



# BI LIKE THE BIG LEAGUE



## **ANALYTICS FOR SMBS**

For small to medium-sized businesses (SMBs), the ability to extract nuggets of insight from the data their business generates can allow them to create and sustain a competitive advantage. It wasn't long ago when the cost and complexity of analytical software and skills made it infeasible for SMBs, but this is no longer the case. According to a study conducted by Dresner Advisory Services, small to medium-sized businesses are driving the adoption of BI. This study found that SMBs having up to 100 employees are three times more likely than large enterprises to claim the highest rates of BI adoption.

## WHY SMBS NEED ANALYTICS

Analytics, done right, offers SMBs data-supported guidance for faster, smarter decision-making that drives the creation and/or growth of value as measured by increased revenues, reduced expenses, and more efficient operations. If your competitors are making data-driven decisions and you are not, you can find yourself struggling to keep up. Conversely, if you are making data-driven decisions and your competitors are not, you can create a significant, sustainable competitive advantage.

The value of analytics has been proven. Research conducted by Visual Capitalist found that in 1 out of 5 cases where small businesses fail, it was because they were outcompeted. On the other side, a study underwritten by Google found that small businesses that use digital tools, including data analytics, experienced revenue growth over a 12-month period, 4 times as high as their non-digitally advanced peers.

For many SMBs, the COVID-19 pandemic has highlighted the importance of data to recover from its aftereffects. A new survey conducted by storage firm Seagate of 3,000 small and medium-sized business decision-makers found that two-thirds of respondents indicated their recovery strategies revolved around analysis of company data. More than half of the SMBs surveyed now recognize the true value of their data.

#### Data relating to the following endeavors was thought most valuable:



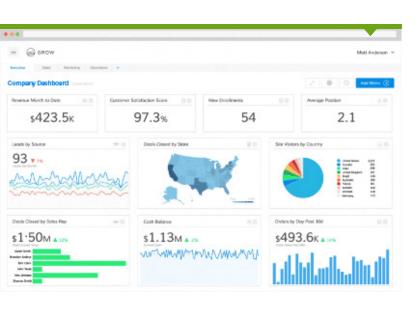


## WHAT ANALYTICS OFFER SMBS

As SMBs grow, the challenges they confront change; profit margins might tighten, competitors might become more numerous and threatening, business processes might become more difficult to manage, and their workforce can become larger and more geographically dispersed. The Excel spreadsheets that were once sufficiently useful tools to monitor the business are no longer up to the task. More sophisticated and tailored analytical tools and techniques are required.

Analytics can provide users with detailed information about nearly every facet of business performance and operations - both past and present (and in some cases, the future). The potential effects of a bad business decision for an SMB are usually greater than that for a large enterprise. The wealth of insight offered by analytics allows for faster, more informed decision-making. Here's just a smattering of what analytics can offer SMBs:

- Aggregating, organizing, and reporting on historical data such as sales, inventory, results of ad campaigns, customer and employee churn rates.
- Understanding the magnitude and sources of work delays, rework, operational redundancies, and other measures of efficiency provides guidance to improve productivity.
- The ability to spot new trends, markets, and business opportunities including the ability to run alternative market scenarios to fuel evidence-supported business strategies.
- Identify new marketing/advertising methods that increase effectiveness and reduce spend.
- Uncover opportunities for new services/ products/features for which there is unfulfilled demand.
- Dashboards offering clearly presented summary data and insights allow users to quickly assess and respond to changing business conditions.





## ANALYTICS AND BI ARE NOW AFFORDABLE FOR SMBS

It wasn't that long ago that if you wanted to analyze your organization's data to better understand your performance and/or improve your decision-making, you had to make a significant investment. Database software such as Oracle and analytical software like SAS, Business Objects, MicroStrategy etc., could be pricey and require significant technical know-how. The benefits of using these analytical tools are compelling. For example, in 2008 the federal Transportation Security Administration (TSA) claimed that improved workforce management from using its Performance Information Management System coupled with MicroStrategy analytics tools saved the agency \$100 million over the prior two-years. The agency was using the system to run 1 million reports annually for 12,000 users. What isn't highlighted is the cost of licensing and customizing the software, any acquisition cost of hardware, and the talent resource costs associated with maintaining the system. It wouldn't be surprising if the annual Total Cost of Ownership (TOC) of TSA's system was a million dollars or more. Such an investment would be out of the reach of most organizations. But things have changed.

SMBs no longer have to pay large sums to license proprietary software or huge sums to hire or access the skills necessary to tailor and support such software. Here are a few points to consider:

- A variety of free, open source software such as Python and R can be used to leverage the analytical features, tools, add-ons, and applications of integrated development environments (IDE's).
- Free or low cost analytical platforms such as Microsoft Power BI, Wolfram Alpha, etc. provide features and functionality that can fit the needs of many, if not most, SMBs.
- For SMBs looking for analytics that offer insights into their website traffic, such platforms such as Google Analytics, Clicky, etc. can be accessed for no or little cost.
- The newer tools now available don't require coding but often provide drag-and-drop, code-free "widgets" that can be configured to meet the organization's requirements.

# Dynamic typing

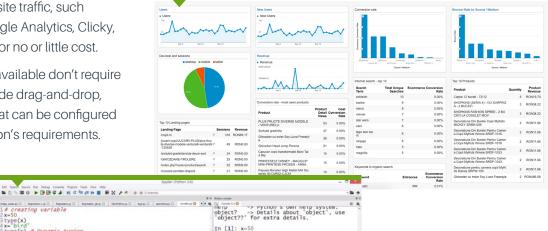
area circle=314 area-circle=314 area.cicle=314 5x=100 global=100

# valid identifiers
area\_circle=314

a,b,c=10,15,20 # assigning multiple values to multiple variable In [3]: x="bird"

-b-c-50 # assigning same value to multiple variables

· The types of skills and knowledge that are required, e.g. open source development, drag-and-drop configuration, report creation, etc. are usually not highly technical and are more widely available (and affordable) than those skills related to proprietary analytical packages. Training to build the necessary skills to use and adapt this new generation of analytical tools is widely available.



In [2]: type(x)
Out[2]: int

In [5]: x=3.14 In [6]: type(x)
Out[6]: float

In [8]: a Out[8]: 10

In [4]: type(x) # Dynamic typing
Out[4]: str

In [7]: a,b,c=10,15,20 # assigning multiple
values to multiple variables



## FOR SMBS, THE CHALLENGES OF ANALYTICS ARE NOT **DEAL-BREAKERS**

The benefits to SMBs using analytics are well known: increased revenues, decreased operating costs, more effective marketing, etc. But this is not to imply that there aren't challenges:

- Even though the acquisition costs of open source software can be zero or very low, that doesn't mean it's free:
  - Open source software might not have documentation, which can create issues for new users.
  - Proprietary software usually bundles support in the licensing fees. With open source software, the user supports their own deployment. This issue might not be a significant barrier, as an organization capable of tailoring open source software to fit their needs might also have the skills and other resources to support it.
  - Each organization has to weigh the total cost of using proprietary, open source, or online analytics platforms against each other and the anticipated benefits. There is an option that fits the budget and analytical needs of almost any organization - the key is in choosing the right tool(s) for the organization.
- The owners and managers of smaller businesses are consumed with meeting the time demands of their business and spending time on data analysis might be a low priority. Efficiency and business performance gains along with improved competitive standing through faster and smarter decision-making can offset any time requirements, which usually diminish as efficiencies improve.

A recent survey pertaining to small business trends found that 51% of small businesses indicated that they knew that analytics would allow them to better manage their businesses but only 45% of the total number of respondents said they were successfully using key business data. The need for analytics is clear and compelling, but many businesses wrestle with how to most effectively approach and use the data their businesses create.

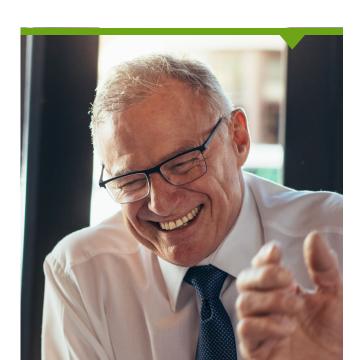




# UNDERSTANDING THE ANALYTICS JOURNEY — DETERMINING WHERE YOU ARE AND WHERE YOU **WANT TO GO**

The diagram below offers an overview of our analytic maturity continuum showing how organizations often initially embrace analytics - and how they can advance as their understanding and appreciation of the field grows. The journey for most SMBs usually starts using Descriptive analytical techniques and can evolve to embracing Predictive then Prescriptive techniques. Knowing where you are in your journey offers a benchmark and insights into where you might want to ultimately go.

Moving from left to right on the continuum entails the adoption of more sophisticated techniques, the acquisition or development of new skills, and cultural/organization changes. The investment required is offset by the everincreasing value of the organization's data as measured by more effective decision making to improve service level performance, increase customer value, reduce costs, optimize marketing tactics, etc.



Most organizations, even if they haven't deployed any type of true analytics platform, have employed descriptive techniques perhaps using something as straightforward as an Excel spreadsheet. Descriptive analytics provide insight into "what happened?" The focus is on past performance and providing insights into that performance by mining historical data to spot reasons for past successes or failures. Most management reporting on sales, marketing, operations, and finance falls into this category of analyzing the past to better understand what happened.

Predictive analytics answer the question "what is likely to happen?" Historical data is combined with rules, algorithms, and occasionally external data to determine the probable future outcome of an event or the likelihood of a situation occurring. These techniques can help businesses avoid or plan for pending problems or obstacles.

Prescriptive analytics, the ultimate destination on the continuum, answers the question "what should we do?" Actions are suggested that leverage the results of predictive analytics. Insights into possible outcomes are provided before decisions are made. Because this category of analytics is the most complex to master, it has been embraced primarily by larger, more resource-rich organizations.



## The intersect group's

# **ANALYTIC MATURITY CONTINUUM**





## **Descriptive**

Hindsight What has happened? & Why?

#### Data & Patterns

- · Standard Reporting
- · Performance Metrics
- Dashboards
- Ad Hoc Annalysis
- · Sales Flash Report
- · Customer Segmentation
- · Balanced Scorecard
- · Investment Portfolio Performance
- Customer Attrition
- · Marketing Campaign Success

### **Predictive**

Insight What will happen?

#### **Forecasts & Predictions**

- Statistical Analysis
- Forecasting
- · Clustering
- · Machine learning
- · Decision Tree
- · Predictive Modeling
- Classification
- · Regression
- · Sales Flash Report
- · Customer Segmentation
- · Balanced Scorecard
- · Investment Portfolio Performance
- Customer Attrition
- · Marketing Campaign Success



## **Prescriptive**

Foresight What do we do

#### **Recommended Best Action**

- Optimization
- · Machine Learning
- · Applied Statistics
- · Natural Language Processing
- · Rule Based Systems
- Image Processing
- · Decision Automation
- · Sales Flash Report
- Customer Segmentation
- · Balanced Scorecard
- Investment Portfolio Performance
- Customer Attrition
- Marketing Campaign Success



## GAIN GREATER INSIGHT INTO WHERE YOU ARE — AND CLARITY ABOUT WHERE YOU WANT TO GO

The ability to make data-driven decisions has never been more important or more accessible - for organizations of all sizes. The insights acquired through mining and analyzing the vast amount of information generated by your operations offer avenues to increase sales, acquire new customers and/or better serve existing ones, improve efficiencies, effectively counter competitors' tactics, and much more. Analytics offers a means to discover the data most important in successfully guiding your business. It leads decision makers to ask questions they otherwise might never ask. Your data becomes one of your most valuable assets. For too long, smaller businesses were unable to afford the tools and talent needed to leverage the power of their data - but that's no longer true. Subscription pricing of cloud-hosted platforms, open source applications, userfriendly interfaces with code-free development, and output in the form of tightly organized dashboards now offer the power of data analytics to nearly every business regardless of size.

Given the speed at which market conditions are changing, the long-lasting ramifications of the COVID-19 pandemic, and the breadth and precision of the data businesses can now access, the value of analytics is apparent.



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