Overcoming the Blockers: Analytics Adoption Strategies Used by Successful Organizations

Tricia Aanderud, Reid Baughman, Ken Matz, and Chris St. Jeor, Zencos

ABSTRACT

Every month, it seems there is a modern technology introduced that can transform your organization in unimaginable ways. Despite the rapid growth of analytic solutions, a recent Gartner survey revealed that almost 75% of organizations thought their analytics maturity had not reached a level that optimized business outcomes. The hype is not matching reality. Just like with any endeavor, your organization must have a planned strategy to achieve its analytical goals. Even the best-intended projects die on the vine if not given the proper support.

In this paper, you learn how to determine your organization's current analytic maturity level, ways for overcoming common blockers, and elements used in successful analytics adoption strategies. Our team has assisted multiple organizations as they transform from simple reporting to data optimization. Using this information, you can lead your organization in creating a successful roadmap.

INTRODUCTION

The analytics maturity model (AMM) has its roots in the software capability maturity model (CMM) popularized by Carnegie-Mellon's Software Engineering Institute (SEI). Like the CMM, the AMM describes the five stages an organization travels through to reach optimization. Organizations must implement the right tools, engage their team in the proper training, and provide the management support necessary to generate predictable outcomes with their analytics.

Organizations realize the need to improve their analytics strategies. In a recent study, Gartner would classify 87% of the organizations in the lower stages of the AMM (Gartner, 2018). The good news is that more organizations are turning to analytics to increase profitability and provide a competitive advantage. The sad news is that these organizations are struggling to mature as needed. Another research report of 74 global companies uncovered a positive association between analytics maturity and financial performance. The companies who are in the fourth stage of AMM ranked higher in "Top Company" lists than their counterparts at lower AMM levels (Alles, 2018).

If a stronger analytics strategy produces better outcomes, then why aren't more companies focused on climbing this ladder? What is preventing more companies from being successful in their internal programs? It's a multi-factor issue that crosses organizational culture, employee skill levels, ability to use existing data, technical infrastructure, and lack of strategy. In this paper, we explore the AMM, explore common blockers, and suggest strategies success.
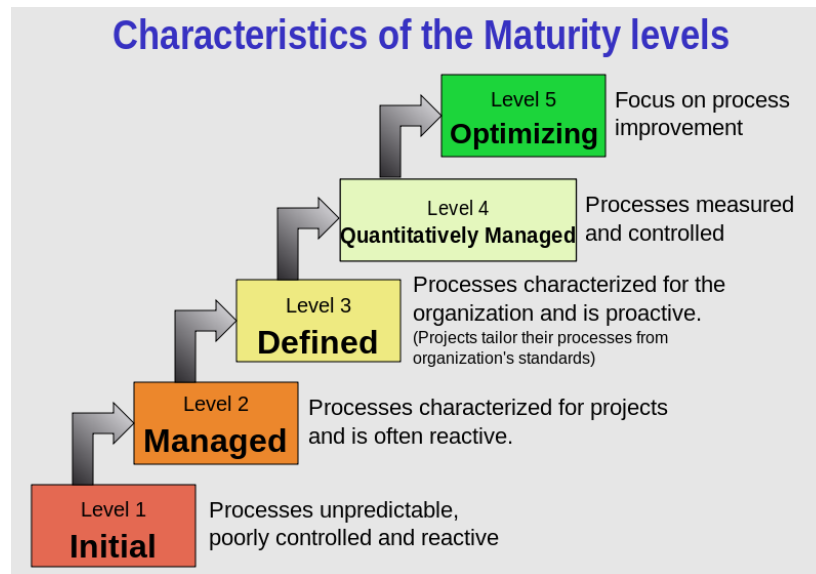
HISTORY OF THE ANALYTICS MATURITY MODEL

In the early 1970s, the US Air Force tasked Carnegie-Mellon's Software Engineering Institute (SEI) with solving a frequent problem. Their software projects were slower than expected and often ran over budget. They needed a way to evaluate vendor business processes and practices consistently. From this exercise, the process maturity framework was created, which would later become the basis for the CMM popularized by Watts Humphrey (Humphrey, 1989).

REVIEWING THE CMM LEVELS

The CMM describes the stages that an organization travels through to reach process formality and optimization. Each level is a measure of process maturity that the organization must solve to become more successful and have more predictable outcomes.

Figure 1 names and describes the five CMM levels for software development organizations. The model is like a ladder and each level represents a rung. Organizations must reach each rung before climbing to the next one.

Characteristics of the Maturity levels

Level 5 **Optimizing** — Focus on process improvement

Level 4 **Quantitatively Managed** — Processes measured and controlled

Level 3 **Defined** — Processes characterized for the organization and is proactive. (Projects tailor their processes from organization's standards)

Level 2 **Managed** — Processes characterized for projects and is often reactive.

Level 1 **Initial** — Processes unpredictable, poorly controlled and reactive

Figure 1 The five process maturity levels in the Capability Maturity Model (Source: Wikipedia)

Most companies get to level 2 for software maturity, but few get past it. Usually, it is because leadership gives the subject lip-service with little to no investment; and thus, no real strategy for climbing the rest of the ladder. Simply because of the common aspects between the CMM and AMM, there are parallels between organizations progressing along with each maturity level.

APPLYING CMM TO DATA AND ANALYTICS

The CMM is the basis for other organizational maturity strategies, such as the analytics maturity model (AMM). In the mid-2000s, The Data Warehouse Institute (TDWI) discussed achieving business intelligence (BI) maturity. They based the interpretation on the level of technical implementation, such as introducing data marts and databases.

In subsequent years, others would release versions of the maturity model that viewed it from either an IT department or a customer-centric perspective. The models all shared a similar characteristic by starting at a tactical level, moving to a strategic level, and ending in an optimization state.

## WHO PRODUCED THE MOST-WIDELY ACCEPTED MODEL?

Gartner produced the most widely embraced model. In 2008, they released a Web Analytics Maturity Model that detailed the steps from going from simple data collection to using the data strategically to drive sales activities. Later, their model applied to more general practices. This model closely followed the CMM, but its focus was on reaching maturity through business intelligence (BI) methods.

Unlike other models, this evolving model (shown in Figure 2) incorporated the non-technical aspects of maturity, such as culture, people, and leadership. Organizations find these elements more challenging to solve. While the marketing department can easily own web analytics maturity, this model needed the enterprise to be involved and for centers of excellence, Business Intelligence Competency Centers (BICC), to be formed. This work was so crucial that a C-level executive should be sponsoring it. The model appealed to leadership to use data to transform the organization.
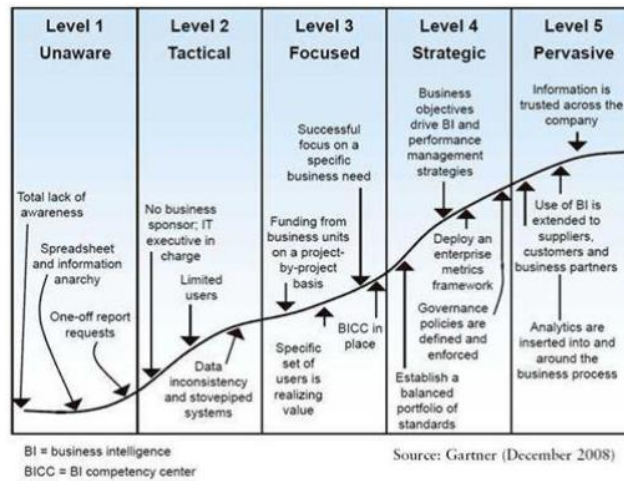
Figure 2 Earlier Gartner Analytics Maturity Model (Source: Gartner)

In 2017, Gartner released the maturity model called 2.0 (shown in Figure 3). This model showed the BICC maturing into Analytics Centers of Excellence (ACE). It also introduced the idea of a C-level executive responsible for overseeing analytics and data. This model more accurately described how organizations should move their staff toward adopting analytical methods such as machine learning and artificial intelligence (AI).
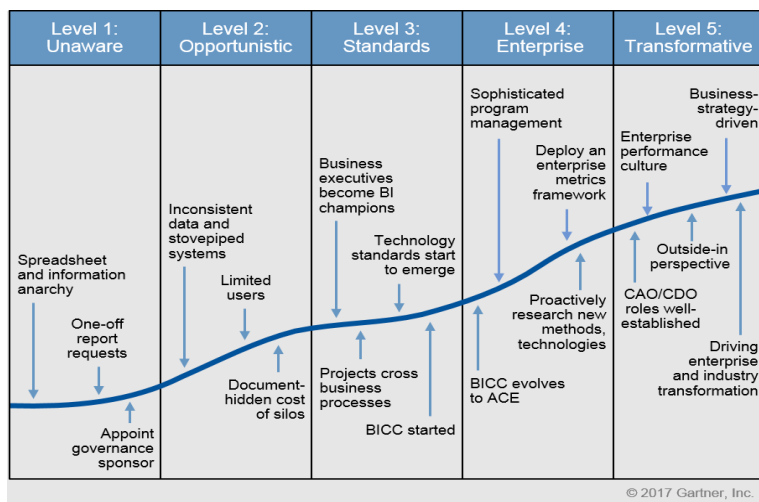

Figure 3 Gartner Maturity Model for Data and Analytics (Source: Gartner)

Another reason for the Gartner model gaining success is quite simple – they have more reach to a broader audience than the other analyst and thought leadership organizations. They were particularly effective at pushing this message to their target audiences.

UNDERSTANDING THE MATURITY LEVELS

Zencos created our version of the maturity model based on the other models and our customer experiences. The analytics maturity model in Figure 4 describes how the organizations evolve from chaos to an optimized data-driven strategy. This topic describes each level.
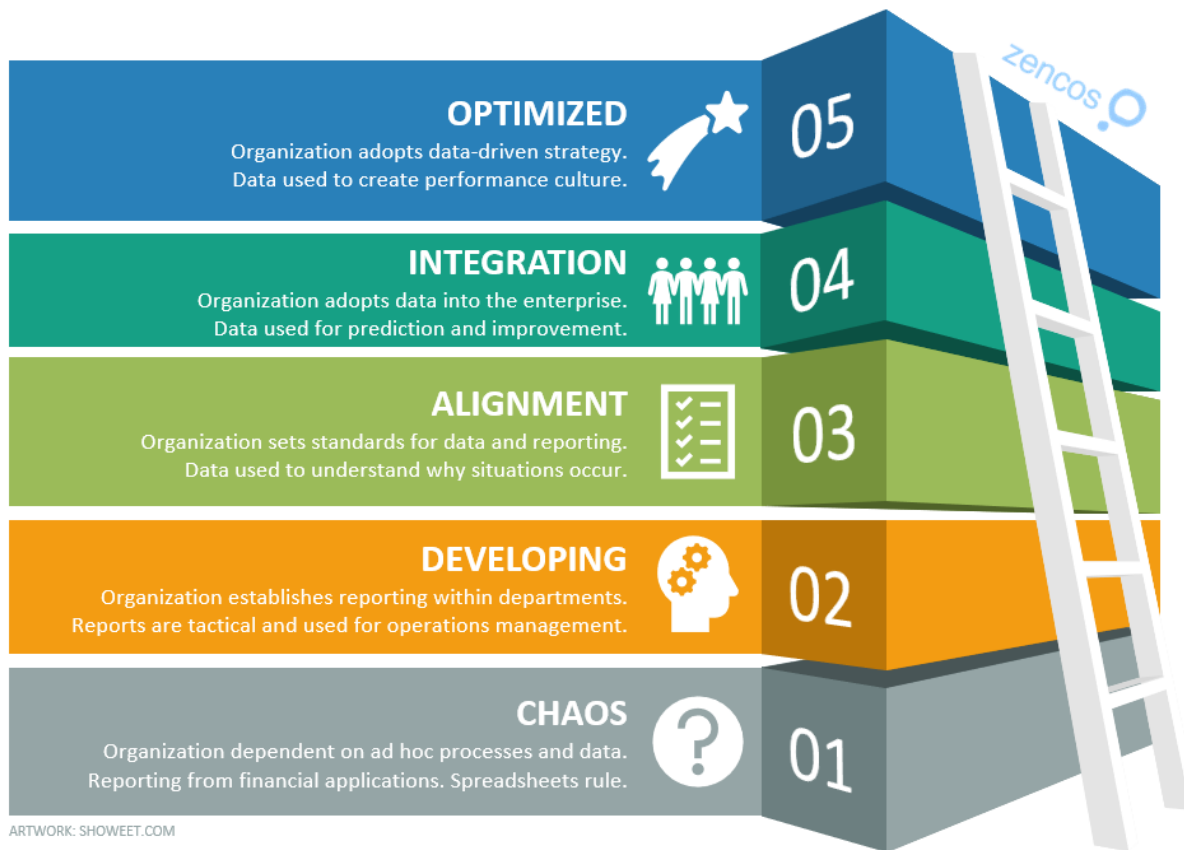
Figure 4 Zencos Version of Maturity Model

LEVEL 1: CHAOS RULES THE OPERATION

In Level 1, the organization is dependent on spreadsheets and ad-hoc analysis. Everything is a one-off; it is anyone's guess if results achieved by one person could be reproduced accurately by another person. Typically, the only reports available at this level are focused on financial results. Usually, this information is more of a process artifact than something someone planned.

As the organization becomes more successful, the information and process knowledge becomes unwieldy for one person or even a small group to retain, especially without proper tools. This often leads to dissemination of incorrect and misaligned information. The organization cannot function for long in this manner and they realize they need improved methods to survive. They must begin a transition to the next level.

LEVEL 2: DEVELOPING REPEATABLE PROCESSES

In Level 2, the organization is rising above the information chaos. The line managers realize they need tighter controls over the processes to ensure they can meet customer demands.

To streamline operations, departments adopt applications that record daily worker activities and customer interactions, such as order management, trouble tickets, and the like.

Each department selects the tool that best meets their needs without giving any consideration to how the data is stored or accessed. These applications produce reports that are used for daily operations. The managers understand the value of record keeping, but they do not yet view the data as anything more than a by-product.

The data is not being used strategically. If analytics are being produced, they are confined to one or two individuals and are rarely shared across the organization. The management team does not understand the full value that the data can offer.

This stage is where most organizations realize they need a strategy. The effort is generally realized and led by the IT department.

LEVEL 3: ALIGNING TO STANDARDS

As they are growing, the organization wants to take on the behaviors of larger, more successful companies, but find their existing processes are not standardized across the organizational areas. For example, if IT is fielding requests for reports, they may be overwhelmed by inconsistencies and siloed data and realize that a different approach is needed. In other cases, it may be department managers who recognize that the workers are spending too much time moving data between databases rather than producing informative reports. These issues require resolutions.

In Level 2, operational reporting is mastered. In Level 3, the organization realizes the need to take the data to the next level. Companies form business intelligence competency centers (BICC) to create a standardized approach for setting and keeping standards in the adoption of business intelligence (BI) and decision-support tools. The organization starts using dashboards and scorecards to measure performance and set alerts. For these tools to be useful, organizations must link them to business strategies.

The analytics advocate appears within the enterprise during this level of maturation. This individual may be from the IT organization or the business. The advocate understands the value of data but also recognizes that the organization does not realize the full value of the data. With proper influence and support, this person can ignite the organization.

LEVEL 4: INTEGRATING INTO THE ENTERPRISE

In Level 3, the organization aligned to standards so they would be more strategic. In Level 4, the organization wants to use data across the enterprise. The C-suite takes notice and elevates the initiative to the COO or CFO. They know the data can be the key to understanding and serving customers better.

This, however, may be the most difficult level for organizations to achieve because it is where the decision to compete with analytics begins. For traditional companies, this is a radical change in their business model.

Because of this, it's possible that the organization may not choose to commit entirely at first. If so, an intermediate step is to allow the BICC to explore and experiment with more sophisticated data techniques, such as predictive analytics. With success, this team matures into an analytics center of excellence (ACE), who is ready to take on machine learning and artificial intelligence projects.

LEVEL 5: OPTIMIZED PERFORMANCE

In Level 5, the organization has fully implemented a data-driven approach to the business decision process. The C-suite has firmly defined and established the roles of the chief analytics officer (CAO) or chief data officer (CDO). The enterprise has embraced a performance culture across the business. They seek out opportunities to incorporate analytics and encourage that mindset throughout each department.

At this point, the advanced analytics team has adopted analytic platforms capable of collaboration and sharing of models across the enterprise. The organization also encourages its vendors to use analytics for improvements, thus shaping new industry standards for analytics.

The analytics team is fully developed and capable of perfecting existing models and creating new methods to push the boundaries of their productivity curve. The team has moved to full machine learning solutions capable of providing prescriptive analytics over that of descriptive or predictive analytics. The models are capable of self-learning over time, thereby perfecting their performance and predictive power.

The remainder of the paper discusses the blockers and proposes success strategies. The blockers are divided into three areas: leadership, data, and people.

ORGANIZATION REQUIRES STRATEGY AND GUIDANCE

A comprehensive strategy is necessary for navigating the levels. If not, companies in the lower levels rarely have an enterprise-wide approach unless they are small, while the companies moving toward the higher levels may not agree on the next steps.

This topic discusses how to create a strategy and then how to expand on the strategy once you are the later levels.

BLOCKER 1: YOU CAN'T GET THERE FROM HERE

Organizations are using data long before a strategy is present. As noted in the maturity model, Level 1 and Level 2 center around the department managers trying to figure out what is happening and then working toward why it happened. It may take years of this behavior until the company decides they need a better way.

When an organization is using data but missing a strategy, it is essentially roaming around in the dark hoping something good happens. The IT team may implement tools without any reasoning or planning behind the solution to the actual problem they are trying to solve or even thinking through how the business will benefit from the application.

In 2018 survey of top organizations, 55% rated their IT organization's alignment with the business as moderate or worse (Ellis & Heneghan, 2018). Other symptoms are the IT department trying to control all the data without any domain knowledge. The data is essentially held hostage. Thus, the analysts are forever caught in the role of the report builder.

Even the leadership team may resist the change. Leaders may think that because they understand the industry and their customers, then they don't need to change. They ridicule the data and analytics efforts because they trust their actual life experience more than the data. Even worse, the leaders may shrink away from learning how a data strategy can fundamentally improve their business models.

SUCCESS STRATEGY: SET A SOLID DIRECTION EVEN IF IT'S SHORT-TERM

The strategy begins with business intelligence and moves toward advanced analytics. The approach differs based on the AMM level. The plan may address the strategy for a single year, or it may span 3 or more years. It ideally has milestones for what the team will do.

When forming an analytics strategy, it can be expensive and time-consuming at the outset. While organizations are encouraged to seek projects that can generate quick wins, the truth is that it may be months before any actionable results are available. During this period, the management team is frantically diverting resources from other high-profile projects. If funds are tight, this situation alone may cause friction. It may not be apparent to everyone how the changes are expected to help.

Here are the elements of a successful strategy:

- **Keep the focus tied to tangible business outcomes**

  The strategy must support business goals first. With as few words as possible, your plan should outline what you intend to achieve, how to complete it, and a target date for completion of the plan. Companies may fail at this step because they mistake implementing a tool for having a strategy. To keep it relevant, tie it to customer-focused goals.

  The strategy must dig below the surface with the questions that it asks. Instead of asking surface questions such as "How can we save money?", instead ask, "How can we improve the quality of the outcomes for our customers?" or "What would improve the productivity of each worker?" These questions are more specific and will get the results the business wants. You may need to use actual business cases from your organization to think through the questions (Mayhew, Saleh, & Williams, 2016).

- **Select modern, multi-purpose tools**

  The organization should be looking for an enterprise tool (like SAS® Software) that supports integrating data from various databases, spreadsheets, or even external web-based sources. Typically, organizations may have their data stored across multiple databases such as Salesforce, Oracle, and even Microsoft Access. The organization can move ahead quicker when access to the relevant data is in a single repository.

  With the data combined, the analysts have a specific location to find reports and dashboards. The interface needs to be robust enough to show the data from multiple points of view. It should also allow future enhancements, such as when the organization makes the jump into data science.

  Technology implementations take time. That should not stop you from starting in small areas of the company to look for quick wins. Typically, the customer-facing processes have areas where it is easier to collect data and show opportunities for improvement.

- **Ensure staff readiness**

  If your current organization is not data literate, then you will need resources who understand how to analyze and use data for process improvement. It is possible that you can make data available and the workers still not realize what they can do with it. The senior leadership may also need training about how to use data and what data analytics makes possible.

The plan is essential to getting everyone in alignment. However, it should not be treated as a blood-pact. It can and should change when business circumstances or directions dictate.

It is more important that the leadership team understands and believes that the strategy supports the organization.

BLOCKER 2: ANALYSIS MAY NOT BE EVERYONE'S CUP OF TEA

As the organization matures into Level 3 and farther, the data initiatives have been successful. The desire is to introduce predictive analytics and other data science methods then. The clear message from the industry is that organizations such as American Express, Target, and Proctor and Gamble are competitive because of their data initiatives. These messages infect leadership teams who want to understand their customers and markets in new ways.

Not all leaders may agree that data is powerful or what strategies are working for the organization. Leaders may even quote surveys that show data-driven initiatives are failing as shown in Figure 5. This figure highlights that data-driven value may not be delivering everything it promises.

Firms Identifying as Data-Driven are in Decline

2017	2018	2019
37.1%	32.4%	31.0%
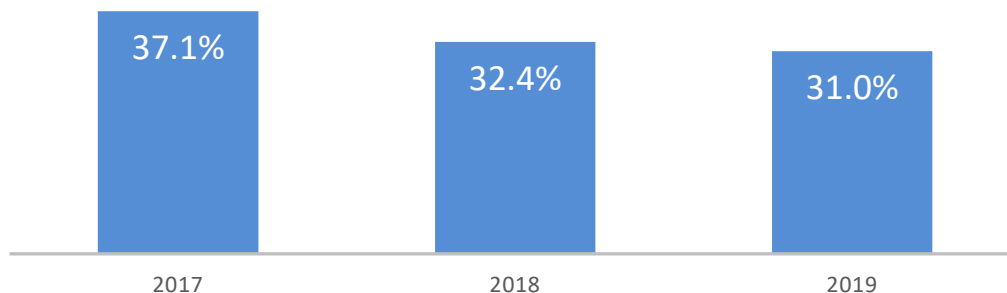
Figure 5 Data-Driven Organizations Declining (Bean & Davenport, 2018)

These leaders prevent the organization from being able to move forward in the AMM. The organization must understand why a data-driven project is or is not successful.

SUCCESS STRATEGY: USE THE APPROACH THAT WORKS FOR YOUR ORGANIZATION

As the organization matures, they may need to try a variety of strategies to address specific issues. The culture or leadership team may have mental models that must be reconstructed. The organization may have had missteps earlier in the maturity stages and it needs to take a step back and correct the missteps before moving forward.

Here are ideas that have worked for other organizations:

- **Use an Analytics Coach**

    A coach (or advocate) may be someone from within the company or from outside the company. The coach is someone who has domain experience and who understands the business value of analytics. He/she needs to have the trust of upper management. This individual can comfortably cross from discussions in the board room to working with a small data science team to determine what business goals are attainable and how best to reach them.

    If the politics are obtrusive or if there is not a knowledgeable resource internally available, use a third-party coach. This person does not have any loyalties other than ensuring the team can effectively use data to support critical business decisions.

An analytics coach helps stubborn leaders who don't understand how data can expand the enterprise. Perhaps the person asks the leader to predict the future business results and then shows how analytics can do that. To demonstrate the value of the data, the coach may use it to confirm what the leader already knows. At that point, the coach can layer in more analysis to show what else the data may know that the leader does not.

Once the team has a basic understanding, an analytics advocate coaches the management team during meetings. The person reviews the data presented and suggests added analysis that may be needed. The coach guides the team on what questions to ask about the data, what other data would be helpful to consider and to help find any flaws in the analysis. This method allows the leadership to feel confident in their new skill set and to deepen their commitment to the data strategy.

- **Start Small to Control Costs and Show Potential ROI**

  If the leadership team questions the expense, consider doing a proof of concept that focuses on the tools and data being integrated quickly and efficiently to show measurable success.

  The business may favor specific projects or initiatives to move the company forward over long-term enterprise transformations (Bean & Davenport, 2019). Keeping the project goals precise and directed helps control costs and improve the business. As said earlier, the strategy needs to answer deeper business questions.

  Consider other ways to introduce analytics into the business. Use initiatives that target smaller areas of the company to build competencies. Provide an analytics sandbox with access to tools and training to encourage other non-analytics workers (or citizen data scientists) to play with the data.

  One company formed a SWAT team, including individuals from across the organization. The smaller team with various domain experience was better able to drive results. There are also other approaches to use – the key is to show immediate and desirable results that align with organizational goals.

There is not one approach that works for every organization. It is a matter of finding the objections and then using strategies to overcome them.

ORGANIZATION USES DATA STRATEGICALLY

A key ingredient in a data and analytics strategy is the data. Firms struggle to be strategic with data. The organization may have setbacks if the data is particularly siloed or no data governance program is in place. The leadership team struggles to determine if the cost of getting useable data is worth it.

This section addresses the issues from poor data quality and data that is kept in different silos.

BLOCKER 3: DATA QUALITY PRESENTS UNIQUE CHALLENGES

If you deal with reporting, preparing, cleaning, or analyzing data in any form or fashion, then you have had exposure to poor data quality during your work. Depending on your role, the data quality impacts you differently.

- If you are a PR person, poor data quality impacts you when it is exposed to the public and you need to right a bad PR event that was the result of a bad data nightmare.

- If you are an IT person, you or someone on your team are responsible for the strategy

and execution of the data quality.

- If you are the CEO, you may feel the impact on the reputation of the company and the stock price when a data quality even occurs.

Regardless of your role, poor data quality impacts everyone in some way. Let's review the key areas in which poor data quality affects the organization.

There is a cost to using data. In any analytics project, 80% of the work is data preparation, while 20% is fitting a model to the data. Some of this prep work may be the fault of bad data. Outside of data modeling, bad data has other more direct costs, including lost revenue and added overhead cost. According to Gartner research, "organizations believe poor data quality to be responsible for an average of $15 million per year in losses." (Moore, 2018)

The negative financial impacts related to data errors, inconsistent data, and duplicate data can include increased operating costs, decreased revenues, missed opportunities, reduction or delays in cash flow, or increased penalties, fines, or other charges (Loshin).

General business examples of the budgetary impact of poor data quality include:

- Lost opportunity cost

- Inability to consistently find high net worth customers

- Time and cost of cleansing data or processing corrections

- Inaccurate and inconsistent performance measurements for employees

- Inability to identify suppliers for spend analysis

There are multiple ways to solve data quality issues. The most successful methods focus on the root cause so that the downstream effects of data quality issues are never felt by the organization.

SUCCESS STRATEGY: TREATING THE ROOT CAUSE

What can you do about poor data quality at your company? Several solutions that can help to improve productivity and reduce the financial impact of poor data quality in your organization include:

- **Create a team to set the proper objectives**

  To prove to yourself and to anyone whom you are conversing with related to data quality that you are serious about data quality, create a team who owns the data quality process. The size of the team is not as important as the membership from the parts of the organization that have the right impact and knowledge in the process. When the team is set, make sure that they create a set of goals and objectives for data quality. To gauge performance, you need a set of metrics to measure the performance.

  After you create the proper team to govern your data quality, ensure that the team focuses on the data you need first. Everyone knows the rules of "good data in, good data out" and "bad data in, bad data out." To put this to work, make sure that your team knows the relevant business questions that are in progress across various data projects to make sure that they focus on the data that supports those business questions.

- **Focus on the data you need now as the highest priority**

  Once you do that, you can look at the potential data quality issues associated with each of the relevant downstream business questions and put the proper processes and data quality routines in place to ensure that poor data quality has a low probability of

affecting that data. As you decide which data to focus on, remember that the key for innovators across industries is that the size of the data isn't the most critical factor — having the right data is (Wessel, 2016).

- **Automate the process of data quality when data volumes grow too large**

    When data volumes become unwieldy and difficult to manage the quality, automate the process. Many data quality tools in the market do a good job of removing the manual effort from the process. Open source options include Talend and DataCleaner. Commercial products include offerings from DataFlux, Informatica, Alteryx and Software AG. As you search for the right tool for you and your team, beware that although the tools help with the organization and automation, the right processes and knowledge of your company's data are paramount to success.

- **Make the process of data quality repeatable. It needs regular care and feeding**

    Remember that the process is not a one-time activity. It needs regular care and feeding. While good data quality can save you a lot of time, energy, and money downstream, it does take time, investment, and practice to do well. As you improve the quality of your data and the processes around that quality, you will want to look for other opportunities to avoid data quality mishaps.

- **Beware of data that lives in separate databases**

    When data is stored in different databases, there can be issues with different terms being used for the same subject. The good news is that if you have followed the former solutions, you should have more time to invest in looking for the best cases.

    As always, look for the opportunities with the biggest bang for the buck first. You don't want to be answering questions from the steering committee about why you are looking for differences between "HR" and "Hr" if you haven't solved bigger issues like knowing the difference between "Human Resources" and "Resources," for example.

Working through the strategies mentioned here pays big dividends for you and your company's data strategy. Don't delay the effort as it helps unlock the complete value of your data for the entire organization.

BLOCKER 4: SILOED DATA

Decentralized data stores or silos present another challenge for successfully maximizing the benefit of the data. According to the Harvard Business Review, here are four data silos typically seen in organizations (Wilder-James, 2016).

- ***Structural*** – Code was developed for a specific need for a certain situation. For example, recent and historical sales might be stored in different data marts because they were each used for different purposes. Efforts to combine the two data marts to create new insights require more work.

- ***Political*** – Groups may be protective of data within their domain. This is often because the potential opportunity for misuse of the data is broad.

- ***Growth*** - Any long-standing organization has had its fair share of management changes, philosophy shifts, and acquisitions. Combining disparate data stores can be a very costly and time-consuming process.

- ***Vendor Lock-In*** - Vendors recognize that access to data is power and may work to limit access to data within their applications. This is especially true of software-as-a-service solutions.

Data silos often exist for good reasons, but they can create an obstacle to analytics efforts.

SUCCESS STRATEGY: DE-SILOING DATA

The solution to removing data silos typically isn't some neatly packaged, off-the-shelf product. Attempts to quickly create a data lake by simply pouring all the siloed data together can result in an unusable mess, turning more into a data swamp. This is a process that must be done carefully to avoid confusion, liability, and error.

Try to identify high-value opportunities and find the various data stores required to execute those projects. Working with various business groups to find business problems that are well-suited to data science solutions and then gathering the necessary data from the various data stores can lead to high-visibility successes.

As value is proved from joining disparate data sources together to create new insights, it will be easier to get buy-in from upper levels to invest time and money into consolidating key data stores. In the first efforts, getting data from different areas may be akin to pulling teeth, but as with most things in life, the more you do it, the easier it gets.

Once the wheels get moving on a few of these integration projects, make widescale integration the new focus. Many organizations at this stage appoint a Chief Analytics Officer (CAO) who helps increase collaboration between the IT and business units ensuring their priorities are aligned. As you work to integrate the data, make sure that you don't inadvertently create a new "analytics silo." The final aim here is an integrated platform for your enterprise data.

ORGANIZATION TRANSFORMS THROUGH CULTURE AND EDUCATION

With a strategic plan and a path to clean data established, another common obstacle is a trained and ready workforce. A common misstep is to invest in technology without concrete plans for how the workforce will use said technology. Certainly, business processes must change, but worker habits and methods must also change. Management must be sensitive to allow enough time for these training activities.

Competing with analytics and data requires a skilled workforce. One complaint from leaders is the lack of even modest knowledge about using data. In an often-cited study, McKinsey early on noted that managers had minimum experience using metrics to manage their organizations and it thwarts growth efforts (McKinsey Global Institute, 2011).

Once the organization wants to accelerate their paths, they may find that that the skill sets needed are not available within the organization. This topic discusses how to deal with a changing culture and provides more ideas for getting the skills needed to move forward.

BLOCKER 5: CHANGING THE CULTURE

In a recent survey, leaders who indicated their strategies were not working noted that the culture not allowing the change was a factor (Bean & Davenport, 2019). When introducing an analytics strategy to an organization, it may fail for reasons that the leaders do not understand. Change is difficult for organizations. It is scary to move away from an approach that got you to where you are or has always been successful in the past. The reason for failure may merely be the culture resisting the strategy. Other times it may just be fear of change or admitting you don't know.

When introducing a data and analytics strategy, the leadership team must fully explain the change including the expected benefits. Every organization is different. The culture at a

smaller company may be nimbler and more adaptable to change while larger organizations need years to change. Regardless of size, culture, and the obstacles ahead, management must be prepared to deal with resistance to help the organization move toward data-driven decision making.

The leadership team does set the organizational direction, but they also may inadvertently be rewarding a culture that has the opposing values. If everyone agreed on an analytics strategy in the most recent meeting, you might think, what else is there to do?

The culture resists the change. The workers attend meetings and agree to actions, but nobody follows through or the wrong people may be in the meetings. If the managers don't buy into the change, they may send an inexperienced person to sabotage the process.

The senior leaders must set the strategy and keep the organization inside the proverbial rails. Otherwise, it is too easy for the culture to resist change and drag the company in the wrong direction.

It's not always clear why resistance occurs. Perhaps the staff feels threatened by the change. They may believe their skill set is not useful and fear losing their livelihoods. They may be burdened by their daily tasks and may not have room on their plate for yet another management fad. They may think that the money being spent on the analytics programs would be better spent on other equipment or processes.

SUCCESS STRATEGY: EDUCATION IS ESSENTIAL

When nearly 45% of workers generally prefer the status quo over innovation, how do you encourage an organization to move forward? If the workers are not engaged or see the program as merely just the latest management trend, it may be tricky to convince them. Larger organizations may have a culture that is slow to change due to their size or outside forces. (Murphy, 2015)

One customer of ours, who managed the change well, spent a year talking about an approved analytics tool before moving forward. The employees had time to consider the change and to understand the new skill sets needed. Once the entire team embraced the change, the organization moved forward swiftly to convert existing data and reports into the new tool. In the end, the corporation is more successful, and the employees are still in alignment with the corporate strategy.

If using data to support decisions is a foreign concept to the organization, it's a smart idea to ensure the managers and workers have similar training. This training may involve everything from basic data literacy to selecting the right data for management presentations. However, it cannot stop at the training; the leaders must then ask for the data to move forward with requests that will support conclusions that will be used to make critical decisions across the business.

These methods make it easier to sell the idea and keep the organization's analytic strategy moving forward. Once senior leadership uses data to make decisions, everyone else will follow their lead. It is that simple.

BLOCKER 6: THE TRAGEDY OF ONLY LOOKING FOR UNICORNS

Companies who have embraced the idea of using data science techniques may suffer from finding data science talent. There are several surveys and predictions that there may be as much as a 60% gap of desired employees and those available with the skill sets.

The desired skill set has been called a unicorn. The unicorn is described as someone with a strong statistics or mathematics background who has deep coding ability and can

communicate data results effortlessly. With such a unique set of skills, you can understand why the person is called a unicorn.

The requirements for unicorns may go deeper with the organization also needing deep industry knowledge. Some managers expect that little value can be realized without the person also having domain knowledge and a complete understanding of the potential issues.

SUCCESS STRATEGY: TEAMWORK MAKES THE DREAM WORK

Since finding a unicorn is difficult, companies are using alternate strategies that are often more successful. They are choosing to promote and train current employees, add outside consultants, or a combination of the two. The internal employees can provide the domain knowledge while the consultants can help with raising the level of the organization's overall data skill sets.

The most productive teams have a balance of skills sets that include data engineering, data science and data storytelling. These skills are shown in the following figure.
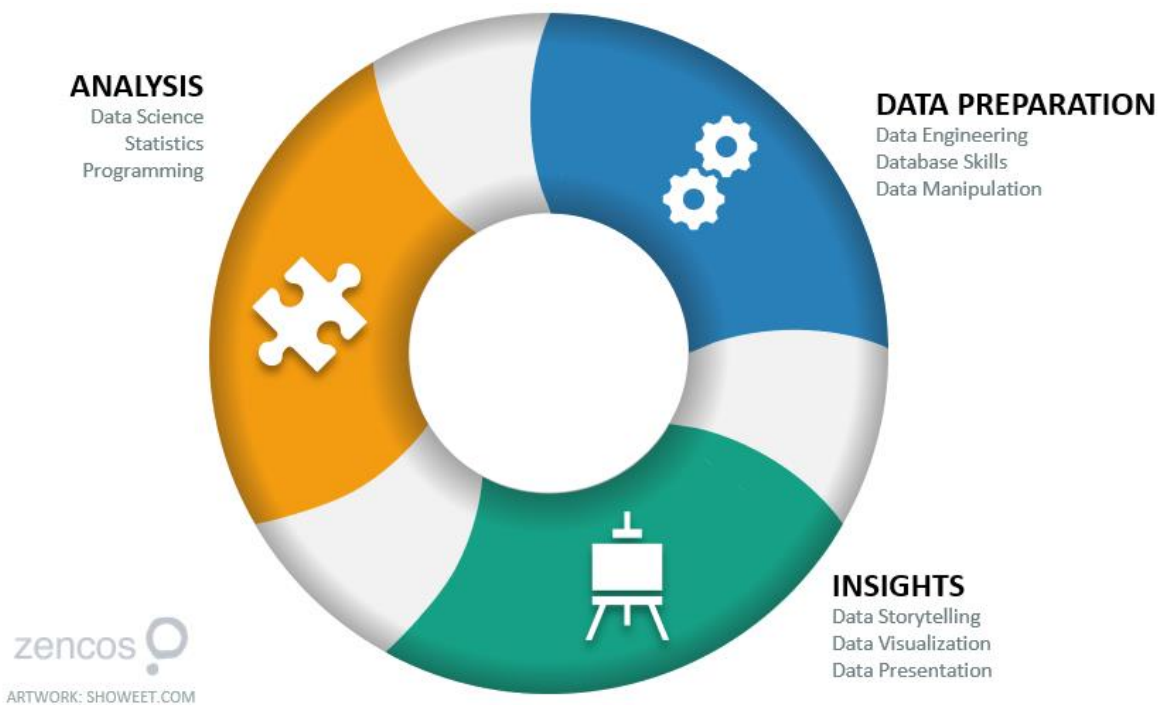
Figure 6 Elements of a Skilled Team

As stated, select smaller projects where the team can learn basic skills. These projects allow the team to work in a tactical manner where they learn how to operate as a team. They also help to find those with the strongest skill sets on the team as well as providing opportunities to identify those with gaps in their skill sets. Also, it helps the team to gain the needed confidence to take on more complex projects. If the team can master the necessary skills, they will naturally move toward being more strategic. They can take on larger projects and even add team members. Make sure that the team has a knowledgeable leader who can guide them. (Schrage, 2014)

The main goal is to get started. Ensure the team has projects where they can show value. A unicorn is nice, but a team of horses that can pull the wagon to the next point is even more

14

valuable.

CONCLUSION

The analytics maturity model serves as a useful framework for understanding where your organization currently stands regarding strategy, progress, and skill sets. It provides a roadmap for how to progress to the next level as an organization. We've discussed common blockers arising from culture, data, and human capital as well as best practices for dealing with these common issues.

Advancing along the various levels of the model will become increasingly imperative as early adopters of advanced analytics gain a competitive edge in their respective industries. Delay or failure to design and incorporate a clearly defined analytics strategy into an organization's existing plan will likely result in a significant missed opportunity.

REFERENCES

Alles, D. (2018, March 22). *Analytics Maturity Powers Company Performance .* Portland, Oregon: International Institute for Analytics. Retrieved from https://www.cmo.com.au: https://www.cmo.com.au/article/635046/report-analytics-maturity-key-success/

Bean, R., & Davenport, T. (2019, Feb 05). *Companies Are Failing in Their Efforts to Become Data-Driven.* Retrieved from Harvard Business Review: https://hbr.org/2019/02/companies-are-failing-in-their-efforts-to-become-data-driven

Ellis, A., & Heneghan, L. (2018). *Harvey Nash/KPMG CIO Survey 2018.* Retrieved from KPMG International Cooperative: https://assets.kpmg/content/dam/kpmg/ch/pdf/cio-survey-harvey-nash-report-2018.pdf

Gartner. (2018, 12 6). *Gartner Data Shows 87 Percent of Organizations Have Low BI and Analytics Maturity.* Retrieved from https://www.gartner.com: https://www.gartner.com/en/newsroom/press-releases/2018-12-06-gartner-data-shows-87-percent-of-organizations-have-low-bi-and-analytics-maturity

Humphrey, W. (1989). *Managing the Software Process.* Boston, MA: Addison-Wesley Professional.

Loshin, D. (n.d.). *Evaluating the Business Impacts of Poor Data Quality.* Retrieved from Data Quality Book: http://dataqualitybook.com/kii-content/BusinessImpactsPoorDataQuality.pdf

Mayhew, H., Saleh, T., & Williams, S. (2016, Oct). *Making data analytics work for you—instead of the other way around.* Retrieved from McKinsey & Company Web Site: https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/making-data-analytics-work-for-you-instead-of-the-other-way-around

McKinsey Global Institute. (2011, May). *Big data: The next frontier for innovation, competition, and productivity.* Retrieved from McKensey Digital: https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/big-data-the-next-frontier-for-innovation

Moore, S. (2018, June). *How to Create a Business Case for Data Quality Improvement.* Retrieved from Gartner Web Site: https://www.gartner.com/smarterwithgartner/how-to-create-a-business-case-for-data-quality-improvement/

Murphy, M. (2015, 02 19). *New Data Shows That Leaders Overestimate How Much Their Employees Want To Change.* Retrieved from Forbes: https://www.forbes.com/sites/markmurphy/2016/02/19/new-data-shows-that-leaders-overestimate-how-much-their-employees-want-to-change/#75898ad162f6

Schrage, M. (2014, Sept). *Stop Searching for That Elusive Data Scientist.* Retrieved from Harvard Business
Review: https://hbr.org/2014/09/stop-searching-for-that-elusive-data-scientist

Wessel, M. (2016, Nov). *You Don't Need Big Data — You Need the Right Data.* Retrieved from Harvard
Business Review: https://hbr.org/2016/11/you-dont-need-big-data-you-need-the-right-data

Wilder-James, E. (2016, Dec). *Breaking Down Data Silos.* Retrieved from Harvard Business Review:
https://hbr.org/2016/12/breaking-down-data-silos

ACKNOWLEDGMENTS

RECOMMENDED READING

- The 5 Essential Components of a Data Strategy, Retrieved from
  https://www.sas.com/content/dam/SAS/en_us/doc/whitepaper1/5-essential-
  components-of-data-strategy-108109.pdf

CONTACT INFORMATION

Your comments and questions are valued and encouraged. Contact the authors at:

Tricia Aanderud	**Reid Baughman**	**Ken Matz**	**Chris St Jeor**
taanderud@zencos.com	rbaughman@zencos.com	kmatz@zencos.com	cstjeor@zencos.com

Zencos
919-460-5500
http://www.zencos.com
Actionable Analytics