

Getting to the “Good Stuff”: Evidence-Based Decision Making for Associations

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Introduction

Associations stand at a crossroads. We have more types and greater amounts of data readily available to us than ever before, and the cost of the tools needed to process all that data has declined dramatically. In fact, the combination of data and tools available in 2014 should allow us to move beyond the standard operational dashboards we’ve been using for years and get to the “good stuff,” where we can start asking the kinds of meaningful, mission-driven questions that allow us to use data to inform our decision-making processes.

But how? How can associations use these new capabilities effectively to make evidence-based decisions? What role, if any, does data play in helping association executives make better decisions faster?

You instinctively know why you’d want to make better decisions. But that begs the question: why would you want to make those decisions faster? In short, it’s because faster decision-making is strongly correlated with higher performance.¹ In an increasingly pressured environment, who wouldn’t want to be more effective in less time?

Data can help you get there. However, in order to get the most out of your data, and to move from operational dashboards to using data to help you make better decisions, there are some things you need to know and do.

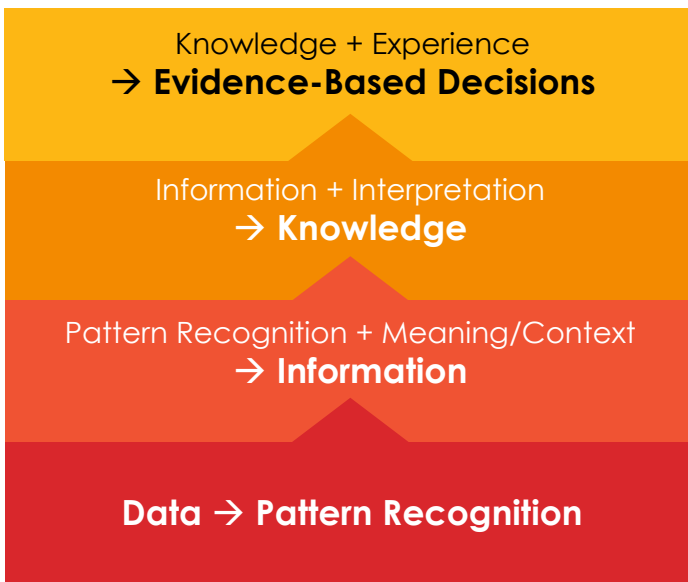
Below, we’re going to define Big Data in an association context, explain and illustrate the concepts that allow you to use data to make evidence-based decisions, consider the role of intuition and experience in the decision-making process, share stories of organizations that are currently using data effectively to make evidence-based decisions, and discuss some of the challenges you will face shifting to a culture of evidence-based decision-making. Our goal is to show you how you and your staff can use data to make better, faster decisions in service to your mission, your members, and your other audiences. 

1. https://hec.unil.ch/docs/files/83/655/eisenhardt_1989_making_fast_strategic_decisions_in_high-velocity_environments.pdf



Data, Data, Everywhere

First, we need to define what we mean when we use the term “data.” What is “data”? Data are discrete facts that have no meaning or purpose in and of themselves. It is only when they are put into context that relationships and patterns emerge. Finding meaning in those patterns allows data to morph into information, which, through careful selection, filtering, and interpretation, then becomes useful knowledge. That knowledge, combined with experience, forms the basis of good, evidence-based decisions.



We’ve always had data, but within the past decade, we’ve had access to something called “Big Data.” What makes Big Data unique? According to IBM²: “Big data is more than simply a matter of size; it is an opportunity to find insights in new and emerging types of data and content, to make your business more agile, and **to answer questions that were previously considered beyond your reach.**” (emphasis added)

Big Data generally refers to collecting information about our audiences (in the association sphere, that means members and non-members) from a wide range of internal and external systems and aggregating it to provide a more complete picture of them. What’s unique about Big Data is:

- **Volume** – there’s a lot of it
- **Velocity** – it’s coming in really fast
- **Variety** – from a huge number of sources and in a mind-boggling array of formats
- **Validity** – it’s highly accurate and reliable (at least in theory)
- **Value** – used correctly, it can change the game for your association

How do we turn the oceans of information we can access into something we use in meaningful ways? In other words, how do we get to the value? According to McKinsey³, there are five keys. Big Data produces value by:

- **Creating transparency** – more data is easily available to relevant stakeholders
- **Enabling experimentation** – accurate data facilitates controlled experiments to measure, and ultimately improve, performance
- **Segmenting audiences** – detailed data enables you to tailor programs, products, and services more effectively
- **Supporting operational decision-making** – real-time data helps you better manage inventory and adjust prices according to demand
- **Supporting innovation** – continuous data about the performance of your existing offerings provides insight so you can create new and better offerings ✨

2. <http://www-01.ibm.com/software/data/bigdata/>

3. http://www.mckinsey.com/insights/business_technology/big_data_the_next_frontier_for_innovation

Big Data = Big Opportunity

According to “Big Data and the Democratisation of Decisions,” the top opportunities represented by Big Data include: seizing marketing opportunities (identified by 66% of study participants) and customer retention (identified by 55% of study participants).⁴ Those are likely among your association’s top goals as well.

Big Data, ideally, allows us to do predictive marketing, which is the holy grail of data analysis. Historically, market tracking has been more art than science. We record and analyze customer behavior, looking for correlations, so we can identify which actions seem to have been more – or less – effective, and which customer profiles are more – or less – likely to engage in desired behaviors. Big Data allows us to formulate and test hypotheses as to why our audiences act as they do. The promise of predictive analytics, facilitated by Big Data, is that, based on analysis of truly massive amounts of data, we can begin to make reasonably accurate predictions of the future behavior of any given customer or group of customers.⁵


So how do you take advantage of this big opportunity? You start by answering three key questions⁶:

1. “What’s my baseline? What is my association trying to achieve? Where and how large is the gap between the two?” These are your main strategic goals, for instance, that you want to grow to having 80% of your potential universe as members.
2. “What actually drives success for my association?” These are your Key Performance Indicators (KPIs), the process-related metrics that determine how well you’re doing. So a KPI related to membership growth might be your retention rate.
3. “Who are my customers and what do they need from my association?” This is where you consider the question: “What do our members need to make association membership so valuable there’s no question they’ll renew?”

Predictive Analytics Saves Money

As you may recall, ASAE used to mail a substantial publications catalogue each year. While the catalogue highlighted new publications, it also included information about their entire backlist of books. The theory was that the catalogue led to “long tail” sales of those older publications. They decided to test that theory. ASAE analyzed year-over-year data, comparing when the catalogue dropped (and to whom) against when the sales came in (and from whom). According to Christin Berry, CAE, Senior Director of Market Research, they discovered that their “long tail” theory was incorrect; the arrival of the catalogue did not create a spike in sales of the backlist. What did impact sales was developing a profile of the “habitual book buyer” and marketing publications, new and existing, specifically to people who fit that profile. That insight allowed ASAE to print a smaller catalogue and send it to a more targeted list, reducing costs by 25% without negatively impacting sales.

ASAE has also used predictive modeling to improve their annual conference marketing. In 2013, they segmented members into people who never attend, people who always attend, and people who might attend, broke those groups down by other key characteristics (like role in their association and participation in other programs), and ran A/B testing for their meeting solicitations around things like types of messages, timing of messages, communications platforms used, and post-event follow up. According to Berry, as a result, ASAE saved over \$60,000 on conference marketing while exceeding their budgeted attendance numbers.

Data are critical to answering all three questions, but not just any old data. Below, we’ll share some key data concepts you need to understand in order to use your data effectively to inform your decision-making processes. 

4. <http://pages.alteryx.com/rs/alteryx/images/EIU-Alteryx-Big-Data-Decisions.pdf> 5. http://www.cio.com/article/716726/How_Big_Data_Brings_BI_Predictive_Analytics_Together
6. <http://www.forbes.com/sites/piyankajain/2012/08/19/3-key-analytics-questions-to-ask-big-data/>

Data Quality: Garbage In → Garbage Out

“Data are of high quality “if they are fit for their intended uses in operations, decision making and planning.”

J. M. Juran, management consultant⁷

What does it mean to have high-quality data? Data quality is defined by how the data will be used, not necessarily by specific attributes of the data itself. With that context in mind, information management architect David Bowman recommends eight Quality Data Management Objectives⁸:

- **Accessibility:** can be retrieved as needed by appropriate individuals
- **Accuracy:** correct, exact, and precise
- **Completeness:** fulfills formal requirements and expectations
- **Timeliness:** current, not outdated or obsolete
- **Integrity:** can retrieve what was requested
- **Validity:** obtained via an audited process
- **Consistency:** data entry standards are commonly defined and used across the enterprise
- **Relevance:** fit for its intended use

Organizations tend to discount data quality management. It's tedious, so staff members aren't highly motivated to keep your data clean. It's hard to assign a precise dollar amount to the value of clean data, so senior leadership tends not to make it a high priority for the staff they manage.

But there are significant quantitative and qualitative costs associated with dirty data.

- Incorrect or duplicate mailing addresses lead to wasted production, handling, and postage dollars.
- Incorrect email addresses result in blacklisting by the firms most organizations rely on as their first line of defense against spam. In other words, your messages get blocked and never even reach your audiences.

- Misspelled names show up in member correspondence, leaving a bad impression and potentially transforming “at-risk” members into lapsed members.
- Inaccurately or incompletely captured transactions generate incorrect charges, overly inflated or deflated counts, charge-backs, and higher rates from merchant credit card services.
- Incorrect or incomplete demographics produce missed sales opportunities and member disengagement.

The most serious consequence of poor data quality, and perhaps the most difficult to quantify, is its impact on organizational decision-making. Without accurate, quality data, your association's entire decision-making foundation is flawed. If you can't trust the information you have, you're operating blind. According to The Data Warehousing Institute's report *Data Quality and the Bottom Line*⁹, “[i]f not identified and corrected early on, defective data can contaminate all downstream systems and information assets, jacking up cost, jeopardizing customer relationships, and causing imprecise forecasts and poor decisions.”

The first step to ensuring data quality in your organization is to recognize that it is a problem and to take – or assign – ownership of that problem appropriately. Experts recommend creating a cross-departmental data governance team responsible for data quality and granting them the authority they need to ensure compliance. This is not an IT problem; it's an organizational problem that requires an organizational response.

7. in Roebuck, Kevin, *Data Quality: High-Impact Strategies - What You Need to Know: Definitions, Adoptions, Impact, Benefits, Maturity, Vendors*, Emereo Pty Limited, 2011

8. <http://www.information-management-architect.com/quality-data-management.html>

9. <http://download.101com.com/pub/tdwi/Files/DQReport.pdf>

Building a Strong Foundation with Data

The Association of Florida Colleges recently completed a multi-year data quality project. Adrienne Bryant, Member Information and Database Manager, was hired in 2008 to help the association transition to a new association management software system. Although AFC had earlier hired temporary staff to input paper membership records to the new database, they lacked strong quality controls. When Bryant was hired, she quickly discovered missing and incorrect data in their new system. Bryant worked closely with AFC's 28 chapters to update and correct their membership rosters, in the process generating accurate and verifiable membership counts for the first time. "We're still having a hard time using data to drive decisions," reports Bryant, "because we're missing some of the more detailed demographic and behavioral data we would need for that. But we're now starting from a strong foundation, where we know our membership data is correct and current, and we can build from there."

According to Wikipedia¹⁰, the following tools are critical to improving data quality:

1. Data profiling – assessing your data to understand where your data quality problems lie
2. Data standardization – creating rules about how your data will be collected and maintained
3. Geocoding – correcting name and address data based on US and worldwide postal standards
4. Record matching – finding and merging duplicate records
5. Monitoring – determining who is going to audit your data for quality and compliance, and on what schedule
6. Batch and Real time – programming software and building processes (real time) to maintain your data once it's been cleaned (batch)

Much like a successful exercise program, a sustainable data quality management program must become a deeply ingrained institutional habit shared by every member of your team. Achieving a clean, unified dataset that captures your key data points is a critical first step to implementing the type of evidence-based decision-making that allows you to most effectively allocate your limited resources to advance your mission. 🌟

10. http://en.wikipedia.org/wiki/Data_quality

11. Simon, H. A., "Designing Organizations for an Information-Rich World", in Martin Greenberger, Computers,

How Do I Know What Data to Use?

“A wealth of information creates a poverty of attention”

Herbert Simon, Professor of Economics Carnegie Mellon University

As management guru and former GE CEO Jack Welch noted, “You can’t manage what you don’t measure.” We would suggest the corollary is equally true: “You manage what you measure (and ignore that which you don’t measure).” In other words, the things about which we make decisions and the decisions themselves are often governed by what we can readily observe and count.

Let’s consider a simple example: should Frank go on a diet?

Frank weighs 217 pounds. This is a readily observable data point. Does he need to lose weight? Without at least knowing his height, we don’t know.

Frank is 5 ft. 9 in. tall, another readily observable data point. Does he need to lose weight? With these two data points (i.e. limited context), we could calculate his Body Mass Index (BMI) to be 32, which puts him in the “obese” category. At this point, we might be inclined to recommend Frank change his eating habits and start an exercise program.

Frank also has less than 8% body fat. With this third data point, we now realize that San Francisco 49ers star running back Frank Gore very likely does not need to go on a diet.

For many associations, the data we choose to use in decision-making is determined not by its value to our decision-making process, but by merely by its easy availability. The result can be an incomplete and seriously misleading picture of our association’s true health.

The typical association dataset includes, at a minimum, your membership database, your accounting software, a survey instrument, and a website analytics platform. Each is capable of capturing and reporting a wide variety of data, but your total dataset is almost always

Membership Count Myopia

In “Looking Beyond the Membership Numbers,”¹² *Associations Now* writer Joe Rominiacki highlights this very problem. Because we tend to manage what we measure, and associations always measure membership count, it’s tempting to focus on membership count to the exclusion of what’s really important: your association’s mission. That’s backwards. Yes, membership count is likely important to your financial bottom line and bolsters your credibility in legislative advocacy, but other measures such as membership composition, quality of engagement, and percentage of overall universe are often far more essential to achieving your mission than just increasing your head count. Rather than getting hung up on counts, it may be more relevant to ask: “How much is enough?” More members may be better up to a point, but beyond that you risk bringing in peripheral people whose commitment to your mission is incidental at best, whose contribution to your community will be minimal, and whose acquisition and renewal costs will exceed their marginal revenue. In other words, they’ll be a drain on your association’s resources.

based upon the extent to which data points can be easily observed, captured, and counted. The result for decision-makers is often, as Shakespeare observed, a three-inch Board meeting binder “full of sound and fury, signifying nothing.”

Picture your annual year-end Board meeting, at which you’re trying to decide if the past year was a good one or not, and what you should do as a result in the coming year. The conference committee notes in its report that

12. <http://associationsnow.com/2014/01/looking-beyond-the-membership-numbers/>

your annual conference drew the highest attendance ever and exceeded your net income goals. Like Frank Gore's height and weight, both attendance and net income are easily measured and objective data points, but are they the true measures of the success of your conference? Closer examination might reveal that you had an unusually high number of complimentary registrations. Further, you might discover that sponsors, whose contributions were largely responsible for the better than budgeted net income, felt they received a poor return on their investment and are not likely to return next year.

These financial metrics aside, what is your real strategic goal for your annual event? What if it is to improve the ability of your members to serve their stakeholders by providing them education on the latest market research and trends in your industry? None of the data cited above has anything to do with that goal. It's easy to count the data points that are easy to count, but that doesn't necessarily mean that they matter to your mission.

Data Types: Internal versus External

The more data you capture, the greater your opportunity to discover meaningful patterns. The more pixels you have, the more clear the image becomes.

What internal data could you be using?

Individual

- Contact Information (name, addresses, email addresses, phone numbers, social media profiles and accounts)
- Demographics (age, birthdate, gender, race/ethnicity, national origin, income, religious and political affiliations)
- Resume (education, degrees, credentials, certifications, employment history, professional affiliations and memberships)
- Transactions (dues payments, payments for programs, products, and services, donations)

- Participation (membership status, committee service, ad hoc volunteering, writing, speaking/presenting, training, attendance, mentoring, chapter participation, advocacy participation)
- Polling/Survey

Company/Institutional

- Contact Information (name, addresses, email addresses, phone numbers, websites, social media profiles and accounts)
- Demographics (locations, number of employees, specific industry segment, annual production)
- Finance (annual revenue, annual income, annual expense, total assets and liabilities)
- Transactions (dues payments, payments for programs, products, and services, sponsorship, exhibiting, donations)
- Participation (membership status, committee service, ad hoc volunteering, writing, speaking/presenting, training, attendance, mentoring, chapter participation, advocacy participation)
- Polling/Survey

In addition to data you collect directly from your members, there are a number of external datasets you can overlay with your member data to help you better understand the demographics of your audiences. External data sources include those that are related to an industry or profession, like size, geography, history, and trends, and those that are related to individuals through census categories like population, income, household information, and political affiliation.

Although you can pay for these datasets, there are a number of free sources as well, including:

- Amazon Web Services public data sets – <http://aws.amazon.com/publicdatasets/>
- US government open data – <http://www.data.gov/>
- Google's public data directory – <http://www.google.com/publicdata/directory>
- Datamob – <http://www.datamob.org/datasets>

Anticipating Members' Needs with Data

One of the key focus areas (and sources of revenue) for the Massachusetts Medical Society is providing continuing medical education (CME) for their more than 24,000 state-licensed physician and medical student members. They recently spotted a pattern in member behavior: members urgently asking for help with their web logins on the day before their license renewal applications are due.

Every physician is required to renew her state license every two years on her birthdate. In order to renew, physicians must report a certain number of CME credits. Invariably, when filling out the paperwork, many physicians discover that they're short. Fortunately, Mass Med sells a wide variety of online one-hour CME courses to help physicians quickly accrue the credits they need to renew.

Of course, Mass Med regularly emails all members with information about their CME offerings. But due to this pattern of behavior they spotted, they thought, "What if we sent an email to our physician members one month before they are due to renew that read something like: 'Short on CME with license renewal just around the corner? We can help!'" How does Mass Med know when members are due to renew their licenses? They are able to integrate data they receive from the State of Massachusetts into their AMS system and segment those members accordingly.

"We've just identified this opportunity, come up with the idea for taking advantage of it, and worked out the process for doing so. We're at proof-of-concept stage now, but we're very excited about the potential both to better serve our members and to bring in more revenue for the association," reports Frank Fortin, Chief Digital Strategist and Communications Director.

Visualizing Your Data

"Perfection is achieved, not when there is nothing more to add, but when there is nothing left to take away."


Antoine de Saint-Exupery
20th century French writer and poet

One of the issues in dealing with large amounts of data is that it's not always easy to spot patterns. Fortunately, there are data visualization tools to help you convert streams of text and numbers into graphical representations that reveal the larger story behind the details. When probed with powerful visualization tools, your data can produce a wide variety of insights, allowing you to:

- Aggregate data from multiple sources (e.g. AMS, web analytics, accounting system, third party sources, etc.)
- Test relationships among multiple variables
- Spot correlations, then drill down for more detail
- Filter results to identify and explore patterns
- Detect anomalies
- Confirm the range of values such as minimum, maximum, median, and mean
- Project future values through linear regression

What might those things look like in an association context? You could use data visualization tools to:

- Plot your membership by region and then overlay income demographics from the U.S. Census
- Identify your most frequent sources of volunteers
- Trend member participation in your programs over membership (or career) lifecycle
- Compare attendee profiles across event types
- Detect common exit points in website visits across various member demographics

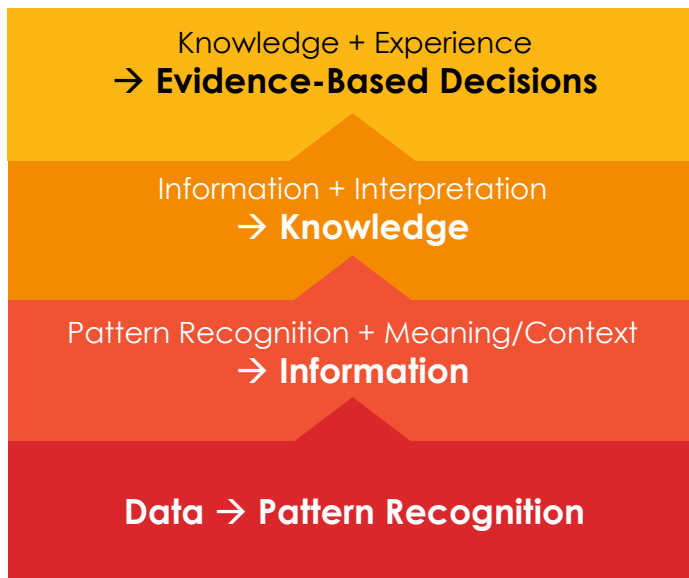
Data visualization tools can facilitate the development of performance dashboard reports, which help decision-makers quickly identify and focus on exceptions to the norm, both positive and negative, and adjust organizational direction accordingly. Visualization changes the game from the traditional “last year, plus 3%” or “that didn’t work the last time we tried it” thinking to taking rationally-defensible actions based on a data-informed reality. 

Data Visualization Tools

- 6 Data Analysis Tools Anyone Can Use - <http://gigaom.com/2013/01/31/data-for-dummies-5-data-analysis-tools-anyone-can-use>
- 30+ Free Tools for Data Visualization and Analysis - http://www.computerworld.com/s/article/9214755/Chart_and_image_gallery_30_free_tools_for_data_visualization_and_analysis
- 36 Best Tools for Data Visualization - <http://www.creativebloq.com/design-tools/data-visualization-712402>
- 50 New Tools Democratizing Data Analysis & Visualization - <http://www.greenbookblog.org/2013/08/04/50-new-tools-democratizing-data-analysis-visualization/>
- DataVisualization - <http://selection.datavisualization.ch/>
- Google Analytics App Gallery - <https://www.google.com/analytics/apps/results?category=Reporting%20Tools>

Is Data Alone Sufficient? The Role of Intuition

So far, we've been focused solely on data: what data you can use, what data you should use, how to ensure that it's trustworthy, and how to employ visualization tools so you can spot patterns. To return to our graphic above, though:



You can see that we've only gotten to the state of Pattern Recognition. How do we make the leap to information, knowledge, and, ultimately, to evidence-based decision-making?

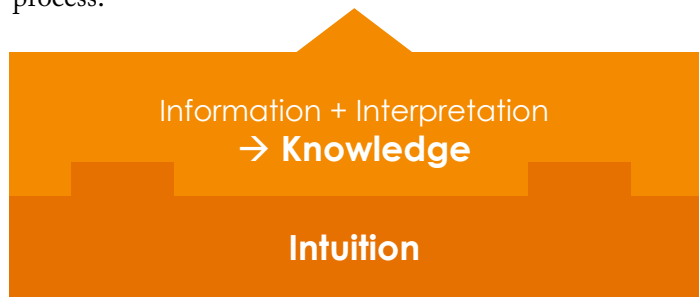
There is, as you might have guessed, a missing link. Data is a necessary component of making smart, evidence-based decisions, but it not the **only** component.

First, let's review the phases of decision-making.¹³

1. **Recognition:** "There's a problem that needs to be addressed."
2. **Deliberation and analysis:** "I need to marshal my resources, including data, to address the problem."
3. **Gestation:** "I need to let go and allow my mind work on the problem subconsciously." This is the most frequently skipped step, but it's critical to getting to the "aha!" moment.

4. **Decision:** "I've chosen a direction." Of course, this might involve negotiation and reaching agreement with other people.
5. **Rationalization:** "This is the reasoning behind my choice."
6. **Implementation:** "This is what we're going to do."

Data is a key step, but it's also only **one** step in the process.



What is intuition?

"[I]ntuitions are affectively charged judgments that arise through rapid, nonconscious, and holistic associations."¹⁴ Intuition allows us to synthesize isolated bits of data into an integrated picture. In the graphic above, it steps in between pattern recognition and information, turning, "Isn't that grouping interesting?" into "I wonder what might be causing it? What might it mean?" Intuition adds interpretation to the process of making decisions.

Prior to the era of ubiquitous access to computers, senior-level strategic decision-making was heavily reliant on intuition, in part because CEOs operated in a world of information scarcity. Desktop computers and, later, the Internet changed that landscape, as senior-level executives gained access to a new resource: immediate performance data. Suddenly, we were all in love with data, and we became uncomfortable with the less quantifiable aspects of decision-making. The 21st century has seen the pendulum swing back, with the best approaches combining both analysis (data) and deliberation (intuition).

13. <http://webarchive.iiasa.ac.at/Admin/PUB/Documents/WP-92-078.pdf>

14. <http://www.dmmserver.com/DialABook/978/047/068/9780470680001.html>

How do you know when each is appropriate, and in what amounts?

A significant amount of management research has been conducted on this question. Some of it is necessarily subjective, in that CEOs and other senior executives are reporting on their own mental processes and steps in making decisions. But some is objective, looking at the impact of those self-reported decision processes on organizational performance. As it turns out, “[u]se of intuitive synthesis was found to be positively related to organizational performance in an unstable environment, but negatively related to it in a stable environment.”¹⁵

In other words, data alone is very effective at informing predictable, routine decisions, and is less so at informing unpredictable, strategic decisions. Data analysis all by itself is highly useful for making day-to-day operational decisions, whereas intuition steps in to assist and supplement data in “creative decision processes, when the decision maker is facing a novel problem of strategic importance.”¹⁶

Greater Understanding Drives Growth

The Texas Medical Association has been actively engaged in data analytics and business intelligence (BI) for over a decade. John Dorman, COO, reports that the key for TMA was to move from “7-Eleven style BI” (i.e., “How much milk do we sell at 4 pm on Tuesdays?”) to using data to better understand their members. To facilitate that transition, TMA moved their data analytics program into their membership department, putting BI tools directly into the hands of their membership team so they could market TMA more effectively. In the early years of BI adoption (from 2003 through 2010), that led to enormous membership growth, with TMA increasing member acquisition from around 300 net additional members per year to over 1,200 net additional members per year. TMA is now transitioning to a more mature BI approach, one focused on maintaining the substantial market share they’ve already earned by tailoring conversations with each of their membership segments to highlight the unique value proposition most applicable for that segment. “The biggest benefit we’ve realized is that our business intelligence efforts have made us aware of changes in our market sooner, which allows us to respond rapidly and appropriately to changing member needs,” notes Dorman.

15. <http://hum.sagepub.com/content/53/1/57.abstract?patientinform-links=yes&legid=sphum;53/1/57>

16. <http://webarchive.iiasa.ac.at/Admin/PUB/Documents/WP-92-078.pdf>

In 1989, Kathleen Eisenhardt shared the results of a substantial research project in an article for *The Academy of Management Journal* titled “Making Fast Strategic Decisions in High-Velocity Environments.”¹⁷ In the article, Eisenhardt revealed and proved a variety of propositions about effective decision-making. Two are particularly relevant for our purposes:

“Proposition 1: The greater the use of real-time information, the greater the speed of the strategic decision process.”

Why? Obviously, problems surface more quickly when you’re paying continuous attention, but also, “executives

who attend to real-time information are actually developing their intuition. Aided by intuition, they can react quickly and accurately to changing stimuli in their firm or its environment.”

Even more importantly, though: “Proposition 6: The greater the speed of the strategic decision process, the greater the performance in high-velocity environments.”

Why? People learn by doing. The fewer decisions you make, the less practice you get making decisions, and the less opportunity you have to learn from mistakes. Or, to quote one of Eisenhardt’s interview subjects: “Do something, don’t just sit around worrying about decisions.”

“Study Your Members Like Insects”

That’s what the Entomological Society of America (ESA) decided to do. Any association that includes a large student member population faces a dilemma: students are your future, but how much time and effort should you devote to recruiting them? After all, they tend to be low-revenue members, and they may not stick with the profession or the association after graduation.

ESA’s position had been “recruit students heavily,” with students making up about 30% of their total membership, based on the assumption that they’d start early in forming a life-long relationship with the association. But ESA had some questions:

- “What is the actual path students take through membership?”
- “How successful have we been in moving students along the path?”
- “How do we keep students as they transition from school into careers?”
- “Where should we invest our retention dollars?”

They went to the data to answer these questions, specifically focusing on individualized data, rather than the more common aggregate data association professionals tend to work with, to determine the path. “Collect and track member data by individual, and save as much individualized information as you can, even if you’re not sure how you’re going to use it. Once you have it, you can get historical trends,” advises Chris Stelzig, Director of Certification.

They discovered a large drop off in membership between the student and young professional/transitional categories, and found that aggressively recruiting students didn’t have much of an impact on long term membership growth. As a result, ESA has retooled their membership efforts to focus more on retention across all categories, but particularly of their regular professional members, who bring in more revenue, are more likely to renew, and are more likely to be thought leaders in the profession.

17. https://hec.unil.ch/docs/files/83/655/eisenhardt_1989_making_fast_strategic_decisions_in_high-velocity_environments.pdf



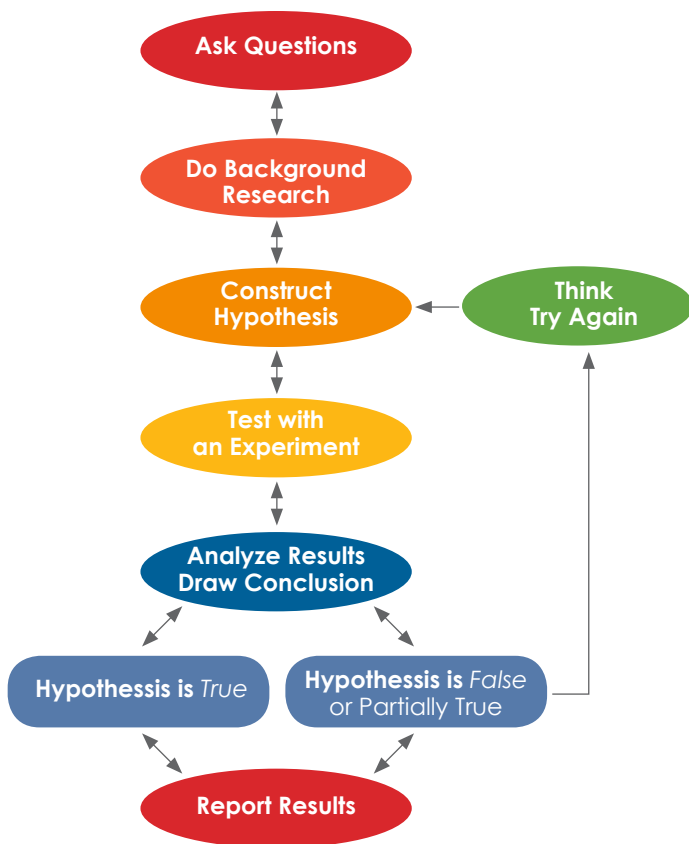
Moving from Operational Dashboards to Evidence-Based Decision-Making

“Concepts without percepts are empty; percepts without concepts are blind.”

Immanuel Kant, 18th century German philosopher

This quote suggests that neither intuition/theory (concepts) nor data (perceptions) can exist successfully on its own. They come together through the scientific method. Don't worry – we're not advocating that you go back to school and earn a graduate degree in physics. We are, however, advocating that you think a little like a scientist.

The Scientific Method



Did you notice that data and intuition are BOTH required? Creativity and close observation (i.e., the sort of frequent interaction with real-time data recommended by Kathleen Eisenhardt) help illuminate problems to

solve, that is, your questions. Research requires you to collect data. Your intuition and experience inform your hypothesis formation. Then it's back to the data to test your hypothesis and analyze the results that will help you decide what to do. "While data is essential for scientific decision making, theory, intuition, and imagination remain important as well – to generate hypotheses in the first place, to devise creative tests of the hypotheses that we have, and to interpret the data that we collect."¹⁸ Preserving a primary role for data allows you to remain skeptical, to push through correlation to seek causation, and to understand the limits of what you can know.

It's also critical to realize that one of the best things about data is that it actively helps you form better questions. "Ideas only arise by people thinking about causative mechanisms and using them to frame good questions."¹⁹ In order to make good, evidence-based decisions, you must identify the mission-driven questions your association needs to answer, such as:

- How well are we fulfilling our mission?
- Which elements of our mission remain relevant? Which do not?
- Which aspects of our mission are we advancing best? Where have we stalled?
- How well are we serving our members? How do we know?
- Are we serving some segments better than others?
- How well do we run our association?
- What is our future as an organization?
- What actions can we take today that will have a measurable impact on getting us there?

18. <http://www.technologyreview.com/news/523661/scientific-thinking-in-business/>

19. <http://aeon.co/magazine/nature-and-cosmos/science-is-becoming-a-cult-of-hi-tech-instruments/>

Evidence-Based Decision Making Benefits Members AND the Association

"It takes too long for architects to get their licenses" was received truth at the National Council of Architectural Review Boards (NCARB). The only problem, according to Guillermo Ortiz De Zarate, Director, Information Systems, is that, "I was worried that our entire association was making decisions based solely on anecdotal evidence." So he decided to test that assertion.

For an architect to be licensed, she needs to get a bachelor's degree, serve an internship in an architecture firm, and take a licensing exam. Individual states are allowed to set their own standards as to how that takes place. Some require degrees from an accredited school. Some do not. Some allow budding architects to parallel track their undergraduate schooling, their internship, and their licensure exam. Some do not. "I wanted to find out if any of those differences had an impact on the likelihood of passing the licensing exam," says Ortiz De Zarate.

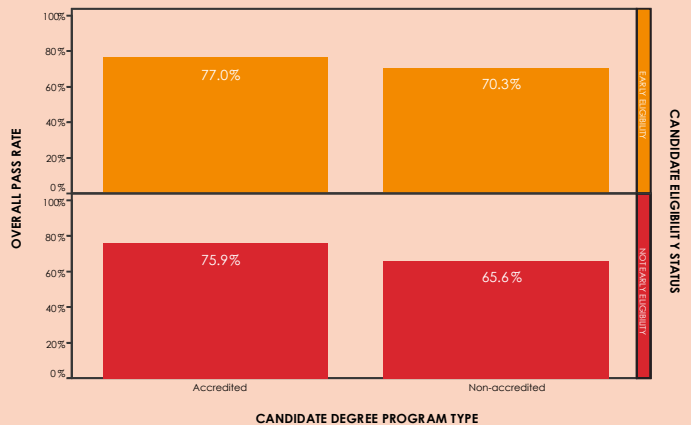
NCARB publishes an annual report, *NCARB by the Numbers* (latest edition 2013)²⁰ that, among other things, tracks the path to licensure. As you can see from the two charts reproduced below, attending an accredited school that allows parallel tracking is positively correlated with increased pass rate and dramatically shortens the amount of time it takes to go from "first day as an architecture major" to "licensed architect."

"This information has allowed NCARB volunteer leaders to reduce the unintended consequences of the sometimes-controversial decisions they make about internship and licensure requirements, while at the same time inspiring university architecture programs to take action to improve the process of educating architects thanks to what they've learned from our data," notes Ortiz De Zarate.

Overall ARE Pass Rate by Candidate Degree Program Type and Eligibility Status²¹

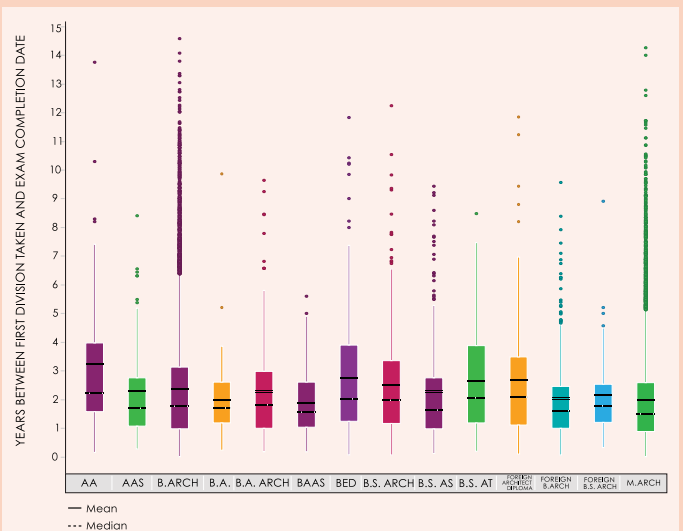
If we examine pass rates among early eligibility candidates and those with degrees from NAAB-accredited degree programs simultaneously, we can see that, even after controlling for the presence or absence of the degree from a NAAB-accredited degree program, candidates who tested before the completion of the IDP have higher divisional pass rates. This points to a possible real synergy between the simultaneous completion of the IDP and the ARE.

The following jurisdictions allow for some version of early eligibility:
AL, AK, AZ, AR, CA, CO, DE, DC, FL, GA, HI, ID, IL, IN, IA, KS, KY, LA, MD, MA, MI, MN, MS, MO, MT, NE, NH, NM, NY, NC, ND, OH, OK, OR, PA, PR, RI, SC, SD, TN, TX, UT, VA, VI, VT, WA, WV, WI, WY



Years Between First Division Taken and Exam Completion Date, by Degree Type

Candidates with Masters of Architecture degrees have a median ARE completion time of 1.5 years—faster than all other major degree types. The Bachelor of Architecture degree has a median completion time of 1.76 years, which places it faster than other common degrees such as the Bachelor of Science of Architecture or Bachelor of Arts of Architecture.



20. http://ncarb.org/en/About-NCARB/NCARB-by-the-Numbers/2013_NBTN.aspx

21. Source: *NCARB by the Numbers*, June 2013. © Copyright National Council of Architectural Review Boards, 2013. Used by permission.

Moving from Operational Dashboards to Evidence-Based Decision-Making


Experience and data can combine to create a powerful partnership that allows you to engage in a conversation with your data. What kinds of conversations can you have? You might want to ask your data questions like:

- “How are our current and prospective members alike and different? When in their career are prospects most likely to join?” Audience profiles should include demographic, behavioral, transactional, and attitudinal data. The more comprehensive the dataset in each of these areas, the more likely you are to discover trends and patterns that will allow you to identify those prospects with the highest likelihood of joining, and properly allocate resources.
- “How do we engage our members? What do we mean by engagement?” Engaged members renew, but “engagement” means something different to a new member versus a seasoned member, or to a student versus a young professional versus a senior executive. What combination of activities produces the highest retention rate? How does this combination change based on various demographic criteria? Recognizing those differences and targeting your message, offers, and programming accordingly helps you engage the right members in the right ways at the right times.
- “What signals that a member is likely to lapse?” Although not renewing may be as much a function of lifecycle as of particular behaviors, a deep exploration of your dataset may well expose the way a member’s relationship with the association changes over time, depending on where she is in her professional or personal life, and help you prepare appropriately.

To consider an example, let’s imagine that the Association of Widget Professionals (AWP), in reviewing their retention rate and average membership tenure, notices that their critical drop point appears to be after the third year. That is, the majority of members who lapse drop after three years. And if the association keeps the member in that fourth year, they have her for the long haul.

Upon observing this pattern, the average association might look at that and think: “We need to send more renewal notices to third-year members.”

But AWP makes evidence-based decisions, so they dig deeper. What might be causing that third-year drop? They would start looking for additional patterns in those third-year members. AWP might discover that a large percentage of their members attend the annual conference, which rotates West Coast – Midwest – East Coast on a three year pattern, and for which members receive a significant discount. They might discover that most widget professionals are on an “up or out” career track, with many of them leaving the profession after three years if they aren’t promoted. They might discover that a large percentage of their members are there to earn a professional certification, which, after three years, they have, so they no longer feel that AWP membership is a necessity. Notice that all of these are hypotheses, which would have to be tested using more data. Merely sending additional renewal notices won’t help them figure out which of these hypotheses might be correct and is unlikely to impact their third-year retention rate.

These are just a few of the critical ways in which a creative conversation with a robust, integrated, clean dataset, facilitated by visualization tools and informed by your own experience and curiosity, can produce the wisdom you need to make good evidence-based decisions. 

Final Thoughts: Making the Leap

If the information we've shared above about the opportunities provided by Big Data, the wide variety of sources you can use, the ways you can integrate and visualize your data, how data and experience compliment each other, and the great evidence-based decisions that will result sounds persuasive (and we hope it does), why aren't more associations doing evidence-based decision-making?

The short answer is: **if it were easy, everyone would be doing it.**

Tata Consultancy Services recently identified the top ten challenges businesses face implementing Big Data strategies:



We submit that it's not **just** for-profit businesses that struggle with these issues.

Associations experience particular problems because our data comes in from so many sources, it can be hard to get a complete picture. Many associations store data in multiple locations, with each department maintaining its own records. This is compounded in associations that have independent components or chapters, where separate datasets for the same member often exist at the local, state, regional, and/or national level. Data may also be isolated by type. Survey results, for example, are frequently stored as a free-standing dataset. The resulting fragmentation invariably leads to multiple records for the same member, each having a different and sometimes conflicting set of demographics and behavioral information, which creates a distorted and incomplete picture of each member and of the membership community as a whole.

The most effective way to address that is through data mining, which occurs when you integrate multiple internal or external datasets into a single data warehouse. Data warehousing and mining brings together these disparate sets of data so that skilled data analysts can discover the types of patterns and trends you need to start on the path to evidence-based decision-making. Data mining is not a simple or inexpensive process, though. In order to be effective, it generally requires clean data, specialized software (SAS, SPSS, Statistica, Oracle, or the like), and a sophisticated understanding of data architecture, statistics, model building, and model evaluation.

What if you can't afford all that? There are also relatively low-cost data visualization tools, such as Tableau and QlikView, which provide an integration layer to allow you to analyze data from disparate datasets. In that case, the data will all continue to live wherever it currently lives, and the integration layer will allow you to perform broad-based analytics that will give you overview information

22. Source: TCS global trend study 2013 - *The Emerging Big Returns on Big Data*. Reprinted by permission of Tata Consultancy Services.

The Mother of All Big Data Projects: the 2012 Obama Campaign

The 2012 Obama campaign was famous for its sophisticated use of data to micro-target voters, likely voters, and likely non-voters, turning broad demographic categories into “a collection of individual citizens who could each be measured and assessed on their own terms.” The campaign was extremely sophisticated, particularly in its use of mobile and social technologies, and in the hypothesis-experiment-learn-iterate process we advocated above. The story is a fascinating one that was perhaps best covered by a three-part series in MIT's *Technology Review*:

- Part 1 <http://www.technologyreview.com/featuredstory/508836/how-obama-used-big-data-to-rally-voters-part-1/>
- Part 2 <http://www.technologyreview.com/featuredstory/508851/how-obama-wrangled-data-to-win-his-second-term/>
- Part 3 <http://www.technologyreview.com/featuredstory/508856/obamas-data-techniques-will-rule-future-elections/>

For an additional deep-dive on this topic, see the December 2013 *Harvard Business Review* “Spotlight on Making Your Company Data-Friendly.”

from several of your data sources. You can also use Excel, Access, various open source tools, or perhaps even some of the capabilities of your AMS, plus some manual work, to create an integration layer.

Another hurdle relates directly to the role of intuition. On some level, it appears to be an innate trait. What if you lack it? Can you develop it? Whatever your natural level of intuition, there are proven techniques to improve your skill in this area:²³

- Expand your scope of sources. In short, use more data!
- Develop more alternatives. Force yourself to consider more solutions than you initially come up with.
- Pay attention to trends, and not just those in your business or industry.
- Track what happens. Experiment, using yourself as a test subject. How did you make a particular decision? What happened as a result?

One of the most important things you can do to improve your intuitive skills is to find a mentor who can advise you through difficult, strategic decisions that you are making in your real, unpredictable, uncertain, complex association environment. To improve, practice. Make the kinds of strategic decisions we've been discussing, informed by evidence, using your own intuition, and under the guidance of someone more experienced whom you respect and trust, pay attention to what happens, and learn.

Associations are also particularly guilty of shunting anything to do with data into IT. Data is not the job of your IT department. Data is everyone's job. “To extract the most value from big data, companies' first order of business may be to eliminate data silos between departments and find better ways to work together.”²⁴ Business long ago brought IT out of the server room, converging IT with other departments through the creation of cross-departmental, matrixed teams formed to address critical strategic issues that affect the core business

23. <http://www.fosterpartnersgroup.com/?p=2742>

24. <http://pages.alteryx.com/rs/alteryx/images/EIU-Alteryx-Big-Data-Decisions.pdf>

of the business. Associations are often criticized for being behind the times. That's not always fair or accurate, but in this particular case, it too often is. We need to join business in welcoming IT onto the senior leadership team as a strategic decision-making partner and in sharing the information that drives decisions widely across the enterprise.

However, the most important thing you can do to ensure success in your decision-making, which emerged again and again in our research, is: **once you've decided, commit.** "Only those who are able to muster a degree of commitment and determination that is by some definitions excessive will be in a position to win. That's not to say that wildly optimistic thinking will predictably lead to success. It won't. But in tough competitive situations where positive thinking can influence outcomes, only those who are willing to go beyond what seems reasonable will succeed."²⁵ The very act of hedging your bets prevents success. In other words, worry less about making the one maximally perfect, right decision (which doesn't exist), and more about making the decision right.

None of this can happen without internal culture change, which is perhaps the most difficult barrier to overcome. Culture change is too large a topic to address here, but one element we do want to stress is the critical importance of executive-level support. Just as with data quality initiatives, this work of culture change is challenging

to the established ways your association does business. Requiring people to use data, to ask better questions, to form hypotheses, to test, to learn, and to iterate and improve can feel scary if you're accustomed to "because we've always done it that way" thinking, which is why it requires positive support from senior leadership and an optimistic confidence that your staff is up to the challenge.

We'd like to leave you with one final example of the power of Big Data and evidence-based decision-making. Thanks in part to a Google grant and to software from Salesforce.com and Palantir, three international anti-human trafficking organizations, Polaris in the U.S., LaStrada International in Eastern Europe, and Liberty Asia, launched the Global Human Trafficking Hotline Network. The purpose of the Network is to connect local, regional, and national anti-trafficking helplines around the world to disrupt the flow of human trafficking. The Network allows anti-trafficking organizations to standardize data collection and share data securely, which speeds up immediate response to trafficking situations. In a larger sense, the Network also helps international aid organizations and law enforcement to identify patterns that allow them to deploy their resources more effectively to prevent future abuses. "This global safety net will not only make it easier for the millions of people held in slavery to reach out to a hotline and access help, but it will also ensure that the first responders in the field are more prepared for that call when it comes in."²⁶ Now that's powerful. 🌟

25. <http://hbr.org/2013/11/what-makes-strategic-decisions-different/ar/1>

26. <http://www.fastcolabs.com/3009686/how-google-is-fighting-sex-trafficking-with-big-data>

Questions for Reflection

- How does our association currently make decisions?
- What is our association trying to achieve? What actually drives success for our association?
- Who are our customers and what do they need from our association?
- Where is our data currently? Who “owns” it?
- Is our data clean, coherent, complete, and accessible? If not, how will we fix it?
- What key data are we missing? How will we acquire it?
- How can we better integrate our various data sources?
- How can we discover and track what’s important, not just what’s easy?
- What tools and resources do we need to more effectively analyze and visualize our data? Are these tools and resources accessible to all the decision-makers within our association?
- Are we using data and intuition/experience appropriately in making decisions? Do we follow the hypothesis-experiment-learn-iterate process?
- How could we improve the quality of the questions we ask?
- What aspects of our decision-making process might we want to change or improve as a result of what we’ve learned?

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About Peter Houstle

Peter Houstle is CEO and co-founder of Mariner Management & Marketing, an association management and consulting company. He serves as executive director for several clients and provides a variety of management consulting services to others. Along with his partner, Peggy M. Hoffman, he developed the Dashboard Indicators for Chapter Success, which is highlighted in ASAE's Components Relations Handbook. Peter and Peggy have also completed numerous projects in volunteer, leadership, and organizational development with their consulting clients, which have been featured in ASAE publications and conferences.

Peter has served on the Data Analytics Team of the ASAE Technology Section Council, where he and his teammates developed a comprehensive overview of data management for associations. Peter and the team have presented this work at several ASAE events.

Helping associations navigate the intricacies of effective strategic thinking, evidence-based decision-making, and program development comes naturally to Peter after more than 30 years in senior-level association management and ten years working behind the scenes – and on stage – in the entertainment industry. His background includes serving as executive vice president for the Retailers' Bakery Association (RBA) and for the James Borck Deli-Bakery Foundation.

Peter earned his MBA from University of Maryland's Robert Smith School of Business and a BA in Music from Ithaca College. He has also served as a writer and speaker on a variety of non-profit management issues for ASAE and numerous associations. When he's not helping nonprofits achieve their goals, Peter is likely in the heat of a pick-up basketball game or relaxing at the piano.

About Elizabeth Weaver Engel

Elizabeth Weaver Engel, M.A., CAE, CEO and Chief Strategist at Spark Consulting LLC, has more than 16 years experience in association management. Although her primary focus has been in membership, marketing, and communications, her experience has been wide-ranging, including corporate sponsorship and fundraising, technology planning and implementation, social media and Internet strategy, budgeting, volunteer management, publications, and governance.

Spark provides strategic membership and marketing advice and assistance to associations that have the willingness and capacity at both the staff and Board levels to ask themselves tough questions and take some risks in service of reaching for big goals. Forget settling for incremental growth by making minor changes to what you're doing - we're going to uncover and solve the root problems that are holding your association back!

Elizabeth combines a focus on asking the right questions and finding and implementing creative solutions

with a broad understanding of the association sphere. Throughout her career, she has excelled at increasing membership, revenue, public presence, and member satisfaction while decreasing costs through a focus on the efficient and effective use of data, staff, and technology to serve organizational goals and constituents.

Prior to launching Spark, Elizabeth consulted in online campaigns and marketing and Internet and social media strategy for Beaconfire Consulting and in a wide range of subject areas in association management in the not-for-profit consulting practice at RSM McGladrey, Inc. She has also served associations directly in a variety of positions, including Director of Member Services and IT, Director of Marketing and Sponsorship, Vice President of Marketing, and Acting CEO.

Elizabeth is a Certified Association Executive and holds a Master's degree in government and foreign affairs from the University of Virginia.