BREAKING THROUGH

THE ANALYTIC LIMITATIONS OF ACCESS® AND EXCEL®

LAVASTORM analytics

OVERVIEW

Although they are often a cornerstone of a company's analytic toolkit, tools like Access® and Excel® are designed for data storage and basic analytics, not for creating the complex analytics that are required by today's fast-moving businesses. New technologies can help organizations move past the analytic limitations of Access and Excel, especially when dealing with the demands of processing more data, and making analytics available to more decision makers and stakeholders – all at greater speed than ever before.

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In order to compete, organizations are relying more heavily on analytics to improve business performance.

BUSINESS DEMANDS ARE DRIVING THE NEED FOR MORE SPECIALIZED ANALYTIC TOOLS

Many organizations are using standard relational databases, such as Access and Excel, for analytics. Because of their wide availability, these products have historically represented the core set of technologies on which organizations manage their business. However, these tools are often inadequate to tackle the analytic challenges that most successful businesses face today. In order to compete, organizations are relying more heavily on analytics to improve business performance. So, businesses must contend with:

- MORE DATA – Business improvements require analysis of more data from more disparate data sources in many different forms, including data from different departments, systems and even from other businesses, such as partners, suppliers, and third-party information providers.
- MORE SPEED – Business turnaround time must be faster than traditional IT-led business intelligence initiatives can support.
- MORE CHANGE – A dynamic business world brings new data sources, relationships, competitors and risks.
- MORE STAKEHOLDERS – More decision makers mean more business questions, forcing IT to turn from data owner to enabler.
- MORE TRANSPARENCY – Processes need to be auditable, traceable, and enabled by transparent logic. Transparency allows analysts to know where the answer came from, how it was arrived at, and which data was used. This allows analysts to ponder how they can continue to model or ask more questions with ad-hoc modelling and analysis.

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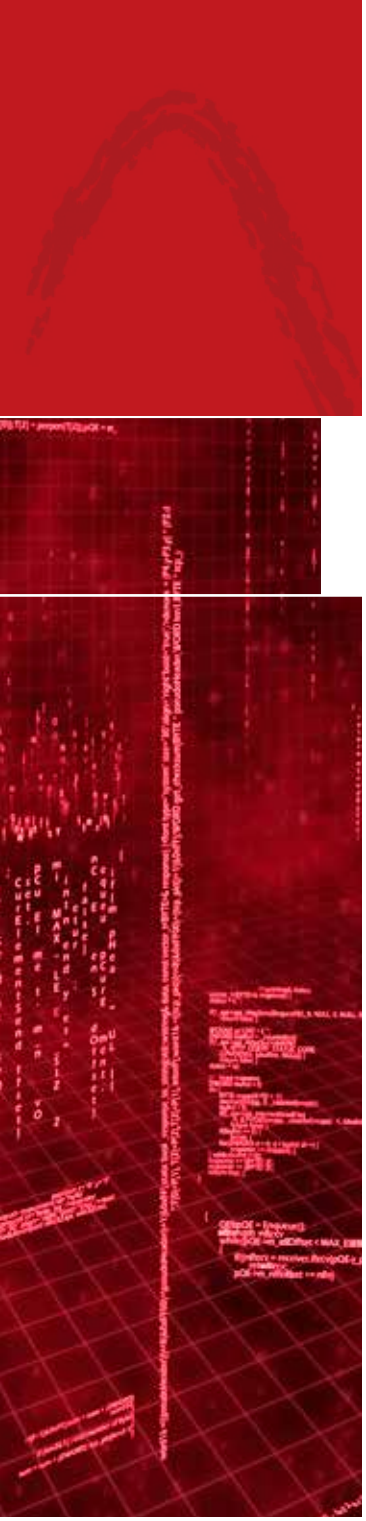

LIMITATIONS OF ACCESS

Access falls short of meeting today's analytic challenges because it is designed around a relational database structure that does not lend itself to today's fast moving, ad-hoc analytic environment. Relational databases, such as Access, are designed for storage, reporting, and simple queries, and have the following analytic limitations:

- **TABLE STRUCTURE LIMITS FLEXIBILITY**
  Instead of thinking about the analytic problem at hand, analysts are forced to view the problem in terms of a complex collection of tables. Tables impose a rigid structure that blocks visibility of the data and imposes high overhead for even small changes. In some cases, if analysts want to add a new data source to an analysis, they may need to tear down the original structure and rebuild it to take into account the new requirements. Tables also have a size limit (2 GB for Access) that creates a ceiling in terms of the amount of data an analyst can consider. If an organization comes close to the ceiling, performance will degrade quickly, data will have to be divided up into less logical chunks and queries will have to be restructured.

- **QUERY INTERFACES ARE EITHER TOO SIMPLISTIC OR TOO COMPLICATED**
  Access offers Expression® Builder, which limits the analysis of complex expressions and does not allow managers and analysts to have free-form exploration or discovery capabilities. This discovery is a critical analytic technique used when analysts are trying to identify root cause, or where investigations require a long sequence of queries.

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Storing analytics-level data in Access means that, each time users update their reports, they must manually repopulate the data.

- DATA MODELLING CREATES A DILEMMA
  One of the major limitations is the need to create a data model reflecting the relationship between all of the different tables. This is time consuming and difficult. Like the table structures themselves, it is essentially creating a rigid structure not suited to changing business requirements. When it comes to the success of an analytic project, this hurdle causes most analysts to stumble. Building the data model presumes that analysts know all of the questions that will be asked of the data set. However, they usually don't know which questions to ask until they have built the data model.
- ANALYTICS DATA NEEDS TO BE MANUALLY REPOPULATED
  Many Access users store their analytics-level data in Access, so they can build business intelligence reports on top of the data. This means each time they need to update their reports, they must manually repopulate the data.
- LACK OF DATA MANAGEMENT
  As the volume and complexity of data inevitably grows, data management becomes critical to ensure high, quality, dependable data. With Access, it is difficult to put the proper policies, practices, and procedures in place to manage the full information lifecycle needs of an enterprise.

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LIMITATIONS OF EXCEL

Excel is a workhorse for many business professionals, but sometimes it does not fit into a modern, evolving, ad-hoc analytic environment. Excel is designed for storage and calculations and has several limitations when it comes to analytics:

- PERFORMANCE CAN BE SLOW
  Most Excel-based attempts at analytics make extensive use of devices like pivot tables, which can be very slow, especially with complex logic and/or a larger numbers of records. Excel spreadsheets can become so big and complex that the calculation/ re-calculation time can take hours.
- FILTERING CAN BE DIFFICULT
  Conditional logic is difficult in Excel. Take a large spreadsheet and apply several filters to the data and it can get to the result, but it is neither repeatable nor transparent.
- MACROS ARE NOT TRANSPARENT
  Some Excel users will create applications in Visual Basic™. However, these macros are frequently inefficient and buggy. This becomes even more evident when working with large data sets. These Excel macros are inherently not transparent. Even advanced users of Excel typically see macros as "I-hit-the-button-and-then-this-happens" functionality. Add to this the capability of nearly any end-user to modify the macro code to meet their own requirements and suddenly even macros that look the same don't function the same because someone hacked one line of code as a workaround.

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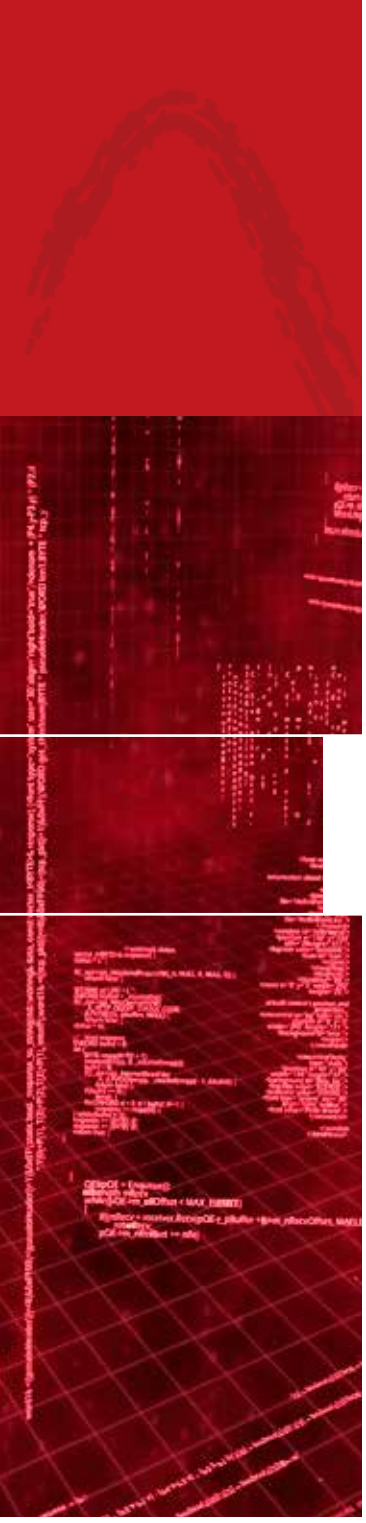

- DISPARATE DATA IS A CHALLENGE
  Another major pain point is the ability to manage disparate data. Acquiring the data is one challenge, but actually getting the data sources to "play together nicely" is almost impossible.
- LACK OF DATA MANAGEMENT
  Excel is not robust enough to ensure high-quality, dependable data because it does not offer information lifecycle data management.

NEW TECHNOLOGIES ARE DESIGNED FOR ANALYTICS, AGILITY

Today, there are alternatives to relational database tools that are designed from the ground up to address the analytic requirements that come with more data, faster cycles, more change, and more stakeholders. While several tools and technology approaches exist, they all share these characteristics:

- A FLEXIBLE DATA MODEL
  No overarching data model, or schema, is required, so analysts can build an analytic incrementally and immediately, without waiting to gather all possible requirements. This eliminates the overhead costs and effort associated with the rigid structure required of traditional relational database tools, and makes it easier and more practical to unify highly diverse data sources or change existing analyses.
- ACCURATE DATA
  New technologies ensure data is more accurate which means that organizations have more confidence in their business decisions.

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Predictive analytics can improve business results, enabling foresight and proactive decisions. Patterns can be identified, unknown values estimated, and future events forecasted.

- SPEED APPROPRIATE FOR RAPID PROTOTYPING
  The more flexible data model of these new tools allows analysts to compile data and build analytics very quickly. This makes it more practical to consider new data sources, interpret data in a more streamlined fashion, explore data more completely, evaluate new hypotheses, and make ad-hoc discoveries.
- EASY-TO-USE QUERY INTERFACES
  Query interfaces can be visual or search-based in nature, allowing not just programmers, but business analysts to investigate hypotheses and make discoveries. Visual models have the added benefit of making processes more consistent by visually documenting each step. They can also be used to automate analytic processes, and they allow for rapid changes.
- IMPROVED BUSINESS RESULTS
  Predictive analytics can improve business results, enabling foresight and proactive decisions. Patterns can be identified, unknown values estimated, and future events forecasted.
- REAL DATA MANAGEMENT
  The agile analytic solution ensures that the architecture, policies, practices, and procedures are in place to support the flexibility, access, and control that are required to make predictive analytics a reality.

To learn how Lavastorm's Analytic Engine (LAE) can help you move to an agile analytics solution, visit us at www.lavastorm.com

ABOUT LAVASTORM ANALYTICS

Lavastorm is the agile data management and analytics company trusted by enterprises seeking an analytic advantage. The company's data discovery platform empowers business professionals and analysts with the fastest, most accurate way to discover and transform insights into business improvements, while providing IT with control over data governance. The company's solutions have identified business improvements worth billions of dollars for some of the largest corporations in the world. A global company, Lavastorm is headquartered in Boston, MA, with offices throughout EMEA and Asia-Pacific.

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