

## Software Package Selection Criteria

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### Introduction

This document contains many questions to consider. Answering them will help you select a data analytics software package that is best suited for your organization.

Consider each question and mark it as follows:

1. High priority.
2. Medium priority.
3. Low priority.
4. Not applicable.

Be sure to achieve a consensus on the priorities with your project team.

### Software Package Selection Criteria

Data analytics software package selection criteria are divided into these major topics:

1. Functionality
2. Management
3. Technology
4. Vendor
5. Acquisition Cost
6. Operating Cost
7. Support

### Functionality

Data analytics software package selection criteria for functionality are divided into these subtopics:

1. Self-Service Analytics
2. Analytics Apps and Dashboards
3. Custom and Embedded Analytics
4. Mobile Analytics
5. Reporting and Alerting

### Self-Service Analytics - Data Visualizations

1. Is a broad set of visualizations such as bar/line charts, scatterplots, heat maps, histograms available?
2. Is the visualization creation interface intuitive, with drag-and-drop capabilities and simple properties/menus?

Corvelle Drives Concepts To Completion

3. Does the visualization creation experience suggest appropriate charts and analytics based on the data?
4. Are visualizations responsive, adapting data and visual representations to different layouts automatically?
5. Are repositories of visualizations, measures, and dimensions available for reuse?
6. How are hierarchies and rollups created?
7. Is there a comprehensive expression language for complex calculations?
8. Is there a diverse library of statistical functions, forecasting, trends, and clustering?
9. What are the geographic mapping and analysis capabilities?

### Self-Service Analytics - Data Management

1. Can end-users bring together many different data sources for analysis using a visual interface?
2. Is there data profiling to suggest the best relationships among sources?
3. Is there data profiling to handle various data types automatically?
4. Are there intelligent data preparation capabilities, such as smart suggestions and descriptive statistics, to assist and automate the process?
5. Are there data transformation capabilities such as data manipulation, derived fields, table concatenation, binning?
6. Are there broad connectivity options for file-based, on-premises, and cloud/web sources?
7. Is a central repository of trusted data sources available for end-users?
8. Is there a single enterprise-wide data catalogue that allows end-users to search, preview, select, and publish data sets directly into their analytics tool?

### Self-Service Analytics - Collaboration and sharing

1. Can end-users easily access relevant content that is governed for their groups and teams?
2. Can end-users publish and share content within and across teams?
3. Can end-users search for relevant content from other end-users?
4. Are comments, annotations, and discussion threads available?
5. Can end-users follow content and authors and provide feedback?

### Analytics Apps and Dashboards - Centrally Deployed Applications

1. Are there intuitive authoring tools for the rapid development of dashboards and analytics applications?
2. Are there application-level controls and functionality for creating an interactive experience, including sliders, buttons, layout options?
3. Can an application guide an end-user through a linear process of exploration?
4. Can data be reduced dynamically, allowing the same applications to be deployed with different subsets of data for end-users based on entitlements?
5. Can data and visualizations be packaged and deployed together within applications?
6. Can apps be deployed broadly, to large communities of end-users, across geographies, without performance loss?

### Analytics Apps and Dashboards - Interactive Exploration

1. Are straightforward, natural interactive selections available in all visualizations, charts, and objects?

2. Can end-users explore without restrictions, in a nonlinear, free-form fashion vs. restricted to a linear path?
3. Is there panning/zooming/navigation in scatterplots, maps, and other types of charts?
4. Can end-users run what-if scenarios?
5. Can end-users drill into transaction-level details at any time in the exploratory process?
6. Are there bookmarks for saving context/selection state?
7. Does the software respond in real-time to selections/interactions?
8. Can end-users change the properties of a chart for their use without affecting the master object?

### Analytics Apps and Dashboards - Search-based Analysis

1. Can end-users search across an entire app to expose matching data?
2. Is multi-keyword search possible to expose relationships in the data?
3. Is search-based navigation possible to display relevant charts and graphs?
4. Is there an intelligent ranking of search results?
5. Is an expression-based search offered?
6. Is natural-language interaction offered?

### Custom and Embedded Analytics

1. Can developers easily create scalable web applications and mashups?
2. Can developers build fully custom analytics applications?
3. Can developers embed analytics in operational apps and existing workflows?
4. Can externally facing web apps be created and exposed for customer or partner access?
5. Does the platform offer white-labelling support?

### Mobile Analytics – Data Analytics

1. Does the mobile app offer a different client/user interface or the same UI as the desktop version?
2. Is the complete set of analytical capabilities available on mobile (exploration, analysis, creation, collaboration)?
3. Is the mobile analysis based on live data and calculation or pre-aggregated data sets and snapshots?
4. Is full interactivity available on mobile devices, including search and selection, allowing end-users to answer unanticipated questions?
5. Can end-users fully navigate objects, including scroll, zoom, and pan, and access all menus?
6. Is the mobile solution secure and governed, with data, end-user security, and support for Enterprise Mobility Management (EMM) tools?

### Mobile Analytics - Mobile Devices

1. Is there support for all handheld devices and form factors, including iOS and Android operating systems?
2. Is the user interface designed/sized appropriately for touch?
3. Are analytics and UX design responsive, adapting visuals, data, and functionality for the best experience on any handheld device?
4. Is there an optimized experience for handheld devices without limiting interactivity?

### Mobile Analytics - Online and offline

1. Is there support for both online and offline use?
2. Can end-users conduct full exploration and analysis when offline, including search and selection, allowing unanticipated questions to be answered?
3. Is there an analytics engine running locally on handheld devices, or just static views of data?
  - Is there any dynamic data available, or are you dependent on last night's static data?
4. Can end-users choose applications and subsets of data they want to download for offline use?
  - If you can slim down the data you will need when you're offline, you will reduce your cell data consumption
5. How are offline apps and data refreshed when updates occur?
  - There's an obvious trade-off here between data currency and cell data consumption

### Reporting and Alerting - Creation and Format

1. Is there support for various report formats, including MS Office documents, pixel-perfect PDF, web-based reports, mobile formats?
2. Is there an intuitive report development environment with a full range of authoring features?
3. Are advanced report features available, such as banding, scripting, and advanced formatting?
  - Banding is about providing the descriptor for the current data group, typically as a subheading
  - For example, data for each province on a page with the name of the province in the subheading
4. Does the reporting environment leverage analytics and objects from the core application?
5. Can information from multiple analytics apps be combined in a single report?

### Reporting and Alerting - Centralized Distribution

1. Can the software centrally produce and distribute reports, with data specific to each recipient?
2. Can reports be scheduled or run conditionally based on conditions in the dataset?
3. Can reports be delivered through various channels, including email, file transfer, or website?
4. Are there advanced distribution features, such as cycling, to produce report sets?
5. Can end-users receive alerts/notifications based on conditions in the dataset?
6. Does the software scale to high volumes of reports with secure data and distribution?
7. Can the software adequately replace legacy BI/reporting environments?

### Reporting and Alerting - End-user Reporting

1. Is there self-service access to reports through a portal?
2. Can end-users explore and subscribe to new reports themselves?
3. Can end-users generate reports directly from analytics apps with data based on their selections?
4. Can end-users export data from analytics apps to spreadsheets, presentations, or PDF documents?

## Management

### Environment Administration

1. Is a centralized management and administration user interface available?

2. Does the management user interface allow for administering all assets, including apps, data sources, end-users, and workspaces?
3. Does the management user interface provide access to all configurations, including tasks/scheduling, security, governance, deployment, and licensing?
4. Is the core analytics client zero-footprint using HTML5/web technology, or is it built with native code?
5. Do all clients, web, desktop, mobile, deliver the same analytics experience?
6. Is there support for multiple languages and accessibility?

### Security and Governance

1. Can all analytics use cases be handled seamlessly within a unified, governed platform?
2. Are there governed repositories of measures, dimensions, and analytics content?
3. Are governed data sources available for analytics use?
4. Are there governed workspaces for teams and business functions?
5. Is there a flexible, rules-based security model for all functionality?
6. Does data security/reduction extend down to the row and column level?
7. Is there auditing/usage analysis for analytics apps, content, data and objects?
8. Can the platform integrate with third-party security and management tools?
9. Is application version control/integration available?

### Technology

#### Cloud & On-premises Deployment

1. Can the platform be deployed/accessed on-premises, cloud, or hybrid environments?
2. Are there any significant functional differences between cloud and on-premises analytics?
3. What data sources can be accessed from the cloud?
4. Does all data need to be moved to the vendor's cloud?
5. Can the platform be seamlessly deployed across combinations of on-premises, private cloud, and public cloud sites?
6. Are hosted private cloud offerings available and managed by trusted third parties?
7. Is there a complete SaaS offering hosted by the vendor, capable of working in a multi-cloud environment?

#### Data and Connectivity

1. Is self-service data preparation for end-users available in the cloud environment?
2. Are there powerful ETL tools or scripting for complex data integration, transformation, and modelling?
3. Is there a broad set of connectors for file-based, on-premises, cloud, and web sources?
4. Are all required data sources accessible?
  - Is there a complete and accurate catalogue of metadata associated with each data source?
5. Is the lineage of each dataset preserved as the data is prepared so that an end-user can understand its origin, evolution, and meaning?
6. Is there a global mechanism for offering governed data sources to end-users for analysis?
7. Can many different data sources be combined for analysis without data loss or inaccuracy?
8. Does data need to be fully modelled and cleaned before it can be made available?

9. Will the data sources continue to be up to date as changes occur to the underlying data?
10. Are there both full and incremental data reloads, scheduled or event-based?
11. Can the software handle streaming data?

### Scalability

1. Does the solution scale to large numbers of concurrent end-users?
2. Does the solution scale to large data volumes?
3. Does the solution scale across geographies?
4. Does the solution offer clustering and load-balancing?
5. Can the analytics engine scale and still offer dynamic calculation without impacting performance or flexibility?

### Big Data and Small Data Capabilities

1. Can the software connect to a variety of data lakes and other substantial data sources?
2. Can the software scale to massive data sets without sacrificing speed or flexibility of analysis?
3. Are there facilities for end-user-driven, dynamic reduction of substantial data sets for analysis?
4. Can the software combine big data and small data, such as end-user-provided spreadsheets?
5. Can the software index big data to support interactive exploration while leaving the data where it resides?

### Advanced Analytics and Augmented Intelligence

1. Can the software integrate with advanced analytics engines such as R & Python?
2. Does the integration support both batch and dynamic integration, updating calculations as the user explores?
3. Are there capabilities for generating insights using correlation, prediction, outlier identification?
4. Is there an auto-suggestion of visualizations and insights based on the data?
5. Are insight suggestions context-aware, considering selections/search criteria as end-users explore?
6. Is machine learning available to enhance suggestions and analytical processes?
7. Are natural-language generation and search available?
8. Is self-service data preparation augmented with machine intelligence to assist end-users and automate processes?

### Geospatial Analytics

1. Is advanced, multilayer geographic mapping available?
2. Can advanced maps use a variety of shapes, symbols, and other visual representations?
3. Is advanced geospatial calculation available?
4. Does geospatial calculation support combine location and non-location data?
5. Are geocoding services offered?

### Software Architecture

1. Is the architecture modular and workload-optimized (containerized, microservices-based, or other)?
2. Is there support for high availability and failover?
3. How is data and analytics content physically distributed among the client, servers and cloud?

4. Are there import/export capabilities for moving content across environments?
5. Does the software exhibit a unified architecture without multiple/disconnected components?

### Analytics Engine

1. Is the software driven by an in-memory columnar analytics engine?
2. Is the engine limited by a legacy SQL/query-based architecture?
3. Does the engine perform a dynamic calculation or rely on pre-aggregation?
4. Does the engine support free-form, nonlinear exploration and search?
5. Does the engine understand context, selection state, and maintain a global context across an application?
6. Does the engine understand associations in data relative to selections?
7. Are relationships between tables and data sets managed by the engine?

### Open APIs

1. Is a complete set of open and standard APIs available for developing applications?
2. Do APIs include a full range of access:
  - a. High level down to engine level?
  - b. Administration/management access?
3. Are the same APIs used to build the software available for developers to use?
4. Are the APIs easy to use for developers with standard skill sets (HTML5, JavaScript, .NET)?
5. Are supporting API documentation and examples available?

### Software Package Extension

1. Can developers build new types of data visualizations for specialized analytics use cases?
2. Can developers extend product functionality via new types of application components?
3. Can custom connectors be built for third-party engines and data sources?
4. Are easily accessible catalogues of extended solutions available?
5. Is there a developer-supported community for customization and extensions?

## Vendor

### Viability

1. Has the vendor been in business long enough to suggest viability?
2. Can the vendor demonstrate growth in revenue and number of customers?
3. Is the vendor reasonably financed?
4. Are vendor reviews reasonably positive?
5. Is the vendor embroiled in significant intellectual property disputes?

### Reputation

1. How do prominent industry analysts regard the vendor?
2. Does the vendor have a broad base of satisfied and loyal customers?
3. Is the vendor known for its commitment to customer success, including ongoing engagement with customers?
4. Does the vendor offer a clear development roadmap for planned features and innovations?

## Acquisition Costs

1. Software licenses for:
  - a. Core data analytics product
  - b. Mobile product
  - c. Third-party products
  - d. Underlying technologies
2. Hardware including:
  - a. Servers for production, development, and maintenance
  - b. Workstations, LAN/WAN network, compute, and storage
3. Implementation including:
  - a. Data migration/integration
  - b. Internal IT support costs
  - c. Vendor management
  - d. External professional services
  - e. End-user training and enablement

## Operating Costs

1. Software maintenance for:
  - a. Core data analytics product
  - b. Mobile product
  - c. Third-party products
  - d. Underlying technologies
2. Hardware maintenance
3. Ongoing costs of Software-as-a-Service (SaaS) offerings
4. Ongoing support for:
  - a. Internal IT
  - b. Vendor management
  - c. External professional services
  - d. Software version upgrades
  - e. End-user support and enablement

## Support

### Services, Training and Support

1. Does the vendor have a good track record for resolving technical support issues?
2. Do support services offer timely, proactive support, ensuring quality and reliability?
3. Is a wide variety of training and enablement available on-demand and in person?
4. Does the vendor offer partner and ecosystem support?

### Consulting Services

1. Does the vendor offer consulting services that span requirements, development, and deployment?
2. Does the vendor offer industry expertise and solutions for specific use cases?
3. Are there defined solutions/offerings for business functional areas such as sales, finance, IT?

4. Does the solution offer application templates and starter applications?
5. Does the vendor have industry and functional experts with deep domain experience?

### Adoption and Usability

1. Is the end-user experience simple and intuitive across product areas?
2. Is the user experience consistent across product areas?
3. How well does the user interface progressively reveal complexity as end-users need and want it?
4. Does the solution strike the right balance between being self-service-oriented, offering a full range of capabilities, and affording IT administration and oversight?

## Bibliography

Evaluation Guide: How to Choose a Modern Analytics Platform

<https://www.qlik.com/us/resource-library/how-to-choose-a-modern-analytics-platform>

The web page leads to downloading this file: EB-Evaluation-Guide-How-to-Choose-a-Modern-Analytics-Platform-EN.pdf

Evaluation Guide: How to choose the right modern BI & analytics platform

<https://www.tableau.com/learn/whitepapers/evaluation-guide-how-choose-right-modern-bi-analytics-platform>

The web page leads to downloading this file: Evaluation guide\_How to choose the right modern BI&analytics platform\_031221.pdf

What Are the Right Criteria for Choosing BI Software?

<https://bi-survey.com/bi-software-selection-criteria>

The web page contains an excellent series of charts.