American Public Human Services Association
TODAY'S EXPERTISE FOR TOMORROW'S SOLUTIONS

Analytic Capability Roadmap 1.0 for Human Service Agencies

A White Paper by the APHSA National Workgroup on Integration Analytics Committee

National Workgroup on Integration

Executive Summary

Analytics is a subject of immense interest today as human service agencies strive to provide more effective services and achieve better outcomes with the help of improved techniques and tools for analyzing data from multiple sources. This guidance provides timely information on this topic in response to five key questions:

- What is meant by "Analytics," especially in the context of Human Services?
- What is the Human Services Capability Assessment Model and how can it be used?
- What should be kept in mind when dealing with analytics?
- What steps should an organization take now to prepare for using analytics?
- If additional assistance is desired, what are the basic tenets of a good analytics RFP?

Starting with a summary of the excellent work done by Thomas Davenport and Jeanne Harris in their book, *Competing on Analytics: The New Business of Winning,*[1] we describe two levels of analytics—Descriptive Reporting and Advanced Analytics. Ultimately, as the authors point out, better DECISIONS are the goal of analytics NOT more reports, more portals, more scorecards, or more drill-downs. While this may seem self-evident, the track record on this point in the field of human services, as with so many others, begs for a common-sense approach to preparing and implementing an analytics strategy.

To that end, we have provided a framework for thinking about analytics, the *Human Services Capability Assessment Model.* The framework consists of different parts of the analytics continuum arrayed in the form of a maturity model such that each of the framework's pieces can be viewed through one of three different stages of maturity. By using the *Capability Assessment Model* as a guide, agencies can identify not only where they are today along the analytics maturity pathway but also the characteristics of the next higher level of analytics sophistication, should they desire to pursue it.

But knowing where one *is*, and where one *wants to go*, is not the same thing as *actually getting there*.

For this reason we have included a section in this guidance called "Key Points Worth Remembering." In it, we emphasize the critical importance of using "clean" data; ensuring consistency in data definitions; and having free and open communication among the people who collect the data, the people who analyze it, and the people who use it. Finally, we cannot emphasize enough the critical role that effective data governance plays in both analytics and data-sharing programs. Governance and management structures should include both owners and users of data.

Next, we describe a strategy for moving forward on analytics starting with understanding just how much analytical horsepower your organization actually needs. The *Capability Assessment Model for Analytics* can be an indispensable tool for this strategy by matching where your agency is with where you want your agency to be. Developing a use case can be of great assistance as well as setting staff expectations relative to what can and cannot be achieved with the data available and the extent to which the data can be used effectively.

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1. Davenport, Thomas H. and Harris, Jeanne G., *Competing on Analytics: The New Business of Winning,* Harvard Business School Publishing, 2007.

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I. Introduction

State and local health and human service agencies continue to operate with fewer resources and diminished capacity while simultaneously beginning to plan, develop, and implement new ways of conducting business. A key component of this dramatic turn toward agency transformation is the ability to leverage advancements in technology and data analysis to support each organization's unique business objectives toward achieving shared outcomes and reducing costs through less duplication across programs. APHSA's conceptual platform for this transformation is rooted in *Pathways,*[2] the association's vision for the future of health and human services, and is further delineated through its Business Model[3] for health and human services in the 21st century and the recently released *A-87 Exception Toolkit for Human Service Agencies: Description of the Exception and Recommendation for Action.*[4]
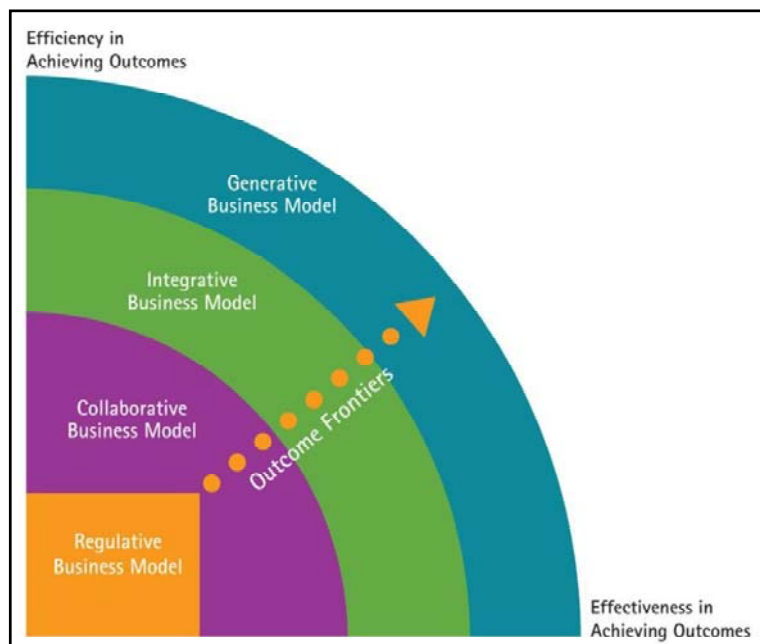
In conjunction with APHSA's previous guidance,[5] states and localities may use this roadmap to prepare their organizations for the changes and opportunities analytics provides to achieve new organizational business objectives outlined in APHSA's business model. These include common process functions, roles of the consumer, technological and organizational infrastructure, and measures—all of which, when combined with enhanced analytic capability, can improve organizational efficiency and accountability and reduce health disparities. Advanced analytics, defined further in this guidance as data-driven capability supporting statistical analysis,

Figure 1: Upon the development of the 21st century business model, the NWI developed a Health and Human Services Integration Maturity Model (APHSA, 2013). The maturity model incorporates components of the business model and describes the maturation of them along the Human Services Value Curve (Oftelie, 2011). The model allows agencies to self-assess their current state of operations and where additional attention may be focused relative to moving toward the 21st century vision of transformation, or the generative state. One feature of the business model to which states/localities may assess themselves is on the degree of which they operate within an integrated infrastructure (including the use of data to inform operations).*

2. *Pathways* is centered around four main outcome areas: Achieving Gainful Employment and Independence; Stronger Families, Adults and Communities; Healthier Families, Adults and Communities; and the Sustained Well-being of Children and Youth. A fully integrated health and human services system operates a seamless, streamlined information exchange, shared business services, and coordinated care delivery system through a consumer-focused, modern marketplace designed to improve consumer outcomes, improve population health over time, and bend the health and human services cost curve; see *http://www.aphsa.org/content/APHSA/en/pathways.html*
3. DeSantis, Cari. *Business Model for Horizontal Integration of Health and Human Services.* APHSA, 2012.
4. *http://www.aphsa.org/content/APHSA/en/pathways/NWI.html*
5. Health and Human Services Integration Maturity Model. APHSA, 2013. *http://www.aphsa.org/content/APHSA/en/pathways/NWI.html*
*   *Adapted from Human Services Value Curve. Harvard University's Leadership for a Networked World, 2011.*

forecasting, predictive analytics, and optimization, can help to establish a holistic view of the people being served as well as contribute toward achieve outcomes for those served by enabling:

- Development of effective strategies that maximize resource allocations and enhance customer service and satisfaction;

- Operational and programmatic decision-making that promotes efficiencies in accessing and providing care;

- Effective implementation of a performance measurement system and a continuous improvement process;

- Actionable insights to assist in the reduction of fraud, waste and abuse, including the identification of anomalies and other non-standard profiles as well as providing collectors and auditors with the ability to leverage integrated, case-based analytics tools;

- Utilization of comprehensive information in real-time; and

- Reducing health disparities among certain populations, and targeting services through forecasting service demand and designing services and delivery systems that most directly meet the needs of the given population through a culturally responsive and competent approach.

This analytic capability roadmap for human service agencies can be of greatest assistance to staff at each level of the organization (e.g., CEOs, CIOs, program directors, performance accountability directors, mid-level managers, supervisors, direct line workers) as they consider organizational and policy initiatives to transform current operations across the multiple lines of business and to ultimately enable achieving enterprise-wide outcomes. It can also be of value to federal administrators seeking guidance for policy reform and the effects of health care reform implementation relative to the horizontal integration of health and human services. This guidance also may assist academia when partnering with states, localities, the industry, and other stakeholders by putting analytics into practice, especially in evaluation and replication.

II. What Do We Mean by "Analytics"?

As Thomas H. Davenport and Jeanne G. Harris discuss in their book, *Competing on Analytics: The New Science of Winning*, analytics involves the collection, synthesis, and analysis of field-specific data that can lead to improved decision-making as a result of understanding underlying patterns and trends.

Harris and Davenport divide the subject of business analytics into two parts: Descriptive Reporting and Advanced Analytics. Under Descriptive Reporting, they identify four levels of increasing value to the user, relative to the types of questions that can be answered at each stage of maturity:

- Standard Reports—What just happened and why?
- Ad Hoc Reports—How many, how often, who, and where?
- Drill Down—Exact root cause; identify the problem.
- Alerts—What actions are needed?

Advanced Analytics goes beyond the collection and sorting of data to turn the information into data capable of providing future options and predictive capabilities. These capabilities can then forecast possible prospective results under different scenarios associated with each option through detailed pattern analysis:

- Statistical Analysis—Why is this happening?

- Forecasting Scenarios—*What if* trends?
- Predictive Analytics—What happens next?
- Optimization—Predict, prescribe the best that can happen.

Harris and Davenport's decision-making framework has two dimensions, public value and sophistication of data analysis, both of which increase as one moves up their "Analytics Capability Curve" from the lowest level (Standard Reports) through the mid-range stages of analytics (Alerts, Statistical Analysis, and Forecasting) to the highest levels (Predictive Modeling and Optimization).

Ultimately, as the authors point out in *Analytics at Work*, better DECISIONS are the goal of analytics, *not* more reports, more portals, more scorecards or more drill-downs.[6]

Within human services, the field of analytics is just taking off. While in the past data analysis was largely limited to looking for patterns of fraud and abuse by providers and clients, the

Figure 2: Accenture graphic adapted from original graphic published in Davenport & Harris's *Competing Analytics: the New Science of Winning* (2007).

predictive powers of analytics are increasingly being relied upon to understand not only why something is happening but what may happen next and what can be done to ensure the best possible long-range outcome. Analytics typically in use in human service programs, to the extent they are in use at all, are used to gain a better understanding of the people being served; increasingly today they are being used to understand their needs across multiple programs.

III. Human Services Capability Assessment Model for Analytics

One way of thinking about analytics in the context of human services is to envision different activities associated with the field; e.g., creating standard reports out of data, generating special one-time ad hoc reports, drilling down deeper into the data, triggering alerts when specified norms are exceeded, comparing expected results with outliers, and forecasting the future based on past trends. For each of these "domains," it is useful to describe three different levels of activity—basic, advanced and leading—based upon increasingly higher levels of sophistication. The result is a "capability assessment model" for analytics, as shown in the table below.In this case, eight domains have been identified and arrayed down the left-hand column; across the top are the three levels of "maturity" just described. Within each cell of the 8 x 4 matrix is a description of the activity at that particular level of maturity.

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6. Davenport, Thomas H., Harris, Jeanne G., and Morison, Robert. *Analytics at Work,* Harvard Business School Publishing, 2010.

From left to right in the table along any particular row, the description takes on increasingly sophisticated and detailed activities. For example, in the first domain, standard reports at the Basic Level, the report formats simply respond to those necessary for federal reporting, and are submitted four times a year to management. Moving up the maturity scale to the Advanced Level, the reports not only do everything they did in the previous stage of maturity but, in addition, report on additional factors (Key Program Indicators) and are delivered faster (monthly, via the web) and to a broader range of people than the audience at the Basic Level (management and appropriate persons). By the time the domain reaches the highest level of maturity (Leading Level), everything described about the reports at the Advanced Level is maintained and additional characteristics are added to the list of descriptors (geographic segmentation and delivered at least weekly).

Two points are worth noting about the Capability Assessment Model.

- First, the narrative within the cells has at least two dimensions: descriptive characteristics and timeliness. Both must be met to consider the activity qualifying for the specified maturity level. For example, if the standard reports were formatted to meet the federal requirement and contained Key Program Indicators as well, but were not delivered to management and appropriate staff monthly, the activity should be classified at the lower (Basic Level, in this case) maturity level.

- Second, and in addition to helping agencies determine where their organization's analytics capabilities are today, the Capability Assessment Model points the way to higher levels of analytical sophistication by describing the characteristics of the next higher level or two so that agencies can establish goals relative to the organization's desired future state.
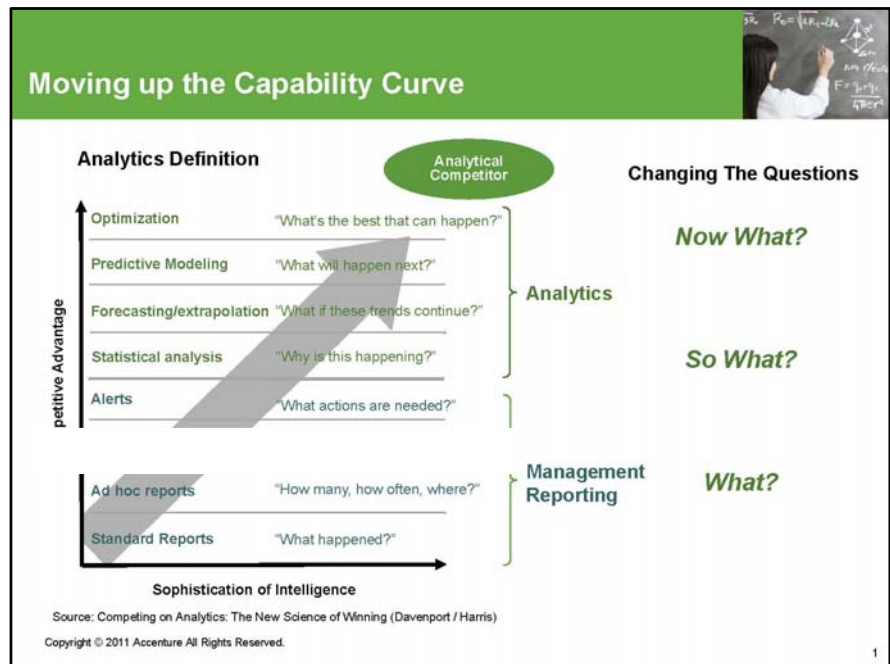
Figure 3: Adapted from graphic published in Davenport & Harris's *Competing on Analytics: the New Science of Winning* (2007).			
Domain	**Basic**	**Advanced**	**Leading**
Standard Reporting	Program data in formats appropriate for federal reporting are delivered to management quarterly.	Program data in formats appropriate for federal reporting together with Key Program Indicators (KPI) are delivered to management and delivered to appropriate persons via the web at least monthly.	Program data in formats appropriate for federal reporting together with KPI and geographic segmentation are delivered to appropriate persons via the web at least weekly.
Random Reporting	Queries about the presence or non-presence of described conditions can be run and responses delivered within 30 days.	The agency deploys a data warehouse and has basic inquiry tools that facilitate answers to inquiries within one week.	The agency deploys a data warehouse with the current version of an inquiry tool that facilitates answers to inquiries within hours or minutes.
Focused Reporting	Centralized power users are licensed to analyze the component items comprising a published data element.	Key supervisory decision makers are licensed to analyze the component items comprising a published data element.	Staff members that administer a program are licensed to analyze the component items comprising a published data element in a program administered by the licensee.

Domain	Basic	Advanced	Leading
Automated Alerting	Case alerts are developed by applying rules or policies to batch runs and are distributed quarterly to staff for manual review and application.	Case alerts are developed by applying rules or policies to batch runs and are distributed to staff for automated review and application at least weekly.	Case alerts apply rules or policies in real time and are distributed to staff for automated review and application in real time.
Statistical Analysis	Structured data are analyzed comparatively between periods, regions, and where possible, compared nationally and measured using relevant percentages and other basic fractional assessments. Sources of all data are clearly identified, defined, and explained.	Multi-period structured data are used to describe trends; sources of data and the definitions used are clearly described; definitional differences between the reviewed data and national or comparative data are clearly explained; and basic regressions may be used to show correlations and conclusions. Results are reviewed with at least one person who has significant training in statistics.	Structured and unstructured data may be used to glean conclusions after a thorough description of the data involved and disclosing any bias that may have been present in the data due to collection methods. Aggregated data may be used by taking raw data and eliminating "noise" to satisfy distributional assumptions of data modeling. Advanced statistical methods are used and conclusions are reviewed and verified by a statistician or data scientist.
Forecasting and Extrapolation	Basic static linear extrapolation is used to forecast utilization based on the most recent available historic data.	Dynamic forecasting, which considers at least two interrelated variables and the most current trends available for those variables, is used to forecast accounting for seasonal and periodic variations.	Multi-variant models are developed, monitored, and modified as necessary using regression and extrapolation techniques, and the most current data available are used to forecast accounting for seasonal and periodic variations.
Predictive Modeling	Not used	Basic multi-variable models are developed, monitored, and modified as necessary using regression and extrapolation techniques, and the most current data available are used to operate the model.	A data scientist reviews the data available, internally and externally, structured and unstructured, then assesses what is meant by each piece of data. Data are enhanced using univariant and bivariant investigations with subject matter experts. Collectively, questions are developed, the precise answers to which are extremely important to the organization. Then, through a series of iterative regression analysis using many variables, an algorithm is developed and validated, and when applied, the best predictor of the question's answer is known. The algorithm is periodically reviewed, retested, and updated.

Domain	Basic	Advanced	Leading
Optimization	Not used	Seeks to find the single best value or outcome to a program, service or series of services within a program taking into account multiple variables and after determining what decisions are to be made from the analysis.	Seeks to find the single best combination of services in a portfolio of services to achieve an organization's mission or objectives and is developed for the purpose of making decisions to allocate resources in a way that achieves the optimized outcome.The process may also be used in supply chain assessments where multiple products or processes compete for limited resources to achieve the single highest value for the organization.

IV. Key Points Worth Remembering

An organization's analytic capability rests on a variety of factors, including the quality of the data, how it is defined by contributors within and across the organization, and the processes by which it is accessed.

Additionally, established governance and management structures must be in place to facilitate these processes all the while engaging stakeholders from within and across the public and private sectors to help define the goals, objectives, and approaches to effectively share data across programs. According to a joint survey[7] conducted by the National Association of Chief Information Officers (NASCIO) and the Health Information and Management Systems Society (HIMSS) in 2013, approximately 80 percent of surveyed state CIOS reported that no data governance structures are currently in place to share citizen data.

1. Regardless of where or how data are used, the cleanliness of the data requires constant vigilance.

   "Error proofing" data entry software will avoid many structured data errors. Nevertheless, monitoring the data to identify "made-up entries" or "work-arounds" is necessary so that the data can be consistent and represent what is intended by the data. Getting feedback loops with the people who input the data can also help identify variants that need to be addressed to continue to improve the data quality. It should also be noted that as a data warehouse grows, the vigilance for data cleanliness must be increased because of the volumes of different data, the variability in quality of the collection techniques (e.g., automated, paper, or second-party entries, which may include biases in collection methodologies), and due to the variability in quality of the collection methods (automated self-declarations vs. verbal communications and interpretations followed by transcriptions).

2. Data definitions can vary, so ensuring data transparency is critically important.

   Sometimes data names may be identical, even with federal standards, but have different definitions based on state definitions or policies. For example, a "confirmation" or "finding" of child abuse or neglect in one state may have been determined using a different definition or a different burden of proof when compared to a "confirmation" or "finding" in another state.

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7. NASCIO & HIMSS. *The Health IT Landscape in the States: Through the Lens of the State CIO.* (June, 2013): *http://www.nascio.org/publications/documents/The_Health_IT_Landscape_in_the_States_NASCIO_HIMSS.pdf*.

Differences in definitions and in the adequacy of evidence required should be disclosed to meet even basic transparency expectations. Further, differences in the processes should also be highlighted. In some cases, due process was afforded prior to the finding; in others, no due process was afforded and no appeal rights were given to reach conclusions.

3. Inconsistencies in data can be due to various factors and, to the extent possible, should be explained to the user of the data.

   Disclosure of "special events" (a fire; a recession; a change in a fiscal year; differences in state and federal year reporting periods; an employment strike; etc.) may be necessary to explain unusual patterns in data, inconsistencies in conclusions, and as explanations for anomalies. Clear and frequent communication linkages between those who collect the data, those who analyze it, and those who use it will go a long way to limiting any confusion.

V. Steps to Take When Seeking Outside Assistance

Analytics is a new language typically not understood in the same way by all users or decision-makers. It requires an understanding of statistics, business operations and rules, and technology at various levels. Organizations will want to develop capacity in staff positions that carry an optimum mix of these competencies. When this is not immediately possible, however, an organization may need to pull in additional assistance.

Here are some additional steps agencies can take to obtain the help it needs:

1. Decide upfront how much analytical power you really need. The Capability Assessment Model for Analytics is a great place to start. It lets you analyze where your agency or program stands today and where you want it to go.

2. Collaboration, cooperation, and standardization of requirements across departments are important to ensure that all participants know what data they have and what they need to get. If your agency plans to seek outside assistance through a Request for Proposals (RFP), make sure there are no overlaps, redundancies, or conflicts in your requirement specifications. Obtaining input from staff on this will enable the organization to write a clear and concise description of its needs.

3. Decide in advance what a vendor proposal should address: Is it only the analytic capabilities provided by a specific application, or a soup-to-nuts approach, including data preparation, training, installation, configuration, and maintenance? While a specific application can address particular functions, a solution can remove the burden to figure out what needs to be done to get your organization to an analytics-ready state.

4. Try to avoid describing in legacy thinking what your organization wants to achieve. If you use the lexicon of older systems and/or technology, vendors may be hesitant to offer a more current solution or, worse, not understand what is being asked for. One way to address this problem is to make use of the Capability Assessment Model described earlier. By putting your agency needs in the larger context of your overall objectives, the vendor will have a clearer understanding of not only your organization's immediate concerns, but where their solution should fit within the broader picture.

5. Include a use case in your RFP that makes sense to your community of stakeholders as an evidence-based example. By so doing, a prospective bidder is provided with a sense of the

current state and may be able to address it in very specific terms, perhaps as a demonstration pilot, thus ensuring that both sides clearly understand what is involved.

6. Describe your organization's data sources so as to provide bidders with a realistic frame of reference. Analytics consumers of all kinds have repeatedly said that getting data ready to process with analytics is the hardest part of the journey. Each program within and across the organization collects a variety of data—many times this means that the data elements are defined differently and are from a variety of places. Lack of standard data definitions, identification of such sources, and the processes by which they are collected can hamper enterprise-wide efforts to further its analytic capability. Setting realistic expectations with the user community is a critical first step. Being forthcoming about the quality and status of the available data will confirm to the anticipated user base that they will be able to trust the data as complete, accurate, and current once these issues have been addressed. Without such trust, the results of the most sophisticated analytical application will fall victim to the old adage, "Garbage in, garbage out."

7. While identifying possible data sources does not necessarily translate into the data being ready to use, prospective bidders may be able to suggest ways in their responses on how to turn them into a useable state.

VI. Summary

As human service agencies move further into the 21st century, it is no longer sufficient to just gather data. Agencies must be able to analyze, understand the trends in their data, and predict what their customers need as they modernize their system to serve people in an integrated way. The ultimate goal, of course, is to make decisions about serving people at the right time, with the right services for the right duration. An effective and efficient data analytics strategy will enable states and localities to do just that.

Glossary

Data Modeling—Analysis of data objects and their relationship to other data objects. Data modeling explores data-oriented structures and identifies entity types. It involves a progression from a high-level conceptual model to a logical model.[8]

Distributional Assumptions—Assumptions made on the distribution of the outcome variable. With linear regression, the outcome should have a normal distribution, or more specifically, the residuals should have a normal distribution. The logistic model makes the natural assumption that the outcome follows a binomial distribution.[9]

Fractional Assessments—Procedure whereby assessments are made at some uniform percentage of full or fair market value rather than at 100 percent thereof.[10]

Liscensee—Individual granted a license to copy, use, or re-sell a commodity, such as digital content. This user has access to otherwise circumvented or protected digital material.[11]

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8. Data Modeling. (n.d.). In *Dictionary Techopedia* online. Retrieved from *http://www.techopedia.com/definition/14/data-modeling*; and Data Modeling. (n.d.). In *Dictionary Webopedia*. Retrieved from *http://www.webopedia.com/TERM/D/data_modeling.html*.
9. Steyerberg, E.W., & Harrell, F.E. (2003). *Interactive Textbooks: Statistical Models for Prognostication.*
10. Fractional Assessments. (2013). In *Glossary of Assessment Terms Nassau County* online. Retrieved from *http://www.nassaucountyny.gov/agencies/assessor/generalinfo/terms.html*.

Power user—Individual with considerable experience with computers who utilizes the most advanced features of applications. He or she typically has a more advanced grasp of using and/or operating standard computers or software than regular users. For example; video-editing professionals, high-end graphic designers, audio producers, and those who conduct scientific research.[12] Power users and analysts (expect to) use data mining and statistical techniques for data analysis and query development.

Regressions—Data mining tool that predicts the value of a target as a function. Regressions have many applications in trend analysis, business planning, marketing, financial forecasting, and a time series prediction.[13]

Structured Data—Information that has a preset structure. It is easily defined, stored, and analyzed.[14]

Unstructured Data—Information that does not have a predefined data model and/or does not fit well into a relational database. These data are typically text heavy, but can also possess dates, numbers, and facts. Unstructured data are usually more difficult to analyze and take up a significant amount of storage space.[15]

Appendix A

A Quick Reference Guide to Writing an Analytics RFP

Public human service agencies are increasingly seeking to incorporate the use of analytics into their procedures at each level of their organization and for a variety of purposes outlined in the preceding report (e.g., demonstrating outcomes, improving organizational decision-making and resource allocations, reducing fraud/waste/abuse, and improving performance measurement). Using the capability model as a way to assess how your organization currently uses data and to envision your desired capability that will help reach your multi-dimensional goals is a great starting point.

Often agencies recognize the need to seek external assistance toward achieving their desired analytical capability (e.g., forecasting and extrapolation, predictive modeling and optimization) beyond descriptive reporting. From an industry perspective, this desire to move forward is hampered by a variety of factors, including, but not limited to staff capacity and knowledge of data analytics. Sometimes these circumstances require organizations to extend their net externally by releasing requests for proposals (RFPs) to their partners who may have the capacity, experience, and solutions to assist agencies in advancing their analytic capabilities.

To this end, several industry partners of APHSA's National Workgroup on Integration put together this brief reference guide for states and localities to consider when drafting an RFP.

DISCLAIMER: The views expressed in this Appendix are those of participating industry partners of APHSA's National Workgroup on Integration and may or may not represent the views of APHSA.

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11. Licensee. (n.d.). In *Dictionary Techopedia* online. Retrieved from http://www.techopedia.com/definition/17177/license.
12. Power User. (n.d.). In *Dictionary Techopedia* online. Retrieved from http://www.techopedia.com/definition/1784/power-user; and Power User. (n.d.). In *Webtool Computer Glossary* online. Retrieved from http://www.iwebtool.com/what_is_power_user.html.
13. Regressions. (n.d.). In *Oracle Data Mining Concepts* online. Retrieved from http://docs.oracle.com/cd/B28359_01/datamine.111/b28129/regress.htm.
14. Minelli, M., Chambers, M., & Dhiraj, A. (2012). *Big Data, Big Analytics: Emerging Business Intelligence and Analytics Trends.*
15. Minelli, M., Chambers, M., & Dhiraj, A. (2012). *Big Data, Big Analytics: Emerging Business Intelligence and Analytics Trends.*

i. Expressing What Your Agency Needs in an Analytics RFP

As state agencies prepare to solicit assistance regarding analytics, their RFPs should strive to express the business need of their agency rather than the desired solution in order to allow the vendor community to demonstrate its creativity and flexibility. For example, use everyday language to describe who your anticipated user communities will be and what they think they expect from analytics solutions.

Here are some tips on considering and expressing what your agency may need in an RFP.

- Be sure to describe your organization's business intentions, plans, and strategies to help define the analytic capabilities you are seeking.

- Express the challenge in simplest terms. For example, "Our human services department would like the ability to determine what services and service availability might be required in parts of the state not currently served based on current data. We want to forecast demand."

- Be specific where you are more confident in your analytics operations.

- Set expectations by describing a practical future state. Use the analytical capability model to help self-assess how your agency currently uses data.

- Ensure data used for analytics represent a trusted resource encouraging broad use of analytic capabilities. This is a cautionary statement—data play a critical role in analytics success.

- Identification of performance and outcome measures are a critical part of preparation. Remember to include performance metrics and monitoring that new analytic capability will help to evaluate and improve the agency-wide day-to-day activities of users.

- Clearly state your assessment of your collective skills at the outset. Since the field is at the early stages of adoption of analytics capabilities, take into consideration the need for data analytics training and knowledge transfer for our user communities.

ii. Guidelines for Writing an Analytics RFP

Based on a review of RFPs that states have submitted for analytic services, consultants working with the National Workgroup on Integration believe that many states could benefit from defining their business needs and business environment when using analytics on the front end. The challenge is to ensure that the organization takes the broadest possible view to reflect that use of analytics may be shared among several departments, agencies, and divisions. Thus, it is important to reflect in the RFP the various levels of interest, urgency, skill and, if appropriate, budgets.

The following table identifies a number of relevant, high-level activities. The following items provide additional dimensions of your use of the RFP to achieve your organizational objectives.

Recommended Sequence	Action/ Opportunity	Details	Notes
A	Allocate an early section describing business problem or challenge that it is believed that analytics will help address	1. The statement of the problem or challenge should be clear and unmistakable. This will preempt wasted effort on both the agency and vendor sides in developing an answer to the problem. 2. Take time to clarify the statement of the problem by vetting it with all stakeholders.	Remember, expect analytics to address any number of interesting and challenging problems that require greater insight, prompter action, and rationale for making key changes in your organization's operations. Look at the largest problem space to determine how much you might be able to apply analytics.

B	**Create an evaluation scorecard that your agency will use to assess proposals**	1. Understand metrics (how your agency measures key variables) and relative value/impact to the organization. 2. Work toward clarity so that your organization gains consensus on what is and what is not a solution to the problem/challenge. 3. Understand and define what is, and is not, a value to the organization (separate "wishes/nice-to-haves" from real requirements).	Think about "must-haves," "nice-to-haves," and "interesting-but-does-not-apply." Plot these notions across time so that planning for utilization of features not needed now but will need later on.
C	**Assess the capacity**	1. Plan to allocate participating staff time (planning, drafting RFPs, evaluating RFPs, planning execution, deployment, operations/production) 2. Understand and update current systems capacity 3. Understand and update personnel capacity 4. Understand the impact of an "analytics solution" on the organization, including the development of future expectations.	The most challenging part of this journey is *getting the data right*. Analytics doesn't work very well without the right data, which can come from a variety of sources, some of which need more stewardship before participating in your analytics program.

D	**Understand all the parts of an analytics solution**	1. Data—sources, currency, ownership, management. This is the tough (time-consuming and potentially expensive) part.
		2. Data knowledge. How well do you know your data (owners, currency, sources, apps that manage the data, etc.)?
		3. Analytics—the basic capabilities and functions of statistical analysis
		4. Tools (e.g., lower level knowledge workers need to know where the input is coming from)
		5. Knowledge of analytics, statistics, etc.
		6. Knowledgeable users, experts, etc. Can you understand the results delivered by analytics tools? What do you need to make that happen?
		7. Actions—
		  a. What do you expect analytics to deliver for the organization? Why?
		  b. What are you doing now that works, doesn't work?
		  c. What do you need in the early stages?
		  d. How far do you think the organization is committed to go?
		8. Costs components—areas where dollars will be committed to achieve a sound data platform, skilled users, and useable and practical analytics capabilities.
		  a. Data cleansing
		  b. Data transformation
		  c. Data management
		  d. Analytics tools
			Because of all the moving parts, establishing an Analytics Program Office is highly recommended in order to track activities across these different domains. Be sure to allocate Project Management resources. It's important in the planning process to anticipate the costs across the entire program; some costs will hit early, others later.

		e. Analytics training f. Deploying analytics capabilities into the organization g. Impact on organization, on business processes 9. Statistical/Data Scientist a. If developing predictive algorithms, how experienced are the statistical scientists developing the predictive algorithms?	

E	**Options/ Opportunities**	1. Share analytics with another department
		   a. Costs
		   b. Personnel
		   c. System capacity
		   d. Knowledge/Expertise
		2. Collaborate with other agencies to share expertise and insight
		3. Build your analytics capabilities incrementally and experiment along the way.
		   a. Start with your data platform
		   b. Add analytics incrementally as skills, capacity, and needs grow.
		4. Create benchmarks to monitor and measure your progress and the impact of analytics on the organization's operations.	

iii. Tips You May Find Helpful When Drafting an Analytics RFP

Based upon discussions with a number of vendors who respond to RFPs seeking help with analytics, we offer the following tips. We hope that by emphasizing these points that have come up repeatedly in real world RFPs, the responses you receive will be precisely what you are looking for:

- Be clear and concise. Choose extra text carefully.

- Choose words that help to describe business objectives, strategies, immediate challenges, new barriers to insights, and so on. Give the vendor the best chance to understand your requirements as well as to anticipate your needs going forward.

    - Example: The objectives going forward are to improve operations and performance, maximize resource allocations, and enhance customer service.

- Educate, train, and empower staff to embrace the use and vocabulary of data analytics. This gives them time, training, and incentives; doing so will help to engage new user communities and quicker adoption of your new solutions and applications.

Understand and describe the context in which analytics will be used in your particular situation. For example, your organization is likely to need to support strategic planning and organizational objectives through analytics that facilitate fact-based decision-making by measuring key performance indicators.

 Stewardship ("chain of trust") is an important aspect of data analytics because the data you are likely to use are considered to be enterprise and system assets. Consequently, data stewardship will help to ensure that you:

- Develop reporting procedures and data queries that support agency initiatives and information requests.

- Conduct a readiness assessment that evaluates your organization's ability in using data to manage operations, including the adequacy of timely reporting, an array of metrics, hardware/software, and vision for the use of predictive practices.

- Support predictive analytics/modeling and reporting that facilitates the early identification of trends, risks, and opportunities.

- Develop your organization's ability to analyze the impact of new and existing policies and legislation by using analytical benchmarks to understand trends.

- Seek to obtain quick access to real-time performance and operational statistics, including clerical performance measures.