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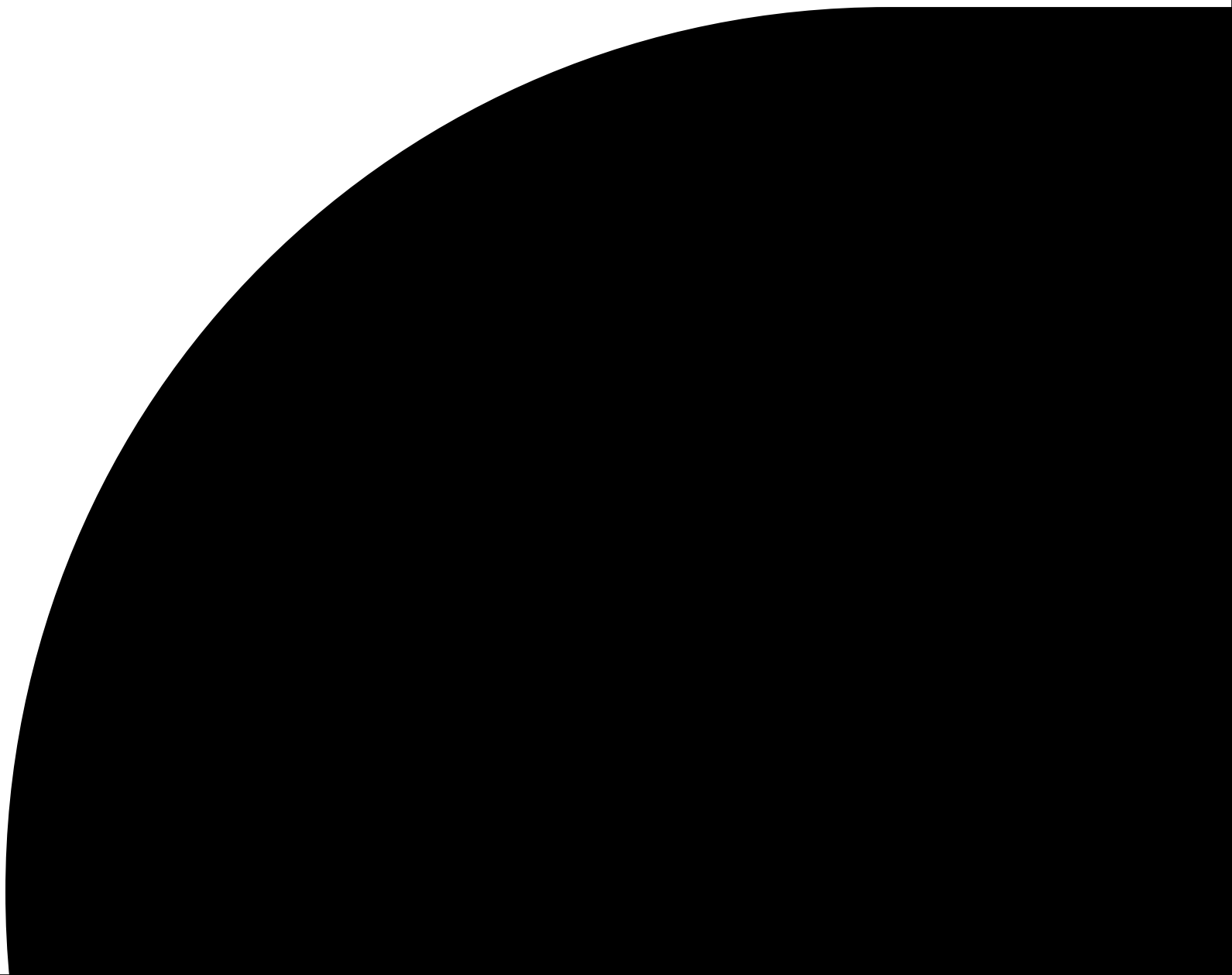
White Paper

An Analytic Platform Blueprint

A capability checklist for Operational Analytics



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The DXC Operational Analytics viewpoint paper covered the 10 process areas that must be considered to move from traditional ad hoc analytics to analytics that streamline processes—from analytic discovery to application integration—within operations. This paper focuses on a blueprint for software-enabled capabilities required to support fully mature Operational Analytics.

This blueprint describes the core functional capabilities of an Analytic Platform, which can facilitate conversations with technical experts. It can also help enterprises assess the current state of their analytic platform software and consider the impact of any potential gaps.

1 "Data Never Sleeps 3.0," Josh James, August 13, 2015, https://www.domo.com/blog/2015/08/data-never-sleeps-3-0/
2 Gartner, "Predicts 2015: Big Data Challenges Move From Technology to the Organization," November 28, 2014, https://www.gartner.com/doc/2928217/predicts--big-data-challenges
3 Ross, et al., "You May Not Need Big Data After All," Harvard Business Review, December, 2013, https://hbr.org/2013/12/you-may-not-need-big-data-after-all
4 "You May Not Need Big Data After All," Harvard Business Review, Ross, et al., December, 2013, https://hbr.org/2013/12/you-may-not-need-big-data-after-all
5 "Big Data Industry Insights," webinar, Lisa Kart, September 9, 2015, http://www.gartner.com/webinar/3087726

An Analytic Platform Blueprint

This viewpoint paper describes the core functional capabilities of an Analytic Platform. It is meant to help enterprises assess the current state of their Analytic Platform software and consider the impact of any potential gaps.

Translate analytics into results

Across all industries, the growth of available data and growing demand to analyze it have been well documented.[1] The most competitive enterprises are those that learn to harness data, put analytics to use, and operationalize them to have widespread impact to their organization.

While most enterprises are conducting some form of analytics today, few see direct impact on enterprise performance:

"Through 2017, 60 percent of Big Data projects will fail to go beyond piloting and experimentation and will be abandoned."[2]

> "Much of the hype around Big Data focuses on getting more information and more people to analyze it. But the opportunity... is best tapped by getting all people to use data more effectively."[3]

"Companies are investing like crazy in data scientists, data warehouses, and data analytics software. But many of them don't have much to show for their efforts."[4]

Gartner recently reported that 55 percent of the enterprises it surveyed ranked "Determining how to get value from Big Data" as one of their top three hurdles or challenges.[5]

Today's enterprise leaders want to translate the promise of analytics into meaningful and sustainable business results. The question is no longer why; it's how.

First, it's necessary to assess the process areas that support putting analytics into operation. These themes are discussed in our Operational Analytics viewpoint paper.[6] These process areas are supported by a set of capabilities that collectively make up the Analytic Platform for Operational Analytics. The blueprint is meant to help address many of the challenges facing enterprises today. Specifically, how to:

- Identify all the solution elements needed to execute today's analytics strategies, and which components are needed for longer-term analytics initiatives.
- Structure an approach to analytics in the face of constant increases in the size, frequency, pervasiveness, and complexity of data.
- Support the full analytic workflow from discovery to operational applications in a managed, efficient, and repeatable way.
- Optimize technology investments by selecting the right tools for the right job in support of Operational Analytics.
- Avoid the mistakes other companies make that lead to poor results, inadequate capabilities, or delayed value.

This blueprint identifies the functional capabilities needed to deliver analytics throughout the enterprise and empower a data-driven organization. Equally important, it can give you a starting point for assessing your analytics maturity level and accelerating your analytics transformation.

6 [www.dxc.technology/analytics]

Use a blueprint for Operational Analytics

What exactly is a blueprint for Operational Analytics? Simply put, it identifies all the core software requirements for operationalizing analytics. It shows you what's needed to modernize your business intelligence (BI) capabilities and build a bridge between traditional analytics and today's analytics—Operational Analytics.

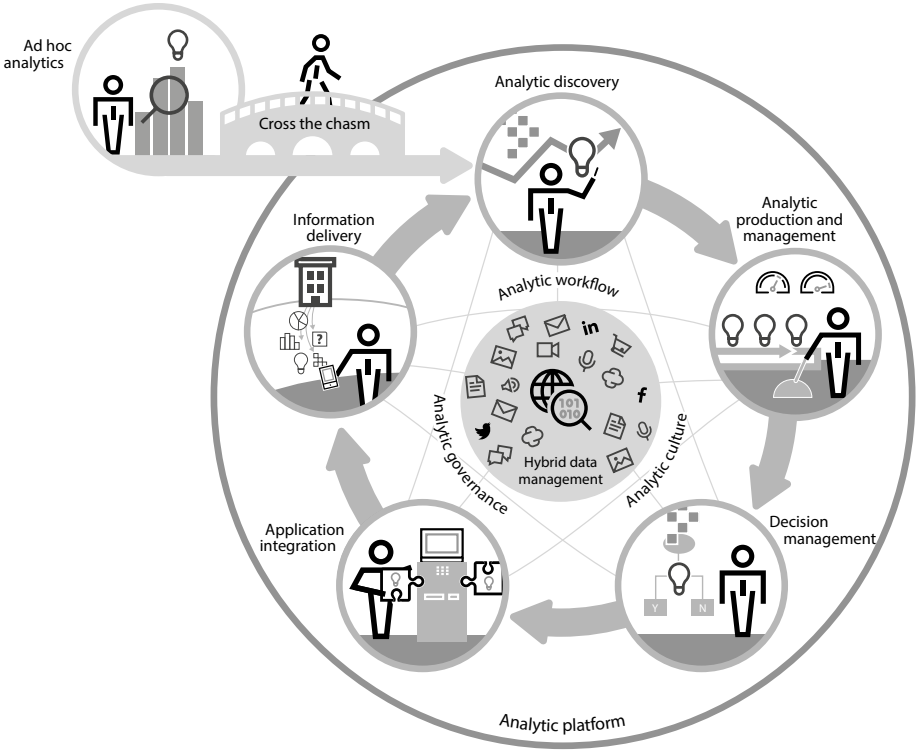
Operational Analytics is defined by the interoperation of multiple disciplines to support a seamless flow of intelligence from Analytic Discovery to Application Integration.

Operational Analytics is defined by the interoperation of multiple disciplines to support a seamless flow of intelligence from Analytic Discovery to Application Integration. A useful analogy might be a kitchen in a commercial restaurant. There are many different functional areas in a kitchen; each has its own specialized tasks and tools, all of which are interrelated and interdependent.

For example, the food prep station has its processes and tools for peeling, cutting, and portioning; line cooks and grillers have their own utensils and checklists; and the operations manager has a separate office and work tools. Dishwashers have equipment and procedures in place to ensure that everyone in the kitchen has clean utensils, and food is served on freshly washed plates. Now, imagine having a team of great cooks, but none of the other supporting teams. This illustrative example is similar to where many analytic initiatives are stuck today: data scientists operating in silos with little to no connection to the business and IT operational processes necessary to produce any meaningful benefit.

These Operational Analytics process areas are described more thoroughly in Figure 1.

Figure 1: Operational Analytics process areas



The Analytic Platform supports these 10 critical operational analytic process areas. Organizations can realize many benefits by implementing a complete and integrated platform for Operational Analytics, such as:

Fully exploit the power of analytics—The most important benefit of a mature platform for Operational Analytics is support of rapid time to value. This value comes from reducing the barriers that limit an organization's ability to take analytic intelligence and implement it into business operations for the organization's benefit. This aspect addresses the low return on investment sometimes associated with analytics—despite the clear value of implementing it.

Address a wider range of projects—A comprehensive Analytic Platform provides a framework for discovery, exploration, strategy, planning, and decision-making. Because it includes everything that's important to consider: analytics capabilities needed to provision data; store, distribute, and process data; analyze data; deliver information; embed analytics; manage information; and more. It also includes the capabilities needed to develop, deploy, and maintain solutions; deliver the infrastructure; and deliver service. The net result: You can start earlier, act sooner, and get better answers to complex queries about a broad array of business use cases.

Continuously improve virtually any core business processes—When you use all relevant data and address all functional aspects of operationalizing analytics, you can draw more meaningful insights to optimize business processes. For example, you can apply analytics to the massive volumes of data generated by a service desk so you can prioritize user issues and optimize fulfilment according to your business priorities. You can also analyze the security loop to find and eliminate advanced threats, optimize procurement processes, use backup and recovery procedures, and so on.

Acquire the right tools for the task at hand—Once you isolate the core functional areas that need to be addressed, you can make more informed decisions about the specific tools you'll need and avoid the cost and waste of suboptimal or unnecessary tools.

Adapt and evolve quickly—By operationalizing your analytics, you make your enterprise more agile. It enables you to respond faster to ever-changing business conditions, makes your operations leaner and smarter, and accelerates your transformation initiatives.

Table 1: The context of the Analytic Platform

At a high-level, Operational Analytics is supported by a combination of business and Analytic Platform architectures.

Business architecture	Business results	Business outcomes impacted by Operational Analytics
	Business processes	Business processes affected by Operational Analytics
	Analytic content	Specific data models, reports, analytic models, rules, and other code designed to deliver Operational Analytics
	Operational analytic process areas	Analytic processes required to deliver Operational Analytics
Analytic Platform architecture	Analytic Platform capabilities	Software-enabled functional capabilities required to deliver Operational Analytics
	Analytic Platform software	Software required to enable Analytic Platform capabilities
	Analytic Platform hardware	Hardware required to support Analytic Platform software

The Analytic Platform architecture has three layers:

- Analytic Platform capabilities
- Analytic Platform software
- Analytic Platform hardware

The Analytic Platform capabilities are collectively exhaustive and mutually exclusive—they're all vital considerations and must be taken into account.

The Analytic Platform architecture has three layers:

Analytic Platform capabilities—The set of building blocks needed to create enterprise analytics solutions that meet the functional requirements of an organization's collection of business use cases. These platform capabilities are the primary focus of this paper.

Analytic Platform software—The set of software component preferences for implementing Analytic Platform capabilities.

Analytic Platform hardware—The network, server, storage, and edge device specifications needed for the Analytic Platform software to meet the availability, scalability, performance, and other nonfunctional requirements of business use cases.

Each layer requires interactions with the other layers. For example, Analytic Platform capabilities inform and guide the software product selections in the Analytic Platform software layer. The Analytic Platform capabilities should be designed in a generic fashion, so you can select from a wide range of options to most effectively address your specific needs. For example, these capabilities can be assembled in tailored groupings and do not require the entire portfolio of components to be implemented for each solution. On the other hand, because they belong to a common architectural model, additional components can be added to a solution to expand and augment its functionality.

Referring to the kitchen analogy, Analytic Platform capabilities serve as a checklist for each of the functional areas in the restaurant—the food prep station, grilling station, and so on. The Analytic Platform software identifies the preferred utensils needed to deliver the needed functionality—the best set of knives, preferred brand of blender, and so on.

Review Analytic Platform capabilities domains

The capabilities of the Analytic Platform are categorized into nine domains (see Figure 2). These capabilities are collectively exhaustive and mutually exclusive, which means they're all vital considerations, and there are negative consequences in failing to account for any of them.

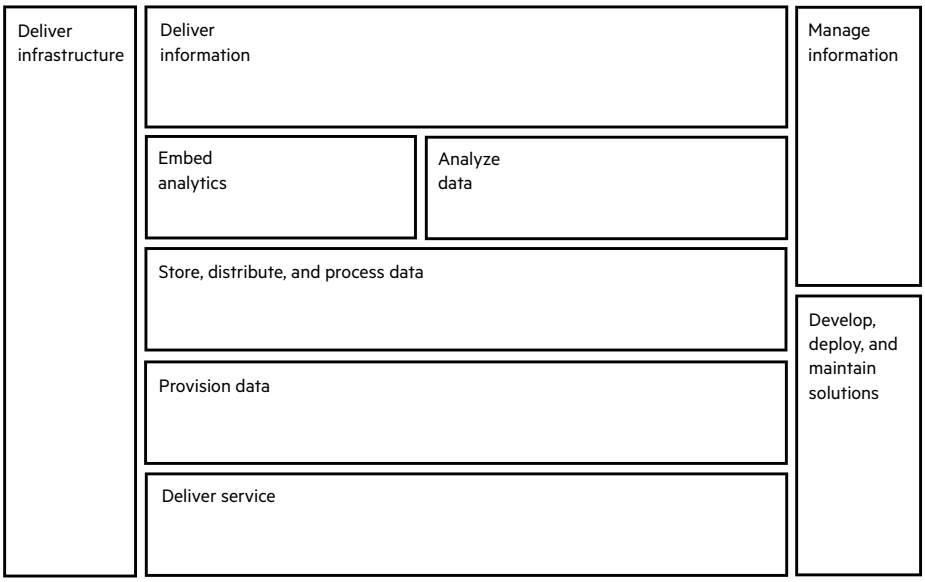


Figure 2: The nine high-level functional domains of the Analytic Platform capabilities

Provision data domain

How does data enter the system? This domain accounts for traditional data integration, quality, lineage, and Extract-Transform-Load (ETL)[7] capabilities. It also includes ingestion of streaming data; movement of data between a relational database and distributed file systems; and connectors to software applications and unstructured data sources. It captures information from internal and external source systems, delivering data in any format—batches, streams, or real-time events. Support for particular use cases may require changes in source systems or interfaces. Existing data warehouse systems can supply information as well.

Store, distribute, and process data domain

How is data persisted, routed, and processed? This domain includes data warehouses, data marts, operational data stores, business intelligence systems, stage-and-load areas, and other data repositories that are part of traditional environments, distributed file systems and databases, analytics databases, and data federation. It also provides processing capabilities, including distributed compute, in-memory distributed compute, distributed compute job scheduling, stream processing, and enterprise search—across structured and unstructured information sources.

7 Extract-Load-Transform (ELT) has also become popular in modern data lake architectures that store data in their original format and transform them as needed for specific solutions.

Analyze data domain

How are insights derived by applying a broad range of analytic capabilities? This incorporates everything from social media analytics, to video analytics, speech analytics, and basic statistical methods, together with all the modern methods of analyzing data such as machine learning, Geographic Information System (GIS) analytics, and specialized programs and scripts. It also provides for everything from static reporting and flexible user online analytical processing (OLAP) decision support to advanced statistical analysis and data mining. Unstructured information can be classified and clustered. In this domain, users can experiment with the data to discover potential value and identify how to query and access it. Machine-to-machine (M2M) data can be analyzed in real-time or streaming mode using sensor-based data streams, application logs, and database logs.

Embed analytics domain

How are analytical results integrated with business processes, such as applications and workflows? Near-time streaming data may go directly into complex event processing (CEP) and event-driven business rules engines, where production rules are executed to automatically react to qualifying events. Raw data can be persisted in a database for subsequent analysis and generation of further decision rules for the CEP engine. Processing can also be executed through service-oriented architecture (SOA) interfaces via an enterprise service bus, service orchestration to create composite services, business process management tools to execute process workflows, and distributed flow control to choreograph end-to-end solutions. In most cases, the data will never be in one repository, harmonized, or synced up at a single point in time; instead, the data and analytic processing will be distributed.

Deliver information domain

How are analytical results presented to the organization? This domain identifies a number of different systems such as traditional BI reports, dashboards, and portals, and more modern interactive visualization tools and dynamic real-time reporting. Advanced analysts use analytic workbenches to access and analyze the data.

Manage enterprise information domain

How is enterprise data managed? This domain includes data management functionality such as master data management, governance, compliance, records management, and archiving. It also includes distributed compute data management. This domain ensures quality data and reliable results to consumers. Some organizations have established BI competency centers for these tasks, while others have the responsibilities embedded into their IT organization.

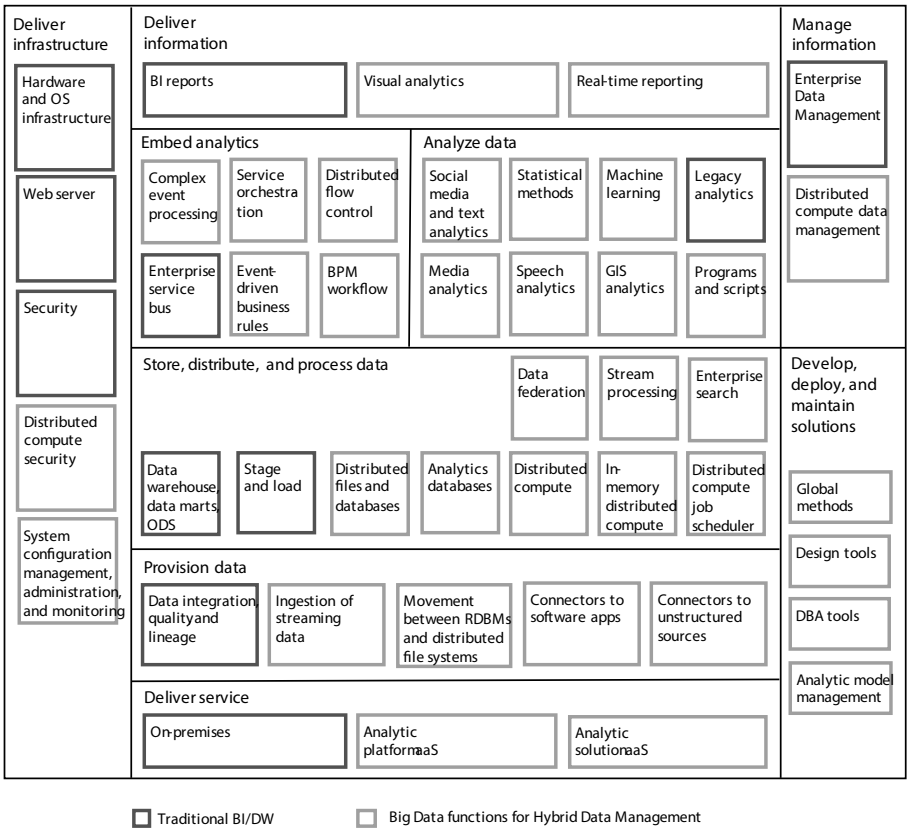


Figure 3: Drill-down view of the Analytic Platform capabilities, listing specific capabilities for each domain area and including traditional BI/data warehouse (DW) functions and Big Data analytics functions

Develop, deploy, and maintain solutions domain

How are solutions managed throughout their development lifecycle? This domain accounts for all of the needed design, development, and deployment tools, and the methodologies and design patterns to be used. This DevOps tool chain includes integrated solution design tools, revision control, continuous integration, build automation, database administration tools, and software and model management capabilities to support the full analytic workflow.

Deliver infrastructure domain

How do infrastructure and related services manage the support of operating analytic solutions? Security depends on data sensitivity, regulatory requirements, and eventual external exposure, and needs to protect all domains in the solution. Capabilities also include system configuration, administration, and monitoring.

Deliver service domain

How are analytic services delivered to the enterprise? This domain delivers the full Analytic Platform stack to the organization in a number of different deployment and commercial models. These include regular purchase of products deployed on-premises, hosted services, or fully managed services on private and public cloud with use-based and on-demand pricing models.

Review functional requirements

Each of the nine domains includes a set of key functional capabilities. These capabilities are shown in Figure 3 and are further defined in this section.

Provision data domain

- **Data integration, quality, and lineage** are traditional ETL capabilities. They are used to extract data from legacy application databases, transform these bulk data files into data that conforms to a target data warehouse design, and loads the transformed and aggregated data into the data warehouse.
- **Ingestion of streaming data** includes information from continuous-feed data sources such as log files, event files, sensor readings, social media posts, and news feeds, and are treated as constant streams of data rather than batch files. An open standard for this capability is Apache Flume.
- **Movement of data** between RDBMS and distributed file systems is a capability required by most enterprise operational Analytic Platforms, which include relational and distributed databases with data moving between them. An open standard for this capability is Apache Sqoop.
- **Connectors to software applications** extend traditional ETL processes by enabling the assimilation of application data via their exposed Application Programming Interfaces (APIs) rather than their databases.
- **Connectors to unstructured sources** address the need to ingest unstructured data—text, images, videos, and speech—from sources like SharePoint, email, and social media.

Store, distribute, and process data domain

- **Data federation** simplifies data access by providing a layer of encapsulation between data sources and analytic solutions that consume, process, and generate data. This enables composite solutions that use data from multiple diverse sources, such as combining internal corporate product marketing data with external social media data or projected sales data with supply chain management data.
- **Stream processing** supports near real-time processing of data streams, including log files, machine-generated sensor data, and social media data. An open standard for this capability is Apache Storm.
- **Enterprise search** enables users to search across all indexed data sources—including structured and unstructured, and internal and external—using concepts, context, and keywords. An open standard for this capability is Apache Solr.
- **Data warehouse, data marts, and operational data stores** (ODS) are the foundation of traditional BI platforms. In contrast to application databases designed for transaction processing, these databases are intended chiefly to support query-only dashboards and static reports based on historical data.
- **Stage-and-load areas** include file systems for traditional ETL processing, and the more modern concept of distributed ELT data lakes.
- **Distributed file systems and databases** are used to implement data lakes, which are large

repositories of heterogeneous—structured and unstructured—data. They are derived from multiple internal and external information sources, stored in their original formats, and made available for solving enterprise analytics business use cases. Open standards for this capability include Apache Hadoop Distributed File System (HDFS), Apache HBase, and Apache Hive.

- **Analytics databases** are scalable, columnar databases designed specifically for efficient analytic computation. These systems are required to do time-sensitive analytical processing of large data sets and for quick turnaround of analytical queries.
- **Distributed compute** enables large computing tasks to be performed in parallel across distributed file systems and databases, substantially reducing the time required to complete those tasks. Open standards for this capability include Apache MapReduce and YARN.
- **In-memory distributed compute** provides in-memory processing in distributed compute environments, which complements the disk-based distributed compute capability. An open standard for this is Apache Spark.
- **Distributed compute job scheduler** provides the means to schedule and manage repetitive tasks in distributed compute environments. An open standard for this capability is Apache Oozie.

Analyze data domain

- S**ocial media and text analytics** enable analytics on "natural language" text files, including methods for determining sentiment (positive-negative opinions), propensity (likelihood of taking a predicted action), clustering (identifying topics), and education (contextual searching on topics).
- **Statistical methods** include all kinds of regression, clustering, categorization, bootstrap, causal discovery, and many other methods. Open R is an open source statistical programming language with a large ecosystem of libraries of algorithms; R Studio is a free integrated development environment (IDE) for Open R.
- **Machine learning**, a collection of methods, enables algorithms to update themselves by learning from data. Apache Mahout is an open standard for a subset of this capability.
- **Legacy analytics** are part of backend OLAP-type decision support systems that generate static reports and dashboards using structured information in data warehouses.
- **Media analytics** provide the tools to analyze image and video files. This capability supports business use cases like security monitoring, broadcast monitoring, dynamic pro-active product promotion, and equipment monitoring.
- **Speech analytics** provide methods for analyzing audio recordings like those from call center customer interactions. A common approach is to transcribe the audio to text, then analyze it using text analytic methods. More general audio analytics include methods that can be applied, for example, to recordings of machines in operation and music.

- **Geographic information system analytics** provide methods for analyzing geospatial data and displaying location-indexed data for visualization of spatial patterns.
- **Programs and scripts** are specialized algorithms written in programming languages like Python, Scala, and Apache Pig, and user interface languages like HTML5, JavaScript, and PHP.

Embed analytics domain

- **Complex event processing** is a platform for recognizing meaningful events or patterns of events and responding to them in a timely way.
- **Service orchestration** is used to construct composite web services from other web services. Composite services are used to bridge between core, base services, and the more complex services needed to support workflows and user experiences. Business Process Execution Language (BPEL) is an open standard language for specifying service orchestrations.
- **Distributed flow control** is used to choreograph asynchronous, unidirectional, continuous data flows across a distributed cluster environment. Such flows can be distributed across space (different nodes) and time (different times).
- **Enterprise service bus** is the application communication backbone underlying a message-based SOA. Request-reply and publish-subscribe are two important patterns supported by this capability (see Enterprise Integration Patterns by Hohpe and Woolf for more information). Open standards for this capability include Apache Kafka and Apache Camel.
- **Event-driven business rules** is a system that automatically executes production rules in reaction to qualifying events. A production rule specifies the system's response to a given event.
- **Business process management workflow** is used to specify workflow procedures. Business Process Model and Notation (BPMN) is a graphical representation language for specifying workflow procedures.

Deliver information domain

- **BI reports** generate executive reports, operational dashboards, and analytic components embedded in portals.
- **Visual analytics** supports a modern, interactive presentation of data and analytic results.
- **Real-time reporting** enables near real-time updates to a user's display as soon as changes occur. These dynamic updates are often actively "pushed" by the system, but they can also be triggered by a user "pulling" them.

Manage enterprise information domain

- **Enterprise data management** supports master data management, governance, compliance, records management, and archiving.
- **Distributed compute data management** is used to manage data in a distributed compute environment. Apache Falcon is an open standard for this capability.

Develop, deploy, and maintain solutions domain

- **Global methods** are the collection of best practice methodologies, processes, design patterns, and other assets. An example is CRISP-DM, a standard process for data mining.
- **Design tools** are used to create analytic solutions. It is common to have tools that are tailored for different components in an overall solution.
- **Database administration (DBA)** tools are used to administer databases that are deployed in database management systems. These tools are designed for database administrators, not business users. Apache Hue is an open standard web user interface (UI) for managing distributed databases.
- **Analytics model management** is a collection of tools used for revision control, continuous integration, build automation, and software and model management.

Deliver infrastructure domain

- **Hardware and operating system infrastructure** are the hardware specifications and configurations for the software components in the Analytic Platform.
- **Web server** is a basic software component needed to support many of the other elements in the Analytic Platform. Apache Tomcat is an open source web server and servlet container.
- **Security** is a basic set of capabilities needed for identity management, user authentication, and access control.
- **Distributed compute security** provides specific security functionality for distributed files, databases, and compute environments. Apache Ranger is an open standard for centralizing security across a Hadoop platform, and Apache Knox Gateway is an open standard REST API gateway for interacting with Hadoop clusters.
- **System configuration management, administration, and monitoring** are the system tools needed to manage a distributed platform and the solutions deployed on it. Examples of open standards for this capability include Chef, Docker, Ambari, Ganglia, and Nagios.

Deliver service domain

- **On premises** represents the situation where the Analytic Platform is installed on the enterprise's premises and may optionally be remotely managed.
- **Analytic Platform as a Service** represents the situation where the Analytic Platform is hosted by a supplier that delivers it to the enterprise as a Service.
- **Analytic Solution as a Service** represents the situation where the analytics solution itself, including the Analytic Platform it is running on, is delivered as a Service.

See the platform in action

Analytic Platform capabilities reflect everything that needs to be considered and accounted for to deploy true enterprise-class Operational Analytics. Concerns are separated so each functional capability is a modular building block that can be combined to create solutions for business use cases.

For any given use case, you may elect simply to use a subset of the capabilities. That said, an enterprise-scale Operational Analytics platform, designed to support all applications and processes throughout the organization, requires the entire set. To better understand the value of this model and how it works, consider two business use case examples.

Improve business processes with social media analytics

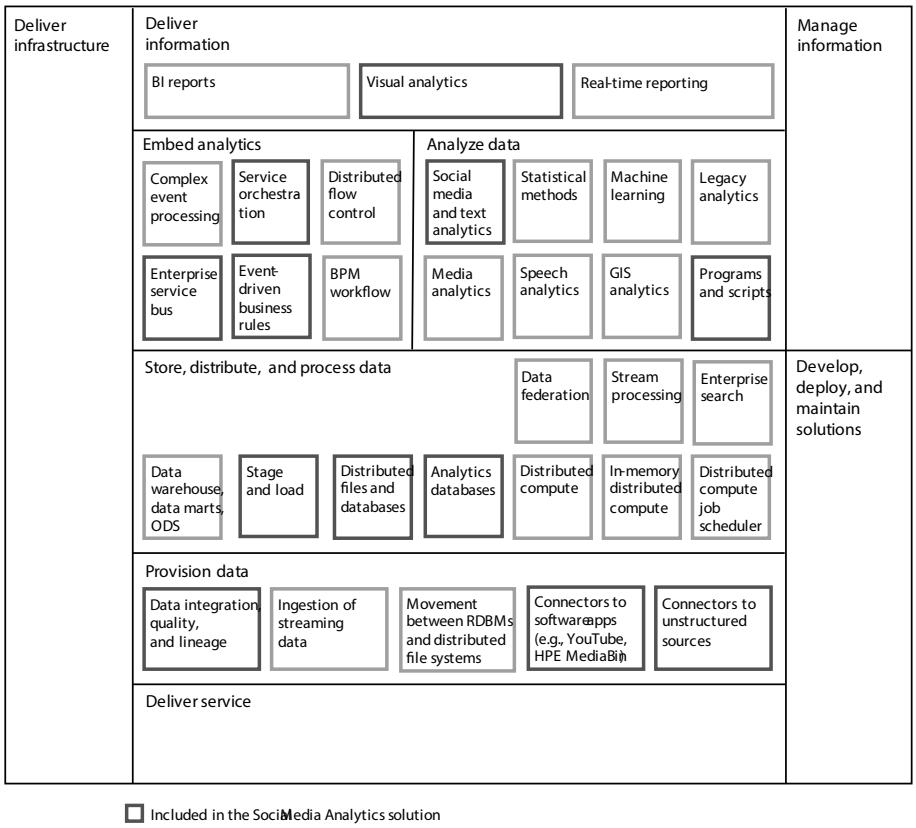
An enterprise may want to capture and analyze the vast amounts of social media texts—unstructured data—flowing between consumers and a particular business unit or product division to drive continuous improvement in a business process. For example, you might want to integrate multiple social media sources to analyze how a new product influenced overall consumer perceptions about a particular brand.

Figure 4 depicts the Analytic Platform capabilities needed to support this use case. The purple boxes are the capabilities that pertain directly to this type of analytics solution. For example, in the provision data domain, you'll need to incorporate products for data integration, quality, and lineage, along with connectors to unstructured data sources, and connectors to connectors to software applications, such as YouTube. In the store, distribute, and process data domain, you'll need to consider traditional stage and load, distributed files and databases, and analytics relational databases.

This approach must be applied through the entire checklist across all domains. For production implementations, all capabilities—manage information; develop, deploy, and maintain solutions; and deliver infrastructure—are required. You can also choose from multiple deliver service options; those details aren't shown in this use case diagram (Figure 4).

Putting the required capabilities—for this example—in the context of the full list of Analytic Platform capabilities enables identification of potential functionality that could be relatively easy to add in future releases of the solution by simply including the relevant capabilities already in the platform.

Figure 4: Analytic Platform capabilities required for social media analytics

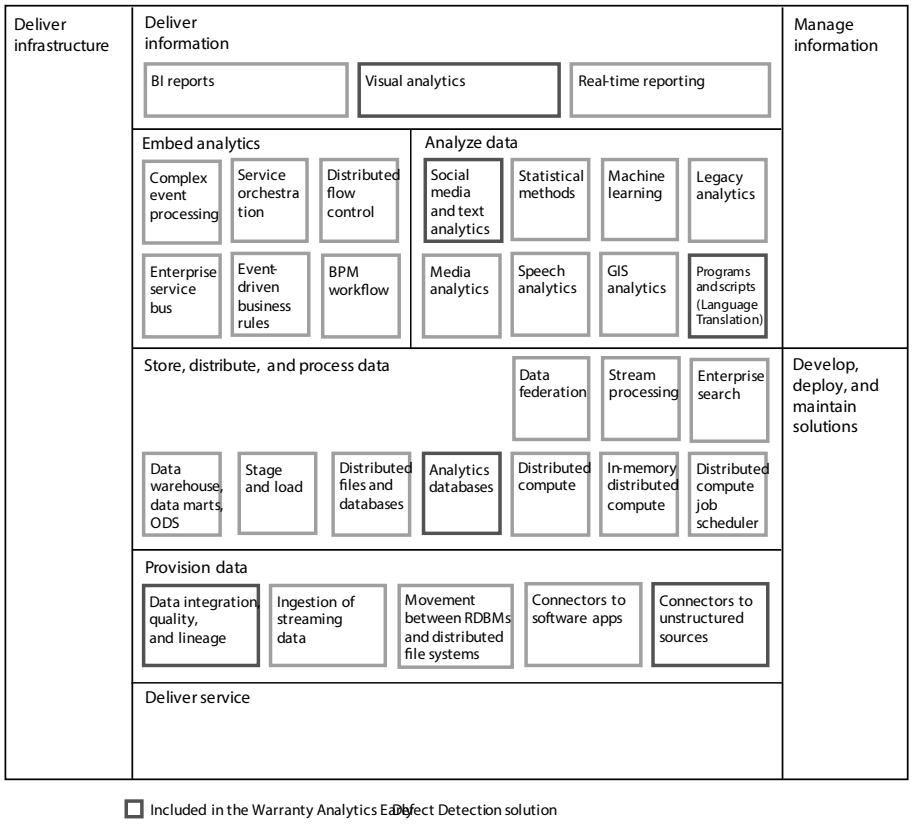


Use warranty analytics for early defect detection

This use case involves analyzing warranty service records, such as repair tickets in the automotive industry. In this example, repairs are performed in the shop. The automaker wants to analyze the texts entered in the warranty service records to determine if there's a pattern in the defects consumers are finding in new cars or components.

Using the Analytic Platform, they're able to create an analytic solution that accelerates identifying defects. So, instead of waiting as long as a year or more for a defect pattern to emerge, they're able to spot defects and respond in just a few weeks or months. This insight can translate into a huge competitive advantage and business value. Figure 5 highlights the relevant capabilities required for this use case. For example, in the analyze data domain, you'll need to include the social media and text analytics capability and for multilingual situations, you'll need to consider language translation.

Figure 5: Analytic Platform capabilities required for early defect detection use case



Monitor the distribution of your Operational Analytics capability assessment scores over time and use them to plan for the future.

Use the Operational Analytics capability assessment

Use the following capability checklist to manage your Analytic Platform.

Rate your enterprise's maturity for each Analytic Platform capability using the following guidelines:

3 = Capability is needed and available.

2 = Capability is needed, not yet available, but is planned or in development.

1 = Capability is needed, not yet available, and not yet planned.

0 = Capability is not needed at this time.

Monitor the distribution of your scores over time and use them to plan for the future. In the Analytic Platform software column, identify the software products that you have chosen for the capabilities that are available (3) or planned (2). For capabilities that are needed, but not yet planned (1), you can list the options. Also, you can use this checklist to help determine the capabilities needed for each of your analytics projects.

ANALYTIC PLATFORM CAPABILITY	SCORE	ANALYTIC PLATFORM SOFTWARE
PROVISION DATA		
Data integration, quality, and lineage		
Ingestion of streaming data		
Movement between RDBMS and distributed file systems		
Connectors to software applications		
Connectors to unstructured sources		
STORE, DISTRIBUTE, AND PROCESS DATA		
Data federation		
Stream processing		
Enterprise search		
Data warehouses, data marts, operational data stores		
Stage and load		
Distributed file systems and databases		
Analytics databases		
Distributed compute		
In-memory distributed compute		
Distributed compute job scheduler		
ANALYZE DATA		
Social media and text analytics		
Statistical methods		
Machine learning		
Legacy analytics		
Media analytics: image and video		
Speech analytics		
GIS analytics		
Programs and scripts		
EMBED ANALYTICS		
Complex event processing (CEP)		
Service orchestration		
Distributed flow control		

ANALYTIC PLATFORM CAPABILITY	SCORE	ANALYTIC PLATFORM SOFTWARE
Enterprise service bus		
Event-driven business rules engine		
Business process management workflow		
DELIVER INFORMATION		
BI reports		
Visual analytics		
Real-time reporting		
MANAGE ENTERPRISE INFORMATION		
Enterprise data management—master data, governance, compliance, records management, archiving		
Distributed compute data management		
DEVELOP, DEPLOY, AND MAINTAIN SOLUTIONS		
Global methods		
Design tools		
Database administration (DBA) tools		
Analytics model management		
DELIVER INFRASTRUCTURE		
Hardware and operating system infrastructure		
Web server		
Security		
Distributed compute security		
System configuration management, administration, and monitoring		
DELIVER SERVICE		
On premises		
Analytic Platform as a Service		
Analytic Solution as a Service		

Take the next step

Analytics has been the subject of countless conferences, magazine articles, blogs, and brochures—all speculating on when the promise might be transformed into actual business results. A key obstacle has been the lack of a complete, rigorous, well-thought-out specification of the capabilities required for enterprise-scale analytics. This Analytic Platform blueprint for Operational Analytics and corresponding checklist is designed to overcome this obstacle.

We encourage you to learn more about the blueprint and the central role it plays in enabling a data-driven organization—then adopt it for your enterprise.

Learn more at

[www.dxc.technology/analytics]

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