

Why Dashboards Are Not Enough and Why We Need Analytics

March, 2018

Making Sense of the Data Deluge: Analytics Tools Under Scrutiny

Analytics in the Age of Digital Transformation

Enterprises are already collecting huge amounts of data. But this data deluge is nothing compared with the tsunami that will hit us with the internet of things. An increasing number of machines and devices will be interconnected and equipped with sensors. Data volumes are exploding. Naturally, the captured information contains a lot of "white noise". Analytics tools help you separate the critical signal from the noise and enable you to make sense of big data. The question is how to find the right tools for the job? How can you gain insights that lead to the right decisions and eventually contribute to the bottom line?

Based on our practical experience, this white paper provides an overview and shows what a company should look for when trying to build applications and analytics interfaces.

Different Analytics Tools for Different Jobs

Below we will show you which tools should be considered for which requirements and tasks.

Query Tools

All data collected in an enterprise end up in databases. Often multiple systems cater for the different business units like manufacturing, finance, sales, etc. Hence the first question you need to ask when building an application is what data will be required for analysis. Databases are built using a specific schema designed for fast and powerful processing. As a result data is stored in such a way that business users cannot simply retrieve it. For this you need special query tools or languages (SQL, ABAP, etc.) that are reserved for the use by experts only. Furthermore the value of analyses increases when data from multiple sources is combined. The tools of choice for the company's business users and decision makers are quite different ones.

Ubiquitous Excel

Many companies are still relying on Microsoft Excel. That comes as no surprise as the software is virtually an intrinsic part of every computer workplace and it is easy to use – at least initially. Therefore it suggests itself to use Excel at department level even if the result is a data silo that will eventually reach its limits with growing complexity and data. A

data scientist needs to tread carefully here as many Excel fans are extremely fond of their worksheets. If you want to eliminate these data silos you either need an analytics tools that can integrate the popular Excel environment or you need to present such a compelling alternative that the benefits of the new interface are so obvious that everybody is excited to try them – or both.

Standard Reports: Routine Perfectly Formatted

Tools that are dedicated to reporting only are a rare commodity today. Nowadays reporting capabilities are one of the components of a business intelligence system or come as modules in analytics tools. Enterprise applications like ERP, CRM or SCM systems also include reporting functionalities but in most cases these fall short of the users' expectations.

Reports are ideal to aggregate results that are regularly needed and compiled using the same rules. You can of course print reports and easily distribute them via email or as PDFs but their biggest plus is the automatic generation and distribution to the recipients. There is only one problem: depending on complexity and content, reports can become so big that you can hardly analyze them anymore. In that event you need to assess which content is suitable for a report and when and which user community needs a different solution for gaining insights.

Visualizations: a Picture Is Worth a Thousand Words

Visualizations are the answer to endless columns of figures and 100-page reports. They are perfect for human consumption as we can conceive images better than any other form of information presentation. Visualizations cannot only draw your attention to important points they can also show a lot of information at a glance. From simple bar and pie charts to bubbles and speedometers to complex tree charts: today's visualizations leave nothing to be desired.

Combined with tables, visualizations can provide the perfect information mix of eye catchers and details. The variety of display options comes at a price though, as it is easy to fall victim to the possibilities. The choice is huge and you need to concentrate or you have chosen the wrong chart type for your data selection. Furthermore you need to bear in mind that the diagram should never steal the show and that its only purpose is to present your results in a clear, easy to understand way. Going overboard with effects like 3D, shadows, gradients, etc. impairs legibility or may prevent the recipients from reading the results at all. In that case the information value of the visualization is reduced to almost zero and it misses its ultimate objective – the compelling presentation of facts.

Meanwhile various universities are conducting studies on the best way to present visual information and experts like Stephen Few, Edward Tufte and Dr. Rolf Hichert have formulated International Business Communication Standards (IBCS) as practical proposals

for the appropriate design of business communication. It remains to be seen if this rather minimalistic approach will be accepted and adopted.

Dashboards: Love at First Sight

In the age of smartphones and tablets, dashboards are the ideal medium to prepare data for quick consumption since tables and report pages can never be displayed fully and legibly on small screens. Cockpits, speedometers, thermometers and gauges in traffic light colors red, yellow and green send out a clear message and show at first glance if everything is fine or not. Especially senior executives with tight schedules love the quick look at mission-critical KPIs and summary level results. It's not for nothing that dashboards are often referred to as "management dashboards".

Obviously good dashboards are interactive. That means they react to the entries of their users who can select another region, product or metric just by clicking or tapping. Dashboards also offer what-if analysis and enable users to conduct basic predictive analytics.

Dashboards are the stars of every PowerPoint presentation – but just as a starting point and to prepare the ground. They are not named after a car's dashboard in vain. Their sole purpose is to offer a quick overview over key data like speed, rpm, fuel reserve, etc. In analytics, dashboard users are presented with an aggregated, current view of their KPIs. What they do not learn is why e.g. the sale of apple juice dropped last month or why the costs of a project have suddenly gone through the roof. Further reports or additional, new dashboards are not the solution. To be able to get to the bottom of these discrepancies users require details. They need to be able to discover relationships and understand cause and effect. They need proper analytics.

Analytics: Discover Opportunities and Issues Early

Good analysis – and a good analytics tool – combines all aforementioned capabilities and more: Users get answers to the "why" question and are empowered to make fact-based decisions. Analytics bring order to data chaos, lay the foundation for actions and initiatives and drive success by monitoring all activities.

Ad Hoc Analysis: Always on Track Without a Pre-Defined Path

Reports, visualizations and dashboards are just the starting points of an analysis. And you have to keep in mind that the users should be able to spontaneously follow-up on any issues and navigate the data in any direction until they find the root causes of outliers. As even the best data scientist cannot anticipate where such an analytics journey may be heading, easy-to-use, intuitive, ad hoc self-service analysis is a must. Reports are reserved for standard results but the actual analysis needs to be free.

Drilling Down, Up and Across

The users navigate data using the various "drill" functions. Drilling down into raw data may clarify which product is to blame for the drop in sales. Drilling up can help users to understand the impact of a change on the bottom line. A drill across reveals whether our apple juice is performing badly in other regions or months as well.

100 – or Context Wanted

Another important factor of an analysis is context. In itself, the figure 100 does not carry much clout. Only when you know the context you can assess whether a result is good or bad. Lowering costs by 5% can be excellent news but when you later find out that the other business units saved 10% or more, the joy about the supposedly good result is put into perspective.

To be able to assess the true value of a result, the users need to be able to make comparisons – with other products, regions and time periods. This is the only way to find out that e.g. the sale of apple juice has always been poor in December and management can ponder if they want to accept that fact or if they want to do something about it. At this point you will eventually find out if you have made the right data selection because only by combining multiple sources data can reveal its full analytic potential.

Just in Case: Comments

In reports, tables, maps or even in dashboards, some results simply cannot be explained by other figures. If you do not want to wait till the recipient calls you and asks, use annotations/comments. This function enables you to describe data, explain results and join the dots without the dashboard user having to wait or look in vain for clarification. Therefore it is essential for an analytics solution to contain a commentary function. But comments can do more. They are also ideal for discussions where every user enters his point of view or her ideas regarding a certain result thus facilitating joint decisions. This way decisions also become transparent.

What Analytics Tools Should Also Offer

The suitability of an analytics tool depends solely on a company's requirements. Needless to say that the solution should be powerful and easy to use. Any tool that requires more than a short instruction is destined to a lack of adoption. Every application that does not cater for the demands and expectations of its users will have difficulties to succeed in the long run.

Analytics tools that rely on a central database can join and unify the data from disparate internal and external sources at one central location, thus creating a centralized, consistent single version of truth for all decisions. It also pays to select a software that offers an Excel or Excel-like interface. That way the Excel users can work with their familiar tool without putting data consistency at risk.

Whether you chose a software that offers in-memory analytics or select a solution that stores analysis-ready data in an OLAP database and/or data mart, lake or warehouse, eventually all will depend on the complexity of the existing infrastructure and the deployed enterprise applications. In all cases a meticulous analysis of the requirements is crucial to make sure that all important data will be included and no sources have been overlooked.

Another important selection criteria is reliable vendor support. Your projects will benefit if you can call upon external expert support whenever you need it.

Conclusion

In times with ever increasing volumes of data powerful analytics tools are a must. How else would you be able to find the signal on all that big data noise? The tools that are available on the market today focus on distinct capabilities and many companies concentrate on data visualization and dashboarding. But dashboards can only show you the current state of affairs and not how and why it happened. For this you need in-depth analysis to explain the causes, detect opportunities and issues, discover relationships and deliver the insights that lead to good decisions and successful actions.

For more information on this topic please contact:

Michael Mühlana
Business Development
michael.muehlana@cubus.eu
Phone: +49 (0) 7032-945163