



The power of trust in analytics

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Introduction

Today, complex analytics underpin many important decisions that affect us as individuals, as businesses and as societies. Indeed, the promise that emerging artificial intelligence (AI) offers for better, faster decisions is driving rapid investment in all business sectors, from micro-targeting consumers, to risk assessments, to self-driving cars. Yet, with so much now riding on the output of data and analytics (D&A), significant questions are starting to emerge about the trust that we place in the data, the analytics and the controls that underwrite a new way of making decisions.

At issue is that only a few organizations are currently thinking about 'trust' in their D&A. For those that are, the concept tends to be quite narrowly focused on accuracy, reliability and security. But with complex 'black box'¹ analytics, how do we know that a result is *right* or that automated decisions are doing *the right thing*? What does *right* mean? And to what extent does it matter, and who is the judge? Trust is a growing issue as analytics goes mainstream, not only across most sectors but also for regulators, policymakers and those who safeguard consumer rights.

A new, heightened focus on trust is emerging and — as algorithms begin to make more decisions about, or on behalf of, people — will quickly become a defining factor of D&A. There is increasing recognition that the stakes are rising. Analytics have increasing financial power and are not guaranteed to be politically or morally neutral. Those who can manage trusted analytics will move forward with confidence, both in their decision making and their customer relationships.

In this, the first of an ongoing series of articles on the power of trusted analytics, we explore some of the critical questions and challenges emerging around trust such as the customer view, trusted data science, policy and regulation and cyber security, among others. It is our intention to drive forward a dialogue that — we believe — will come to define D&A in the age of the analytical enterprise.



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Trust (noun) \ˈtrəst\

— assured reliance on the character, ability, strength, or truth of someone or something

Merriam-Webster

¹ 'Black box' refers to "a complex system or device whose internal workings are hidden or not readily understood", *Oxford Dictionary*

Trust. Front and center.

Business decision-makers today understand that well-designed algorithms almost always make better and more accurate decisions than humans alone. But as data and analytics become more complex and opaque, the scope for poor design, errors, underperformance, misuse and unintended, sometimes exploitative consequences increases.

Most people — from board members to consumers — have a similar instinct for what trusted data and analytics means. *Are the data and the output correct? Is it used in a way that I understand, by people I trust, for a purpose I approve and believe is valuable to me? Is it used for only this purpose, and how would I know if it isn't, or if something is going wrong?* But these questions can be hard to answer, and there is no standard framework for assuring the answers.

The value of trusted analytics also varies enormously according to the context. For example, if an online retailer recommends an unsuitable product, it is unlikely to matter much to the consumer because she would simply not purchase it. If a medical algorithm recommends a sub-optimal cancer drug, it matters tremendously. And, if an algorithm causes a disruption in a financial market, the impact could trigger global economic effects. Yet, until now, such questions about the value of trusted analytics have largely been the concern of a few high-tech companies and organizations operating in a limited number of high-performance, high-risk industries. Today, we all need to pay attention.

Regulators are particularly concerned. In part, this is because they (rightfully) view themselves as the ultimate protector of consumers and

consumer safety. Misuse of consumer data or outright abuse of analytics only increases the concern — and, ultimately, the potential and likelihood for regulatory oversight.

Trust is also moving up the agenda because of the rapidly-changing nature of D&A. In part, this is because regulators recognize that the analytics *ecosystem* is becoming increasingly complex as more players and third-party providers start to play a role in the value chain. Yet, trust in one organization, relationship or brand is not enough to give assurance. Distributed innovation — which essentially democratizes the power of analytics — is also catalyzing new concerns about who exactly controls (or has access to) our data and analytics. Simply put, transparency becomes weaker rather than stronger in the new environment.

“The ‘black box’ of analytics is becoming bigger and blacker, the data that is going into the box is becoming more complex, and the decisions that are being made based on the box are becoming more impactful. Executives and consumers must be able to trust the black box.”

— **Sander Klous, Professor of Big Data Ecosystems, University of Amsterdam and KPMG Managing Director, Big Data Analytics, KPMG in the Netherlands**



“If I can call up my smartphone’s personal assistant with a simple verbal greeting, does that mean that this assistant is always listening to me? And if so, where is that data going and how long is my smartphone provider keeping that information? These are questions that consumers will be starting to ask as they become more aware of the value of trust.”

— **William Nowacki, Managing Director,
Decision Science, KPMG in the UK**

The nature — and value — of trust

Trust is a rather difficult concept to pin down. It’s even more difficult to measure and quantify. What exactly then is the value of trusted analytics? Will organizations that have earned trustworthiness achieve better results, build better relationships or make better decisions? When consumers are involved, the absence — or loss — of trust can clearly have a major impact on the success of a brand’s reputation and sales performance. Anecdotal evidence over the last few years suggests that data breaches of some of the world’s leading retailers which exposed millions of shoppers’ payment cards had a major impact on brand reputation and in some cases, financial results. Yet many consumers remain ignorant or ambivalent about how most organizations use their data.

Most businesses have little incentive to be transparent about how they gather and use data, beyond basic compliance with regulation. *Good behavior* by businesses does not always pay — it is easier than ever to use data and analytics in ways that are not always in the best interests of the consumer.

Consumers are only now starting to become conscious of the value of trust in sharing personal data and the increasing possibility that data could be exploited. Few consumers truly grasp the power their data commands and, as a result, are unable to accurately gauge the value they should place on sharing it — or the penalty they should mete out for low transparency, or if their trust is broken.

As consumers become more aware and comfortable with their inalienable power-position, the value of trust will increase and will likely become more tangible. For example, automotive insurance carriers in several countries now offer motorists a chance to save on premiums if they agree to have a diagnostic device installed in their vehicles to monitor proper driving behavior. In this case, giving up a bit of one’s privacy in exchange for the chance to save on auto insurance seems like a good deal to many drivers.

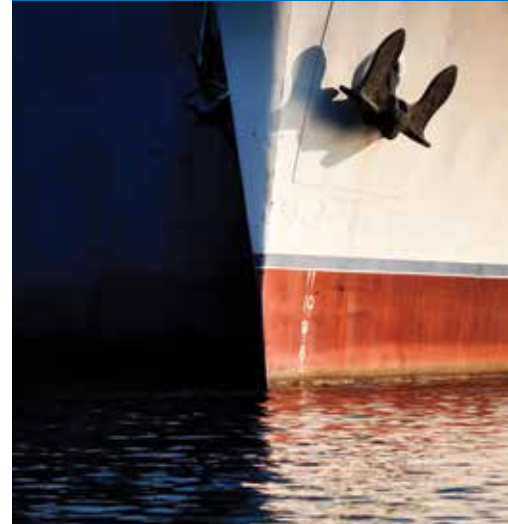
Closing the trust gap: the four anchors of trust

How then could the analytical enterprise assure trust throughout the analytics lifecycle amid an increasingly complex ecosystem? We believe that trusted analytics is founded on four key anchors. The first relates to **quality**; simply put, are the fundamental building blocks of the analytics and data management processes good enough? This includes practices related to the accuracy, provenance and 'freshness' of data (nobody wants to receive an offer that is evaluated on personal data that is out of date). In many organizations, questions will be raised about data 'lineage' (i.e. where the data originated and what process it took to arrive at the analytics machine). Data consistency and completeness are also key considerations when it comes to data quality.

The second anchor is related to **accepted use**. Organizations and analytics experts will need to clearly understand if the intended analytical approach is appropriate to the context in which it is being used, as assessed by experts in the field. Crime statistics, for example, could be used as a proxy for economic vibrancy in a specific geographic area, but only if the right statistics are being leveraged and in the right context. Organizations will also need to ensure that the way they manipulate the data is appropriate and defensible. Knowing when and how to appropriately apply data and analytics to various scenarios is key.

Once assurance is established in the first two anchors, executives and analytics experts will need to ensure that the analytics *work* and achieve their intended purpose — that the **predictions and insights are accurate** and reflect reality — the third anchor of trusted analytics. For example, the financial crisis of 2008 was exacerbated by predictive risk models which were seen as technically *correct* and accepted by experts but failed spectacularly in their intended purpose. Making decisions or targeting consumers based on inaccurate predictions will quickly erode, if not extinguish, consumer trust and shake the confidence of those executives who rely on these predictions to make informed decisions.

Finally, organizations will need to ensure that the way they are using the data and the ensuing predictions is ethical and managed with **integrity**. Major concerns are already being raised about lack of transparency and discriminatory data use (for example, if crime data is used as a proxy for race). This is an area of great uncertainty and rapid change, with enormous potential reputational risk. Legislation and regulation are likely to come fast and furious.



Implications for the analytical enterprise

Addressing and assuring trust in analytics is not a one-time exercise or a compliance tick-box; it is a continuous and holistic endeavor that must span the entire enterprise. From the sourcing and preparation of data through to the outcomes and measurement of value, assuring trust in analytics requires a full lifecycle view of analytics — from data through to insights and ultimately to generating value.

It also impacts and influences multiple aspects of corporate management. New assurances of trust will need to be embedded into the way organizations approach talent management, compliance, sourcing and strategy development. And, as trust becomes integral, organizations and executives will need to regularly re-evaluate their approaches and controls; simply put, it is not clear what new and innovative uses will be assigned to D&A in the future, so it is not clear how the trust paradigm will change over time. But it will indeed change, therefore vigilance over the anchors of trust will be key.

It's time for immediate debate

We believe that trust in analytics must be addressed immediately if society, governments and consumers are to fully reap the benefits of analytics. This is a 'Big Society' issue that carries massive business-level implications. It cannot wait for regulators to step in or for a major issue to force legislators to take control.

Clearly, the eventual approach to driving and engendering trust will vary by industry and by context. Those that manage personal health information or financial data will need to move faster, and be more rigorous and more transparent than, say, those in resource extraction. There will not be a one-size-fits-all solution or approach.

Exploring the scope of challenges

Debate about the notion of trust in analytics is already underway, largely in the academic and policy arenas. But businesses and consumers will also need to play a role, particularly if trust concepts and controls are to be properly operationalized and embedded in practice.

The Trusted Analytics article series will examine some of the biggest challenges pertaining to this issue — not only to further the body of knowledge but to drive a thoughtful discussion on the implications of trusted data and analytics. Throughout the series, we will hear from KPMG professionals across our audit, tax and advisory practices who will share their experiences, insights and new ideas based on their experience in this area. Join us in the discussion on Twitter @KPMG.



About Data & Analytics at KPMG

Data and analytics (D&A), at its core, is a new way of solving problems with insights and innovation. Data sources are exploding, and businesses need to turn data into insights and value. Our D&A strategy focuses on understanding the overall data landscape and getting to the heart of your problems so that our member firm professionals can help solve your most pressing growth, risk and cost concerns.

Across sectors and countries, through our Tax, Audit and Advisory services, we can help you gain new insights to remain competitive and relevant. With 4,300 KPMG specialists across the globe focused on delivering D&A capabilities, we believe that KPMG member firms are uniquely placed to solve your biggest business issues and generate real value for you, your company and your shareholders.

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