



Clinical & Business Intelligence: An Analytics Executive Review

Building a Business Case

February 2013

Introduction

The US health care system is the most costly in the world, accounting for 17% of the gross domestic product with estimates that percentage will grow to nearly 20% by 2020.¹ Moreover, populations (young and old) in many countries are subject to chronic health problems, which place additional difficulty to garner increased value on already limited medical and social service resources. At the same time healthcare participants – whether providers, payers, or patients – have been faced with the challenge of exploiting the increasingly available data to generate actionable knowledge that informs decision making. Much time and money have been put towards the collection and management of the data, resulting in the design and deployment of electronic health record (EHR) systems.

Interoperable EHRs are expected to transform the health care industry and contribute to the reduction of healthcare’s currently unsustainable growth rate as a percentage of the nation’s GDP. This transformation will affect the entire healthcare industry, spanning the spectrum from large medical centers to individual patients, their clinical providers, and payers. However, as the industry rapidly digitizes, healthcare leaders are looking towards meaningful uses (MU)² of the collected, available and accessible data (i.e., a combination of data management, knowledge development, knowledge use, and practice change). It is this hope that lies at the core of the business case for clinical and business intelligence (CB&I) analytics road map.

However, as stated by Marchand and Peppard,³ simply deploying an IT data system does not “[figure] out how to use the information it generates to make better decisions or gain deeper—and perhaps unanticipated—insights into key aspects of the business.” In fact, it is the exploration of

¹ Source: <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/proj2010.pdf>

² Source: <http://www.healthit.gov/policy-researchers-implementers/meaningful-use>

³ Marchand D, Peppard J. Why IT Fumbles Analytics. *Harvard Business Review*. Jan-Feb 2013. <http://hbr.org/2013/01/why-it-fumbles-analytics/ar/1>

these data, and subsequent explanation of the exploratory findings, that will determine the success of analytics projects.

Therefore, we begin this discussion by listing the following set analytics project stages, which includes both IT data systems and data analytics, but not all of which may apply to every healthcare organization:

- Enterprise data warehouse deployment and maintenance
- Hire the right human resource assets (IT data managers, data scientists, information artisans)
- Reports using retrospective analysis in a “batch” or scheduled mode
- Real time descriptive and predictive analysis
- Real time or near real time prospective analysis
- Comparative effectiveness research

When developing a business case for healthcare data analytics, both the short- and long-view should be considered, balancing the needs and the value (cost and benefit) from the perspective of functional areas, as well as the enterprise level.

Analytics roadmaps and implemented solutions that address the stages identified above will depend on the volume and variety of the enterprise’s healthcare data, as well as the speed required to answer users’ needs.⁴ A recent proposal for a healthcare analytics capabilities adoption model⁵ identifies seven stages of maturity, which can provide a baseline for those considering design and implementation of a healthcare solution. For example, data warehousing might be accomplished with single platform commodity database tools. On the other hand, larger hospitals with integrated electronic health records (IEHRs) accessible by users from multiple departments within and outside the hospital’s “walls,” likely will require a more sophisticated configuration. Moreover, users’ needs for analytic findings from data become more complex as the data content increases to include both structured and unstructured information. Therefore, the business case must begin with full knowledge of the acknowledged needs of the participants (including patient, provider, and payer), as well as deployment and sustainability of the desirable (if not totally achievable) long-term end-state.

⁴ For a detailed explanation of the HIMSS Electronic Medical Record Adoption Model (EMRAM), see <http://www.himss.org/content/files/thomsonreuterswhitepaperfinal0412.pdf>

⁵ Sander D. A Model for Measuring Industry-Wide Adoption and Capability of Healthcare Analytics and Data Warehousing in the USA. *ElectronicHealthcare*. 11(2) 2012. <http://www.longwoods.com/content/23078>

The remainder of this paper presents three principal areas to be explored when developing the business case for a healthcare analytics roadmap:

- Who is your **champion** (pros and cons) in acquiring the analytics program?
- What **value** (cost and benefit) to your business is generated with the development of an analytics program?
- What is the **total cost of ownership** to implement the analytics program?

These questions are more fully investigated in subsequent paragraphs. To provide exemplars for this investigation, consider the following common clinical use cases and corresponding healthcare key performance indicators (KPIs):

- **Use Case:** Recent changes to Centers for Medicare and Medicaid Services (CMS) compensation will no longer cover hospital expenses for congestive heart failure (CHF) patients who are readmitted within 30 days of discharge. In addition to the risk of degraded health outcomes, the hospital faces financial loss for preventable CHF readmits.
 - **KPI:** Therefore, an improved understanding of the prime drivers affecting readmission will benefit both the quality of care and business revenues.
- **Use Case:** Patients are susceptible to hospital acquired conditions/infections (HACs/HAIs), which is more likely as the patient's health status degrades, as well as the hospitalization stay lengthens.
 - **KPI:** Thus, what are the significant indicators to be monitored, mitigated, and corrected to improve quality of care for a given patient, as well as the hospital's larger community?
- **Use Case:** With the advent of programs created by the Health Information Technology for Economic and Clinical Health (HITECH) Act,⁶ EHRs increasingly are a source for metrics of patient engagement/satisfaction. Motivated by the stimulus offered in the Medicare Hospital Value-based Purchasing program required by the Affordable Care Act⁷ and the CMS EHR Incentive Programs,⁸ hospital reimbursement is, in part, measured by metrics in patient satisfaction.
 - **KPI:** In FY 2013, optimizing clinical process and patient experience domains will result in better reimbursement.

⁶ Source: <https://www.federalregister.gov/articles/2010/07/28/2010-17207/medicare-and-medicaid-programs-electronic-health-record-incentive-program>

⁷ Source: <http://thinkprogress.org/health/2012/10/16/1019151/hospitals-patient-satisfaction-obamacare/?mobile=nc>

⁸ Source: <https://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/index.html?redirect=/EHRIncentivePrograms/>

- **Use Case:** Early identification and correction of behaviors that could trigger an audit like evaluation and management (E&M) level utilization that signal potential waste, fraud, and/or abuse (WAF).
 - **KPI:** Appropriate analysis of available electronic medical record (EMR) data can be used to construct peer group benchmarks and identify practice pattern outliers for human intervention.
- **Use Case:** Even if the provider organization is not implementing a complete analytics program, the analytics findings of third party performance assessment agencies need to be monitored and validated analytics results provided by third-parties highlighting organization performance.
 - **KPI:** Supplemental analytics capabilities that identify organizational weaknesses and opportunities that improve overall KPI performance might, in turn, improve likelihood of collecting incentive payments.

Who is Your Champion?

Champions come in two camps:

- **The health plan/provider’s IT department**, that historically implemented electronic data systems and analytics solutions
- **The clinical and business (C&B) executives** (C-level suite officers or individual department leads), that recognize an unmet need to analyze data to improve the delivery of healthcare at lower cost

While both organizations must *sign up* for the implementation, deployment, and maintenance of any analytic program, the IT-centered focus is a more tactical discussion; one that starts with specific requirements that can be fully-described with a listing of *whats* and *hows* for implementation. On the other hand, the C&B side is more strategic, and incorporates more abstract metrics of success that allow for experimentation with, and exploration of, the information by users with different roles, backgrounds, and timelines.

Champions from the important, but function-specific administration and business, disciplines typically ask for a “known point solution” that can be generated by tactical analytics solutions. Other areas, such as the clinical management of prescriptions, also rely on questions of a more tactical nature. Most often, approval of analytics capabilities often resides with the functional area’s management.

As example in the hospital acquired conditions use case, many analytic needs are satisfied with findings that include *counts* of number of records meeting prescribed query criteria:

- **Administration and operations staff** ask for the number of days a patient spends in a hospital (or a given ward/location)
- **Clinical staff** ask for the number of patients with one (or more) specified illnesses
- **Clinical and outcomes management staff** ask for the number of prescriptions issued for one (or more) specified illnesses
- **Administration and business staff** ask for the number of empty beds

Underlying these questions is the IT staff's responsibility to collect, manage and maintain the data records for responsive (timely and accurate) performance. The C&B staff champions will be both consumers of the analytic findings, but also will improve the analytics solution by identifying enhancements to the continued maintenance of the data, their access and display.

Champions of strategically-focused analytics exist throughout the healthcare enterprise, but are characterized by the complexity of the decision informed by the analytics findings. That is, explanation and interpretation is required to map the analytic results with the human need. For this set of champions, approval likely resides in the executive office: department head or Chief Medical Informatics Officer (CMIO) (serving as clinical liaison with business), staff who reports to the Chief Information Officer (CIO), staff who reports to Chief Financial Officer (CFO).

Depending on the size of the acquisition, the *sign off* may occur at CFO or CMIO, and therefore, the CMIO's counsel should be pursued. In our exemplar user case on CHF readmissions, it is not simply the number of readmitted patients that identifies action to improve readmit rates. Nor is it sufficient to count the number of patients in a given demographic; after all what can a hospital do to improve a patient's aging, which is known as an inhibiting factor in preventing readmission? It is the non-trivial combination of factors from a variety of domains, including:

- **Clinician-and operations staff-gathered information** on the patient's profile, such as age, body mass index (BMI), active lifestyle
- **Outcomes management (social worker) and business staff-gathered information** on the patient's socio-economic status, in-community social support, and cognitive appreciation of compliance requirements
- **Clinician- and operations (lab techs)-gathered information** on the patient's test results

With such information, predictive modeling and analysis can generate a likely outcome, as well as a listing of the prime indicators of readmission. Analogous coordination of data analysis across multiple

departments is critical to suggest alternate treatment options, which in turn results in improved patient satisfaction. As intimated by the inclusion of one of our use cases, patient engagement is said to be an “essential element of new delivery system and payment reforms now emerging to address the significant challenges facing the U.S. health care system.”⁹ A list of champions should include those responsible for the collection and analysis of measures of patient engagement, patient satisfaction, and consumer education; measures that likely will improve healthcare outcomes and business value.

Whether a tactical or strategic need for analytics is determined, developers of an enterprise analytics road map would benefit from the advice of a steering committee comprising C&B and IT leadership. Representatives from operations, administration, business, clinical, and similar departments can serve as champions who fully understand the emerging and evolving needs, as well as the value of meeting those needs. A successful implementation requires *buy in* from all people involved with the data. Champions from multiple departments, whether as individuals or members of a steering committee, should be aware of the importance of their participation and be able to explain the intended use of an analytics solution to the broader set of staff members.

Needs vs. Value

From the outset and throughout the process of developing the analytics roadmap, a careful balance between needs and value must be maintained. In this context, the term *value* refers to the balance of cost and benefit reaped by the enterprise in deploying and maintaining an analytics program. The value of such a program may lie in better asset utilization, improved patient satisfaction, regulatory compliance, or improved outcomes, among others. Similarly, the term *cost* need not be restricted only to dollars expended, but also includes time (scheduling) and labor resources required (shared) to address adequately the acknowledged need. Gains achieved do not always come at a lower cost.

The analytic findings of a clinical and business intelligence (C&BI) program alone do not account for the total value. For example, alternate implementations of an analytics program may generate the same data products, but entail distinct clinical process reengineering, and therefore require distinct levels of clinician participation and acceptance. When generating an analytics roadmap, consider the question ‘Is the value of the analytics program a *nice to have*, but something we could choose to delay, or even live without?’ For example, what about improved reportable metrics that are made public by CMS, but do not carry penalties or incentives?

⁹ Source: http://bipartisanpolicy.org/sites/default/files/BPC_Engaging_Consumers_Using_Electronic_Tools.pdf

This balance between need and value is crafted and championed by the hoped-for users and consumers of CB&I analytics capabilities. Whether the process includes surveys, focus groups, or examination of previously-collected *hard* data, the following questions should be addressed:

- **What is the end-state?**

This outcome will be different for different champion/users. In the CHF readmits use case, an obvious end-state is to reduce the number of 30-day readmissions of CHF-diagnosed patients. To promote this outcome, a clinical champion might recommend additional testing to validate the patient's stability, especially when comorbidities are indicated. However, additional testing is both financially costly, and increases the patient's hospital stay, both of which counter the administration and business staff champions' objective of increasing patient quality of care and hospital's revenue stream. Recent studies^{10, 11} indicate that prime drivers of readmission are found after the patient is discharged (e.g., follow-up with primary care physician (PCP), patient compliance, and social support). Furthermore, consider a second use case where the healthcare provider must add patient engagement and satisfaction into the decision making mix. Some patients will not want to stay in the hospital, preferring the comfort and familiarity of their home. Therefore, non-traditional objectives outside the hospital, but enabled with electronic health recording, might be considered the end-state for the outcomes management staff members.

- **What are the metrics for success of analytics implementation/usage? How are these metrics measured? Are extant data collection mechanisms sufficient to evaluate these metrics?**

Responses to these questions are crucial to the success of an analytics program. The most urgent of needs may be met by basic analysis of ad-hoc selected examples, but without experimental data to confirm achievement of the desired end-state, the enterprise-level decision maker cannot justify costly (or long-term) expenditures. Similarly, evidence confirming improvement through analytics provided by one department may be used to come to a rejection of analytics. For example, a hospital's costs to conduct after-discharge out-reach to the CHF patient's PCP and community-based social support group may exceed the reduction in CMS revenue. On the other hand, an integrated decision making analytics program might better identify those patients requiring such post-discharge care, which enables an effective tradeoff between competing metrics (number of readmits vs. enterprise costs).

¹⁰ Joynt K, Jha A. Thirty-Day Readmissions — Truth and Consequences. *New England Journal of Medicine*, 366;15, page 1366, April 12, 2012.

¹¹ Brennan J, Malaspina M, Veluswamy R. Physician Partnership: Employing Predictive Modeling and Workload Analysis for CHF Performance Improvement. *ACPE Update*. September 2012. <http://net.acpe.org/services/2012/Update/09-20/story-1.htm>

To illustrate this integrated analysis consider several CHF patient sub-populations, each of which has distinct prime drivers for readmission:¹²

- **patients who were only admitted once** for CHF and would not be coming back under that diagnosis
- **patients with stable conditions** and a steady-state time between readmission
- **patients who were not improving** despite best efforts, and continued to drop below the 30-day readmission point

The question regarding the HCA/HCI and patient engagement use cases is one of validating metrics that distinguishes between the hospital-controlled process outcomes and outcomes that are driven by the patient's perspective and control. Collecting and counting data alone will not provide the necessary rigor to justify claims of provider performance.

Performance metrics in the revenues collection use case that summarize the claims coding behaviors of the organization can reveal revenue-collecting opportunities that are not be fully realized due to controllable factors such as training.

- **What does the terrain ahead look like to make the vision come true?** (Identify and understand the analytical depth of the organization today).

This question goes to the core of what is meant by the term *value*. As healthcare data are digitized, and EHRs are integrated into commonly accessible repositories, more complicated questions can be addressed with more sophisticated algorithms. However, the key to appropriate analytics solutions rests with the generation of “actionable intelligence”¹³ presented to the decision maker.

An analytics roadmap must map the available data, tools, people, and processes, both in the near-term, and as the enterprise matures over time. Davenport and Harris¹⁴ developed a mechanism for assessing an organization's current and hoped-for attributes for analytic capabilities, called the **Analytical Competitor Roadmap Model**:

- Analytically Impaired (Interest In)
- Localized Analytics (Basic Application)
- Analytical Aspirations (Commitment to Expansion)
- Analytical Company (Corporate Priority)

¹² These are three of six categories of CHF patients investigated in the article cited in footnote (3).

¹³ Information with a direct application to specific decision making, as opposed to commonly-available factual information that informs the general practice.

¹⁴ Harris J, Davenport T. Competing on Analytics: The New Science of Winning. *Harvard Business School Publishing Corporation*. 2007.

- Analytical Competitors (Reaping Benefits)

- **What is the benefit trade-off of interoperability? How are these benefits quantified?**

The road map should consider the distinction between area-specific analytical capabilities and those employed throughout the enterprise. How is the benefit of analytics impacted if the analytics asset cannot consume data from a variety of resources due to interoperability limitations or closed systems? This set of questions emphasizes collecting, curating, accessing, and maintaining of data sets upon which analytics is conducted. As with the question of metrics (see above), users/champions of the analytic findings must be able to dive down to the supporting evidence to have confidence in the summary explanations.

In the CHF readmissions use case, consider the degradation in confidence from the clinical user when analytic methods (models, simulations, algorithms, etc.) have access only to financial data. If the value of the analytics program relies solely on dollars expended while in the hospital, then such findings may be sufficient. Access to clinical records, as well as patient and community profile attributes, is required when the number of readmissions metric is added to the enterprise-wide decision making. Furthermore, information reflecting patient engagement and consumer education likely is accessible through yet another set of gatekeeping interfaces. Incentives available through from CMS may not easily be forthcoming without explicit reference to measurements derived from these data.

Total Cost of Ownership

The preceding section discussed the evolving process required to fully identify *real* requirements and balance those needs with the value to the enterprise, not simply a single user's/area's needs. Standard systems engineering and IT practices usually are adept at eliciting needs and their implication on systems design. However, the total of ownership includes *hidden* expenses in labor and time, as well as the more easily measured budgetary expenditures. The total cost must include the long-term maintenance and upgrade paths that are essential for continued value to the decision maker who requires relevant and actionable findings from analytic programs.

The following questions should be investigated to fully understand and bound the cost (verses the non-financial benefits) of an analytics program.

- **Do we need custom solutions?**

Initially, the belief is that difficult problems require sophisticated, one-of-a-kind analytics approaches. While this might be true of the occasional global breakthrough system, advances in information processing—from collection through to explanation of analytic findings—often are powerful when they combine available capabilities in a different fashion or applied in a

new mission area. For example, spread sheets no longer are the counting mechanism of choice of MBAs; rather they are used in Monte Carlo simulations of complex phenomena for which data are available.

Attention to the need vs. value balance is critical when deciding on custom vs. commodity analytics programs. A recent study¹⁵ highlights the disparity in provider facilities faced with the same need to improve CHF readmission rates as state-of-the-art medical centers. As stated in this study, “quality improvement efforts that rely on penalties and rewards may further widen the quality gap” between hospitals with clinically and financially rich resources. In such scenarios, culturally-effective mechanisms can be a successful alternate to automated systems; e.g., in-community healthcare coaches may provide a cost-effective follow-up that addresses (even improves) patient compliance.

Finally, for the clinical provider with sufficient resources to deploy an automated-enabled analytics program, design of an effective solution should consider three characteristics of modern CB&I solutions:

- service oriented architecture (SOA)
- open-standards-based
- vendor platform agnostic

Many organizations do not need to invest in an end-to-end custom solution; instead consider individually-developed interfaces to common data engines that enable specific work flows in individual hospitals. Critical to the selection of a custom vs. commodity solution is that the choice must be consumer driven, must be user friendly, and cannot require a research scientist to interpret the analytic findings.

- **What about training?**

Training/on-boarding needs to be counted from the moment the nurses (et al) “hit the floor” so they understand the work flow and business processes (e.g. TIGER training and educational portal¹⁶). Training will be critical if you want to enable staff members who typically do not employ quantitative methods to use a new capability and help them become more effective and productive in doing their jobs.

¹⁵ Joynt K, Jha A. Who Has Higher Readmission Rates for Heart Failure, and Why?: Implications for Efforts to Improve Care Using Financial Incentives. *Circulation Cardiovascular Quality and Outcomes*. 2011;4, pages 53-59.

¹⁶ See <http://www.thetigerinitiative.org/default.aspx>

When unplanned, a lack of sufficient training can be the downfall of an analytics program and put aside as an “expensive paperweight.” If training is planned correctly, then analytics becomes a significant part of the benefit statement for the ROI calculation. The other side of training for a specific analytics capability is the oft-desired career advancement possible by cross-training along multiple disciplines. For example, the emerging field of data science allows traditional data analysis to be enriched with application-specific knowledge (e.g., clinical experimental design informs the collecting and curating of data to prepare for statistical study). Analogously, clinical staff will be encouraged to explore the analytic findings by using tools to summarize key statistics to enhance patient care.

At the strategic level, department heads throughout the enterprise will seek out effective mechanisms to present the deeper analytic findings (and underlying evidence) to executives who want to know how the analytic findings can improve corporate decision making.

Recruiting nurse advocates is a critical component of any analytics training strategy given the scope of change introduced into existing workflows and care delivery models. It will be imperative to secure buy-in early and demonstrate how analytics, coupled with a nurse’s clinical judgments, can elevate personal and organizational performance.

Analytics’ quantitative backdrop can be overwhelming for any person that does not have a strong proficiency in statistics or mathematical methods. Translating the quantitative and calculation concepts into common business speak will ensure trainees can effectively link the analytics output with existing process and decision-making weaknesses that have hampered performance. Developing scenarios that help trainees further ‘visualize’ how analytics can positively disrupt the way they work is a commonly utilized tactic to satisfy this critical training goal.

The goal of analytics is to uncover insights from the data that is generated from the multitude of transactions that occur every day. Forming a training program that addresses the notable process and workflow changes that may result from any new operations dependence on analytics will ensure that the organization fully realizes the benefits that are expected from this investment.

- **Are cloud-based solutions an effective alternative?**

Information technology progress can move at a startlingly quick pace. Most recently, secure encryption and HIPPA-compliant de-identification mechanisms are coming to market that enable the distribution of resources — data, systems, and humans— and their subsequent integration for use in data analytics. There are solutions that can be secured through the

cloud or on premises. The healthcare organization's analytical solutions can therefore be comprised of cloud services, on locally-managed platforms, or a combination of both.

When adding a need for access that enables patient engagement, a cloud-based solution may be highly effective to avoid service interruption and overloading of resources available only with the hospital environment. Similarly, the analytics roadmap should address the crucial concept of data consistency. This consideration implies that various analytical queries, reports, and analytic findings yield the same results. Users will become quickly disenfranchised if the analytical solution allows for different answers to the same question.

As these technologies become broadly accepted, the financial cost likely will be reduced. Today's cost of maintenance of data repositories and tool upgrades is not trivial. Therefore, and as appropriate for a given enterprise, the fiscal cost of deploying a cloud-based solution must be balanced against the risk of down-time or loss of consistent access to data and analytics tools that will become essential to daily operation. Cloud-based and application service provider (ASP) solutions can be cost-effective alternatives that allow smaller organizations with limited capital budgets to implement analytics-based strategies. These alternatives do carry risks that should be included in the requirements phase of the Systems Development Lifecycle. Nonetheless, organizations that find building their own internal analytical capabilities cost-prohibitive should consider cloud-based and ASP solutions to avoid any potential competitive disadvantages.

- **How large of an investment is needed to organize maintenance operations around the new analytics capability?** (i.e., IT staff, analytics staff, end-user support staff, etc.)

Planning and implementing analytics is an exciting proposition for a healthcare organization. However, even though careful planning and cost-benefit analysis is performed, many organizations are surprised by the full resource weight required to maintain an analytics-based organization.

End-users inevitably will require ongoing education and training resources to ensure they properly interpret new analytical results and can fold them into their job roles safely and effectively. Without a comprehensive user support function, early adoption of the new capability may suffer and enterprise-wide buy-in may be difficult to secure. Investments in self-service and help desk resources are necessary maintenance components that should explicitly be addressed in the analytics roadmap business case.

Hiring the right skill set, maintaining the technology infrastructure that drives the analytics capability, and implementing the necessary safeguards to keep data confidential are just some of the maintenance cost considerations that must be made prior to implementation. Although

there is limited research that has been performed to help estimate the financial cost for organizations interested in analytics, health IT implementations can serve as a good proxy to improve the accuracy of your cost/benefit results. A thorough review of the intersection between implementation costs, maintenance costs, and expected benefits will help mitigate the risk of project failure.

Key Findings and Conclusion

With the signing of the HITECH Act of 2009, the role of information technology in healthcare reaches a transitional moment in the delivery of healthcare; specifically HIT's support of "healthcare's triple aim: improve health, improve the experience of care for patients and families, and reduce the cost of care."¹⁷ Conversion of medical records from paper to an EHR is a significant step in this process, but its expense and overall resource consumption can be quite imposing for healthcare organizations of any size. Therefore, the digitization of health records is only a means to an end especially since the large proportion of the estimated business value from an analytics business case lies in how the newly digitized data are explored, inspected, and consumed.

The effective, efficient, and relevant use of these data in clinical and business decision making is the true goal of this HIT conversion; where use can be as simple as direct access to the collected data or as complex as prospective analysis algorithms that identify root causes. As providers move forward in their adoption and integration of EMRs and Health Information Exchanges (HIEs), a strategic plan that balances budget, schedule, resource, and outcome quality of care should be generated. In this paper, we identified three areas for consideration in developing an analytics roadmap:

- Who is your **champion** (pros and cons) in acquiring the analytics program?
- What **value** (cost and benefit) to your business is generated with the development of an analytics program?
- What is the **total cost of ownership** to implement the analytics program?

Responses to these questions must be tailored to the character of the provider and patient communities while optimizing the financial projections, which in turn keep the clinical care facilities "open for business." Key to an effective road-map and its subsequent implementation is the delicate balance between IT sophistication, which can get ahead of the user's needs, and user apprehension, which quite often can be eased with a full understanding of the enterprise's objectives.

¹⁷ Source: <http://bipartisanpolicy.org/library/report/transforming-health-care-role-health-it>

The top priority for organizations assessing the need for analytics is to gather a sufficiently broad, but equally focused, set of champions who can identify and communicate the need, the value, and the total cost to deploy and maintain the original EHR systems and the analytics programs (people, processes, and tools that use the data). With such collaboration between information technologists and clinical and business practitioners, deploying a balanced approach that supports evidence-based clinical decision making is possible, leading to wider acceptance by users and improved cost and quality of healthcare.

For More Information

Organizations beginning their work efforts in healthcare analytics are also advised to seek out other modules in the HIMSS C&BI Analytics and Information Delivery Task Force's *Clinical & Business Intelligence: An Analytics Executive Review*:

- Needs Assessment
- Industry Capabilities

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