Deliver information business users need

Build an Analytics Center of Excellence
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Today's volatile marketplace demands quick business decisions—based on analysis and facts, not intuition. Executives, managers, and analysts demand more information faster, with less tolerance for ambiguity or errors. The problem, however, is many organizations do not have information organized properly, and lack the analytic competencies and disciplines necessary to effectively meet these information delivery requirements.

Companies need data organized in an intuitive and integrated way, so users can get business answers quickly. Building an enterprise data warehouse (EDW)—to deliver data in a more efficient manner—resolves part of the problem. The other part involves the use of business intelligence (BI), to align data and the organization in a more efficient manner in order to achieve fast, consistent enterprise answers to business questions. This also supports the adoption of Big Data solutions. Essentially, companies must eliminate inefficiencies with little data before they get to Big Data. Building an Analytics Center of Excellence (ACE) is an important step in the right direction.

An ACE delivers this alignment. It can help your organization better leverage its investment in technology and improve knowledge workers’ effectiveness, transition analysts from technical data gatherers to solution providers, and enhance fact-based business processes.

**Get business information quickly**

Users spend most of their time integrating data to a point where they can report and analyze it effectively—and time spent organizing means time lost for analysis. Who can afford to spend days resolving differences in data from various departments?

![Figure 1. Analytics Center of Excellence](image)

**Review ACE components**

An ACE interacts, in many ways, with an organization’s technology and business departments. A common philosophical discussion surrounding the ACE concept asks: Should an ACE only address information delivery, or should it also address information management components—including data acquisition and integration? There isn’t a single right answer to this question, and both models work. Culture, capabilities, and other factors within an organization vary greatly across the enterprise and help determine which approach represents a better starting point.
Our experience shows that the challenges and complexity associated with establishing an ACE are more closely related to information delivery capabilities and components. Also, combined information delivery and acquisition models are implemented more frequently than an information acquisition-only model. This paper focuses on the information delivery aspects of an ACE.

ACE components are defined in a governance framework; see Figure 1. Each is reviewed and prioritized by the framework and is described in the following subsections. To execute, ACE uses services spanning many areas of an organization, including shared services, core asset management, corporate communications, project management organization, subject-matter experts (SMEs), corporate education, and corporate strategy.

Business objectives
- Understand current, ongoing, and future business requirements
- Understand users’ technical capabilities through continuous monitoring of BI skill sets and enhancing skills as required

Technology
- Analytical functionality provided for users through information-delivery capabilities based on integrated data in the EDW system
- Operational reporting provided as close to the source system as possible to meet reporting service-level agreements (SLAs) standards and guidelines
- Standards and guidelines established and enforced to facilitate efficient and consistent operations
- SLAs established and adhered to by enforcing a governance framework
- Continual communication with the business to understand issues and modify as needed

Education and certification
- Users and developers fully trained on tools, data, analytic techniques, and problem-solving; an ACE requires specialized skills in many information delivery capabilities, including data and process education
- Ongoing education where users are initially trained and then updated periodically through user sessions, demonstrations, and additional hands-on training of additional features
- Lab environment where users receive real-time assistance with information delivery

People
- Business and technology aligned based on understanding the purpose of BI
- SMEs and power-user resources incorporated
- Governance—by the steering committee—resolves issues and sets direction
**Functional and technical support**

- User support can be transitioned from an initial centralized approach to a decentralized model as required
- Initial centralized support model includes SMEs identified throughout the business and technical people available to support the BI tool
- Frequent communication and user sessions held to understand current and long-term issues and needs

**Information and analysis assistance**

- Self-service access to information with assistance as required from ACE, SMEs, and power users
- One-on-one analytical assistance to the business
- Delivery in structured releases through change and release management

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**Review typical scenarios**

ACE is a critical component in solving many of the information challenges companies face today. These situations can include inadequate reporting systems that spawn other manual processes, disparate data, and poor or no training. Here are several typical situations and how an ACE can help.

**Know the analytic and technology issues**

Figure 2 outlines a typical current-state reporting architecture. Data integration and organizational issues force users to extract data from the main reporting environment and create off-line reporting areas using tools such as Microsoft® Excel, Access, and SQL server. Users then are required to spend excessive amounts of time preparing and organizing the data to resolve issues instead of performing analysis. The impact is seen in many ways:
Examples where decisions were based on incomplete or misinterpreted information.

Healthcare payer industry
• Inflated medical costs resulted from a contract change forecasted incorrectly.
• Higher services costs resulted from an incomplete analysis of new or changed health benefits.

Insurance industry
• Time and effort required to research customer retention using a variety of factors, including previous carrier, payment frequency, behavior, and channel
• Linkages established between business profitability and a representative’s experience and ability to sell insurance initiatives

• Inconsistent results, commonly referred to as multiple versions of the truth
• Business analysts who are required to have strong technical skills to resolve data issues
• Business analysts who are technically strong, but lack desired business analytic skill—such as framing and answering business questions
• Additional analytics staff—required to compensate for information inefficiencies
• Excessive timeframe to get an answer or inability to assemble information at the desired detail level
• Quality of analytic techniques varying across analysts, resulting in partial or incomplete results
• Inefficient BI systems, preventing expansion into Big Data

In addition to data issues, the many different reporting systems required to meet reporting needs add another layer of complexity. The end result is a lack of a centralized information delivery architecture, which creates increased cost, support, and maintenance issues.

Often a larger concern is the impact data issues have on business decisions, based on partial or inaccurate information, or data issues that only permit a limited ability to comply with Sarbanes-Oxley and other regulatory requirements. Every organization can cite situations where revenue or profits were affected because decisions were based on incomplete or misinterpreted information.

Learn how ACE can help

Implementing an EDW with Big Data can resolve many of the data integration and organizational issues companies face today. To introduce Big Data components, companies need to remove the inefficiencies of analytical and data management. An ACE does just that; it centralizes BI and analytic implementation, infusing skilled BI resources that use best practice implementation methodology and tool standards to efficiently produce reports and dashboards. It can comprise key technical business and IT resources that operate under one governing body to reduce time to build reports, decrease cost, and improve quality, and open the door to introducing Big Data. The governance framework helps set architectural standards that control departmental purchasing of systems for a company. For example, there may be times when a department requires another application for reporting; ACE can provide the review and guidance to verify that the systems are aligned with analytical technical direction and architectural standards. Governance goes a step further and actively involves business users in information-delivery processes. User involvement leads to accepting enterprise standards, with higher EDW use, which translates into greater business value.

Lack of growth and adoption of analytics

When users are not properly trained and supported, they often find alternative methods to analyze and report information. For example, in one client situation, DXC Technology discovered that users would download information from a reporting tool and upload it into an Excel spreadsheet where the client would format, then distribute
it. This user could have avoided downloading and formatting in Excel, if the user had known how to use the tool properly. In this situation, users are spending more time managing the data for analytics then analyzing the information, thus preventing expansion into “true” analytics.

In our experience, we have found that more than 75 percent of users either do not receive training or receive inadequate training. Some training programs are limited to teaching a user how to use a tool instead of learning how to leverage the underlying data. Users should be able to understand the information and be trained on all aspects of its access and use and without it, a user cannot grow into true analytics. Visualization tools that have hit the market in the last several years are very intuitive, but without proper data, process, and training, users will not achieve the benefits expected. DXC has found that although visualization tools are intuitive without a proper ACE to help form best practices and standards, training and other required user interaction, adoption is hindered.

Engaging the business on how to effectively organize and extract value from an EDW and other sources, on top of training and support, is required for users to gain the efficiency expected in using a BI or Analytic tool. Data and process education must be part of the education program in order improve the BI maturity of end users into analytics. And remember, training shouldn’t end after system implementation; it needs to continue throughout the BI lifecycle. Interaction by the ACE is very important to assist the end user in embracing analytics and without it, expansion into true analytics is difficult.

Know how ACE can help

As users receive better access to information, they require more access to it—faster and in real time. An ACE can develop education and certification programs that provide users with the tools, data, and processes required and then offer a certification program that enables them to leverage the system properly. It can also build a program to monitor and continue improving information delivery and analytical methods and training on systems throughout their maturity lifecycle.
The ACE also contains key data scientist and analyst that can pro-actively meet with users to improve analytical capabilities and begin to build analytic models and programs to address the ever growing breadth and depth of information companies face today. Figure 3 represents one of the key resources within the ACE to provide this engagement and collaboration with the business.

**Poor data management**

As indicated in the above section, a proper education and support program can help the end users to grow and adopt BI and get to true analytics but without the proper access and integration of data, growth is hindered. If data is not properly supplied to end users, they will find it on their own and combine it together in Excel, Access, and other forms as they have done for many years. Data visualization tools allow any users to integrate data to meet individual needs but can lead to silos of data repositories and other versions of the truth. If proper approaches are not used as in any tool, regardless of how intuitive they are, can lead to data governance, scalability, and performance issues.

Analytics is about analyzing a large breadth and depth of information quickly to meet ever-changing business needs. With the explosion of data in the past 10+ years, structured data volumes are rapidly growing, and unstructured data is growing three times as fast. New approaches are required to store, integrate, and analyze data quickly.

**Realize help from the ACE**

Data management is the #1 issue DXC helps clients address. Improper data management leads to most performance issues where the client blames tool, and the true issue is data management and integration. This problem leads to longer development cycles and increased support cost that prevent gaining the advantage of analytics.

The ACE contains both technical and functional resources as seen in the example ACE organization chart in Figure 6. The ACE can be established to build standards, processes, and methods to properly manage information, and the governance model can be used to enforce and modify the processes and standards. The ACE analyst, outlined in Figure 3, can be used to interact with the business to understand data integration pain points and educate the business on proper techniques and bring these issues back to the ACE to properly analyze and modify the architecture, methods, and organization accordingly to address issues and concern. In order to gain efficiency in BI and get to true analytics, an ACE organization must be established, proper data architecture and tools be in place, and methods established, all of which are supported and governed by the ACE.

**Incorporate adequate governance**

Reporting systems frequently lack the controls that outline how to use the system, make requests, and verify requests, enabling all parties to adhere to the controls. Many companies also lack the ability monitor, optimize, and clean up unused reports and dashboards. Often, there’s no operating body to review and analyze needs effectively in an efficient and structured manner. As a result, it becomes difficult for users to satisfy additional needs, complete report modifications, meet needs efficiently, or request integration of additional subject areas.
Governance is seldom driven by business users and is often considered an impediment to getting things done. Rarely is data warehouse use and adoption considered a business issue with governance responsibility. This is where governance, as part of the ACE, can assist the company.

See how an ACE can help

As indicated in Figure 1, a governance framework is a key part of an ACE. The framework exists to understand and prioritize business needs, review technology changes, and assign resources for implementation. The scope, objectives, and structure of the governance need to be analyzed and established based on each company’s organization and goals. As seen in Figure 4, governance is needed to analyze new business needs and issues through the working committee as part of an ACE, where status is reviewed and prioritized with the advisory committee, and conflict resolution and approval is done by the executive committee. This three-tier system is required to efficiently analyze, prioritize, and approve business needs and issues.

Figure 4 is an example of a framework that has been successfully implemented in a typical company environment. Advisory committee is usually business managers with process responsibility who rely on data to get their jobs done, set direction, and make decisions. Advisory members are directly affected by information integration decisions. Depending on an organization’s size, they are often senior manager-to-vice president-level associates.

The working committee is generally the advisory committee’s staff and focuses on details for making recommendations and taking action. One key to success is empowering the advisory committee to make appropriate decisions and holding them accountable for the results. Effective empowerment enables efficient delivery of information management solutions; it also drives business acceptance and use. ACE provides the structure and framework to administer a sustainable stewardship program effectively.
Build an ACE—the approach

Building an ACE is closely aligned with developing an information delivery strategy, because each interacts with the other in many ways. The information delivery strategy defines current and future needs and outlines the execution roadmap. The ACE supports the direction and implementation of the strategy. Figure 5 outlines how an ACE and an information delivery strategy interact. An information delivery strategy is required to provide a roadmap to organize data, and establish the proper BI tools, standards, guidelines, methodology, and resources at the right time to execute it.

The approach used in forming an ACE is based on many factors. Generally, there are several key objectives, including business efficiencies and improvements, technology, training, support, improved analytical capabilities, and governance. All these aspects must be taken into account when planning and implementing an ACE.

Companies that embrace Big Data find it to be a differentiator against the competition, and an ACE organization is needed to analyze these large amounts of structured and unstructured data effectively. Data, technology, and resources need to be aligned properly to get value from it.

There are many ways to build an ACE; it’s different for each company and comes down to a couple of approaches—bottom up, top down or a hybrid approach. Each approach solves different issues, and each is positioned based on many factors including company size, BI maturity, existing governing body, and technical resources. If a company has a large backlog of reports that it cannot build efficiently, maybe a bottom-up approach—to bring in key technical resources, architecture, and processes—is needed to solve the issue. If, on the other hand, there are multiple versions of truth that exist with reporting, maybe a top-down approach is needed to bring certain business processes into the ACE for consistent execution. A hybrid approach could also be taken to solve technical and business process issues. The right approach will become apparent when forming and analyzing objectives and desired outcomes.

Form the ACE team

Typically, a team of key stakeholders from across an organization is established and tasked with defining the ACE and building the initial charter and staffing models. Team members include high-level decision-makers who rely on analytic information. They become initiative sponsors and change agents who drive the culture change associated with these initiatives. Areas represented include key consumers of information, such as finance, operations, and sales and marketing.

An often overlooked resource is a senior human resource representative, who can help with staffing and culture-change issues.
Analyze the environment

An analysis of the current environment should be performed and a strategy outlined as to the next steps. There are several areas that should be investigated:

Business objectives

Know the tactical and long-term business goals and how well they are currently being met. The ACE should focus on supporting the highest-priority goals that deliver the most value. It’s common for organizations to find that information delivery is often the largest barrier that must be overcome to meet business objectives. ACE provides the infrastructure and team that can efficiently execute business needs, but they need to be analyzed and documented. Typically, an information delivery rationalization needs to be performed to identify and document specific reporting, dashboard, and other information delivery needed.

ACE objectives and desired outcomes

An often-overlooked component is defining and building consensus of the outcomes ACE is expected to deliver. This step should identify:

• What are the current problems ACE should address?
• What are the current behaviors ACE should influence?
• What measures demonstrate success?
• Where are the obstacles and how should they be removed?

It’s important to recognize and manage the culture-change aspect associated with implementing an ACE. A common mistake is assuming there’s alignment across the cross-functional ACE formation team on these topics or a shared understanding of core analytic functions and priorities. A good analytic functions map—that outlines functions by department—is a critical component to completing this step. The analytic functions map should:

• Define key analytic functions and their interdependencies
• Identify relationships between high-level business processes and analytic functions
• Show where analytic functions are used—how pervasive they are across the organization

Another mistake is assuming the ACE formation team shares a common understanding of key analytics or what an ACE should be. The analytic function map becomes a key tool to drive consensus and builds alignment across the team. It’s also a mechanism used to lead fact-based discussions and remove emotion from some tough discussions that must occur. For example, organizations often are looking for ACE to deliver centralized consistency and efficiencies where it makes sense, while maintaining entrepreneurial capabilities of functional business areas.

Successful ACEs aren’t just service areas or report producers; they become a hybrid business or service organization with responsibility to execute identified business processes and provide services to improve analytics across the organization.

ACE in action

During an insurance payer’s initial project conversations, there were strong sentiments expressed that utilization analysis—covering what services are performed by doctors—belonged to a specific functional business area and shouldn’t be changed. Building an analytic functions map demonstrated that the utilization analysis was:

• Used by most of the functional business areas in the organization
• Embedded as subprocesses or prerequisites for many of the other analytic functions in ways that are not always obvious
• Reported inconsistently across the organization, meaning there were multiple versions of the truth
• Inadequately supporting identification and addressing business issues that impacted financial results

In this example, a fact-based discussion about centralizing this process to be executed by the ACE, benefited the organization. The business unit that declared ownership quickly realized how it would benefit as a consumer of a centralized service and realized what it really owned was the medical business policy supported by utilization analysis and other analytic functions.
Information access

• How well are users receiving information?
• What is the current state of information access?
• Does the information access look similar to Figure 2?
• Are users spending more time organizing data into final reports instead of performing analysis?
• How well prepared are users to perform detailed analysis?

These and other similar questions need to be answered to properly determine the current state of information access. Ideally, self-service access should be a goal for ACE; this provides users with the greatest ability to analyze information and answer business questions quickly.

Existing resources

Resources that help build the technical infrastructure and support users must be aligned. If business demands aren’t being met, there most likely is a gap in the required technical capability of users and/or IT department. Most companies lack the proper BI technical and management capability to meet demands, so consultants from system integrators must be added. Business, IT, and consultants most likely will make up the resources within the ACE.

This step identifies behaviors that an organization needs to build, modify, or eliminate, and the skills and capabilities resources require to be successful. And it also builds the plan to achieve them. To do this, important questions must be asked:

• Do you have the right BI technical capabilities within your organization?
• Are there key BI technical capabilities that exist within the business that can be leveraged?
• Are there pockets of shadow IT that exist that need to be coordinated?
• Who will run the ACE, and do you have the right people to do it?
• Do you have resources with the right skills to fill the ACE analyst role?

Current BI technology

The current information delivery architecture should be analyzed to determine how well it’s meeting your users’ needs.

• What are users’ perceptions of the system?
• What is and isn’t working?
• What additional tools are needed to meet users’ needs?
Prevailing governance

- What kind of data and information governance is in place?
- How are users’ needs being determined, reviewed, and prioritized?
- Is information getting to users at the right time?
- Are developers and users operating within reasonable standards?
- Is the business a full partner, accountable for the solutions, use, and adherence to standards and policy?

All these questions play a part in analyzing governance. It’s a key component of empowering the business to take ownership of its information needs. In a typical current state, the way information is delivered is often the key barrier to implementing business objectives, and the business must be an active partner in owning and solving these issues. The flip side of ownership is accountability, where the business becomes willing to accept responsibility for adoption, use, and adherence to technical and business standards and best practices. Effective governance delivers alignment between the business and technology.

Current education programs

An education strategy should be outlined as part of an ACE, and the current state of education needs to be determined. Technical and tool training is only a small piece of the answer. The ACE provides a centralized area that has the technical skills and the required business knowledge to address the broader educational challenges.

- How well are users educated?
- Can they use the system effectively?
- What are the future education goals?
- Do users know who to go to for help or to escalate business problems?
- Can users frame and answer the right business questions?
- Do they understand what the data means and make recommendations for action based on facts?
- Do they understand how to ask requirement questions to make certain that analysis can meet the intent of the question?
- What additional training is needed for current users to meet objectives?

Figure 6 outlines a standard role-based ACE organization for a health-care company. The chart is a role-based chart as one resource could play multiple roles. The ACE organization could be a virtual or physical model and depends upon many factors that are realized during the formation of the ACE. Notice how the organization in Figure 6 contains both technical and functional people including analytic modelers and data scientist. The ACE analyst is a key end user facing position as outlined in Figure 3—A day in the life of an ACE analyst.
Existing support

• Are users getting the right kind of support?

• What changes are needed to get users the answers they need quickly?

The existing support structure for users’ needs must be analyzed to determine how well it’s working. There are many approaches that can be used to support users, and the answer begins with understanding how well it’s working now. ACE is not about centralizing all reporting and analysis; it’s about improving the effectiveness of knowledge workers throughout the organization, which can be accomplished through a centralized support structure within the ACE or through a federated structure consisting of centralized and departmental resources. As seen in Figure 3, part of an ACE BI analyst’s responsibilities is to reactively and proactively provide user support. The ACE BI analyst can be part of a centralized team or within the department, but must still be within the ACE’s governance in a federated model.

Develop a business intelligence strategy

After the current state is analyzed, a BI strategy can be outlined. Figure 5 shows the key strategy components—information delivery, management, and integration, and the analysis performed in the previous step, which serves as a key element in determining the overall direction with information delivery. The strategy sets the tactical and strategic direction to align technology, people, and processes to better meet business needs. ACE helps deliver the strategy.

Get senior level buy-in

Approval and support of the information delivery strategy and ACE are critical to successfully form an ACE. Support must come from the top down to effectively propagate ACE’s objectives throughout the organization, and obtaining senior-level
support is critical to business acceptance. Business members of the ACE team play a large role in this process.

Table 1: ACE funding options—funding models can be used independently or in combination with other models

<table>
<thead>
<tr>
<th>Description</th>
<th>PROJECT FINANCE</th>
<th>CENTRAL FINANCE</th>
<th>HYBRID FINANCE</th>
<th>USAGE FINANCE</th>
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</thead>
<tbody>
<tr>
<td>Based on project by project estimate</td>
<td>Based on permanent resources of the center</td>
<td>based on core resources in center with flex resources to meet demand</td>
<td>Based on finance in units of demand, such as resources and deliverables</td>
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<tr>
<td>Key activities to establish</td>
<td>Strong extinction</td>
<td>Business or IT finance</td>
<td>Core resources decided</td>
<td>Unit-defined</td>
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<tr>
<td>Risk</td>
<td>Prioritized business demand</td>
<td>RTI to measure success</td>
<td>Ramp-up/down determined</td>
<td>Unit cost-defined</td>
</tr>
<tr>
<td>Benefit</td>
<td>Variable risk</td>
<td>Known risk</td>
<td>Variable risk</td>
<td>Variable risk</td>
</tr>
</tbody>
</table>

Secure funding

The ACE funding model should be outlined early to fill the positions. There are several options for funding, but each option has benefits and risks.

Establish governance framework

A review and control process should be developed before the ACE is put in place. The business will continue to communicate its additional needs, and a process and organization need to be put in place to review and prioritize them. Governance is an integral part of the outcome of the ACE—centralized to define and build solutions, not isolated efforts.

Determine responsibility

As the strategy is implemented and ACE resources are filled, the technical and functional resources within it need to be determined. Figure 6 is an example of an ACE organization chart. Notice that it has technical and functional branches, and there are many dependencies with ACE and other departments. The responsibility of each resource needs to be determined. The functional resources should be filled by the organization, with the business responsibility of the ACE determined before the resource responsibilities are filled.

Assign resources

After ACE resource responsibilities are determined and a governance framework put in place, positions can be filled. The governance framework can help determine the best approach to filling them. Typically, an ACE formation committee is organized to analyze and prioritize the overall required ACE competencies, which determines the roles and responsibilities of the ACE and ACE BI analyst.

Communicate the plan

Communicate about the ACE early and often to the business. It’s important the company understands the ACE’s goals and purpose, so acceptance and input by all people can be included. Communicate about its formation. Then determine what else needs to be communicated; because forming an ACE can be a huge culture change.
Enable succes

To better leverage technology and improve the effectiveness of your knowledge workers, an ACE is needed. It transitions business analysts from manual data gatherers to analytical thinkers and enhances fact-based business processes, which equips your organization to get what it needs in an efficient and timely manner.

About the author

Christopher Carney is a practice principal and solutions architect for the Analytics practice within DXC Technology. He has more than 25 years of experience in analytics and business intelligence in many technologies including Cognos, Business Objects, SAS, Essbase, Qlikview, Oracle BI where he has built a number of Analytics Centers of Excellence in many industries including high tech, insurance, healthcare, public sector, retail and financial services. Prior to DXC, Christopher was a senior principal at Knightsbridge Solution and a senior manager at Braun Consulting.

Christopher earned his bachelor of arts degree in accounting and computer science from Fort Lewis College.

Enforce the framework—The governance framework model should be enforced and parties held accountable.

Focus on immediate needs—All issues should be prioritized; high business value with low effort should be implemented first—to demonstrate immediate success. This is critical for the ACE to gain the organization’s confidence.

Better understand future business needs—Following initial implementation, change should rapidly flow through the business, and the ACE should continue to assist the business as needed.

Align with business needs—Widely used and high-value business needs should be implemented and supported by the ACE.

Improve analytical capabilities—The primary and most critical objective of the ACE is understanding and improving an organization’s analytic capabilities, which can be accomplished through improved training, support, and understanding of business issues and current needs.

Learn more at [www.dxc.technology/analytics]