Guide to Transforming the Data Analytics Process

A Report By: Nicsa Data Analytics Committee

Committee Overview
The Nicsa Data Analytics Committee serves as a resource for the Nicsa community by providing access to information and education related to advanced data analytics. The Committee draws on its own members as well as industry experts to help the Nicsa community identify and understand available data sources and best optimize data within asset management organizations.

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Over the last decade, asset managers have increasingly invested in data-driven distribution resources, in the hopes of "unlocking the secret" of using information to more effectively compete, grow sales, and build relationships. In this Guide, experienced members of Nicsa's Data Analytics Committee reveal what takes a data analytics process from "good" to "great" – increasing the odds of success and buy-in, and turning data into actionable insights to generate desired outcomes.

In a typical data analytics process (including the following phases: Plan, Build, Present, and Implement & Iterate), each part of the process is important to the success of the overall project – from understanding and defining the problem, to implementing the solution and obtaining feedback.
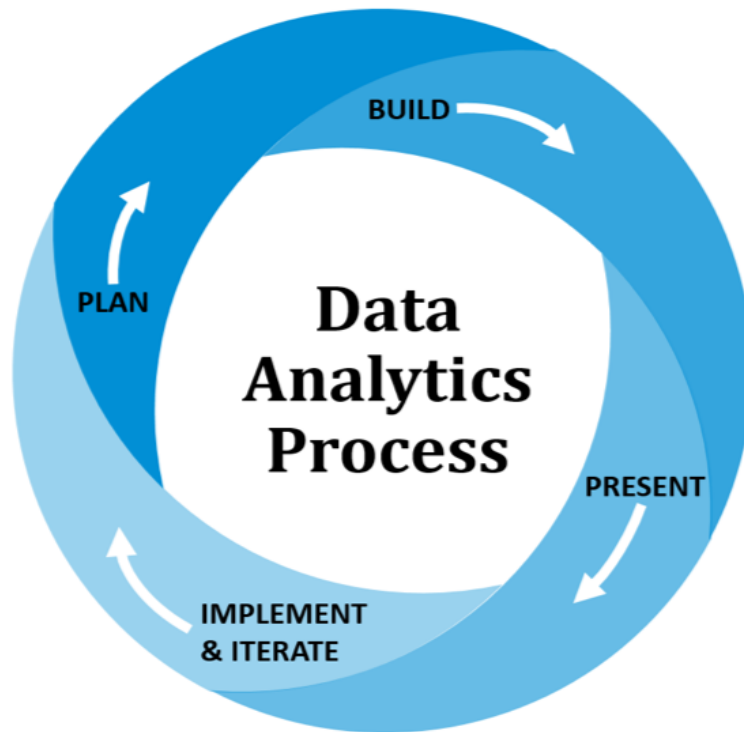
I. Planning Phase

Domain Expertise

Know the particular subject matter at an expert level – or involve those who do.

Sales and marketing data analytics experts can effectively contribute their specialized knowledge to a project or project team. They need to be able to both understand and interact with technically-based colleagues, as well as those who are more business-oriented, to lead to the desired result. This ability is especially important for project leaders, since they are responsible for effectively guiding the project to a successful outcome.

Of course, no one is responsible for knowing everything about all facets of the project. Each person will add their own skills based on their level and area of proficiency; this is where proper selection of team members comes into play. Valuable contributors can include BI specialists, data scientists, and programmers, as well as business leaders from sales and marketing. In addition to internal resources, external specialists can be hired if a particular expertise is not available in-house.

Problem Identification

Understand and communicate the problem that needs to be solved, and the business implications.

Definition of the problem is key for any project. If data teams don't know what they're trying to solve, they can't get to the right solution. An important first step is to interview the data consumers, or "customers" (whether internal or external) to find out what answers or results they're looking for. Listen actively and ask the right questions – be specific! Sometimes the customer may not understand exactly what they're looking for, but asking the right questions can help get to a point of clarity and a working definition of the problem.

Consult team members for their input – they can offer different viewpoints based on their level of expertise and knowledge of the business. Cross-functional teams can be especially helpful in this regard.

Documenting the problem, as accurately and specifically as possible, is critical. Include any business implications, such as how it will affect

the bottom line (e.g., adding to revenues or reducing expenses) or generate increased efficiencies. Having measurable outcomes is essential, not just from the measurement standpoint, but can help to achieve "buy in" from decision-makers, especially if additional resources are needed. Explaining the problem in plain English, not tech-speak, helps ensure that everyone (including those in non-technical roles) can easily comprehend what needs to be done and increases the odds of success. Outlining preliminary timelines or deadlines, to be revised as the project develops, can be a helpful step in this stage of the project.

Requirements Gathering

Understand and communicate the problem that needs to be solved, and the business implications. Determine what resources will be required to solve the problem.

After the problem has clearly been defined, the next step is to determine what resources are needed, and to make sure they are sufficient for problem resolution (at least for the project as initially defined). Evaluate what is available in-house vs. externally, including, for example: database applications, data visualization tools, experts from other teams, consultant services etc. Thorough documentation of the requirements will reduce ambiguity as to roles, resources needed, and plans for allocation. Efficient and effective allocation of resources will contribute to the timeliness and success of the project.

Regular communication with team members and other stakeholders (especially data consumers) will aid in greater understanding of the project and the requirements and allow for others to offer feedback and suggestions. Communication with data consumers is important, as requirements may change or additional resources may be needed, which may increase costs or result in delays or changes in the problem definition.

With a vast supply of data and applications, the potential for distracting "noise" is high. Understanding what requirements are needed

for a particular project and obtaining the proper resources will help turn data into actionable insights to meet business goals.

Appropriateness of Methodologies

Determine which methodologies, i.e. statistics, forecasting, and machine learning, are appropriate for solving the problem given the data available and the problem to be solved.

Every data visualization, statistical model, machine learning algorithm, and analytics methodology has specific rules about the kind of data that can be used as inputs, and they all have a specific type of output that can be used to solve business problems. In addition, every methodology has multiple ways it can be applied. In the modern world of "drag and drop" interfaces for machine learning, analytics, and visualizations, there are innumerable cases of reported patterns, statistics, models, and predictions that are based on using an inappropriate methodology and are thus, false.

Methodologies can broadly be grouped based on what the desired outcome is and what data is available. To predict the probability of a certain outcome (yes or no) using numeric data, the standard is a logistic regression. However, if the information available is mostly non-numeric, a decision tree or random forest might be more appropriate. Both of those also require that there is some set of data where the outcome is known in order to train the model (supervised learning).

When the objective is to classify individuals into groups (segmenting) the broad approach is cluster analysis. However, there are algorithms that ONLY work with numeric data and other algorithms that allow for numeric and/or dichotomous (0/1) data. This skill allows the analytics professional to know which algorithms can be used and how to incorporate data that is neither numerical nor dichotomous and any other pitfalls.

Customer Management
Manage customer expectations and convey needs of the customer throughout the process.

Whether the data consumer is an internal business line, or an external client, customer management is key to a successful project. Customers have a problem to solve and are relying on a team of experts to determine the best approach for a viable solution and to deliver results that provide a benefit. It's important to communicate consistently throughout the project in order to maintain an open dialogue with the customer, from presenting the problem as clearly as possible, enabling the team to accurately capture business requirements for the problem they are trying to solve, to iterating right through to the project resolution. Assign a project liaison to update and manage customer communications and expectations. Clearly define deliverables and set realistic expectations for communication, including a timeline for periodic check-ins as well as general updates on progress. Managing expectation is not about controlling the customer; it is about setting the right expectations to meet needs as they are perceived. The ultimate goal is to deliver a solution that meets or exceeds the customer's expectations and the final outcome should match the expectations set early in the planning phase.

Customer Service
Maintain a positive relationship with the customer throughout the process.

It has been said that good communication is the lubricant for all collaboration. As with any project, internal or external, maintaining a positive relationship with the end-customer is important and good customer service should be expected and delivered throughout the project. Keep communication clear and provide the opportunity to solicit feedback from the customer as the project develops. Make sure they feel included and part of the project rather than just a recipient of an end-result. Ask questions and be an active listener to understand their goals and expectations. Identify variables that can affect customer service that may be out of your control (i.e. they may not like the answer provided as an outcome of the project). Exceeding customer expectations is often dependent upon what customers think their experience should look like. Keep an open dialogue to confirm and reconfirm that the team is delivering on expectations.

II. Building Phase

Project Management
Determine what needs to be done and who will perform those duties to deliver the expected outcome.

Project management is critical to delivering the right outcomes for stakeholders. It involves properly understanding the business issue at hand, aligning the right resources to document the problem, developing a strategy to solve the problem, and executing on that strategy to build an appropriate solution.

Project management is involved from conception to delivery. It is the glue that ties all the other components of the analysis together whether its requirements gathering, problem and solution documentation, or solution building. It is an essential skill set used throughout the process to keep proper scope and meet required milestones and deliver results.

Scripting Languages
Understand the data, the problem, and select the appropriate language to build the solution.

Based on the problem being solved and the intended solution, selecting the appropriate scripting language to build your solution is important. For example, if the problem being solved is merely to show sales statistics based on the previous quarter of sales, a small amount of SQL can probably do the trick. If the problem is more complex – trying to predict future sales or examine whether there is

correlation between a marketing campaign and recent sales activity, R or Python may be necessary. Often the solution requires a mix of scripting languages – SQL to validate the data and R or Python to build complex analysis of the data.

The skills necessary for building the technical solution are not just being able to write queries in SQL or code in Python, but also in understanding the underlying data and how it applies to the problem being solved, what steps are required to model the data and how to produce output that aids in expressing the insights teased from the data.

III. Presenting Phase

Data Visualization
Employ storyboarding techniques; economical, visual storytelling; and design thinking skills to create intuitive, compelling visual stories.

Our brains can process images 60,000 times faster than we can process text. Visualizations need to be economical – say only what is necessary and no more. Color needs to have intuitive meaning, and context should help guide the audience to a next action. Simplicity is key, and the collective set of images should tell a coherent story. Map out the messaging in a storyboard and wireframe fashion – to hone the consistency. Ideally, the visualization should not require a voice-over to land. Test-drive visual concepts with colleagues who are not familiar with the data.

Written Communication
Use business audience-focused writing skills, a clear call to action, and a specific description of activation to engage your audience effectively.

Business writing starts with the dessert up front – begin with the recommendations; if the audience is curious, they will continue to the building blocks that resulted in the punchlines. Keep the audience in mind – brevity is key. Executive summary should be skimmable in 30 seconds and written in such a

way that if the summary is all one reads, they could still pick up the most essential points. Tone and word choice should be written from a business user's point of view – what should they do differently as a result of reading your piece.

Presenting
Preparation, compelling storytelling, agility, and presence are critical to deliver your message in a way that resonates with your audience.

Preparation is critical. Analyze your audience – what is known about them; what level of detail is appropriate; what do they know about the topic; what new insight can be taught or shared; and what obstacles stand in the way of success. The goal will be to make best use of the audience's time. Develop clear objectives: "When my presentation is done, what do I want my audience to do / know; what actions do I want the audience to take away; and what am I not going to leave the presentation without…?" Dardis Communications advocates a 6-step presentation road map process to help with organization: Introduction, Opportunity, Solution / Proposal, Benefits, Evidence, and Close / Action Steps (Dardis Communications, www.dardiscommunications.com).

Being in front of an audience – of 1, 10, or 100 – is an opportunity to leave them with something they couldn't have received from reading alone. 93% of what people remember is how the message was delivered. They expect good content – they want to connect to a story: what should they do differently and why. Introverted analytic types are terrified of 'telling stories', but these skills can be learned (Kindra Hall, Strategic Storytelling). A story happens in a particular moment; has a beginning, middle, and an end; has emotions not just information; and has characters to care about with something at stake. The story needs characters with which the audience can identify, and the story needs to include specific, strategic details (including emotions, the struggle, and the hope). An analytics story focuses on 'why are we analyzing' and 'what we should do with the recommendations'

(rather than on what cool methods or tools we used).

Results/Impact to the Business
Landing the 'What's in it for them' (WIIFM) involves reframing skills, agility, and empathizing with your audience.

Every analytic question, challenge, or opportunity comes from not being able to do something or from needing to do something better. Analysts must understand the business problems from the point of view of the business stakeholders they are trying to help – this requires an innate curiosity and drive to understand. The process of communicating this understanding and helping to turn analyst insight into business action can look like the following (adaptation of The Challenger Sale, Matthew Dixon and Brent Adamson, 2011; and Dardis Communications – Persuasive Storytelling Roadmap). Empathize with the business challenges; educate by reframing the core issue (potentially by presenting information they haven't considered in the past); make an emotional connection by illustrating the risk of not accepting analyst's recommendations; provide supporting evidence; and propose solution.

Although several suggestions have been made regarding potential structures and approaches to presentations, knowing your audience and agility are the most important components to successful presentations. Agility is knowing what to do when you don't know what to do. Agility can be described as Mental Agility, Results Agility, Change Agility, and People Agility. Mental Agility involves curiosity, search for meaning, and comfort with complexity and ambiguity. Results Agility involves resourcefulness, adaptability, taking personal ownership, and delivering in first time situations or under changing conditions. Change Agility involves ability to thrive and deliver despite resistance and adversity, comfort with experimentation and innovation, a healthy dissatisfaction with the status quo. People Agility involves high levels of self-awareness, an ability to adapt communication style to audience needs, and an ability to be a skilled communicator and conflict manager. The best laid presentation plans will go awry – as business, logistics, technology, or personality challenges interrupt or impede what has been so carefully prepared. Knowing the audience's WIIFM (what's in it for them) and what you cannot leave the presentation without, combined with agility, will help to deliver analytic insight successfully by focusing on what is most important to your audience.

IV. Implementation & Iteration Phase

Engaging the Customer
Verifying that what was delivered will meet the ongoing needs of stakeholder and adjusting the deliverables as needed.

Post the presenting phase, most projects require some amount of adjustment. This may be a small adjustment to the deliverables or going all the way back to the planning phase (depending on how well that was done in the first place or due to changing business environments).

If the analytics project was designed to provide ongoing insight, the analytics team needs to perform a re-evaluation of the deliverables with respect to ease of use for regular use. Iteration of all of the steps that have come before, to include a small amount of planning adjustments, may be necessary before automation is undertaken.

Automation
Build the permanent solution using software development, computer science, and data visualization tools.

As organizations become more data dependent and information becomes ambient (always available right now), the expectation is that insights – even those derived from extremely large sets – are available at the touch of a button, instantly, no matter how complex the process to arrive at them.

The expectation is real time or near real time insights. Humans cannot keep pace with these demands and automation is required.

An organization that is using predictive statistical models or machine learning algorithms for day-to-day decisioning will need a way to ensure those models are running daily, taking in the new data to "learn" and being monitored for accuracy. These skills are often held by data engineers and software developers as well as development operations professionals. While these skills may not be present on every analytics team, they need to be available in the enterprise or through 3rd party relationships outside the enterprise. Additionally, there are tools designed for enterprise scale automation of visualizations and dashboards that require very little engagement from IT after the system is configured. Those tools have some rudimentary forecasting and statistics.

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In summary, a data analytics project that is based on a well-developed system – including the four tenets of Plan, Build, Present, Implement & Iterate – will have a greater chance of resulting in powerful insights that will help drive sales and marketing results for your firm, utilize resources efficiently, and build positive client relationships. The "secret" to using information to more effectively compete in today's marketplace is not really a secret – it's a process.

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