TreeHive Strategy

Ten questions to assess your culture of analytics

Enable your technologies, teams and tactics to work better together.

Ten questions to assess your culture of analytics

> The human and organisational aspects of data management are just as important as the technologies.

Businesses today often strive to be data-driven, but a lot of hype surrounds that term. Do we mean automated decision-making, powered by algorithms and self-executing workflows? Or are we talking about executives using dashboards and visualisations extensively in their strategic and tactical meetings?

You may find it more helpful to look at your use of data in a different way. Rather than evaluating your technical architecture or your tools, you can consider your culture of analytics: the attitudes, practices and often unspoken assumptions that influence your application of technology.

This approach is especially useful for companies starting out on a path of digital transformation. You may be excited by the impact of advanced capabilities like preventative maintenance on day to day operations. But you also need to understand the culture of the impacted teams (such as the maintenance team and their spare parts supply chain), and whether they can cope with this change.

In this white-paper, we set out ten questions to ask of your business and IT practices. Your answers should help to assess if you are making the most of your current analytics, and if your roadmap for the future will be effective. The questions probe your teams skills, data governance and your approach to new technologies.

Are you focussed on decisions?

Before analysts and marketers coined terms such as Business Intelligence or Data Discovery, there was a common term for software which helped with business insights: the Decision Support System. In some ways, it is still a better name, because it tells you clearly what the software does. It supports you in making decisions.

It's easy to forget that all our dashboards and reports exist for this one purpose: to pull together the background knowledge, the current information and the business insight we need to make better decisions.

When designing our BI and analytics experience, it really helps to first understand the decisions that users will make when working with a particular dashboard or report, especially those users who are closest to the point of business impact. Are they getting the right information, at the right time, in the right format to be useful?

Trying to support too many different choices with one screen of information can lead to a confusing, unhelpful experience. But equally, if the information is incomplete or out of date, business users can be frustrated.

So the most critical step to take in dashboard design is not preparing the data or choosing the best chart. First, you must model the decisions that impactful users will make.

Do you use visualizations to provoke questions rather than illustrating answers?

Of course, once the purpose of the dashboard is clear, choosing a good visualisation is important. Books and training courses can give a lot of help in how to choose a chart format that clearly and accurately shows interesting or useful patterns in your data.

Creating good visualisations is a critical skill for analytics teams, and choosing a tool with the right capabilities for your business is a serious decision in itself. However, how you use visualizations is just as important as how you create them.

Very often we see charts used just as illustrations of a particular point, perhaps that one region is growing more quickly, or that some products have only a small share of the market. These static visualisations are commonly used in presentations and reports and can be useful there.

The trouble with static charts is that they really only answer one question. If you want to know why that region is growing, or if products are increasing or declining in share, the static format cannot help you. For these scenarios you need interactive charts - where new selections can change the view, or highlight new insights. When you use charts seriously, the new questions they raise are as important as the answers they give.

The need for both traditional reporting and rich, interactive visualisations can too easily lead to a complex IT architecture with multiple tools. Today, there are many platforms offering integrated solicitors of reports, dashboards and interactive visualisations that cover more business user scenarios and greatly simplify IT's administration.

Browsing through results is a more efficient way of finding information than trying to write the one best query.

Do you support browsing or querying?

This question of interactivity affects all your BI experiences, not just visualisations.

Think of using a search engine, such as Google or Baidu. You could use the advanced operators - such as +/-, ( ), AND, OR - to narrowly define what you are looking for. In effect you create a query to get a specific result back.

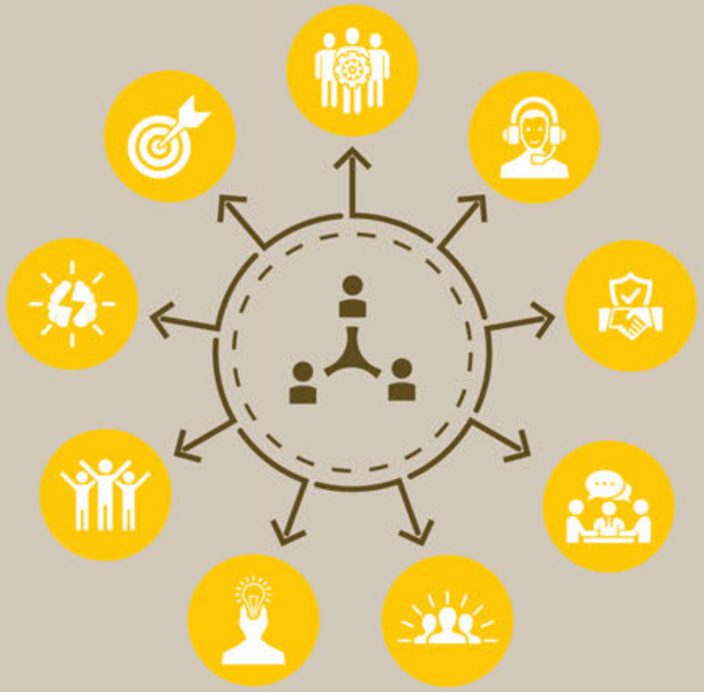
However, most of us don't use the internet like this. Instead, we enter a quick phrase or keywords which come to mind, and then use the search engine interface to browse our results. Often, we will change the phrase or keywords and try again.

This is actually a more efficient way of finding information compared to trying to write the one best query. You'll likely find good results near the top of the rankings. But there's also a good chance you'll find something surprising: a useful result that you would not otherwise have seen.

To make this possible, your analytics platform must enable some key features to make it effective. The system must be able to work with very large volumes of data, because that's where the new discoveries may lie. And users need results quickly, so they can iterate through new ideas.

With these capabilities in place, your analysts will find browsing as powerful and efficient as searching the web.

However, to support these new ways of using data, you also need a data platform that can quickly deliver new subsets of data, well governed and with useful metadata. You will want to ensure your analytics platform provides a scalable infrastructure to drive these complex, constantly evolving, use cases even with streaming or real-time source data.



Do you think data is objective?

The statistician W. Edwards Deming, had a saying that has become well known. Without data, you're just another person with an opinion.

This shows very well the trust that technical thinkers have in the power of data to be objective. It is easy to make mistake here, however. You might think that because you have data, then you will make unbiased decisions.

Sadly, that is simply not true. Human beings all have a wide range of cognitive biases which influence our understanding. We are influenced by what we have seen most recently, or by strongly negative information, or by a fear of risk. Even our personal feelings - are we happy or sad, fearful or positive - can change the way different people look at the same data.

In these cases, it's not necessarily that the data is invalid, it's just that as humans, our interpretation is always influenced. You could say, even with data, you're just another person with an opinion.

So what can we do to be more objective? The best way is simply to make sure you have more opinions! Teams collaborating on data and decisions will have different backgrounds, more insights, and varying perspectives. They will also have different biases!

Enabling collaboration - and debate - is the best way to tackle our subjective biases.

Have you built a community for collaboration?

Platforms for team collaboration are a popular and growing category of business software. Some are focussed on chat-like messaging systems, others are built around commenting on documents. It is very likely that you use one or more of these collaboration systems regularly. Do you find them effective?

If your team collaborates well, it's probably not because they have good tools, but because they feel a shared purpose and a shared interest in the work they are doing. They feel like a community of users, working towards the best results.

Collaboration software can help this community to be more efficient, but generally the tools are not helpful in building the community. Most team platforms enable you to easily invite others to the conversation or comment thread. However, this often leads to a number of problems. You may have people who don't really share a sense of purpose or motivation around the topic you are working on. Or you may have too many people or too many topics, which dilutes the discussions.

More than choosing the right platform, creating a collaborative culture requires you to carefully encourage a shared sense of purpose. With a healthy community of interest, only then will the right tools help.

Do you have a process for data governance?

As the use of BI and analytics increases in your organisation, and as your collaborating community grows, you will soon need to turn your attention to data governance. The aim of data governance is to ensure that you have the right levels of security, that you treat data with due concern for privacy, and that you are compliant with regulations.

These regulations may be external - laws, or industry certifications - or they may be internal. Either way, it is difficult to be in compliance without good governance of your data.

There is, however, an important aspect to this challenge which some people find paradoxical. Good governance is not about results, it is about process. It's not about making the right decisions, but about making decisions in the right way.

Sometimes, especially under pressure, it may be tempting to take shortcuts or to loosen some data governance controls just to get the job done. Perhaps you give data access to a wider group of people than really needed for a particular decision.

Hitachi Vantara's Pentaho solution is an example of a platform providing tools for data managers to be best flexible and well-governed. Too often, without these tools, data managers are not careful enough to ensure private data is not hidden or removed from data extracts.

A well-defined data governance process not only makes it more difficult to take these shortcuts: it also encourages a culture of analytics which is responsible and ethical.

Do you think of data preparation and analysis as separate practices?

One of the implications of a platform like Pentaho, is that it enables a more practical, realistic approach to data sharing across organisational boundaries. In many companies there is a clear demarcation between teams which manage the data lakes or warehouses, and the teams which analyse the data and build the Business Intelligence artefacts such a dashboards and reports.

Between these two practices there may be another team - or at least another set of tools - focussed on ETL and other forms of data preparation. However, it is often inefficient and clumsy to organise your work in this way. The truth is that data analysis and data preparation go together. In order to prepare data for analysis, you must have a good idea of how it is going to be used. Only then can you ensure it is in the right format, has the right level of detail and is updated at the right frequency to be useful.

And when you are analysing data, very often your insights include revisiting the data preparation. For example, you may decide to group customers together into demographic groups which requires some pre-processing. Or you may need to filter out certain anomalous high or low values which affect your analysis.

Creating artificial boundaries between teams can lead to missed opportunities, and often to the kind of governance problems we discussed above.

Are you ready for data science?

Data science is a hot topic today. And data scientists are in high demand, with salaries to match. As a result you may feel that predictive analytics, deep learning and other advanced topics are out of reach for your business, even though the potential is exciting.

It is certainly true that today it is difficult for many companies to build the right data science teams. However, there is good news. University courses focussed on advanced analytics and deep learning are oversubscribed in every advanced economy. In a few short years, there will be an excellent supply of well-trained data scientists ready to transform the world of business.

These young technical experts will, however, lack one important element critical for success. They will not have the business experience to apply their knowledge in the best way. Nor will they know how to bring their models effectively into the corporate data pipeline. Yet this step is essential to enable insights to be distributed to the most impactful users.

So, once your business starts to adopt data science you will need to build a collaborative team - an analytic community - that includes your business experts and your data specialists. For this community to be effective, it will be helpful for them to have at least a shared understanding of what is possible.

Luckily, there are a wide range of online courses, many from excellent universities, which provide carefully structured introductions to data science and advanced analytics.

Even if your data science project is in the future, it is a good time now to develop some of the skills your business team will need.

> As predictive analytics becomes an everyday part of business, we must be able to handle its uncertainty.

Are you comfortable with ambiguity?

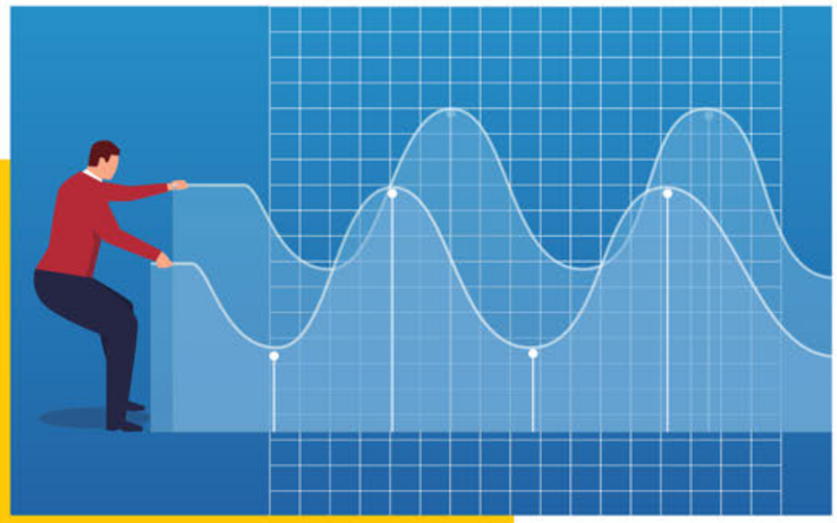
Earlier we discussed how cognitive biases can affect our understanding even of carefully prepared data. One common bias is that humans are quite uncomfortable with ambiguity. We prefer clarity and precision.

This is, in fact, a problem when we adopt machine learning or predictive analytics because no algorithm is exact and many predictions are uncertain. A sales forecast is more like a weather forecast than an exact science.

There are several approaches to handling ambiguity which can help. The most important is simply to start communicating the uncertainty in our work. Rather than just giving a single number for a quarterly sales forecast (sometimes correct to the last cent!) we can give a number rounded to a suitable degree and with an upper and lower prediction and a sense of the probability of the forecast being correct.

Even when using simple statistics, such as averages, we should also at least include a median value and standard deviation, so users can get some sense of the distribution of values.

In short, we can become more comfortable with ambiguity taking advantage of it. This is critical, because as predictive analytics becomes an everyday part of business, we must be able to handle its uncertainty with better insights.



Can you automate your decisions?

We started our discussion of these ten questions by encouraging you to focus on decisions.

Some decisions in business - especially questions of strategy - include a great deal of complex information about markets and trends and competition and economics. There may be more variables than we can even identify. This is where human beings still have an edge over any artificial intelligence. We can work with our hunches, with our hopes and aspirations too.

However, many business questions can be answered quite easily with the right information available, so long as we are prepared to manage the risk effectively. This is why today you may apply for a bank loan or insurance online and get an instant, automated reply. An automated system, with good data and an effective predictive algorithm can make those decisions quickly and efficiently, within a measured amount of risk.

Have you considered which decisions could be automated in your business? They should be questions where the answer is always the same, given the same inputs. Ask yourself the question, what should I always do? The answer will guide you to automation.

Conclusion

As you can see from these ten questions, the human and organisational aspects of data management are just as important as the technologies. Assessing culture is not as easy as just checking boxes or counting features. Nevertheless it is worth taking the time to reflect on your teams' use of their existing data and tools, and their readiness for future developments. This is why we emphasise a culture of analytics which take account of these interlocking needs.

An organisation with a healthy analytic culture and a clear architecture will always have a clear advantage over an organisation with too many tools and too little insight.

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Globally recognized as a visionary Product Leader, sought after speaker, patent holder and author, Donald has led product strategy and design teams for industry leaders Microsoft and Qlik, numerous startups and mid-stage companies.

His track record of success that includes leading transformative product management at Microsoft including Integration Services, Data Mining, and PowerPivot. At Qlik, a radical product strategy helped drive a 3.3 billion dollar acquisition. While Donald was VP of Innovation and Design, Qlik was ranked in the Top 10 Innovative Growth Companies in the world by Forbes.

Through TreeHive, Donald builds on his experience, personally driving business transformation with senior leaders in global companies. The focus is on visualization, analytics and AI strategy as cornerstones to unlocking innovation.

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