audits revealing too many questionable edits by managers, or an

unexpected change to a system that retired a piece of data may change the game or alter the course of the analysis. Maintaining a control group can soften the repercussions of certain unexpected circumstances, but organizations that use continual monitoring and realignment are more likely to find that the current analytic models connect with their original requirements.

BE OBJECTIVE

As with dating, organizations are wise to define what they're looking for before they start looking. It's easy to load a new analytics module and sweep the whole organization off its feet. *Oh, the dashboards! Oh, the reports! Oh, the linkages!* Data analysts must focus on their purpose, however, and not let the glitz or glamor of the tool seduce them. Because variables often do not have an objective definition in reality, define them by how they function operationally.

For example, when measuring the effect of fatigue on workforce productivity, an analyst might qualify *fatigue* as "at least 2 errors per shift" and define *ideal productivity* as "0 errors per shift." Stating the measure upfront focuses the analysis toward producing actionable steps by the end. For example, "Shift #3 employees working more than two consecutive shifts displayed double the fatigue of Shift #1 workers. Therefore, we should consider limiting consecutive shifts for Shift #3 workers." Assuming that variables really do represent what we think they do or what we want them to represent is dangerous. Analytics dissect the situation; they deliver the full picture, not just a small and selective sampling of what we want to see.

In the dating world, this might seem like stereotyping or wearing rose-colored glasses. "Oh yes, Kevin is just like Tyler. They both grew up in the South and they are both bankers. Kevin will be good to me just like Tyler," or "Tess is nothing like Sarah. Yes, Tess talks too much, and yes, it sometimes embarrasses me at parties, but we are still together. We'll be fine."

Similar conversations can occur inside the data analyst's head: "I learned that the more absences we have, the fewer sales we make. We must hire more people," or "We installed new biometric time clocks six months ago, and now one in ten people miss a punch every week. That wasn't enough to launch any full-scale remediation training last time, so why do it now?" However, we must be aware of making unsupported generalizations and acting on preconceived notions. Sales may be

ARE YOU JUST NOT THAT IN TO ME?

Correlation does not equal causation. We've heard it a million times, but we believe this time is different. *It makes sense! It fits! I knew it all along!* And yet, *the one* is still as elusive as it was on the first date.

It is frustrating when dates don't work out, or when data doesn't produce expected results. We put forth our best effort, we had our hopes up, we were ready for an answer… But we, as data analysts and strategic leaders, must be willing to cut the line when it's dragging the organization down.

Ultimately, we want data to solve real problems. Thus, it is unfair to place unreasonable expectations on it, or refuse an answer that conflicts with ours.

down because of new market competition, or economic recession. By hiring more employees, the organization could increase its overhead without increasing sales. New or complex systems may require more employee training. Without this initial investment, the organization risks having to remove a perfectly functioning system later on.

Data analytics' purpose is not to uncritically approve initial assumptions; it is to test and validate certain hypotheses and measurable data. Even if variables correlate, correlation is *not* causation. At times, organizations believe that the data empowers an executive decision – *it just* can't *be coincidence*. Correlation may offer a reason for further investigation, but it does not demand or specify action. Maintaining objectivity during workforce analysis may be no easier than doing so when one date drenches another with a margarita during dinner.

Claire, a manager at the Mr. Fixit Automotive Shop, has had a serious problem with employees not showing up for work (no-call, no-shows). She hired each of them, all young men without college degrees. Frustrated with their lack of motivation, Claire now looks at new hires differently, ruling out those men under age 25 without a college degree.

Claire bases her criteria on observational data, collected without systematic random assignment. Such data, however, is highly subjective. Claire's analysis is flawed because it does not account for any particular conditions that might have affected these employees' reliability. She cannot simply decide that related variables constitute cause-and-effect. Perhaps some of the men had conflicting responsibilities as single fathers or full-time students; or maybe the employees do not have cell phones to call in when they have car trouble. The chemistry – that attractive, simple conclusion – blinded Claire to the complex reality, and made finding reliable new hires harder instead of easier because she ruled out such a large group of potential candidates.

Data chemistry, like relationship chemistry, can cause us to ignore glaring errors or overlook the unforgivable. When data refutes a core belief, or proves that a certain investment was ineffective, organizations often respond with inaction or denial, responses that can cripple the present and ruin the future. As with dating, it is never good for the future to ignore the facts or to continue a poor practice, even if they conflict with original expectations or short-term desires: flings rarely last. Data analytics, like dating, should seek long-term compatibility. Organizations need data that endures over time and continues to produce valuable results.

Some organizations, however, view analytics itself as just a fling, or a one-time, siloed activity, that needs neither in-depth justification nor continuation. Some analysts content themselves with merely presenting the data. They give no justification for why they chose this over that, and their metrics and analyses are cyclical or detached. "Well, we've been measuring headcount for fifteen years," or "We chose those variables because that's what the boss wanted."

Do these sound a lot like, "Yeah, I took her out last week, why not this week?" or "No, we didn't talk about our future. This was just a one-time thing." As with dating, a mentality of "it works for now" leads to complacency, inaction, and even lack of growth. It is better for organizations to push the envelope using data discovery and analytics processes. The area beyond chemistry and complacency is compatibility, a place that balances risk with prudence and fosters growth with long-term stability. Don't settle for less.

Data, like dates, don't simply adjust to our needs and wants. To make good decisions, we must include variables that may upset our original hypothesis. We can't add, subtract, or manipulate data to suit ourselves or paint a rosy picture of the future. Such actions can set up failure: what we don't see is often what we get.

BE CURIOUS

The findings of data analytics can be useless if based on untimely, incomplete, or unverifiable data. Did tonight's data really graduate from Harvard, or just a summer program? Someone who seems to know Cambridge well isn't really offering timely, complete, or verifiable data. Did "meeting the president" really mean that they saw his motorcade pass?

Missing or inaccurate information upsets all subsequent analyses. Data integrity is at the core of analytics. If we cannot validate the data we shouldn't measure it. Auditing, whether this means assessing potential maters or potential data, is always a good idea. We ensure our future and plan effectively, if we verify the data's source of truth.

Data from multiple sources requires an organization wishing to merge and filter those channels into a single, verifiable source in order to analyze the data because conflicting data weakens or invalidates the analysis. A date with a roving eye and a murky background offers little promise for the future. Constant questions about loyalty and honestly undermine commitment. We can't build relationships without trust.

This is equally true for data. Questionable data makes for risky or invalid decisions or recommendations. We have to be sure that we get valid, verifiable data from reliable sources. Snoop sometimes: the date's college roommate may know the truth. Investigate information and check your sources.

Once we validate the past, we can look to the future. The glow of instant chemistry and the desire to continue glowing can make us gloss over apprehensions. Future compatibility, however, is essential. Maybe we knew our date well in childhood, and even now, but what may change in the future? Does the past have any bearing on that? If we know past history, do we know what caused it?

Ask such questions of workforce data. A historical trend analysis on rounding abuse tells us what happened then, but it does not tell us why, nor can it predict what will happen under a new clock rounding policy. Trend analysis can show *what* happened, but not *why*. As with our manager Claire, there may often be more than meets the eye. Our first impressions seldom last a lifetime.

We must challenge our analytical models and be curious about other causes. When the tool was new ten years ago, it monitored only full-day absences. Do those models still help reach operational targets now? Looking back at what happened does not offer the competitive advantage of being able to look ahead at what could or should happen. Data analytics aren't just for urgent issues or tactical activities; they can offer long-term advantages. Lovers and data analysts alike should aim to take things to the next level.

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CONCLUSIONS

Even people who both like Indian food or "The Twilight Zone," may not mesh in a valuable, long-term relationship. The same goes for data and management: analysts can have a hunch that younger employees show up less often to work, but then analyze only some variables. They likely assume such weak correlations as "younger employees in sales are more likely to be absent than older employees in operations." These findings, however, don't really enable any justifiable or beneficial action. The chemistry between the variables begs our attention, but compatibility is just not there. We can't remain complacent just because it's easier; but we also can't fall for the data we can't have. Compatibility requires a concerted effort, and a commitment to the long-haul.

One bad date shouldn't end our quest, just like one bad analysis shouldn't preclude taking a different approach. Data, like dating, depends on reaching the right balance between chemistry and compatibility.

"Duty makes us do things well, but love makes us do them beautifully."

Phillip Brooks, as quoted in *Primary Education* (1916) by Elizabeth Peabody, pg. 190.

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