

alteryx

Alteryx
Technology

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INSPIRING INGENUITY



Alteryx Technology

The Details

Overview

Alteryx lets you define, build and deploy flexible and repeatable workflow processes, based on your company's optimized best practices. Alteryx technology complements your existing Business Intelligence (BI) investments, by enabling easy access to its many tools via those applications or by unifying your other application investments through the integrative development environment of Alteryx.

Differentiation

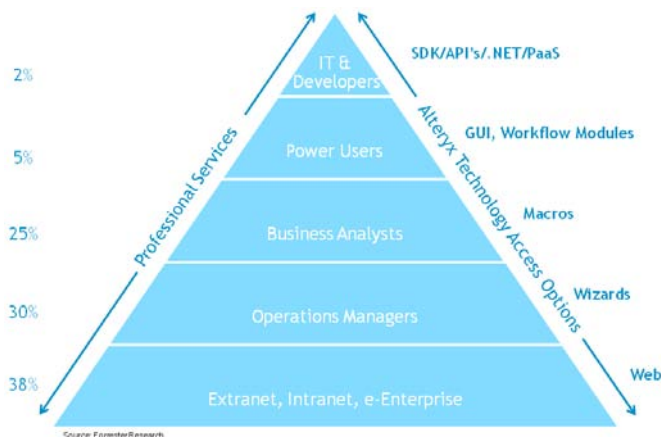
Alteryx business intelligence technology is different from others, because your return on investment is seen in days, not months. No other technology produces valuable insights as quickly, from as many content sources, or with as many deployment options as Alteryx. Because of this, only Alteryx can truly bring business intelligence to everyone in your organization.

User experience

Alteryx gives you a two-dimensional, graphical view of workflow processes. The graphical representation is generated by a highly-optimized programming environment. This environment assigns resources to the actions detailed in the workflow to achieve optimal performance efficiencies. The graphical, highly visual format combined with a powerful computational engine makes defining and building workflow algorithms a simple drag-and-drop process. This technology feature makes it easy for colleagues with varying degrees of analytic expertise to access and understand the methods and results of each workflow model.

Build and Consume Best Practices A Technology Summary

The Alteryx engine offers multiple means of accessing the power of its workflow analytics. In this way, an organization's multiple levels of best-practice developers and consumers are all empowered to achieve the results they require using an appropriate technology interface.



Source: Forrester Research

Alteryx achieves this remarkable breadth of capability because it has been designed as an overall framework for most data analysis needs. Alteryx modules can be run on-demand during development (for easy testing), run automatically via a scheduler, run independent of the GUI environment as a simplified *wizard* interface (either on a desktop or run remotely as a web wizard over a network).

A wizard interface is a window dialog presenting forms and menus to allow a user to change process inputs, parameters and output selections without requiring use of the GUI. Alteryx access options also include a Software Developer Kit (SDK) and Application Programming Interfaces (APIs) for local and network-based interactions.

Because Alteryx development and deployment options are supported with the same single technology, best practice solutions support users at every level of an organization's technology skills pyramid. In this way, each user accesses the most efficient and appropriate means available to quickly adapt and apply the results of each solution.

Alteryx Core Functionality and Advanced Capabilities

The Alteryx engine is comprised of tools and pre-packaged tool combinations known as *macros*, to enable the rapid development and delivery of workflow solutions to address such things as:

- **Spatial Analysis**
Analyze data for specifically-defined geographies and geometries including points, lines and polygons
- **Extract, Transform and Load (ETL)**
Perform necessary data reading, writing, profiling, and other integration tasks
- **Data Quality Management and Data Hygiene**
Ensure that all data to be analyzed is quality-assured, correct, and complete
- **Business Intelligence Analytics**
Explore the meaning, relationships and trends within the underlying data
- **High-Speed, High-Volume Data Management**
Store record-level data while performing indexing, compression, table linking, fast processing, and retrieval
- **Reporting and Visualization**
Create reports that can include data tables, charts, maps, graphs, images, and content in many other formats
- **Customer Data Integration (CDI)**
Maintain an accurate, timely, complete, and comprehensive representation of customer records

Data Connectivity and Format Independence

Alteryx synthesizes a wide range of data formats, faster and more accurately than any other technology on the market, including transactional databases, spatially-enabled databases, data warehouses, flat files, spatial data formats, and spreadsheets. Alteryx also provides broad connectivity via standard interfaces (ODBC, OLEDB) to many source databases and their associated file formats.

Alteryx is also packaged with a wide assortment of seamlessly-integrated datasets. In many instances, these datasets have been optimized using Alteryx technology to enable high-performance queries and data throughput, the speed of which cannot be matched using any conventional database technology. These options for handling vast amounts of geographic data are accessible via Alteryx for over 29 countries worldwide.

The flexibility of Alteryx data options enables you to define your best practice applications and deploy them globally. In addition, Alteryx data capabilities allow you to integrate individual or corporate records with data from our syndicated data partners, extending the value of your spatial and non-spatial analyses.

The Spatial Option with Alteryx

One particularly important collection of datasets – the *Spatial option* – is easily added to either the desktop or server Alteryx engine offering. The Spatial option quickly delivers demographic, cartographic and geographic data to the Alteryx spatial tools, so that you can perform analytics using any kind of spatial selection (latitude/longitude, address, city, state, county, ZIP code boundary, census tract, block group, and more). Alteryx includes an entire library of tools for analyzing spatial data:

- *Spatial coordinates to define geographic location of any data source*
Address tools and data for geocoding addresses, address cleansing, standardization (using CASS) and appending ZIP+4 locations
- *Cartographic data for map visualization*
Street reference layers for atlas-quality mapping. More than 50 high-quality U.S. map layers are included, plus information about interstate highways, local roads, lakes, parks, and more.
- *Boundary files and census data for demographic analysis*
 - Geographic boundary files define such areas and points as cities, counties, census tracts, postal routes (ZIPs), marketing (DMAs), metro/micro CBSAs, block group/block groups, and congressional districts. These boundary

files are included for fast retrieval and tabulation of census data (along with other datasets, separately available).

- U.S. Census data included and pre-optimized for rapid analysis using included or imported geography selection definitions
- *Drivetime calculations*
Functionality for calculating drivetimes and distances from source-to-destination points, and to create drivetime trade areas

Syndicated Data for Vertical Applications (Complete with Third-Party Licensing)

- Household-level consumer lists
- Consumer record lists, by household
- Business lists (by size and industry)
- Consumer lifestyle and behavior patterns
- Traffic counts
- Industry packaged data, such as restaurant spending patterns, by location
- Current Year (CY) and Five Year (5Y) demographic estimates by projection, updated quarterly or biannually
- International packages for 29 countries, including China

Alteryx Technology Details No Technical Certification Required

The intuitive, drag-and-drop approach of Alteryx workflow designs gives analysts with no previous programming or database development experience the ability to quickly develop sophisticated solutions. For users with more technical backgrounds, Alteryx automates development methods for creating best-practice solutions. In addition, Alteryx enables other key business applications to access Alteryx or be accessed by Alteryx in order to create more efficient and more flexible data analysis processes.

Toolkit Canvas

The unique Alteryx drag-and-drop workspace enables users to run applications or modules as they are being developed, instantly accessing, processing and presenting the data. Data anywhere along a diagrammed workflow stream can be browsed as a map, graph, table or other visual representation. These dataflow inputs and outputs also serve as natural links for combining and leveraging solutions to form larger, integrated workflow configurations. In a similar way, reusable workflows can be saved as macros and used in creating modules, where they appear as a single icon, like any of the Alteryx tools, and are controlled and managed using a properties interface.

Toolbox

Data quality and data integration – key capabilities include fuzzy matching, parsing and filtering of records, data joins and aggregations, and assembling data into groups based on key relationships

Data query and manipulation – extremely fast data indexing, counting, linked table queries, data retrieval and list generation, dynamic selection of input variables, and many other data management capabilities

Reporting and visualization – Alteryx offers a suite of visualization tools to create report layouts with tables, charts, maps, images, and automated text summaries of quantitative results in a professionally composed document format.

Custom macros, wizards – The Alteryx toolbox and supported wizards also deliver pre-built workflow components, such as qualitative analyses of searched real-time news and information by geographic context, correlation coefficient routines, a weighted average macro, and many more.

Alteryx Enterprise-Wide Deployment Options

Alteryx provides four powerful methods for easily packaging and deploying business best practices throughout your enterprise, using secure approaches to data and process control.

Alteryx engine (desktop/ server)

The Alteryx engine installation provides an easy-to-use, drag-and-drop interface to create and build modules as well as run, access and report on the outputs. When installed as a desktop solution, the Alteryx engine operates in support of all local access methods. These access methods include the use of the graphical user interface (GUI) module development environment, desktop wizards, command-line operation, and scheduled runs of module processes. The Alteryx engine server offering will support the easy publishing of Alteryx wizards within an extranet, intranet or public web environment. In addition to web wizards, you can choose to make use of the Alteryx engine functionality via APIs accessed from within your own applications.

Wizards

After a module is developed with the Alteryx engine (using the module development environment or GUI), the user easily creates a simplified, fill-in-the-blanks and drop-down menu interface, known as a *wizard*, to operate the module. The wizard can collect new input and program execution parameters as needed every time it is used. This menu-driven wizard, accessed either on the desktop or over the web, directly executes the associated Alteryx module without requiring the use of the GUI environment.

Alteryx web

The Alteryx technology extends its remarkable speed, flexibility and efficiency over the web using a unique deployment architecture—a true *Platform as a Service* (PaaS) environment. A variety of *Software as a Service* (SaaS) business intelligence solutions, built using the Alteryx web platform, are easily deployed as highly customized web applications capable of achieving the kinds of speeds and data throughput other offerings have trouble matching. Many of these capabilities are demonstrated by the Alteryx flagship SaaS subscription offering, *DemographicsNow.com*.

Alteryx web represents the first-ever PaaS offering to enable hosted and on-premise cloud deployments using a single technology.

On-Premise / Private Cloud

An *on-premise* Alteryx web deployment is when the entire application/wizard and all associated data reside on the client's browser-accessible server.

Hosted / Public Cloud

A *hosted* Alteryx web services deployment is when an entire application/wizard and all associated data reside at the Alteryx Technology Center. Users access the Alteryx-hosted site via a secure login. All updates to the data and application(s) are handled by Alteryx, and are delivered seamlessly to the client.

API and SDK Solutions

Developers can write applications that call directly into the Alteryx engine using our .NET or C++ Application Programmer Interfaces (APIs), treating Alteryx as they would any application development library. The Alteryx Software Development Kit (SDK) gives developers an easy way to add their own C and C++ programs to the Alteryx toolbox. The Alteryx API and SDK give developers the freedom they need to deploy high-performance Geographic Business Intelligence® solutions that serve their user communities while maintaining control of the business logic.

A free developer version of Alteryx can be downloaded from our website.

Appendix A

Support Specifications

A. Database File Formats Supported:

Flat Files

CSV:	Comma Separated Value file
MDB/ACCDB:	Microsoft® Access™ database file
DBF:	Database File Format
XLS/XLSX:	Microsoft® Excel® spreadsheet
Flat:	Flat ASCII File
HTM:	HTML Export

Spatial Files

MID/MIF:	MapInfo Professional® Interchange Format (includes *.MID and *.MIF)
SHP:	ESRI® ArcMap® Shape File (includes *.SHP, *.DBF, *.SHX, *.PRJ)
TAB:	MapInfo Professional® Table (Binary format includes *.TAB, *.DAT, *.MAP, *.ID, *.IND)
MDB (PGDB):	ESRI® Personal Geodatabase®
SZ:	Alteryx Spatial Zip file
SDF:	Autodesk® toolkit must be installed
KML:	Google Earth™ KML File (output only)

Database Files

YXDB:	Alteryx Database File
ODBC:	Open Database Connectivity
OLE-DB:	Object Linking and Embedding Database
OCI:	Oracle® Spatial Database

B. Databases Supported:

SQL Server® Δ
Oracle® Δ
Sybase®
Teradata®
Netezza® Δ
MySQL®
DB2

(Δ includes support for vendor-specific spatial database functionality)

C. Reporting Formats:

HTML:	Hyper Text Markup Language
DOCX:	Microsoft® Word 2007
PCXML:	Alteryx Markup Language
PDF:	Portable Document Format (Adobe®)
RTF:	Rich Text Format
XLSX:	Microsoft® Excel® 2007
PPTX:	Microsoft® PowerPoint 2007

Appendix B

Technology Access Options

A. Alteryx engine

Includes:

- GUI design (modules or workflows)
- Scheduler
- Wizard design tool
- Command line (AlteryxEngineCmd.exe)
- 32- and 64-bit installations
- Service Support package

Desktop

All of the Alteryx engine components above, plus:

- Licensing limited to two (2) simultaneous module executions
- Does not include Alteryx web services, APIs or SDK

Server

All of the Alteryx engine components above, plus:

- Licensing limited to four (4) simultaneous module executions (runtimes); additional simultaneous runtimes are available in sets of four (4).
- Additional Single-User Developer version of Alteryx provided per set of (4) simultaneous runtimes
- Alteryx APIs, SDK, and Alteryx web

B. Alteryx APIs

The Alteryx APIs are now part of the standard Alteryx install. Component APIs of the Alteryx engine server offering are also available for licensing individually, as listed below in items 2-6:

1. Alteryx engine
Alteryx functionality, including all of the components listed below
2. Drivetime
Drivetime calculation engine and the supporting spatial data
3. Geocoder
Open source geocoder that assigns latitude/longitude to address information
4. Demographic Analysis
Organizes and retrieves data using spatial objects
5. Calgary
Creates high-performance indexing and searchable lists of data
6. Bavioral Analysis
Using standard segmentation products, profile your customers for any level of geography from household to neighborhood to custom trade areas and drivetimes

C. Alteryx web

Alteryx web capabilities are designed to improve the scalability and accessibility of sharing best practice initiatives across a team, a department, and an organization. The web offering, delivered as an embedded part of the Alteryx engine (server license) beginning with version 6.2, enables the loading of Alteryx wizards into an on-premise web wizard website, accessible using a simple browser. Wizards installed on a web wizard site have instant access to all of the data and processing resources used to create them within Alteryx. Each web wizard also performs and looks identical to the wizard as it performs within Alteryx.

Syndicated data

1. Household level lists
2. Business lists
3. Traffic counts
4. Current Year (CY) and Five Year (5Y) projected demographic data, updated throughout the year
5. Industry packaged data for Retail, Restaurants, Communications, Media, Commercial Real Estate, and Fast Moving Consumer Goods
6. International packages for 29 countries including China

Appendix C

Data Options

A. The Spatial option

The Spatial option is available for both the Alteryx engine desktop and server offerings, and includes:

1. Geocoder (quarterly updates)
2. CASS (released 6 times a year - February, April, June, August, October, December)
3. ZIP+ 4 Coder (quarterly updates)
4. Drivetime (biannual updates)
5. Census Data Bundle (1990 and 2000 U.S. Census)
 - a. Boundary files include census, postal (ZIPs), marketing (DMAs), metro/micro CBSAs geographies, and congressional districts
6. Map layers (biannual updates) for producing atlas-quality maps
7. Satellite imagery: Requires an Internet connection to retrieve images
 - a. U.S. coverage with street overlays (Canada is also available)

B. Worldwide coverage, but without street overlays



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